HOUSE OF COMMONS

Welsh Affairs Committee

Oral evidence: Renewable energy in Wales, HC 1021

Thursday 15 April 2021

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Watch the meeting

Members present: Stephen Crabb (Chair); Simon Baynes; Virginia Crosbie; Geraint Davies; Ruth Jones; Robin Millar; Rob Roberts; Beth Winter.

Questions 110 - 146

Witnesses

I: Juliet Davenport, Founder and CEO, Good Energy; Michelle Davies, International Head of Clean Energy and Sustainability, Eversheds Sutherland; and Maf Smith, Director, Lumen Energy and Environment.

Examination of witnesses

Witnesses: Juliet Davenport, Michelle Davies and Maf Smith.

Q110 **Chair:** Welcome to this session of the Welsh Affairs Committee where we are continuing our inquiry into renewable energy in Wales. We are delighted to be joined this morning by three experts from the private sector who will help us with our inquiry: Michelle Davies, who is International Head of Clean Energy and Sustainability at Eversheds Sutherland; Juliet Davenport, Founder and Chief Executive of Good Energy; and Maf Smith, Director, Lumen Energy and Environment.

Michelle, if we could start with you. How attractive do you feel Wales is from an investment point of view when it comes to the deployment of renewable energy?

Michelle Davies: Wales is more attractive than certain parts of the UK. To be attractive for renewable energy you need resource and Wales has some great resource. The two very prevalent technologies are onshore wind and solar but increasingly offshore wind, given the central government's stated ambitions for offshore wind. You need the resource and you then need a route to market. Historically, renewables have been funded through subsidies. Of course that has all changed now and the market has gone through quite a lot of change in adapting to not having a subsidy. Projects are now getting financed without a subsidy, through a mix of different off-take options, including some merchant risk. People are taking merchant risk to access the higher returns. My colleagues, Juliet and Maf, can possibly talk to that.

Renewables needs to be welcomed within the communities because one of the biggest obstacles is planning. There needs to be a regime and an enthusiasm for the renewables to happen. The fourth thing is scale. What investors do not like doing is investing small amounts in small markets. That is why Scotland is so interesting for onshore wind, and the offshore wind market is gaining a lot of traction and attracting much lower cost capital because of the scale. I think that is particularly important.

Wales has opportunity. There are some barriers, which we can come on to, around grid and other aspects but we also have to think about what kind of renewables does Wales want. Does Wales want utility scale renewables or does it want a more distributed solution? Grid is not as important for the more distributed solution. It is still important if you want to do certain things with the power that is generated on a distributed basis, but that is what I would say. Wales does have the potential.

Q111 **Chair:** Juliet Davenport, why should investors choose Wales as a location for their investment in renewables?

Juliet Davenport: Michelle touched on it. The technical resource is very important. I will add that marine is an important technology, maybe not today but for the future. Wales has some interesting innovation in R&D

hubs as well. It has the existing infrastructure, particularly in the south, related. Right now we tend to look at renewables as exporting to the electricity grid. There is a potential future for a hydrogen hub and Wales has a lot of the infrastructure already in place that can start to consider that hydrogen hub.

We should be looking at the decentralised. Decentralised and centralised can come together—you do not need to separate them. We work with 170,000 homes across the UK who generate their own power. Having a vision for south Wales where most households generate their power, if they can, would be a fantastic vision.

The network capacity is important for the larger scale centralised projects, but let's think about hydrogen as a hub. There is an increasing interest, particularly as we are seeing Government interest in green hydrogen as it would be. Wales has significant academic capability in the south as well. You have the semiconductor Catapult in south Wales, Cardiff, Swansea, other higher education, University of Wales, and we should be seeing how we create a cluster where people can see all the opportunities. You need R&D and innovation, first of all, to be able to move this forward. Then you need the infrastructure and that is where I think hydrogen could play a role, but making sure the distribution and national networks are working. You need the marketplace, as Michelle touched on, and making sure that central government is not getting in the way.

I have seen that several times. We have seen that in most recent reviews. There are lot of consumers in south Wales who are keen to go zero carbon; let's engage with them as well. Amazon has quite a few distribution hubs. It has commitment to 100% renewable, making sure that part is engaged. Then it is also making sure the training is invested in. Wales has the potential but it should be showcasing that and making people sure that when they invest in south Wales they get everything.

Q112 **Chair:** Maf Smith, is Wales in competition with other parts of the UK for this investment or is the appetite on the part of the investment community so great that it is not a question of competition in different parts of the United Kingdom, it is a question of just making sure the conditions are right where the resource is available?

Maf Smith: It is primarily about making sure the conditions are right, yes. There are some elements of competition but the scale of opportunity and the scale of transition that we need to see means that there is activity across the UK. Capital will flow to where the projects are easiest to deliver. By that I mean where there is clarity about how to move from early stage to deployment. Increasingly, the Government's model is not to provide the revenue or the subsidy but it is to help provide that path and to handhold how to get from a concept idea to delivery.

That is critically important for some of the new technologies. Juliet mentioned hydrogen. It is not a thing that a developer itself can build

because it is reliant upon a whole host of actors. You could, for example, have a renewable power generator and instead of plugging into the transmission or distribution system, they generate hydrogen. Who do they sell it to? Who can buy hydrogen? How do you get the distribution networks for hydrogen running? Individual companies cannot control all these things. Government and agencies can help smooth and create plans for delivery and speeding up.

The other thing to note is if we look at how we decarbonise across the UK, in the energy space it is primarily an electrification shift. We are already moving rapidly to a high renewable future. We will have to continue that shift because we will have to double the amount of electricity we have in the UK based on the Climate Change Committee recommendations. That means looking afresh at the volume of renewables we need, not just to plug into our grid but to do things like provide hydrogen to supplement gas heating in our homes and so on.

The Government's role is to make sense of that and base it in quite a coherent plan so that individual schemes can slot into that and have a clear route forward. If that is the case, the capital flows. That is the thing that Wales needs to get right, making the plan meaningful and easy to understand so that the capital says, "This is a good market, we can manage the risks in this market, let's go".

Q113 **Chair:** Michelle, did you want to add a supplementary point?

Michelle Davies: It was just to make a supplementary point to what Maf said about capital following where the project is easier to get away, which is absolutely right. I think, though, we are in a different time at the moment. There is such a huge amount of capital because of new regulation and other factors chasing green projects. It comes down more to cost of capital, Maf. Capital will be cheaper the more derisked, easier and more cost effective the project is, but there is an abundance of capital now. If you compare Wales to some markets in Africa or south-east Asia, it is a more favourable opportunity. The capital is there, Stephen, and the cost of capital will vary depending on the dynamics of that particular project.

Maf made a very important point around hydrogen and the very quick shift that I am seeing toward green hydrogen. Everybody realised that blue hydrogen was going to be an interim, transitional process to green but the amount of investment that we are working on around the world in green hydrogen has surprised me. Green hydrogen needs renewables, so that is a great opportunity for Wales.

Q114 **Ruth Jones:** Thank you to the witnesses for coming along this morning to give us the benefit of your expertise. It is really helpful. I am going to follow on from what Maf was saying about the UK Government programmes, because I am interested in how effective they are being in promoting the development of renewable energy projects in Wales. In developing and sustaining, I suppose. Maf?

Maf Smith: On the whole they have been very effective. The primary policies have been traditionally revenue-based ones, so the renewables obligation and the feed-in tariff, which then made way for the contract for difference regimes. They have worked for onshore wind and solar traditionally, but there has been a hiatus in onshore wind and solar.

As you have already heard, now schemes are looking to come forward through merchant, essentially come to the market without Government underwriting them. We saw a recent example for that in Wales with Ripple Energy, a company you may have come across. They have launched an offshore wind farm in south Wales, and the Welsh Government are investing in that as a way of pump priming and getting those schemes forward. We are starting to see interesting models of public-private partnerships.

The CfD is working now primarily to drive and deliver offshore wind and it is supporting new offshore wind farms. There is activity in north Wales and there is a commitment still being finalised. The UK Government have consulted on hosting dedicated CfD auctions to support floating offshore wind. If that comes through, it will create demand for floating offshore wind schemes.

The Crown Estate recently announced its intention to run a lease programme for schemes up to 300 megawatts in the Celtic Seas area, so between south-west England and south Wales. That will stimulate investment. Equally, we want to see the Crown Estate look at a larger leasing programme, what is called round 5, that would allow and support bigger floating offshore wind schemes coming in the Irish Sea.

If those come through and the UK Government support floating offshore wind through the CfD, we will see a large volume of schemes likely to come forward off the Welsh coastline. By way of comparison, in Scotland, the Crown Estate Scotland, which is now devolved, is running a leasing programme called Scotwind for up to 10 gigawatts of offshore wind capacity, and a large proportion of that is expected to be floating. There are similar volumes of capacity out in south Wales for floating offshore wind to be delivered.

Q115 **Ruth Jones:** I will move on to Juliet. Thank you very much for mentioning the semiconductor plants in Newport West. As the Member there, I am always very keen to get semiconductors into any conversation. Looking back at previous projects, as well as the current and future ones, how effective have the UK Government programmes been?

Juliet Davenport: When you look at a project you need three key things. They are, as we just talked about, the revenue income—how you are going to fund the project—planning and grid connection. Those are obviously affected differently by whether they are national or local. Planning has been one of the bigger barriers in the most recent years across the board, partly because of new guidance set down by

Government, particularly around onshore wind, not so much around solar. I think we need to relook at planning and making sure that that streamlines, there is enough resource to allow developers to come in and get planning done quickly.

National Resources Wales sometimes needs to simplify some of the process that it uses particularly. I agree with Michelle that there is a lot of capital, but capital tends to deploy after some of those risky pieces have been taken away. If life is going to be really hard, and it is going to be harder in one place than it is in another, you will tend to go somewhere else. It doesn't mean capital will not come in but it is just going to be tougher.

Then there is obviously grid. Grid traditionally has been the way we have off-taken power. That is now full, not so much in Wales but in the south-west of the UK. There is no capacity to connect renewables. This is is a mixture of local and national policy, and so Ofgem, as the regulator, is very much in charge of that. This has been one of the questions about the remit of the regulator. The regulator is there to protect consumers; is it also there to protect future consumers, and does it have a bigger role than zero carbon? This is one of the debates that we have been having for quite a long time about the role of that regulator to facilitate acceleration of zero carbon.

Q116 **Ruth Jones:** Thank you. I am sure we will be discussing grid capacity later on in the questioning. Michelle, do you have anything else to add?

Michelle Davies: If you look at what happens around the world, what the UK Government did, they were probably one of the leaders in introducing the subsidy structure. You start off with a non-competitive feed-in tariff to just get the sector going, which is what we had. We had ROCs and we had feed-in tariffs, then you make it competitive, which is what we currently have, CfD, and eventually you move to a non-subsidised regime.

It worked brilliantly, it worked really effectively but we did have a massive hiatus when the subsidies were taken away because of the peculiarities or the dynamics of the UK power market. If you are a bank and you are funding the construction of a project, you want to know that that project will generate a cash flow to pay you back over the term of the debt, say 10 to 15 years or however long that is.

If you do not have a subsidy you have to get that certain cash flow from somewhere. The way the market moved was towards what we call private off-takes, so they went to the very large companies to try to do a direct agreement with an Amazon or somebody like that to have a certainty of cash flow and a contract that the banks could fund against. The number of blue chip off-takers that there are, even across the UK, not just in Wales, is quite limited. Equally the returns started to get compressed because the off-takers became very savvy and knew that people were competing to get those contracts, so the pricing was suppressed.

It became very difficult in the UK because we didn't have a power market that you could look at with certainty and know that for the next 15 years the power price was going to hold, unlike countries like Spain and others that were able to get projects funded on what we call a merchant basis, where they were just selling the power into the market without a contract. Juliet and Maf will know better than me that this is fundamental to financing renewables, but I think the market dynamics are starting to change a little bit because of what Maf and Juliet were mentioning and there will be a much higher demand for renewable power. There are certain things that can impact that, for example the timing of when the big offshore wind projects come online. There will be a huge amount of energy coming online that would then suppress the price. The demand for electricity for electric vehicles, for electricity with renewables for hydrogen, for electric heat and other solutions pushes the price back up.

We are seeing that people are taking a longer view on the power market in a way that they were not able to maybe four or five years ago. We are starting to see some traction. The subsidies have worked well. We are now, by and large, in a non-subsidised market, subject to what Maf was talking about, in the way the Government can intervene and help create a route to market through technologies like hydrogen, the newer technologies. I think that is where we are at the moment.

Technologies like onshore wind and solar, which do not really have a subsidy, can participate in the CfD regime but it is highly competitive. That is where we find ourselves.

Q117 **Ruth Jones:** You mentioned the subsidies and I am interested in the blind spots and gaps in the current schemes. Obviously the UK Government would be looking to support the energy industry to meet the net zero targets. Juliet, where do you think that the Government need to step up or where are the blind spots at the moment?

Juliet Davenport: We should be thinking short term and longer term. We have recently been doing some modelling around if you wanted to push the UK as renewable as you possibly could, what would you need? You can get to around 80% with the capacity that we have, the technical capacity. After that it gets harder because you then get into the variability issues and the other technologies you need to bring in.

From that point of view, there is the potential to push many more renewables into the system. What do Government need to do? They need to think longer term. We need to be looking at innovation and R&D spending, making sure that is focused on facilitating technologies, like the semiconductors, battery storage and hydrogen, and making sure that we are bringing forward those innovation and R&D projects now. Historically in the last 10 years a lot of the focus on R&D and innovation in the UK has been in automotive and aerospace. I think that needs to switch to these new technologies, and Wales houses part of that already. It could be a really exciting place to look at that.

Offshore, onshore wind, solar are all great technologies; we need to come back to marine. Marine is a massive resource in south Wales and we need to figure out how we could deliver that either through an industrial cluster or through a Government partnership initially to kick it off, but that would be a massive inward investment. You could begin to see Wales as an exporter of green power potentially, either through the hydrogen or electricity.

That is the longer-term vision. In the shorter-term piece, we will come back to grid capacity, but it is always an important part because you have to be able to deliver the power. On the points that Michelle was making about the future energy market, I think there will be a review of the energy market, how it functions today, because the energy market, including the capacity market, was structured around a high carbon world. The price is set on marginal cost, which is fuel driven. If you have fuel, that is fine, but if you have no fuel cost, like renewables, that does not work.

We need that review. As far as I have understood, people are beginning to try to get their head around it, which should be visioned, first, to make sure it brings in investment and it can have that longevity but, second, that it also reflects back to consumers, because consumers have a huge role to play in this. We launched a tariff yesterday, which is a tariff where essentially if you charge your car in the middle of the day in the summer when it is very sunny, you charge it for zero money. That is a virtual tariff because it is not truly reflective of what is going on. We should be able to have marketplaces that can get consumers actively engaged in this market to support renewables.

My last piece is on electric vehicles, particularly in Wales. Wales is behind on its electric vehicle infrastructure. Electric vehicles will be a big demand structure going forward. That is another infrastructural issue that could be supported in Wales.

Q118 **Ruth Jones:** Maf, do you have anything to add on the subsidy schemes and if there are any gaps in them?

Maf Smith: The gaps are not so much about making the projects happen. The CfD programme I am talking about primarily here is an effective market framework. For most of the technologies it supports—fixed offshore wind, standard offshore wind—it is not a subsidy now. It delivers offshore wind at a lower price to the market, but it helps underpin the market and derisks it so that investors can go ahead and bring forward projects that take a long time to come to market. It does that really well.

The CfD, because of that, is also very good at driving out costs and risk. It is an auction process so only the best and lowest cost projects get through. Because they are low cost, the developers have to make sure there are no risks, no problems in the delivery, because that obviously

means that they would end up being non-commercial. That is the focus of the developer community.

We focused in the UK on making sure developers have a framework that they can work on, but we then say to them, "Thank you for delivering a low-cost power project but why didn't you do more to provide local content?" The developers rightly say, "You asked me to make sure it was as low cost as possible so I focused my effort on that. I can focus my effort on local content, but it is hard to do the two things together".

The development frameworks and the markets can do only one thing at once and they worked on price, which is great for us and great for consumers. Therefore, governments need to think more carefully about their role, in partnership with the industries, to bring in these economic benefits, to support domestic players to bring an investment in. That is something we have traditionally done badly in this country. We have expected the market to sort it out whereas a partnership approach is needed.

We are at the point now where the UK Government are understanding that. There is investment and support coming in and government investments to help unlock private investment in infrastructure, for example announcements on the east coast of England. We need to think about how those solutions can work for Wales in infrastructure for floating offshore wind, hydrogen and so on, and have a clear plan of delivery so we know who is doing what.

Q119 **Ruth Jones:** Michelle, do you have anything to add on what the UK Government need to be doing or is that covered?

Michelle Davies: I think that they need to be doing a lot, but Maf and Juliet have picked up all the gaps in the current subsidy regime.

Ruth Jones: Brilliant, thank you very much.

Q120 **Virginia Crosbie:** Good morning, panel. We have had some excellent contributions already today. My question relates to investment in the renewable sector in Wales. With at least one new freeport planned in Wales, one of the attractions of a freeport is the regulatory easements and the planning regulations. One of the obstacles that has been highlighted this morning is the impact of planning on the renewable energy sector. How do you see having at least one freeport in Wales will attract additional investment in the renewable energy sector?

Juliet Davenport: It will definitely unlock that first stage. For a lot of developers the highest risk part of the project is the planning process. You tend to look at a site, look at grid—you would not look at a site unless it has grid—and assuming you can get grid on the site, the next piece is planning. That is your biggest upfront risk. That is why a lot of developers look for really high returns at that point. For the first investment you would be looking at almost VC-level returns on that first bit. That is one of the biggest cost drivers. That is a big risk. You can take

that and there are certain companies that are set up to take that but, as Maf was saying, when you are taking that level of risk you start to drive out other things, so you start to reduce some of the other local benefits that you might be putting into the project at the same time.

Planning is something that I think puts a lot of organisations off, and there is a lot of people that pay a huge premium once something has gone through planning. If you reduce that, we may get upfront capital into that area quicker.

Michelle Davies: I agree with Juliet, but I will add that back in the old days when you had a feed-in tariff or a support mechanism, getting the planning was the big hurdle, wasn't it? You are right, once you had grid and planning that was the point you had value and you saw projects being sold, but because of the need to have a route to market now—because we do not have the subsidies—so because of the need to find a revenue source for the project, you do not really have anything of value until you have that revenue source. That is either that you have managed to win a CfD or you have managed to get a contract for a term that satisfies the banks and still gives your equity the IRR that they need to have in place.

I completely agree with what Juliet said, with one nuanced point that the days of having your real estate or your lease, your planning and your grid are over. You need your real estate, your planning, your grid plus you need your route to market.

Q121 **Virginia Crosbie:** Thank you, Michelle. Maf, do you see freeports bringing much needed investment in the renewable energy sector?

Maf Smith: They could, yes. The green port model, based on my understanding of it, would give benefit to manufacturing in the sense of where you are moving things in and out of a port, multiple components that get assembled and come back out as finished goods. Ports and offshore wind are important, of course. There could be benefits there but that will come if we can bring in fabrication or assembly work particularly into south Wales, ports like Milford Haven and Newport that could provide into that market. It will be less beneficial for the development, the construction of ports, but if we can attract in companies that can bring some value-add while we are delivering those projects, they could benefit and they could, therefore, see the freeport model as being useful in that regard.

It still needs to be backed up by infrastructure funding and investment. The UK ports fund, as I have already mentioned, has been very important for putting investment into the Humber and Teesside. It would be good to understand from UK Government the use of or access to that fund for future port infrastructure in south Wales around growth of floating, for example. But equally there is the role of infrastructure banks in being able to underwrite some of the investments needed in these ports. You

need very large, capital-intensive quayside locations to be able to meet the demands of large infrastructure projects like floating.

The timelines are difficult to manage. You need to prep these ports, get them ready before the projects necessarily come through. We have already touched upon the CfD, but the CfD comes late in the day when you get the contract award, essentially from the Government, that your project has a revenue support mechanism. At that point, it is all systems go. If you say at that point, "Where shall we build this, what ports are there?", it is too late. If the port is not ready, the port does not get the work. The freeport model is important, but let's think about other infrastructure funding to get them ready as well.

Q122 **Virginia Crosbie:** There has been a lot of talk about less-developed technologies and talk of hydrogen. We had the announcement in the Budget recently about a £4.8 million investment in a hydrogen hub in Holyhead, in my constituency. It is the hub-spoke model that Juliet spoke of. What is the significance of this UK Government investment for renewable energy, not only for north Wales but the rest of Wales?

Juliet Davenport: The point about hydrogen at the moment is that it is a technology that we have known a lot about for a long time, it is not anything brand new. What we now have to figure out is how the end-to-end works. There are improvements in engineering, but we know how to do it. It is then how do you create a market for it? How do you get it to market? What cost is that going to come in at? That is why that R&D and innovation investment is needed now because otherwise we keep having the conversations about hydrogen without having practical examples of it and seeing it working.

Then we need to understand what is that going to do to our transport infrastructure, how is that going to feed into that, how is that going to feed into the heating infrastructure, and how important is that going to be in those two areas going forward. When I think of any technology I try to think of it from end to end. The financing is part of it but you need the upfront R&D, which has to be supported by Government. Businesses can come in and do that, but there are too many big steps that need to be taken.

You need to understand the infrastructure, so if you are generating hydrogen where are you going to put it, where is it going to move to, how are you going to move it? The gas and grid can do a certain amount but it can only, as it is at the moment, take in a certain amount. Are you going to transport it in a different way? Marketplace, what does it look like in comparison to storage and can you start taking opportunities? We were talking about when offshore wind blows very hard the power prices are currently going negative. Does that mean you can get paid to make hydrogen? That will carry on and get more and more frequent. During Covid, we saw examples when demand in the whole of the UK dropped by about 11%. We started to see these spiky power prices come through.

Then we need to look at what the end consumer will look like. Quite often traditionally when we thought about renewables, developers had not thought about consumers. My view is that if we want to make a really cost-effective system we have to think about the end user as well.

Michelle Davies: Juliet has explained it very well. It links back to the point that I was making about the future power curve and future power prices in the UK, because as much as what happens around hydrogen impacts that, it also impacts the kind of infrastructure that we will need to support it. Juliet has hit on all the right points. For heating, are we going to be using electric heat or are we going to be using hydrogen? I know that National Grid, for example, is very concerned about having clarity around this. I was in a meeting with National Grid where it said that the impact of electrical vehicles on the grid is minute compared to the impact of electric heating on the grid.

If we are using hydrogen for heating, you can see that that has quite a dramatic impact on what the infrastructure looks like. I am not sure where central government are coming from on this. They see hydrogen as being a significant part of the energy solution. If you listen to the advice that is being given by the Climate Change Committee, it is saying that is part of the solution but it is not as significant as the Government are currently thinking it will be.

The reason why all of this is important is because I have seen the market adapt and the market create the solutions over the 20 years I have been in this sector. I know that the market is very good at finding the best solution, but in this instance I am not sure whether allowing the market to determine whether it is electric heat or hydrogen will work. There will have to be a degree of clarity because of the supporting infrastructure that is needed to enable whichever way we go on the energy transition to happen. There has to be a greater collaboration between industry and central government and, importantly, the Welsh Government.

The Welsh Government need to be getting greater clarity from Westminster on some of this as well. Juliet, does that fit in with what you were saying? I have been thinking about this for a long time and that is where I am settling at.

Juliet Davenport: Sometimes I worry that hydrogen is the diet pill, the mythical technology that will fix everything. That would be wonderful but we have to do a lot of hard work to get there. This is the point; it is not going to be a super-easy fix overnight. We have to take this seriously. I agree that there are obvious places where we can do electrical heating. I have a heat pump myself and I can assure you it takes a lot more energy to power that than it does my electric vehicle. That is a big challenge—working out what the balance is between that. The energy systems Catapult is an excellent resource that we should be leaning on more. Potentially Wales should be looking at doing its own work with energy systems to really model out what are the potentials, what does this look

like? That is so important to help set a vision for where the country is going.

Maf Smith: I will add my own analogy on that. On the focus we will see on the heating issues, electric heat will be the primary route but it is a complex route, as has already been touched on. It needs to be planned carefully. It is a tricky mix of UK and Wales Governments and local authorities because you have to understand where the capacity is, where the grid will support upgrades and a rapid uptake of heat pumps without causing large-scale upgrade demands and where it will not. We can start to prioritise and work out where we need longer-term upgrades of grid or look at alternative solutions.

The UK is not very good at co-ordinated planning of things like this. It much prefers to set a market framework and then off you go. The market frameworks we put in place, for example around rapid shifts to condensing boilers and moving from inefficient to more efficient gas boilers, worked really well but people created consumer demand, some incentives to get the market going and off it went. With heat pumps that will help a bit but not without the co-ordination, so that is hard.

I heard something yesterday about hydrogen. Michael Liebreich, energy commentator and expert, was commenting on someone thinking hydrogen was a champagne fuel. He said he thought of it as Heineken. It was the fuel that would provide the energy the other parts of the system could not reach. Electrification will be the primary route to decarbonising people's heat and their vehicles, but hydrogen will have uses where that does not work or cannot go. So, in industrialisation. The South Wales Industrial Cluster is doing excellent work to try to look at industrial energy demand and the use of hydrogen and other sources and heavy vehicle fuels.

Wales can think about all those challenges/opportunities and how it plans and co-ordinates and tries to accelerate or learn. Again, as has already been said, there is excellent resource and expertise in the universities that can help drive that and pilot some of these things to learn by doing quickly.

Q123 **Virginia Crosbie:** My last question is to Maf. You are very south Wales focused; why is that?

Maf Smith: It is primarily because of the industrial opportunity around the shift from heavy, energy-intensive industries in south Wales. There is a big shift that needs to be done there. Also it is because I spend a lot of time on floating offshore wind, which is primarily an opportunity in south Wales. But that is not to say that there are not other things that need to happen in the rest of Wales. In north Wales particularly there is a lot of activity in fixed offshore wind. We have a lot of schemes there and extensions coming forward and new schemes under round 4 in the north-west that will see benefit to Wales. Around Anglesey there is a lot of interest in tidal and other generation technologies. Tidal is an issue that

the Environmental Audit Committee has just looked at and found a lot needs to be done and a lot of co-ordination effort for Government there.

Q124 **Robin Millar:** I am sorry for joining late. I had a question in the House so I could join the meeting only recently. I am interested in the whole renewable energy, not least because brought up in Bangor I saw the Dinorwig power scheme being built while I was a boy. My dreams and visions were filled with that and it is probably largely the reason I ended up being a civil engineer. But now in Aberconwy we have the Dolgarrog hydroelectric power scheme, we have the solar scheme in Bodnant Gardens, the Awel y Môr scheme off the coast with wind, and we are talking about tidal energy too. The idea of renewable energy sources has just shot through, it is woven through the whole of north Wales.

Bringing it back to a really simple question: what impact do you think the 2021 Budget will have on that renewable energy development in Wales?

Juliet Davenport: The Budget so far is positive in some ways but there is not a lot of cash, to be honest. Although the Budget is incredibly important to underpin the direction that Government are supporting, I think there is a lot of other areas where we can see promotion of and moving forward with these technologies without it having to be included in the Budget. We touched on the whole plethora of where things go.

We should be angling to get as much of the R&D budget into this sector. My experience is—and Maf can drop in on this—I have sat on the board of various trade associations over the years in the energy sector, whether it is Energy UK, REA or the Energy Institute, and very rarely are they focused on R&D. They always tend to be looking after revenue income streams to build out projects, which is completely understandable but there has been very little focus on the R&D sector. That is a real opportunity. We missed out on that in tidal and wave, so marine technology. There is definitely an opportunity in hydrogen, so looking at that. There is budget in the R&D budget that we should be trying to encourage companies and local government to be working with. That is one area that is positive out of the Budget that hopefully we will take forward.

It is disappointing on *[Inaudible]* and some of those areas. The support for that has obviously dropped back and that is a real shame. There is appetite by Government to look at industrial clusters, so that is definitely an opportunity in the different areas. You can see that there are different focuses in Wales, whether it is north Wales or south Wales. There is different capability and opportunity. The academic side is important too. You mentioned Bangor with some of the leading environmental science in the world. We should be trying to make sure that we take that and use it to help implement, particularly on the planning side of these technologies. I have mentioned semiconductor, but also there is a load of work going on in low carbon in Swansea.

We should be focused on trying to use what we have. The Budget is okay but I do not think it is brilliant. I am very happy for my colleagues to come in and help me on that one.

Robin Millar: If I can encourage you to be tight with your answers because I am sure time is precious and I have a couple more questions.

Michelle Davies: I agree with Juliet. One of the challenges with the Budget and one of the challenges with the Government's White Paper and 10-point plan is where it is trying to shift focus into certain technologies, which as you have heard from people today are not necessarily going to be the all-encompassing solution, and one of those is hydrogen. There is the infrastructure bank that, by its name, is intended to support certain kinds of projects. Even the Government's advisers are saying that this is not necessarily how it is all going to pan out. I re-emphasise that.

One of the key messages I want you to take away is that while there is a lot of noise around hydrogen—and hydrogen clearly will be very significant and it will , as Maf said, play an important role—it is very likely going to be the Heineken fuel, in that it will not be the solution for everything but will slot in where others do not. The Budget tended to assume differently. That genuinely is a worry because, as I said before, what happens around this has some very serious implications for the investment in renewables as a whole. It impacts the power curve and it impacts the level of investment that is needed in other infrastructure. It is important that we get some clarity around this.

Robin Millar: I will come to investments in a moment. Maf, you have been lined up by both of your colleagues.

Maf Smith: On Juliet's point about innovation, the important moment will be the UK Government's innovation strategy, which will come later this year. The UK has always struggled about how to support innovations at different phases of their commercialisation. There are things called technology readiness levels and you start at one and you end at nine: one is very early ideas and nine is when you are basically ready to survive in the market by yourself. We are good at that early phase, high concepts work. We are very poor at the later phases. We take initiatives and innovations so far and then say, "Good luck". The result of that is they tend to go to other markets that do that well; US, Germany, there are many examples that do that well.

Q125 **Robin Millar:** Can I just clarify? Are you talking about energy where performance is poor? I can think of plenty of examples where we are exceptionally good at taking to market.

Maf Smith: My knowledge is not within the energy space, so I cannot comment on the wider space but I see challenges in bringing energy innovations to market. The Catapults do later stage technology innovation application, so when things are proven they help them get into the market, but helping them scale up and get ready is complicated. The innovation strategy needs to resolve that.

On the point about hydrogen and the Budget, we still wait to see what the national infrastructure bank will do but my scepticism is that it will be set up as a commercial bank. It is meant to crowd in investment, as they describe it, help derisk some things, but there is sufficient capital in this market, as you have already heard. The critical thing is being able to invest ahead of time, being able to take intelligent investments that say, "These are growing sectors, hydrogen, floating offshore wind, for example. Let's get the infrastructure ready", but they will be doing that in advance of having the order book. That would be quite hard to invest on for the private sector alone. If the infrastructure bank can focus on these critical low carbon infrastructure plays, it will be doing something new.

Q126 **Robin Millar:** My next question is about the national infrastructure bank. I am fascinated by your replies because in many ways you have described what we saw happen over the last 12 months through the Government's move to invest in a particular area, which was vaccines. This is a pattern that the Government are adopting of trying to spot an investor and move hard on certain technologies. I am fascinated that you have reflected that and the importance of that in your answers. My second question is a very simple one, because you have identified correctly the importance of the national infrastructure bank. How beneficial could schemes such as the bank be for the growth of renewable technologies? Maf, if I start with you, because I cut you off there.

Maf Smith: They could be important if they are set up and able to make strategic investments that can take a longer-term outlook, to an extent. It is not about commercial investments but it is about saying: how can we invest ahead, how can we anticipate demand? There is an element of underwriting the investment. Government, rightly, do not like picking winners because they might get that wrong, but in the climate energy space we are not looking at new technologies. We know what the technologies will be. The Climate Change Committee's advice makes clear what we need to scale up and how quickly. That is the investment framework that things like the national infrastructure bank need to use.

In investment of a floating offshore wind manufacturer, it will not be able to say, "We will lend you money if you can show me an order book of demand for platforms". It will say, "We can see that in south Wales, for example, there is demand overall but we don't have orders yet because the mechanisms aren't in place". The timing problems about how you structure this market are very hard to overcome for individual companies or individual manufacturers. The bank can help with that.

Juliet Davenport: The specific question on national infrastructure bank is: does it have a true zero carbon mandate? That is important to push and ask questions around because one of the things that we see through all our regulation is that we need to have no backward step. If it starts suddenly investing in things that are not zero carbon, that is not brilliant. On where it can be invested, is it going to make a big difference? Is it plugging the hole that the European Investment Bank is leaving? That is

the big question. Can it do that job? We need to keep looking at it and keep holding it to account.

Michelle Davies: The key question is: is it going to operate as a commercial bank or is it going to step in earlier? The Government have said that it will be there to bridge the gap between what is non-bankable from an infrastructure perspective. If it does that, that will be great because it will go further than the European Investment Bank, for example, on these kinds of projects.

As Maf has said, it needs to enable the necessary infrastructure that enables the energy transition, whether that is an energy transition asset itself or infrastructure that is supporting the energy transition, which would not otherwise be available or would be too expensive to access from the private sector. That is the stated objective, but there is a real concern that it will just apply commercial principles.

Q127 **Robin Millar:** There is a cap at the moment on energy production projects in Wales—it is a reserved power of the UK Government. I am not trying to make comments on the conduct of either Government. I am just interested, in this discussion about finance, does that cap on the scale of projects, which can be undertaken by a Welsh Government, produce problems within the financing? In particular, I am thinking of the comments about R&D. Much larger scale projects might be easier to attract R&D funding for but if those are the reserved power of a UK Government, which is not local and not in Wales in the same way, is that going to change the structuring of finance? It is probably quite a broad question but I wonder whether you have come across it as a problem rather than theoretically, yes, it could be.

Michelle Davies: I was not aware of that cap so, yes, clearly having a cap on what can be created within Wales makes Wales a less attractive investment proposition. You missed the start when we were asked what makes Wales attractive from an investment perspective. Wales is no different to any other market and I work around the world, in Tunisia, Iraq, Vietnam. What makes a market attractive? There are some fundamental criteria that need to be satisfied and one of them is scale. I imagine that that is not helpful, is probably the best way of putting it.

Q128 **Robin Millar:** Sorry, perhaps I misphrased the question. Clearly scale will be attractive. It is just that those are the reserved power of the UK Government. Clearly, a bigger project will be attractive but they happen to be a reserved power of UK Government. I am thinking of renewables, the local energy generation projects, for example, which are a much smaller scale. Does that introduce an obstacle to funding, in particular, for example, around the Welsh Government's requirement or ability to then fund smaller projects, if that is their reserved power?

Maf Smith: I think you are referring to planning permission and where authority to decide on projects lies. Larger schemes get consented by UK rather than the Welsh Government or local authorities. In practice, I have

not seen problems related to that, although there would be benefits to devolving those powers to Wales on the assumption that Wales was to have a more activist bent and wanted to seed energy infrastructure as part of its economic programme, but that is not to say the UK Government do not either.

The planning system works well at the different levels. There are problems about where it crosses and that is where focus should be put. There are grey areas between devolved and reserved powers. With hydrogen, for example, things can sit within reserved and devolved powers but who controls which bits of infrastructure. Grid is obviously reserved, so even local decisions depend on national decisions on grid. Heating issues are complex—very local issues and UK-wide issues. Time spent between Governments resolving when issues get passed between one part of government and another is where I say the focus is, not who controls the original decision on the consent of the—

Robin Millar: I am focused particularly on finance, but finally Juliet.

Juliet Davenport: It is a restriction. From a finance point of view it is a bigger risk because you are dealing with two bodies rather than one. If there is something that will be more beneficial to that part locally in Wales, that should be determined by the local planning authority. My personal view is it gets in the way, yes.

Q129 **Beth Winter:** Thank you for your time this morning. It is an interesting session. I want to focus on local employment and upskilling the Welsh workforce. As you know, particularly coming out of the pandemic, we are likely to experience high levels of unemployment. To develop a post-Covid economy that is underpinned by the renewable energy sector is of paramount importance. How do you think the UK Government can best support local manufacturing and employment in the renewable energy sector?

Maf Smith: There is a lot the UK Government could do. It is an area the UK Government are grappling with but I do not think yet do very well. In the field I work in, in offshore wind, they have chosen to do this through a series of investment funds, which are very welcome. If there is a poor infrastructure fund, which is funding—as I have said previously, there are developments now in Teesside and Humber. A critical thing is making sure those funds could support industrial offshore wind hubs in south Wales for floating and, equally, new infrastructure in north Wales with the schemes that will come up in the north-west.

However, what the UK Government do badly is the handholding that is needed to sometimes bring those projects to fruition. I have a declaration of interest about a project I have worked on. I worked with a company called Seawind Ocean Technology who wished to bring to market a new disruptive offshore wind turbine. It identified south Wales as a priority location for future projects and, therefore, a potential UK manufacturing site. It is some way from market, so it is looking into the future, but it

struggled to gain traction in the UK Government in a way to be taken seriously. It would have brought many hundreds of jobs with an assembly plant and hundreds of millions of investment. The attitude I have characterised to a number of people from meetings with Government is, "That sounds great. Good luck, let us know how you get on" rather than, "Okay, what do we need to do to investigate this opportunity and see if it is genuine, see if it is valid, if you kick the tyres on it, it has substance and then if we think that it has, what are the roles and levers Government can use to help?" There was no buddy system, no one prepared to say, "This looks an interesting investment, let's work on this".

That criticism applies to the Welsh Government as well where we found inability to get traction. The one part of government that took that role on was the officials in the Wales Office who took that issue seriously, but we found that they struggled too to get traction across government. The result now for that company is it is looking at other markets as a priority, having spent a year trying to engage with the UK Government and not being able to get a serious conversation.

The UK Government need to be more interventionist and think about themselves as a partner in trying to make difficult future projects happen or set up their enterprise agencies in a way that can do that. Funding and funding rounds in programmes is helpful, but it is that "how do we try to remove some of the barriers to these difficult projects?" The UK Government do not have that mindset.

Juliet Davenport: It is an interesting question because when you look at some of the projects—one of the things about renewable energy is that it is not the same technology in every part of the country. Wind is prevalent across the whole of the UK; solar is more prevalent in the south of the UK with some capability in Scotland. Wales has significant wind so it can work with the rest of the wind industry across the UK.

One of the biggest disappointments I have seen over the years is the lack of investment in marine. Wales has a particular resource in marine and had a particular opportunity to create various marine hubs around the Welsh coast. I do not think we have seen that. I wonder whether rather than some of the industrial strategy we have seen in offshore wind, which was very successful—I think Maf was part of that—Wales should be looking at trying to create its own industrial strategy for some of the technologies that are very specific to Wales. That would be really exciting because that would give very strong signals to organisations for inward investment.

Maf has given some examples of companies that have looked to come into Wales and then gone somewhere else. I understand that Britishvolt, the big manufacturer of batteries, was looking at Wales and then went somewhere else. Have conversations with organisations like that to

understand what happened, "Why wouldn't you come to Wales? What got in the way of doing that?"

Then there is continued investment. I am working very closely at the Energy Institute and at the REA to push training and transition training. We will have a bunch of people who can install smart meters who will not need to install smart meters going forward, so should they all become solar installers? They will need huge amounts of training to transfer the skill they already have to a new skill. That is a real opportunity for Wales. You have a great academic base in Wales. Should you be leveraging that to say we will invest in that? On how Government can support that, I do not think Government have their training strategy sorted yet. We should be focusing on reskilling and upskilling capability into this new zero carbon world.

Michelle Davies: I will not pick up on the points that Juliet and Maf have made because I completely agree with those. The point I will make is that every organisation, every company in Wales will have to decarbonise. There are new regulations known as TCFD that are hitting all financial institutions, all premium-listed companies, and there is a consultation on extending that to all listed companies and all large companies, which is companies that employ over 500, and it will filter down.

Notwithstanding the regulation, pressure is coming from investors, from customers, on organisations to decarbonise because if you are a Welsh company that is supplying to somebody who is affected by this regulation you will come under pressure to decarbonise from the organisation that is buying your product. Let's be clear, over the next five years all companies in Wales will have to be on some kind of decarbonisation journey and the extent to which they are on that and the speed with which they have to make that happen will depend on whether they are subject to the regulation and who their investor and customer base is.

That means that there is a huge amount of opportunity for the creation of green jobs in Wales, but the key is that those jobs happen. There will be a degree of retraining but there are new jobs that can be created and I know all the political parties are making points about this, and rightly so. But what is important, going to the point Juliet made, is that those jobs have to exist in Wales and not somewhere else. When you are looking as an organisation to procure decarbonisation services and solutions—they could be technical, operating or financial—you are seeking them from within Wales and not going to a company that is providing those services outside Wales.

That means that Wales has to understand this, and I can see a number of you are thinking, "What is she talking about?" We have to understand that this regulation and this drive is happening. Then we have to start putting in place systems that will enable companies to adapt and become something else—for example, I know companies that were previously doing something else and are now doing air source heat pumps—and

transition into what is now going to be a demand for decarbonisation and do the training and the skills that Juliet mentioned, and the universities are very important here. But also think about creating hubs of experts, creating registers of certified qualified people, so that when I look to decarbonise my old listed house that I live in, which has to happen quite soon, do I go to a company that can do that within Wales or do I go outside? When we talk about green jobs, we focus on these big infrastructure projects. They do not necessarily create that many—sorry, Maf, they create a good number of jobs but it is during the construction phase, it is not always during the operational phase.

There is only a limited amount of those that can happen. It is around this wider decarbonisation, the distributed opportunity that Juliet mentioned earlier, which has the potential but there is a lot that the Welsh Government can do to make sure. Those jobs will be created; the point is where do those jobs get created. There are things that the Government can be doing to make sure that happens in Wales.

Q130 **Beth Winter:** I share your optimism about the opportunities. During Covid, for instance, some of the aerospace sector in Wales was producing PPE. Locally in Cynon Valley—I am based in the heart of the south Wales valleys—there were lots of local businesses who diversified during the pandemic; there are opportunities there. I am picking up on the regional variations about what can be done with renewables, because the south Wales valleys are very different to places like Swansea with the coast. Those are important. Can I pin you down a bit, Michelle—I want to ask the others the same—about what you feel is the greatest barrier to creating these new jobs here in Wales?

Michelle Davies: It is probably having a clear strategy that is working out what needs to be done. Going to your point, Beth, which is a very important one, about the regional differences that exist but having an all-Wales strategy, that you do maybe what the central government are not doing and start taking some views on which technologies you think will work best where, and have a strategy for this.

It cannot be too long, because this is all happening now. I act for a lot of companies that are subject to these new regulations. There is a significant skill shortage globally on this. New Zealand announced them yesterday, the US is about to adopt them. There is a significant skills shortage globally. If Wales is a country that pulls together a strategy for this, it could not only be delivering those jobs for solutions in Wales but it could be exporting that expertise to other areas as well. For me, it is a strategy, and one positive thing that Wales has is a very strong engagement with the public sector and the public sector has a key role to play in this. The public sector has its own estate; it is a very credible solutions off-taker that creates opportunities. It also has its own estate that can be utilised and there is great opportunity for public-private collaboration, for all the reasons that we have discussed today.

A starting point would be having a strategy that plays to Wales's strengths, that does future gazing and identifies where we think the market will be, and then working out how we can utilise our own significant public sector assets and presence to make a lot of this happen.

Maf Smith: Thinking about offshore wind specifically, the thing that needs to be done is a plan. The development activity that can flow through, for example, rapid rollout of offshore wind farms in Wales will come because you need local presence, local companies, local staff to operate and maintain the wind farms. But you can put training in place, co-ordination with local colleges, and so on, to create the right technicians.

The thing that is harder to do is to sustain the jobs in larger assembly or manufacturing and the UK finds that difficult because it does not have the right manufacturing history. That is not to say you cannot bring in inward investment, but that needs funding and co-ordination. The ports funding I have already mentioned is important but equally the role of ports—Milford Haven, Newport being primary examples—working with the Wales and UK Governments and agencies in tandem; a lot can be achieved. The Swansea city deal, which includes Milford Haven, is important because that includes funding to get them ready to do an element of floating offshore wind work, but there is more that could be added to it as that industry grows.

Q131 **Virginia Crosbie:** Thank you. Finally, Juliet, anything about barriers? You spoke about upskilling, which I agree with.

Juliet Davenport: I agree with Michelle and Maf. One of the things is making it easy for people to realise what the opportunity is to invest in becoming a greener company. I believe in a company doing good marketing, so identifying the opportunities whether it is through Government-led procurement or identifying opportunities, so for parts of the local area, what is the potential for solar on rooftop? What does that look like? How can you encourage some of the companies that might have been a building company? I don't know about in south Wales but they are definitely flourishing where we are. Are there transferrable skills into other sectors that you can take people on a journey to?

We see a lot of work by the UK Government in DIT taking companies abroad to see what the opportunities are for export. We should do a similar job internally, encouraging companies to come and see what the opportunities are, understand what they are and essentially do a role of marketing, which I think governments can do.

Q132 **Simon Baynes:** To echo my colleagues, it has been a fascinating morning, so thank you very much for giving up your time.

I want to move on to the issue of local ownership for renewable assets. I have a particular interest in this in my constituency of Clwyd South where we are looking to see if we can build some hydropower on the River Dee

in Llangollen. We have also seen the community hydroelectric scheme in Corwen that has been very successful and there are many other examples across Wales at a local level. How important is it that local communities are economically included in renewable energy development in Wales?

Michelle Davies: I think it is really important because we have talked a bit about the challenges with getting projects through planning. Of course, the greater extent to which the community is engaged the greater the likelihood of some of those challenges in getting consents to happen. I think that this is the direction of travel. We are working on some legal structures at the moment that create community funding through blockchain opportunities, so I think it is just the direction of travel. If we look in 20 years' time, the days of very large strategic players and funds owning all of the assets will be quite different. I think we will see an awful lot more community ownership.

That is in part, Simon, because going back to the distributed model, if you are a homeowner you have a great resource. Juliet and I have talked quite a lot about this, but you have the ability to generate renewable power. You have the opportunity to install a battery and provide grid services. You will have a battery in your car. You will have the ability to install energy efficiency measures, and each home and each building has the potential to become a mini power station. When aggregated, which is already happening, that can be quite impactful.

Therefore, my sense is that the large utility scale projects are still going to be important and have a significant role to play, but this shift towards a more distributed approach, with community and individual ownership, is probably going to become more prevalent. I think it is important but my point is that it is the direction of travel for future projects.

Q133 **Simon Baynes:** In a sense it is back to the future because, of course, this is how power was generated in the old days. One of the things that has been looked at in Llangollen is going back to some of the old hydroelectric units that are still there—obviously they would have to be renewed. The same question to Juliet, please.

Juliet Davenport: Community energy is something that I have been involved with or been keen to see for many years, partly, as Michelle talked about, making sure you have the community engaged as part of the planning process but also understanding that renewables are a decentralised technology. They live among us, as opposed to being a large, centralised power station, so it is understanding how that interacts with the community and how important the community is in their long-term lifetime, because obviously they will continue to be there. The developer comes in, develops the projects and tends to leave, whereas there is a long-term relationship with the community that I think is so important.

We were a developer of solar assets for a while. What we saw was the opportunity for businesses to come in and take some of the upfront risk, which is much more difficult for a local community to do, to put that capital at risk, first of all. We have one in Brynwhilach, which we committed to community ownership, we developed and built and then we sold into community ownership afterwards. That was a really nice model because it meant that the long-term owners would see an ongoing income but they did not necessarily have to take all the upfront risk.

There are some other fantastic projects in Wales. I have seen Wales lead on this. The Green Valleys project was in place I think 15 years ago. I went to see them at a really early stage when they were bringing it forward. That was very much about sharing knowledge, capability and developing small hydro. I think it is a real opportunity.

Under the feed-in tariff there was a fantastic piece where you could increase the size of a project if you allowed community ownership for 50% of it. That gave the developers and the community a benefit. We should think about how we structure either the planning regime or some of the access regimes into the marketplace to give a nod to the fact that, if it is a community-owned project or it is a community-backed project, it gets an advantage as a result. I think the engagement long term is better for the overall industry if communities are actively engaged.

If you go to Austria and see their systems, where you have locally-owned biomass plants, at the weekend it is like being a volunteer fireman. You have to look after that biomass plant for the weekend. The whole community is involved and, therefore, it is a vested interest to make sure it works. They are looking after it and they love it because it produces their heat.

Maf Smith: On the specific point on hydro, Simon, there is a longstanding issue within the small hydro sector in Wales about rates for hydro, which is holding back schemes. In 2017, I think it was, the Valuation Office revised rates for energy projects, and hydro rates increased substantially and there was a Welsh Government grant that ended last year. Things like that can impact on schemes. I would recommend on small hydro trying to look at how that can be resolved so that you have sensible rate payment levels that do not stymie investment or even keep your schemes in operation or bring older schemes back and upgrade them.

Q134 **Simon Baynes:** I completely recognise what you are saying, because that is one of the stumbling blocks. I will move on to my second and final question and I will get Maf to answer this first, because you have touched on it, and then go to your other two colleagues. How do current sources of public and private sector investment in renewable energy development facilitate or act as a barrier to local ownership of energy schemes?

Maf Smith: Gosh, there is a lot in that. There are multiple ways they can act as a barrier. I think that where they act as a barrier is when

Government and industry are looking to do different things or invest in the wrong things. On the whole we know what we need to do. We have talked about that in this session. We know what the technologies are. We know where the best locations are, but Government can now play a part in pump priming—as was just talked about by Juliet—by helping invest ahead, helping to carry some of the risks for communities. I mentioned earlier the example of Ripple as a type of project that is doing that in south Wales.

The Government can get involved or try to use, for example, their own energy demand or the energy demand that they have within local authorities or agencies, a hospital estate for an NHS trust and so on. The public sector has big energy demands. How can they utilise those to focus investments in some of these new technologies or make sure that they are showing the way in how to specify low carbon or invest in low carbon? How can they use their estate or land banks and so on to support or work in partnership with developers to bring new schemes forward? There are multiple, practical ways that the Government on the ground can work that can help unlock or help derisk private investment.

Michelle Davies: To reiterate what Maf has said and going back to what I was saying earlier about projects needing a cash flow and they will get a lower cost of capital the more certain that cash flow is, if you look at a renewable energy project, it really only has one source of income, which is the sale of the power. Public sector bodies are generally seen as financially credible and for Wales to be able to encourage its public sector bodies to act as purchasers of renewable energy power will be of enormous help. You create that steady cash flow, you enable access to lower cost capital and, because you are an off-taker, you are then in a pretty powerful position to start imposing some criteria, maybe local ownership, as part of that solution.

We are currently advising on a very large project for a public sector body in the UK—it is around £1 billion or so—and because it realises the value of it as an off-taker it is able to impose certain other conditions to its off-take, which has value. There are some legal areas that need to be focused on but it is able to impose some conditions that are beneficial to that community. I agree with Maf, that is something I would look at, and the public sector also has its own estate. It owns land and buildings and they can also be utilised, not just for renewables but for other energy transition assets as well.

Juliet Davenport: I will pick up on the point Michelle made on procurement. I think that is really key. We developed two sites where we made a commitment at the planning stage to put them into community ownership. We developed the sites. When we sold them at tender, people had to commit to putting them into community ownership as part of that tender process. The Government can play a huge role in, as Michelle said, where do you buy your power from? Do you buy your power from a community-owned wind farm? Do you buy your power from a

community-owned solar park? That is a huge role that local government and local business could play.

Simon Baynes: Thank you, all three of you, very much indeed.

Q135 **Chair:** I was hoping that we would be joined by Geraint Davies. I think he has been held up in the Chamber, so I am going to pick up on the question I think he wanted to ask about grid capacity. I know that you have all been mentioning grid capacity as we have gone through this morning's session in highlighting some of the challenges and restrictions that we have in Wales. Can I go straight in and ask you all to give us your thoughts, please, on how we get this sorted out? Who needs to be responsible for sorting out constraints around grid capacity? How is that going to happen?

Michelle Davies: I remember many years ago—probably 10 years ago—when the development of renewable energy projects, in particular onshore wind in mid Wales, was really constrained by the lack of grid capacity. I do not know whether, Maf, you can go back that far and remember all of that happening. At the time Scotland was really successful in securing huge funding from central government to develop the grid and I wondered why Wales had not managed to achieve that.

There are two ways in which renewables will happen in Wales. One is through the very large infrastructure projects that require a centralised grid and, secondly, through distributed power. If you remember, as I said to Simon, even that distributed power can, when aggregated, act as a mini power station and be supplying back into a centralised grid. It is not one or the other, the two collaborate, and so that centralised grid piece is really important.

Whoever is best placed to get it sorted, frankly. Maf will speak on offshore wind because there are other quite significant challenges for the grid infrastructure that is needed to deliver the next round of offshore wind projects. From a capital and financing perspective, it just needs to get done and whoever will be best placed to deliver that, but the grid capacity in Wales will be a constraint without a doubt.

Maf Smith: The primary responsibility sits with Ofgem as the regulator of the electricity network. The grid companies, National Grid as the transmission operator, the ESCOs, the systems operator and distribution companies, in different ways put forward plans for transmission or distribution upgrades. Ofgem has to assess the need and those plans and essentially pass judgment as to what infrastructure investment is allowed. It is trying to break out of the mould but, on the whole, acts conservatively because it is seeking to protect consumers from the cost of buying too much grid and having stranded assets.

It is looking at how it can do this better and think more strategically, but it is a timing issue then about how long it takes to plan and deliver consent grid when the projects come along. You end up managing

constraints, with no ability to connect large or sometimes even small projects if they are in the wrong location because you are waiting for grid upgrades to come.

There are plans for grid upgrades in Wales to help. They can get bogged down in planning issues. Onshore wind was held up for many years because of issues around grid upgrades through central Wales powers particularly. It can create bottlenecks and we need to resolve those. Hydrogen and storage create opportunities and looking afresh at those, as we have already discussed, is an important way to do that. I think it is making sure there is a strategic plan for grid upgrades and a clear timeline, particularly in the south Wales corridor, for how to upgrade the infrastructure there, because there are worrying bottlenecks right now in south Wales.

Q136 **Chair:** Thank you. Juliet, did you want to add anything to that question about grid capacity?

Juliet Davenport: Yes. Many years ago I sat on the Renewables Advisory Board for Government and I co-chaired the network transmission grid review, which was particularly looking at connecting Scotland to the rest of the UK. One of the biggest challenges is that the way Ofgem reviews a project, as Maf mentioned, is really a change control process rather than a strategic process. That was a big issue. We kept getting stuck because it was like a catch-22 conversation that went round and round in circles. I think it ended up being part of one of the energy Acts so that there was ministerial capability to step in and make a strategic decision that meant that Ofgem could break that cycle and went ahead and made the changes that were required.

I think it may need more than just a review with what Ofgem is doing already. It may need a bigger step to be able to enable it to happen, because what happens is nobody wants to take responsibility for the decision.

Q137 **Chair:** Thank you. Maf, you mentioned Ofgem a few moments ago. As an organisation, is Ofgem sufficiently aligned with the net zero agenda that the Government are trying to promote? How imbued is it with that sense of mission that other branches of Government seem to be?

Maf Smith: I think the answer would be, tentatively, yes, it is. It is a recent conversion and that is a surprising thing to say. The Government have been working on low carbon for many years. A long time ago I worked for an organisation called the Sustainable Development Commission, which looked at Ofgem's duties. Ofgem was given a duty to think about the future consumer, which was a way for it to think about energy transmission, climate change, investments required, but those duties dissipated and Ofgem was working against what the UK were trying to do in decarbonisation, because it was looking short term at the existing consumers so was holding back investment.

Industry has been working to resolve that with Government. That has changed, partly because of new management but I think there is a recognition from the Government and Ofgem that Ofgem needs to be part of this solution. For example, Ofgem has looked at what its role should be to support the rollout of floating offshore wind. It is taking that seriously. It is participating with Government on a review of transmission charging to look at how you get offshore subsidy co-ordinated infrastructure, which would help everybody.

I see signs that Ofgem now gets this. It is taking it seriously but it still needs help to think more strategically, as Juliet described, rather than just looking at it more incrementally.

Q138 **Chair:** Continuing on the theme of alignment of different stakeholders, the Crown Estate has a big role to play in developing offshore floating wind. We have taken evidence from the Crown Estate in recent weeks. What are your observations about its posture at the moment in helping to facilitate some of this investment? Is the Crown Estate in the correct place, from your perspective?

Maf Smith: On the whole, yes, it is in the correct place. It has just run a round 4 programme for offshore wind, which includes sites in the north-west. That round 4 process has been criticised. It has produced significant revenues but I think the Crown Estate mismanaged how the level of competition and demand for new sites would feed into revenues, which are of short-term benefit to the UK with money into Government but long term might stymie competition or the cost effectiveness of those schemes. I suspect that the Crown Estate is thinking about how competition is managed within leasing rounds while also getting practical results, if I can frame it that way.

The Crown Estate at the moment is looking as to how it can run leasing for smaller floating offshore wind sites, which is very welcome, the so-called pathfinder schemes that can happen more quickly and so we get embedded expertise and that can help the supply chain. What the Crown Estate has not said—and it would be valuable for it to say so—is what it wishes to do, particularly in the Celtic Sea area, for longer-term leasing arrangements for larger floating offshore wind sites.

The final thing on the Crown Estate is that it is also a significant landowner and there are things it can do or investments it can make to encourage or put infrastructure in place at the right point.

Q139 **Chair:** Thank you very much. I am delighted that Geraint Davies has joined us. I will bring in Geraint in a moment but very quickly, Juliet, I see your hand up.

Juliet Davenport: I want to state that I am a commissioner on the Crown Estate, just so there is no conflict of interest. Obviously, renewables is a very hot topic for the Crown Estate and it is looking at everything it can do to facilitate it.

Chair: Thank you for that.

Q140 **Geraint Davies:** I apologise to all the witnesses and to you, Chair, for my lateness because I had parliamentary business.

I want to ask something about timing. Obviously we have COP26 this year. How quickly could changes be put in place, to both the grid and incentive structures, to make a major acceleration towards our ambitions on net zero and any obstacles in place? What is your ideal scenario and timeline?

Juliet Davenport: We have touched on some of this with grid infrastructure. If I can take a wider view of grid infrastructure, not just to be on electricity but also on heating systems and electric systems, there are three grid infrastructures that we need to adjust to get to zero carbon: transport, heat and electric.

Electric is obviously hugely important because we will move to electrification and so there will be more capacity on that. We touched in an earlier conversation on Ofgem being the key to this because it is responsible for that. The question is whether it has the strategic wherewithal within its powers today to make some of those big shifts and that big vision that needs to be looked at where the infrastructure needs to go. I think Ofgem has the intellectual capability and Jonathan Brearley's leadership is a breath of fresh air in that organisation, but there probably needs to be a wider strategic direction to allow that investment to happen.

Then coming to the heat grids, obviously we have to consider what we will do with our gas network, how much hydrogen we can put in and the usage on that. The transport network and the electrification of transport will be key to this and how that rolls out aligning with the overall transmission network and the local distribution networks will be key as well.

Q141 **Geraint Davies:** In layman's or laywoman's terms, how long would it take to make those transitions? What sort of timeframe are we looking at?

Juliet Davenport:, I think we are moving at a reasonable pace on the electric transition for electric vehicles at the moment. Obviously we need to see more electric vehicles on the road to really see that investment come through but it feels like it is moving. CMA is doing a review of that at the moment to look at interoperability and to make sure that that is going to work effectively, but I think that will be an important part of creating the long-term demand on the electric networks for renewables to invest.

On the electric networks themselves, there is obviously the five-year plans that Ofgem works on and the work it does with National Grid. I think that we have seen very small changes—in some cases backward shifts—on the way those networks have been looked at, particularly

because they are focused on short-term customer cost rather than long-term investment. I think that is a massive conflict within Ofgem itself and has been for quite some time. Jonathan has come in to try to shift that but, fundamentally, I am not sure that it has the right powers. Personally, I do not think it has the right powers to take this forward.

Q142 **Geraint Davies:** Finally on other powers, do you think there is more that the Government might do in fiscal incentives for consumers? I am thinking here about giving signals, whether it is higher road tax on larger diesel cars or different diesel duty or greater incentives for the second-hand market of electric cars, for example, this sort of thing. Would that help?

Juliet Davenport: Yes. I think the recent salary sacrifice arrangements for electric vehicles is really important. Fleets will be an important transmission. We can see that fleets are potentially going to be a lead in this. That gives you some big scale, which also allows us to see whether you could start to use fleets as a more interactive part of the energy network. I think it is definitely looking at the taxing situations for fleets and encouraging companies to invest in that and then, on the personal side, road tax obviously. The cars that are producing more pollution should be paying more road tax.

Q143 **Geraint Davies:** Turning to Maf Smith, can you give us some idea of timelines? What can we expect and how quickly could we speed it up if we pulled on all the levers to encourage incentives towards electrification of transport and other issues by changing duties on diesel and giving subsidies to electric and so on to signal to investors that there was more return on their investment sooner than later?

Maf Smith: The area that I would focus on in that is getting a charging infrastructure in place. Juliet mentioned earlier that Wales is behind in that compared to other parts of the UK. What could be done by local authorities and others to make sure that the infrastructure is in place to help alleviate consumer concerns on shifting from petrol/diesel vehicles into electric?

The other area that we have talked about that is complex and needs handholding is the shift to heat pumps, so physical support to encourage householders to move, planning and funding to support pilots in zones where there is high opportunity for heat pump shift, say, as well as EV electrification. The mass rollout is coming, but if we can identify schemes where we can accelerate, so rather than looking at it on a cross-Wales basis, look at regions or towns or communities where conditions are right. National Grid can tell you that conditions are right. It can look at what the electricity demand and capacity is in local networks, and then the installer networks who will have to put into place the new heat pumps and so on.

Q144 **Geraint Davies:** In moving towards net zero, I know that the Welsh Government have been looking at the wood industry. Having more forest

grown and a circular economy over time but more wood is used in buildings as a carbon capture as well. Those sort of things are part of the mix. Is there more the UK Government could do to speed up the different elements moving towards net zero and what are they? What would you point to?

Maf Smith: It is not something I am an expert on, so it is not something I could comment on.

Q145 **Geraint Davies:** All right. Being a Swansea MP, clearly the issue of the lagoon has been bobbing up and down over many years now. On financial structuring incentives, looking to the long term—because obviously in the short term oil prices may be lower but in the long term they are stranded assets for fossil fuels and in the long term tidal energy will be there—do you think that there is more that could be done to speed up that sort of technology?

Maf Smith: I have acted as a specialist adviser for the Environmental Audit Committee, which recently looked at tidal issues. On the issue of lagoons, I think that the critical issue for the Government is having a conversation with the industry about their development plans. There is a timing issue in that these are very long-term pieces of infrastructure and, therefore, they pay back over a long time, but the way the financial mechanisms work is to require rapid payback, for example how the CfD works.

Their cost effectiveness has to be looked at differently. The Committee looked at this and asked for BEIS to engage in the industry to see if there is a fresh perspective on how to do that. There could be different financial instruments that work over the longer term that could unlock private capital, because there is interest in long-term infrastructure such as tidal lagoon and other schemes out there. The Government could equally play a role, for example as being a power off-taker or being a co-investor helping derisk those sorts of schemes.

It is not just Swansea. There is interest in lagoons around the Wales coastline and elsewhere in the UK of course. It is a missed opportunity but the Government need to think about the financing issues differently and be prepared to engage again. After the Hendry review and the Government response to the Hendry review, there has essentially been a block and a gap between aspirations of the industry and the view of Government.

Q146 **Geraint Davies:** Only the Government are able to invest in very long term at very low interest rates. Therefore, is there something to be said for partial ownership or even public ownership of some of these assets for the future, which are renewables?

Maf Smith: It can be that, but it also could be looking at how finance instruments work, tax and innovation incentives. There is a number of things that the Government could do if the Government were not able to directly fund through revenue, such as through the contracts for

difference. The Welsh Government have looked at options around investment in lagoons and so on to help unlock and bring schemes forward. It needs an activist approach that tries to find solutions to this and the problem for lagoons is the long-term financing nature. They provide very long-term benefits. Therefore, finance needs to be structured in a way that can support that and understand that.

Chair: Thank you very much, Geraint, and thank you to you all. We have come to the end of our session and I will say a huge thank you on behalf of all of the Committee members for an absolutely brilliant session. We really value your high quality input and your insight and we are grateful for that. Thank you again. Have a great day, everybody, and thanks also to my fellow Committee members for making it a useful session.