

Welsh Affairs Committee

Oral evidence: [Renewable energy in Wales](#), HC 1021

Thursday 4 March 2021

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Members present: Stephen Crabb (Chair); Tonia Antoniazzi; Simon Baynes; Virginia Crosbie; Geraint Davies; Ruth Jones; Ben Lake; Beth Winter

Questions 34 - 68

Witnesses

I: Jess Hooper, Programme Manager, Marine Energy Wales; Christoph Harwood, Director of Policy and Strategy, Simply Blue Energy; Tom Glover, UK Country Chair, RWE; and Paul Hewett, CEO, Belltown Power.

Written evidence from witnesses:

- [Marine Energy Wales](#)
- [RWE](#)



Examination of Witnesses

Witnesses: Jess Hooper, Christoph Harwood, Tom Glover and Paul Hewett.

Q34 **Chair:** Good morning and welcome to this session of the Welsh Affairs Committee, where we are continuing our inquiry into renewable energy in Wales. I am delighted that we are joined this morning by four specialists from different fields within the renewable energy sector in Wales. We are joined by Jess Hooper from Marine Energy Wales, Christoph Harwood from Simply Blue Energy, Tom Glover from RWE and Paul Hewett from Belltown Power. Before we get into the questions, can I ask the panel to briefly introduce themselves and the role that they play within their organisations?

Jess Hooper: Good morning, everyone. Thank you for the opportunity today. I am Jess Hooper. I am programme manager for Marine Energy Wales. MEW is an industry-led stakeholder group representing interests across site development, technology development, academia, supply chain and public sector. Our membership extends over 60 organisations across four key sectors of tidal stream, tidal range, wave and floating offshore wind.

If you can indulge me ever so slightly, I would like everybody to imagine that they are on the beach for two minutes, just to talk through the different types of technology that we are talking about here. If you are on the beach and you are standing in the dry sand and you look down, you have wet sand in front of you and then the ocean. Out there there is an ocean of opportunity; in Wales, we are uniquely placed to harness and capture that power through four different methods.

Tidal stream: if you imagine you are standing on the beach and you are looking out, there is an island just off the mainland and there is a narrow channel between the island and the mainland. The water as it comes and goes in, through the ebb and flow of the tide, will be forced through that channel, which is the perfect place to put the tidal stream turbine.

I mentioned wet and dry sand at the beginning. Where the tide rises and falls, that wet sand represents the tidal range, which can be captured through lagoons or barrages.

If you wanted to take your children down to play in the waves on their bodyboards, we in the UK and through some of our global companies have now found ways to harness the power of those waves.

Right out in the distance, if you imagine on the horizon, are floating offshore wind turbines located in our deep offshore waters and, as Marine Energy Wales, we represent all four sectors there and have membership across them. Across the panel today, two of our members are represented with RWE and Simply Blue Energy.

Christoph Harwood: Christoph Harwood from Simply Blue Group. We are blue economy project developers based in Ireland operating around



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the British Isles and internationally. We develop projects in floating wind energy, wave energy and aquaculture, so outside the energy sphere as well.

Our focus in Wales is the Blue Gem Wind joint venture that we signed with Total last March, which is to develop two floating offshore windfarms. One is Erebus of 96 megawatts, 45 kilometres off Pembrokeshire, and the other is Valorous, up to 300 megawatts, subject to a lease from the Crown estate.

Not in Wales, but we are also developing projects in the Celtic Sea in Ireland. We have just signed a deal with Total to develop the Emerald project of 1 gigawatt. Clearly, those are opportunities for a Welsh supply chain, which we can cover at some stage.

As well as being in Simply Blue, I am on the Marine Energy Council, which represents bodies from the wave and tidal stream sector across the UK, so I am happy to take questions on that as well.

Tom Glover: Thank you for having me. I am RWE UK's country chair and also the chief commercial officer for RWE Renewables globally. RWE is a leading energy company and we employ about 2,600 people across the UK and supply electricity to about 10 million homes. We are the largest power generator in Wales. We are also the largest renewable power generator in Wales, and we supply about 30% of Wales's renewable energy.

We are also one of the largest private investors into Wales. Over the last decade we have invested, with our partners, over £3 billion into Wales, into our projects, and over the years we have contributed over £9 million in terms of community benefits. We are looking to grow even further in Wales. Our next major project will be Awel y Môr, which is an extension to our Gwynt y Môr offshore wind park. That has a capital budget, if approved and consented, of about £1.5 billion to £2 billion energy investment into Wales. Probably Wales's largest energy infrastructure project in the next decade, and we look forward with our partners to ensuring that Wales has a stake in this next phase of the UK offshore industry.

Paul Hewett: I am Paul Hewett, CEO of Belltown Power UK. Belltown Power is an independent renewable energy company specialised in onshore renewables: solar, wind and hydro. We have built five windfarms in Wales as part of a wider portfolio across the UK and the USA. We are actively developing solar and wind projects currently in Wales.

Q35 **Chair:** Can I begin the questions by asking the panel to give their views on where the key decisions are being made right now that will foster the growth of renewables in Wales? Are they decisions at a UK Government level, are they decisions at a Welsh Government level? Where are the key decisions being made that matter to your parts of the sector?



Christoph Harwood: Key decisions are with both entities. For our projects, which are under 350 megawatts, Natural Resources Wales is very important for the consenting regime. They are clearly the day-to-day engagement that we are having with the Welsh Government. Beyond that, we are looking for entities at Westminster level, whether it is the contracts for difference regime or with the Crown estate on the leasing activity. The area where there is perhaps the most overlap is on the ports and infrastructure upgrade, where you see both UK Government and Welsh Government interested in supporting and enhancing the capabilities of the Welsh ports to handle the floating wind projects as they develop and grow over time.

Tom Glover: I would echo the same. It is made in both areas but for different things, and sometimes there is a bit of an overlap and a bit of a disadvantage with it being made in both areas. A specific example would be in the offshore consenting area that we are particularly involved in, where if you have an English water offshore windfarm then, as part of the DCO or the basic consenting authority, you get a deemed marine licence. Whereas in Wales we have to get a separate marine licence from Natural Resources Wales, which can cause delay and uncertainty. I think it is in both, depending on the size of the project, but also there are some disadvantages and we would urge the Welsh Government and Natural Resources Wales that they are able to respond quickly when they are involved in the process.

Chair: Jess Hooper, you obviously speak to both UK Government and Welsh Government a lot. What are your thoughts on that question?

Jess Hooper: I would echo both Tom and Christoph. The key requirements that we have as a sector at the moment relate to consenting, so back to Natural Resources Wales and Welsh Government's involvement in those decisions. Then also for the contracts for difference and revenue support, revenue support is probably one of our most significant asks for the sector, to ensure that we have confidence and investment decisions can be made knowing there is a pipeline coming through. That is a key ask of UK Government, which obviously influences how we can respond in Wales.

Q36 **Chair:** On that point about financial framework and financial support, Paul Hewett, did yesterday's Budget give you and your colleagues encouragement around investment in renewables in Wales?

Paul Hewett: It did not change our opinions a huge amount. Increasing corporation tax has an impact across the board for all industries, and particularly merchant renewables, which are just coming to the point of being economically viable. That is clearly going to have an effect on the way investors are thinking about the UK, as opposed to putting money into renewables.

Outside of that, there is nothing that is fundamentally shifting the way we think about the economic viability of projects. We are focused particularly



on onshore wind in Wales. The economic viability of projects varies enormously from one project to another, and good projects are affected much more by planning and by grid than they are by considerations of economic viability. It is a slight response to the first question, those key elements—planning, devolved; grid, partially devolved—there is a lot of interaction with both Welsh Government and UK Government across both of those.

Q37 Chair: Tom Glover, in your initial answer you spoke about the suite of investment that RWE has made and is making in energy, and specifically renewables, across Wales. What proportion of that do you see as requiring, effectively, negative subsidies? Is the full range of renewable investment, certainly from your company, relying on ongoing financial support?

Tom Glover: You have to differentiate between financial support and financial stability. Certainly most of our projects require the financial stability of a contract for difference. We have a good regime in the CfD. That has supported all of our investments going forward. We think it will do. Going to what Paul said about onshore wind: one of the big disadvantages for rolling out the great potential Wales has for onshore wind is that not much onshore wind is in the CfD auction at the moment, so the so-called pot 1—which is the pot for onshore wind and onshore solar—only has 1 gigawatt in it. We see across the UK about 6 gigawatts and probably maybe 1 gigawatt in mid-Wales, for example, in the long term.

We would urge—one of the big things—when we release onshore would be an increase of that amount of capacity. We need that for onshore in order to give us stability and certainty around our revenue streams.

Chair: Jess Hooper, is there anything that you would want to add, some initial observations on financial support, anything in the Budget yesterday that gives you reasons for optimism or reasons for concern?

Jess Hooper: As a sector, we are a fairly nascent industry. Particularly, if I focus on wave and tidal stream—the turbines that sit between the island and the mainland—they are very innovative technologies. They are at relatively early stages. They still need quite considerable grant support, so we have been very fortunate in Wales in having the ERDF funding, the €100 million pot that has been allocated and has brought through significant projects, test areas, demonstration zones that will enable the wave and tidal sector to excel in Wales.

But it is all subject to a continuation of that funding, so we are looking to the shared prosperity fund. We are delighted to see in the levelling-up agenda that Pembrokeshire has come out as a priority area. Anglesey is in there at level 2. They are key aspects of finance that we need to come through but, more specifically, looking to revenue support and the ring-fencing or the administrative strike price and setting aside an area very specific for wave and tidal will be key going forward.



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We have had consultations going through BEIS in the last year, seeking 100 megawatts to provide us with that pipeline and enable those initial stepping-stone projects to get off the ground and then see through to that financial stability and security alongside grant funding.

Chair: Christoph Harwood, is there anything you would want to add?

Christoph Harwood: Just observing the Budget yesterday, from an industry point of view, clearly it was great to see investment going to ports to support offshore wind. Of course, they are all east coast ports at the moment and we are in dialogue with Government about how to support Celtic Sea ports so that they can be ready for floating offshore wind and can catch as much value and as much UK content from upgrading ports. There is a challenge in the 2020s to build out, and then for the 2030s to have the large projects come through. There will need to be investment to get the ports ready for this.

It is a nice first step for the east coast, but the Celtic Sea is there, it is happening. Let us get some focus on that as well.

Q38 **Ben Lake:** I would like to stay on the topic of contracts for difference. I am interested to hear a little more about your thoughts on the significance, or otherwise, of the inclusion of onshore wind, offshore wind and solar in the various pots for the next contracts for difference auction in 2021.

Christoph Harwood: Our projects are targeting 2023 CfD, with the first one Erebus, and then 2025 with Valorous. Of course we are very focused on what 2021 looks like because that will set some of the terms for those rounds. To us, there is a challenge in the CfD system, in that the CfD system was designed to push down costs. It has been very successful in doing that on offshore wind over the period that it has been up and running. We have seen costs fall in offshore wind towards £40 a megawatt hour, which is incredible.

The challenge they have is twofold. First, supporting innovation when the costs of new technology will not compete with established technologies. Secondly, the opportunity to encourage UK content. Looking at our own projects, we are very pleased that fixed offshore wind has moved into pot 3, allowing the Government to use various levers they have in pot 2, where you will find floating wind and wave and tidal, as Jess mentioned. The Government have the tools; it can set the capacity of the pot, it can set the strike prices, it can set minima to enable projects to come through.

The dilemma we have is that, if you look at our project Erebus, the first one for 2023, without doubt the cheapest option for us is to build it in Spain, fit it out in France and tow it into site. That is being done already. It was towed to the Scottish site and did not touch Scottish quayside. There is a risk that Welsh projects will not touch Welsh quayside.



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We are working closely with the ports and docks to understand how we can make sure that does not happen for these projects. We are very comfortable sharing with BEIS and others the different costs. What it costs to tow in, what it costs to do local, what investment is required to upgrade Welsh ports in order to take part in the first project. But if we are forced into a competitive run when the only thing that counts is price, it is very difficult to win on price if we are having to support local supply chain. There is a recognition of that, but there is not yet a structural solution.

The other issue on CfD—let's take the 2023 CfD round, and Erebus is competing in that, it is 96 megawatts—there is a project perhaps in Scotland called Dounreay Tri, where they have said publicly that they will also target that round. Two floating wind projects of roughly equal size, and probably roughly equal cost. If the framework is set so that only one project gets through, then a supply chain in Scotland or a supply chain in Wales will lose out. We suggest that the CfDs in the 2020s are about supply chain enhancement, and real competition is in the 2030s when we have grown the supply chain, when we have the cost down, when we are ready to have full-blooded competition.

We have shared those ideas with BEIS, we have shared them with the Wales Office and the Scotland Office. There is an opportunity to get a win-win, but there are still some barriers towards that success.

Jess Hooper: I echo the floating offshore wind comments that Christoph made, but I would bring attention to the wave and tidal sector and the need for the inclusion of specifically tidal. We have 100 megawatts of projects that are ready to go pretty much, targeting 2023 for delivery.

Holistically, or if we take a bit of a step back, there is also a strategic view of delivery that could be taken that looks at the CfD and supportive effective mechanisms for more innovative technology like we have seen in wave and tidal stream. It is about ensuring the timing, as the two-year gap, for example, between AR rounds can be quite restrictive for innovative technology coming through. It also needs to be quite accessible, so easily understood. We need to know how the process works and the time taken to complete that process.

Ultimately, we need confidence in its availability long term. I talk about 100 megawatts for 2021, we have come up with statistics. With that in 2021 and 100 megawatts going in there, we are then looking out to 2030 and anticipating up to 1 gigawatt of installed capacity around the UK. A real pipeline potential that could come through if that certainty is brought through this year with AR4.

Tom Glover: It is horrible to say I agree, but I agree with both Jess and Christoph. All these issues are in established technologies. I agree with Christoph that, for the less-established ones, we need to start small and then grow in size. You need, therefore, early commitment to develop the supply chain. You cannot just have a supply chain of 1 gigawatt



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straightaway. You need to develop your 10-megawatt projects, your 100-megawatt projects, and so on, and that requires investment.

For the established technologies, we have inherent conflict. Of course everybody wants to have local content and local jobs. We have a great track record of creating jobs locally at all our projects. For example, in Gwynt y Môr there were 700 jobs during construction, there are 100 ongoing quality jobs at the port of Mostyn, so we all want to do that but there is this inherent conflict that we are also in a competitive CfD process, which is price driven.

We have this conflict that we are, quite rightly for the electricity consumer, trying to get our costs as low as possible and our bid into the CfDs as low as possible for value. On the other hand, we have local jobs and infrastructure requirements. BEIS is currently consulting with the industry for our latest round of CfDs, AR4, to basically look how they can incentivise us to deliver that, and that is great and we support that. As a sector we have a target to get to 60% UK content across the lifetime of a project. That is a good ambition, but it is tough already. We need to be careful that, if we make it too tough, either prices will go up and electricity consumers suffer or projects do not get delivered. It is a bit of a balance.

Paul Hewett: Essentially representing more established technologies, solar and onshore wind. The inclusion of solar and onshore wind in the 2021 round at the sort of levels we are expecting, the gigawatt pot, will have no impact on the amount of capacity deployed. There is easily that amount of economic, buildable merchant onshore wind that is developed and could be built out. Essentially the prices that will be set in that 2021 round in the established technologies pot will represent what developers are willing to sacrifice merchant revenues for. It will drive down prices, but it will not affect the amount of capacity that is built.

The only way to affect the amount of capacity when it is built would be to significantly increase the ambition under the CfD pots and essentially begin to subsidise projects again. Not positive subsidy, but providing support and something that is better than the alternative of investing into merchant.

But it is key to note that with onshore wind there is huge variance in project viability and project attractiveness. A good onshore wind project, let us say something that has a high wind speed and is, most critically, able to install the modern technology, so 150 to 250-metre tips, 4 to 6-megawatt turbines, large projects at scale. Those projects are absolutely viable at the moment without any CfD support, and a significant amount of that can be deployed.

If you compare that to the sort of projects that we were constructing during the ROC era, you would need a CfD price that is at least double what you need for the other projects. It is just not an efficient or effective



way for us to tackle the climate emergency, to be supporting less efficient projects.

More important for onshore renewables than support through contracts for difference and support regimes is support through planning and support for new grid infrastructure that will allow those projects to come forward without the need for Government support.

Onshore wind has this wide variance of project value, and as long as we are able to install modern technology and hit the top end of the viability of those projects, we will see a lot of onshore wind coming through without support.

Solar is a slightly different matter. On solar projects, if you imagine you can install the same technology on any solar project, radiance levels across the country do not vary anywhere near as much as wind speeds vary. Grid upgrades aside—and that is another topic we could talk about—more or less all solar projects are equally financially viable. What we expect to see is very similar to what we saw developing solar projects in Texas, which was that back in 2015 there was only about half a gigawatt of solar capacity in Texas. The cost of solar was falling, has continued to fall since and will continue to fall over the next decade. It reached a tipping point where, suddenly, essentially the vast majority of solar projects were viable. We have seen an incredible acceleration in the deployment of solar in Texas. It went from half a gigawatt in 2015 to about 8 gigawatts now, and an expectation of a further 16 gigawatts over the next five years.

We are expecting to see that sort of effect in the UK as well. It is just that we are not there yet on the economics of solar. We are a good five to 10 years away from hitting that tipping point in solar.

Q39 Ben Lake: That is very interesting. On a slightly different matter, what are your thoughts on whether the smart export guarantee has acted as an effective replacement to the feed-in tariffs scheme?

Paul Hewett: Unfortunately, I would not have an opinion on that. None of our projects are at that level.

Ben Lake: I understand. Tom, would you be able to comment on that?

Tom Glover: I am sorry, we are also at the utility scale.

Jess Hooper: I am afraid I am the same.

Christoph Harwood: I do not have a view.

Q40 Simon Baynes: Thank you to our panel for sparing the time to be with us this morning. I wanted to ask about local ownership of projects and how important it is that local communities are included in renewable energy development in Wales. Does local ownership have a part to play in your own renewable energy projects? I come at this from two angles.



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First, I was one of the people who supported my colleague Ben Lake's cross-party private Member's Bill, the Local Electricity Bill, last year. Secondly, in my constituency of Clwyd South, particularly in the west, there are some very interesting small-scale renewable projects such as on the Rhug estate, which obviously has larger projects elsewhere in Wales, the Corwen hydro project, and Mile End Mill in Llangollen where the Dee is a very strong provider of hydroelectric power, if we can harness it properly. I am a big believer that these small-scale projects are extremely important and that if we build up enough of them, provide the right circumstances for them, they can make a significant contribution without desecrating the countryside in the process.

Jess Hooper: Local ownership is an interesting topic for the more nascent marine technologies that we are talking about with wave and tidal. There is a need for clarity around expectations for local ownership. We have to appreciate that, as a nascent industry, it is quite costly but it is also quite risky. We are in the early stages of commercialisation, and that is a massive opportunity that can link through to jobs and economic growth, so your local buy-in can come from people who are securing jobs in the supply chain and within these companies. But to get buy-in into the projects themselves could be quite a risky undertaking.

There is no question these projects should be progressed collaboratively with the local community, but looking to bring them in financially could undermine some of their confidence. Looking again to the levelling-up agenda, creating those opportunities in these remote coastal community areas is a strong link through. Of particular relevance, I will mention the Bardsey Island project that one of our members, Nova Innovation, is progressing. It came out in the press in November. It is a blue energy island. For local engagement there it has been significant because the tidal array that is intended to go in between the Llŷn peninsula and Bardsey will decarbonise the island, so remove their need potentially for diesel generators. They are using a combination of storage and tidal power. There are discrete opportunities within the sector that can pull in local ownership, but on the broader scale and the commercialisation steps that we are going through, we are probably still a little early.

I would also say, though, that with the grid constraints that we have been talking about, there is a real opportunity for decentralised grid. Having local networks and potentially building that into future renewable projects in wave and tidal, looking at how you create a farm or an array offshore that comes back specifically to supply a local region, is an opportunity, but we are not quite there yet because we are still proving the technology and taking it through commercialisation at the moment.

Simon Baynes: In a sense, that is going back in time, isn't it, when you had small local power producers in a community and they had their own network? Then we put everything on the grid. It is very interesting.

Christoph Harwood: I was once a director of a local energy co-operative, so I understand the opportunities and the benefits of working



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on that. If I put the business hat on, though, we are 45 kilometres offshore and people on the whole will not be able to see us. There will not be quite that link with a community, except where the cable comes ashore. The cable comes ashore into the Angle peninsula, and we think that our role is very much to work with that community as the touchpoint. We are already engaging with the local councils, talking to the local schools, getting them involved. We are looking at a community benefit fund and working with the local colleges.

It is more difficult for offshore energy to be part of a community, but there are touchpoints where we can do it. Hopefully, in the wider jobs world, the jobs that we will create will be part of that wider community around Pembroke Dock and broader. Yes, we are focused on it, but it is not as straightforward as, say, an onshore windfarm.

Tom Glover: It is a complicated topic, and I think we need to look at it under an umbrella of community engagement and benefits and then split it into ownership, jobs, funds and so on. For us, if I talk on the ownership topic specifically, it is important for us on the right projects. For example, we are just developing the 32-megawatt Alwen Forest windfarm, where we are hoping to get 15% community engagement. For that kind of project, which is right in a community and is mature technology, as Paul said before, it makes sense. If you are looking at our big Awel y Môr offshore windfarm, it is £1.5 billion to £2 billion of investment and it is risky. There is no doubt that when you are building something that big offshore, is it really an appropriate thing to ask a local community to invest in? For that, we would rather be looking at how we create local jobs, how we have community funds, and the benefits. I mentioned our community funds. This year we will get to about £10 million total community funds that we put through our projects that is spent by local communities to help local communities, so that is important, and, of course, the jobs for us.

For the right projects, community ownership is important, but for other ones it is probably not going to happen. If you think about some of the ones we are also involved in, let's say they are less sexy but really important—grid stability projects, black-start projects—and trying to understand in a local community why they should invest in this kind of technology is difficult.

Your question touched on another important issue around distributed generation versus transmission-connected generation. Let's be clear. We have a huge challenge and a huge opportunity. The Committee on Climate Change is considering that the electricity demand will triple, so the answer is that we need all of it. We need the local stuff, we need the transmission stuff, we need everything. There is no one solution. I just say yes, bring it all on.

What we need to be careful of is affordability, though. The energy transition is going to cost us a lot of money and we need to make sure it



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is affordable. In some instances, it makes sense not to build a grid and to have local energy owned by local people, but in other instances it makes a lot more sense to put a very large generation asset offshore where it does not interfere with people's lives as much in terms of local visibility or whatever else. It is nuanced. I would just say look at community benefits as a total and look at the need to do everything to meet the decarbonisation challenge.

Paul Hewett: There are two parts to this. One is small-scale community renewables and the other is local ownership of larger-scale projects.

On that first one, I think it is slightly dangerous to focus on smaller-scale community renewables as a solution to the problem we are trying to solve. Ultimately, the problem we are trying to solve at the moment is a climate emergency. We would not be going through an energy transition if we were not concerned about global warming and we were not trying to decarbonise our economy.

Renewable energy projects at the largest scales, and even with the most developed technologies like onshore wind, are just becoming viable alternatives to carbon-based fuels. Small-scale solar or wind projects have an incredibly high cost associated with them. When we were building single-turbine, small wind projects four or five years ago, in order to make those viable we were receiving about £150 per megawatt hour. Nothing has changed in the economics of onshore wind projects since then, so those projects are not a viable way for us to deploy the gigawatts of capacity that we need to tackle climate change. If you compare that to a good onshore windfarm now with modern technology, large scale, we can be doing that for £30 to £40 per megawatt hour. It is a huge change in the cost of delivering those quantities.

The amount of generation that we need to deploy in order to tackle climate change is enormous. I agree with Tom that we should be taking it from everywhere; we should not be penalising any particular part of the system. We have to be realistic about what are going to be viable ways to tackle climate change. I know that going forward, particularly in onshore wind and solar, only scale projects are economically viable ways of tackling the problem.

The other thing on this piece is that there is this idea of local demand and local supply, and balancing local demand and supply, which is a nice idea in rural communities. The idea is that that is where projects are going to be hosted, so let's only build enough to meet local demand. That just does not work for the majority of the population in the UK. Cardiff cannot do that. Swansea cannot do that. London cannot do that. We do not have the ability to power our national or even global needs through balancing local supply and demand. We have to be focused on supplying demand from where the resource is available. That is the first piece around community and smaller-scale renewables.



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In terms of local ownership of those viable large projects, we are actively doing this. We are giving away a percentage of our projects to local communities. We are offering significant opportunities for communities to invest beyond that. I would say that we are doing that mostly because there is a lot of advice from Government to say that that is what we should be doing. When we have dug into why it is that we should be doing that, the only reason I can see why community ownership is better than community benefit and revenues being paid to communities and value being passed back to communities is because it creates a greater sense of connection between the community and the project.

Having spoken with various people and taken feedback on this, we have found out that communities do not really value that a lot. What communities value most is, "We are hosting this project; we want to get value out of that project." I understand what Tom says, but I think we have to face a reality that renewables do not bring significant benefits to the local communities that host them. They do not bring significant ongoing jobs like a factory or something like that. They do not bring transport links like a new railway station would. They do not bring services like a supermarket would. We have to be honest about that, hit it face on, and ask how we, therefore, pass value back to communities that are hosting these projects, to make them feel like it is a good idea that they are having that and proud that those projects are there.

The feedback we have had around that is about having a better, more structured way of passing community benefits back to communities in a way that can create sustainable growth within those communities going forward.

Simon Baynes: Okay, Paul, thank you very much. I am aware that we are under time pressure, so I will thank you all very much for really good answers and hand back to the Chair.

Q41 **Tonia Antoniazzi:** Paul's responses have been very comprehensive, and Paul and Tom will probably want to answer these two questions. How can the deployment of onshore wind be further developed in Wales? Have we lost Tom? It looks like we have.

Paul Hewett: By far the biggest blocker to onshore wind in Wales at the moment is grid and grid capacity. That is most significant in mid-Wales where there is currently no transmission infrastructure at all. In order to get power for large projects from where that natural resource is to where the power is needed, like Cardiff, Swansea and other large population centres, you need 275 kV or 400 kV transmission infrastructure that can transport the gigawatts of power that is required.

Currently, there are only one or two small projects in Wales that are just squeezing out the last part of distribution-level capacity that there is there. There has been some work already undertaken by NRW and RenewableUK Cymru. There are over 2 gigawatts of early-stage



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development projects in mid-Wales that cannot be built without transmission infrastructure being brought to the area.

Q42 **Tonia Antoniazzi:** That is the principal challenge for onshore wind, and this is where we are at with the grid. How long is it going to take for us to be able to move on this? What is the timescale? Do you have any idea?

Paul Hewett: Absolutely. I think a realistic timescale for developing a project, if people are behind that project, would be about 10 years. National Grid and the DNOs are working on this and thinking about this, but we have gone through iterations of this before. The main thing that has held this back is political pressure and political will to move that solution forward.

Q43 **Tonia Antoniazzi:** That is interesting. You talk about political will, and we are in a climate emergency, which is something you have spoken about quite clearly. The political will should be there. It is there. How do we move it forward? Who would you point the finger at, which Government and which Department, to drive this forward? Because we need to do something about it.

Paul Hewett: The consenting of large-scale grid infrastructure sits with the UK Government at the moment. It is very clear that the UK Government need to be very involved with this.

The thing that I see at the moment is that there are a number of parties talking about this and saying that it should happen, but there is no single overarching working group that ties all those stakeholders together, including UK Government, Welsh Government, Ofgem, National Grid, WPD, SP Manweb, NRW and industry. Tying that together with a clear strategy as to how we are going to unlock it is a role that UK Government could take to unlock the potential that mid-Wales has for being a powerhouse for renewables, not just for Wales but also for the rest of the UK and further afield.

Q44 **Tonia Antoniazzi:** It is good to see you back, Tom. My question earlier was on how the deployment of onshore wind can be further developed in Wales, and we ended up talking about the grid. Do you have any comment to make on the deployment of onshore wind and the principal challenge?

Tom Glover: Yes, thank you. I am just illustrating what a bad network does in real time.

I think Paul is absolutely right. For us, we do not develop any projects in mid-Wales at the moment. We have projects in onshore north Wales and onshore south Wales, because the grid is not being resolved in mid-Wales, yet there is this great opportunity in mid-Wales, absolutely.

From our perspective, this is not just a Welsh problem, by the way; this is what we see in the UK, this kind of strategic thinking. There is a little bit of a chicken and egg problem. Under the current framework, National



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Grid will only start looking at grid infrastructure upgrades if there is a project, yet as developers we are not going to start projects unless we think the grid is going to be there. It is a little bit chicken and egg.

You need to take it out of there and go into what we call anticipatory grid investment. What we mean by that is we know we need to electrify the UK and we know that is going to need grid upgrades. You need to think in advance, almost like build the grid and they shall come. We are going to need the grid not just for windfarms or solar farms but for electric vehicles and electrification of industry and everything else.

We are pushing generally to say let's have more anticipatory investment, and there is a possibility under the latest price control for the national grid system operator, the so-called RII0-2 price control. It does have funding available that National Grid can apply for to look at early-stage development to what happens. They can apply for each project up to £2 million to basically do this. That is what we would urge. We would urge the Welsh Government and the UK Government to put pressure on the system operator to make mid-Wales one of those areas where that £2 million goes to and start this year in the planning of that and what needs to happen anticipatory-wise. Then they can apply for what is called net-zero funding, the special funding they can have to do that grid upgrade.

That is what we would say needs to happen immediately, but Paul is absolutely right, we also need—and we have been pushing for it—a more strategic direction across the UK as to how we solve this problem.

Q45 **Tonia Antoniazzi:** Tom, it is not just uniquely in mid-Wales. You have said that, it is UK wide, but it is also south Wales and north Wales.

Tom Glover: Yes, we have struggled for years. Our Pembroke power station is right on the edge of Wales and we have the transmission line that goes all the way along past Swansea and Cardiff and through. It took us ages to get that upgraded, and now we have this great opportunity in Celtic Sea, which hopefully Christoph will talk about. Celtic Sea could do 50 gigawatts of offshore wind, but then again it is at the periphery of where the demand is. In order to get that to come, you need to upgrade all those transmission lines that go all the way across.

Q46 **Tonia Antoniazzi:** I know those questions are coming up. Paul, do you have something? I have one more for you, but go on.

Paul Hewett: To quickly add to Tom's point, we currently have a grid that is designed for centralised generation to be distributed to users. The way that renewables works is not like that. There needs to be an acceptance that the old methods for developing grid are not suited to the transition that we are going to go through, so new methods need to be put in. That change needs to be ambitious and significant.

Q47 **Tonia Antoniazzi:** This is my last question. Would you expect the deployment of solar energy in Wales to accelerate due to its inclusion in the contracts for difference auctions?



Tom Glover: Yes, but I think that the so-called pot 1, where established solar and onshore sits, is too small. You have probably, we think, 6 gigawatts of projects that can go into that pot and it is one. That is spread across the whole of the UK. When you prorate it to what will be supported additionally, as Paul said, in Wales, it is not going to be so significant. To really go for it, you need to have that pot made, I don't know, 4 gigawatts so that there is still good competition—you get the price pressure because you have 6 gigawatts competing for 4 gigawatts—but materially more in order to increase the deployment. Obviously, the more support there is for any technology, the more will come, quite simply.

Paul Hewett: In terms of Welsh solar specifically, without a significant increase in the CfD pot, I don't think it will have a huge effect because the CfD is still competitive. Welsh solar projects, mainly because of the grid infrastructure upgrades required on the distribution network, are not competitive versus onshore wind projects, particularly onshore wind projects in Scotland, and potentially other solar projects around the rest of the UK. Again, it comes down to making Welsh projects competitive by having the grid upgrades that are required on both the transmission and particularly the distribution networks.

Q48 **Ruth Jones:** One of my questions has already been substantially answered, so I will move on to the next one. We are looking at the seabed licensing issues. To what extent is the seabed licensing procedure hindering the use of the energy deployment in Wales?

Christoph Harwood: There is no doubt that seabed licensing is critical for the success of, say, Celtic Sea. As Tom mentioned, there is 50 gigawatts of offshore wind out there. It is rather like being in Aberdeen in 1965 and looking out and going, "There is a lot of oil out there." We are looking at it and saying, "There is a lot of wind out there, there is a lot of energy."

The leasing process is in the hands of the Crown estate, and currently the only way you can get access to a seabed lease is to do what is called a test and demonstration site of 100 megawatts, which is what we have done with our first site, Erebus. We have the first site. We have a seabed lease on it.

The other way to do it under the existing regime is that the Crown estate runs a leasing round, which it is doing for north Wales. We are on to round 4 at the moment. It seems to take 10 years between leasing rounds, and that is about leasing large projects, up to gigawatt-scale. We have been in dialogue with the Crown estate about an intermediate process that allows stepping-stone projects to happen. Before you get to the big projects, you step up. You start with 100 megawatts, then you move to 300, and then after that you can get to 500 and to a gigawatt. It is on that intermediate step that we have been in dialogue with the Crown estate, which works for our Valorous site, which is about 300



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megawatts. We do not have a lease for that, even though we are currently investing in that.

Encouragingly, the Crown estate consulted before Christmas on what it calls early commercial projects. An early commercial project is not the full leasing round, and it is not the test and demonstration. It will be a new process. We do not know what that new process is, but I think Jess can confirm for Marine Energy Wales. It was confirmed that there will be an announcement on this soon, and it will be about 200 to 300 megawatts.

A major concern we have is that, to get a 300-megawatt project live by 2030, which is part of the target from the UK Government to have 1 gigawatt of floating wind, you need to be in that CfD round by 2025. The way the mechanism works is that you go into 2025, you then have four years to budget year, which takes you to 2029. CfD rounds are every two years, so the one that follows will be in 2027. In 2027 you will also have the big ScotWind projects coming through. ScotWind is leasing 11 gigawatts of offshore wind. We think about half of it will be floating. Our Valorous project will be much smaller scale. It is not designed to be big because it is a stepping-stone project, but if it is delayed, then it will run into competition with the ScotWind projects, and CfD rounds can be brutal.

We have a short window where we would like to get a seabed lease as soon as possible for Valorous from the Crown estate, and we are encouraged by the fact that it is looking into this, but it is the timeliness that is really important for us. The joint venture is between ourselves and Total. Total clearly has global aspirations and is looking globally, and we have stage gates to go through. If we do not get through a stage gate, we do not continue. We are hoping that we will see some speedy action from the Crown estate on this early commercial mid-size site between test and demonstration and a full leasing round.

Ruth Jones: Sure, so timing and timeliness is crucial, obviously. Jess, do you have anything to add to that?

Jess Hooper: From a floating offshore wind point of view, I would support everything that Christoph has said. In terms of our members and our membership representation, he has summed it up very nicely.

I would probably bring it back to the other sectors within marine renewables, so looking to wave and tidal. We are in a very unique position in Wales at the moment. There was a strategic consideration in the Crown estate in around 2015 or 2016, which looked at array demonstration zones, zones essentially where you can go and put multiple devices in, effectively a mini farm to demonstrate the technical viability. In Wales, we are well on our way to developing the strategic stepping stones for those deployments. We have sheltered test areas. Marine Energy Wales runs the META, which is the marine energy test area, looking to support businesses taking their technology out into open sea test locations. Then the array demonstration zones come in, and they



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already have seabed leases in place; indeed, Morlais up in Anglesey is well on its way. I think it has just completed its public inquiry. It is well under way with its consenting processes.

Admittedly, it has not been straightforward. We are still faced with challenges from consenting, decision making and Natural Resources Wales being quick enough, but ultimately from a licensing and seabed licensing point of view, we are really well placed at the moment as long as the CfD and the funding support comes through to inject that industry, take it forward and accelerate that development.

There is a side story here that goes alongside. You have seabed leasing and then you have marine licensing that sits on top of it, which is the consenting process. On one of the challenges I mentioned, NRW struggling to make decisions, there is one significant aspect, which is that we need additional data and evidence to support those regulator decisions. Ultimately, unless you have kit in the water, you cannot necessarily collate that data and provide that evidence. It becomes a little bit catch-22.

We have an opportunity, and the Crown estate is in a brilliant position to learn from other deployments that have happened. Scotland has done very well. EMEC as an anchor project has drawn in a lot of innovation. It has deployed a lot of technology and has a lot of data. There is a lot of learning in that regulator through Marine Scotland that could come across to Wales to assist in the consenting process, the marine licensing aspect. As I say, in leasing we are uniquely positioned and we are doing quite well.

Ruth Jones: Paul and Tom, do you have anything else to add?

Tom Glover: I have a couple of comments. We were one of the successful candidates for the existing fixed offshore competition that happened a couple of weeks ago. Where we were successful was Dogger Bank, so not in Wales, but BP and its consortium were successful in the Irish Sea, which may be a Welsh project and maybe that is something you want to think about: how do you make that a Welsh project, not an English project? It has options to connect into Wales or England. I don't know, you would have to ask BP where it is going to connect it. It has opportunities to use ports in both.

I think that shows the attractiveness of leases and the value they can create. It has raised a lot of money for the Treasury. This money that we pay goes to the Treasury, or 75% of it goes to the Treasury, and can be used for general good. I think it is good that the industry is that attractive.

On the floating, I am exactly with Christoph. We also have a project that we want a lease for called Draig y Môr on the west of Anglesey, another 100-megawatt project, so starting again at that lower size to show the



technology. We are waiting for the Crown estate to decide whether we are going to get that lease.

This is a global competition about who is going to be the leader in floating technologies. The UK has managed to establish itself as the leader in offshore fixed by far, and that is enabling us to all go outside globally and invest and take our skills as an export product. There is an opportunity for us to do that in the UK, most likely in Scotland or Wales but also in England. Lots of other countries are doing this as well. Currently, our live floating projects are in France and the US because they are the ones that are giving us support today, but when we are proving this technology, we will prove it in the best area for us economically, where we think we get the most support from universities, local communities and so on.

I think there is a real opportunity for Wales to get there in the Celtic Sea and also to get there in the Irish Sea, but the Crown estate needs to give us the leases so we can move forward with those projects. Otherwise, as Christoph said, ScotWind was supposed to happen very shortly. They have delayed it slightly. Scotland will be a predominantly floating market, and we are probably going to be able to deploy 500-megawatt projects into ScotWind and then Scotland will lead the way, which is great for the UK but maybe not so much for Wales. I think there is something there about which part of the UK becomes the leader.

Q49 Ruth Jones: That makes sense. Can I ask a quick supplementary on the point about the munitions dumps that are obviously going to be removed for your offshore wind, whether it is floating or fixed? Are you blasting at the moment, or are you looking at the alternative of the magnesium injections? I am obviously thinking from a marine fish and ecology point of view. Jess, do you have anything to say on that?

Jess Hooper: That is probably one that is better suited to the developers. I am not familiar with the process, I am afraid.

Ruth Jones: Okay. Shall I ask Christoph?

Christoph Harwood: Tom. I will pass that one to Tom.

Tom Glover: If it is okay, can I come back to you on that? That is a level of detail that I don't know. I do not even know if we are doing it or not doing it, so if it is okay, I will write to you with the information.

Ruth Jones: That would be really helpful. Thank you very much.

Chair: Just on that point, if there is additional information that any of the panellists wish to supply to the Committee following this session, please feel free to write in.

Q50 Beth Winter: I am interested in the subsidy support. My specific question is: what additional support do you feel the less developed technologies, so tidal range and wave, would require from the UK and Welsh Governments?



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Jess Hooper: We have talked quite a lot about the CfD, and we have talked about the timings that the CfD brings about, so the two-year round. We are talking about quite a protracted period between those rounds for wave and tidal members, and timing becomes quite crucial for them to hit those. You have to deliver your consents. You have to have knowledge of your technology. You have to be in a position to move to react to those auction rounds as they come through. That can be quite challenging for a technology that is proving itself and going through those commercial stages.

We are basically proposing an alternative support mechanism that can fill those gaps. It is targeted specifically to smaller-scale projects, maybe up to 5 megawatts. Christoph will hopefully come in on this in terms of the potential mechanisms that we can use to do that, but looking to feed-in tariff or power purchase agreements that can support the technology in those earlier stages where they are not quite pre-commercialisation. They are looking to deploy and demonstrate. I suppose they are pre-commercialisation, but they are in a position to move. They can link their generation from the technology to a power purchase arrangement, so they are still generating electricity that can be meaningfully paid for and can be meaningfully exported but, ultimately, it is not the competitive environment that you are looking for from the CfD. Christoph will probably discuss that a little more eloquently than I have maybe been able to.

Christoph Harwood: It is an interesting question. If you look at the renewable energy over the last 10 or 20 years, the UK is basically a nation of project developers. We are very good at finding projects and getting them up and running, but we often buy the technology from overseas. The turbines and the cells come from Germany or from Denmark. Solar panels can come from Spain. Even some of the hydro stuff comes from overseas. With wave and tidal stream, and to some extent floating wind, we have the opportunity to own the technology space as well as owning the project space. If you own the technology space, you capture the economic benefits within the country for the projects you do, but you also set up an export market. Some people may know that the Danish wind industry sometimes makes more money out of selling turbines than the UK arms industry. It is a huge success story because the Danes invested in wind technology early on.

What we have identified—and this is me speaking with more of a Marine Energy Council hat on rather than Simply Blue—is that there is a gap. You have some great grant funding and you have the CfD programme, but there is a gap between the two. What is required is a form of revenue support that is aimed at technology developers. It is not aimed at us, RWE and others like that; it is aimed at the companies that are based down in Pembroke, like MPS, Bombora and people like that. They are developing the technology, and what they need is some certainty of payment but at their risk, so they only get paid if they generate electricity. The CfD does not provide that because it is an auction system.



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It happens every two years, and it is four years until you get paid, so that does not work.

We have come up with something called the innovation power purchase agreement. You have a power purchase agreement with somebody who is going to buy your power. They buy the power from you at over market rates, as set by the Government, and then they get a tax rebate for paying that excess cost for using new technologies. We have gone through a few iterations on this. We have shared it with BEIS. We have shared it with some Treasury officials. My sense is that there is increasing interest in that, in that there is this recognition that we should own this technology space and we should not lose it.

The focus for BEIS is clearly on the CfD programme and getting that right hopefully for wave and tidal, as well as floating wind, but we hope that after that it can turn some of its attention to supporting the new technologies through something like an innovation power purchase agreement or something that delivers the same benefits.

Q51 Beth Winter: Can I ask a supplementary? I was going to raise this earlier. For the south Wales valleys, where I live and represent, what opportunities are there in terms of the types of schemes and subsidy arrangements? Christoph, you have experience in this.

Christoph Harwood: The south Wales valleys? I mainly focus on marine opportunities, so I could not really say that I know what would work for yourselves. Clearly, there is hydro and there are a whole load of schemes out there for smaller scale.

To us, the big opportunities clearly are coastal from our point of view, but it is amazing where you find supply companies operating. It is amazing how far the supply chain stretches around the UK for a project that might be deploying off the coast of Wales. It would be interesting to know who is in the constituency and what they do from an engineering point of view. It is not just about supply chain by people who are actually based at the ports.

Tom Glover: As Christoph said, we are not really in technology development. Where we see it helping in your area, for example, is we are developing a project. Sorry, I do not know exactly where it is. I used to buy coal from the Miller Argent Ffos-y-Fran mine, but it is basically the other side of that road, the Heads of the Valleys road. We have a windfarm development there, and that is basically where we see the support coming in the CfD. That is not technology development support; it is support for established technologies. We are investing in your area; it is just in the established technologies.

Q52 Beth Winter: On the more general question about additional support for less developed technologies, what support would they require from the Welsh Government and the UK Government?



Tom Glover: It is not an area we are an expert in. For the ones that are very obvious, like floating wind rather than the marine stuff, which Jess is better at, the different pots in the CfD have been quite a good way to go forward. We have seen technology development driving down those CfDs. If you take the cost of offshore, where it was when it started with ROCs and then CfDs and where it is today, you can see that driving down. I am not an expert, but I can see Christoph's point. It does not work for really new technology developers, but it is not an area we are actively involved in.

Beth Winter: Finally, Mr Hewett, do you have anything you want to add?

Paul Hewett: It is just a very small point. I completely agree with the piece, for example, around Danish wind and the fact that the Danish wind industry now does not make its profits from selling wind projects in Denmark. It creates huge value for Denmark by selling wind projects outside of that.

Renewable energy industries are global. This is a global thing that needs to happen. One of the things that we often focus on is building local supply chains to supply local projects. In reality, for me, the two are quite separate. We need to deploy projects in the UK in order to tackle climate change, but we have an opportunity to be leading in an industry that is going to grow over the next 20, 30, 40 years. What we should be doing is focusing on how we can capture a good part of that industry in order to export.

One thing that we talk a lot about for Wales is that Wales has a huge amount of resource. It has human resource, it has natural resource, it has incredible things that can be used to export. It is making sure that we are not just considering how we do this to supply Welsh projects but how we build an industry that can then be an exporter for Wales. I completely agree that it, therefore, does not matter that much where those bases are located. Floating wind projects are supplied from Portugal at the moment, so why wouldn't Wales be able to supply Portuguese floating wind projects?

Q53 **Geraint Davies:** In the Budget yesterday, there was a measure to provide 130% tax relief on capital investments in the next couple of years. Does that actually help bring forward marine energy projects?

Paul Hewett: Unfortunately, I have to pass on that one.

Christoph Harwood: Again, tax is not my area of expertise. I can see some benefit case, but I would prefer to come back to you on that.

Tom Glover: Sorry, it is three blanks. I apologise, it is not something that we have looked at in detail yet. I believe it is linked to R&D, and our R&D, apart from in floating, is relatively small in the UK because we are not a technology provider.



Jess Hooper: I am afraid I am going to be much the same. It would be something I could go out to our members, who are the technology developers, to try to understand, but as yet we have not really managed to assimilate all of the information to be able to share it, sorry.

Q54 **Geraint Davies:** The Budget itself will be subject to possible amendments. Can I ask the panel what essential change they would like to see in the future to make marine energy subsidies fit for purpose so we bring forward faster development and we are very much a globally competitive player? Paul, how would you essentially change the financial subsidy system?

Paul Hewett: I would also pass off to the marine colleagues. I think I will pass to Jess on that.

Geraint Davies: All right. I am not doing too well here. I will try Christoph. Is there any essential change you would like to see, or do you think the current system is reasonable?

Christoph Harwood: I would suggest two things that are worth looking at. Perhaps I have mentioned them already, but let me just go over them again.

One is the support for port investment on the east coast. Clearly, something is also needed for the west coast for the Celtic Sea. To have some sense of pipeline beyond the current support given would be very helpful and would give encouragement to the ports we are working with.

The second thing is going back to this innovation power purchase agreement, which is in a sense a tax issue. The feedback we have had is that this would come through a Budget. It is a Treasury issue. It is not a BEIS issue. Of course, getting parliamentary time for new revenue support models is always challenging. Therefore, if it could be included in this Budget, as Budgets always get parliamentary time, that would help the marine technology sector to attract investment, get projects going and scale up.

Those two areas are the ones that come to mind to me at the moment.

Q55 **Geraint Davies:** Can I pursue the ports question, as I was going to ask it anyway? I think you have mentioned the pipeline. Specifically, what infrastructure would you want to see in the ports across south Wales to help bring forward some of these marine energy projects? Is it simply the pipeline or is it more?

Christoph Harwood: If you look at floating platforms, these are fairly chunky bits of kit. They need a good draft in the port, good depth of water, 10 to 15 metres. They need good strength at quayside for the cranes to do the lifting work, and they need a good laydown area. That is when you are towing in something that has already been built.



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If you go back up the supply chain and you want to build them as well as fit them out and do all the installation work, then clearly you need bigger space. You need the capabilities to work hopefully on modules, which might be imported and assembled.

We have been talking with the ports around the Celtic Sea and around the UK ports to see what is available. We are concerned. Some of this is depth issues and some of it is laydown issues, but it needs investment.

One of the challenges for the Government is to consider, if you are going to do infrastructure investment in the port, should some of that investment be short term. We all know it is great to invest for the long term and we think the 2030s will be big for the Celtic Sea, but the lead time to get everything ready may not be available. Our first project, if we are in the 2023 CfD round, we will want to go to the final investment decision in 2024 and start awarding contracts in 2024. Ports need to be ready for that, and that is quite difficult.

I call it the portacabin solution. Are there solutions in ports that you might do something that is temporary to enable local benefit, to enable local supply chain to get involved and then you might not see that as the long-term solution? An example might be that you could use a jack-up barge, which is a vessel that you could sail into the port. You could use it in the sheltered waters of ports, but it is an expensive vessel and it would not be there forever. You could argue it is a waste of money because it is not delivering a long-term solution. However, what it is doing is enabling short-term opportunities for local businesses to get involved.

What happens with a port will often dictate what happens throughout the supply chain. As much as we might want to bring in as many companies as possible, when you have a port you have a focal point. The other thing to think about is in our first project we are looking at about eight platforms. In our second project we could be 24 platforms. If you get up to a gigawatt, you are talking 200 platforms.

This is a huge operation. It is not like building an oilrig where you do it as a one-off. This is about getting a process that goes through probably multiple ports. You are probably looking at multiple port solutions. Therefore, there is an ability to spread the economic benefit around, but to do that you need to make sure the ports are capable.

The challenge for the Government in providing finance is, first, whether they should look at short-term solutions, the portacabin issue where you need to come back and do it again later. Secondly, how many ports will you support, because we are looking at multiple solutions? Finally, how much of that activity do you want to capture? Are we happy just with installation work, when we put the turbine on to the platform and then do the integration? Do we want to go back up and do the assembly work where the modules are brought in and the platform is moduled, or do we want to fabricate it in cut steel? Clearly each of those requires more and more resources at a port or assembly point.



Q56 Geraint Davies: In terms of evaluating all the different ports, you have mentioned a multiport solution. I obviously declare an interest. I have interests in the port of Swansea, and in Neath Port Talbot as well, and we have representatives from Pembroke and Newport and so on. Do you see an opportunity or have you any plan in mind for investing across all those ports, or focusing? Do you think that the introduction of a freeport or a number of freeports might be helpful or possibly distortionary in that process?

Christoph Harwood: We are certainly talking to some of the ports you have mentioned about their capabilities. They have potential, but they need upgrading to meet that potential.

As developers, we do not invest. That has to come from the ports, and the ports have to make their own investment decisions. I am sure they will make them based on more than just what we can offer. They will be looking out to the 2020s and into the 2030s, to the long term. The dialogue between Government and ports and investment is that. The ports and the Government need to try to work out what they can do. We will hopefully provide the first two stepping stones in the pipeline.

Where the freeport option is interesting could be something like projects in Irish waters. Ireland has some good ports—it has Cork—but there is going to be a lot of activity in Irish waters, and there is a great opportunity for export from Welsh ports to Irish projects. What you would be doing in a freeport is assembling the platform from all over the world—probably from all over Europe and maybe all over the world—and then re-exporting it back into Irish waters.

From my understanding of freeports, there is that capability of using the real mechanism of the freeport to help export into Irish waters. Of course, others will be looking at doing that—the French, the Spanish and everybody else, and the Irish have their own homeports. But that is an opportunity that we clearly will be trying to explore when we look at our projects in Irish waters

One last point worth thinking about on ports is about port collaboration. Ports compete with each other. Ports are private businesses or trust ports, but in essence they are trying to win business off each other. We need collaboration as well. This could be collaboration across Welsh ports, it could be collaboration between Welsh and Irish ports, but if you are going to create a supply chain, an assembly line, if you like, for eight platforms and then 24 and then more, there needs to be some co-ordination. At times one wonders whether that culture of collaboration is there at the moment. While we are trying to encourage by holding workshops and things like that, we also have to do a lot of point-to-point dialogue.

Q57 Geraint Davies: Do you think there is an opportunity for Government, both Welsh and UK, to intervene to help facilitate that collaboration, partly by way of providing some level of subsidy to support the



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development of infrastructure to get people on side and to bring forward these projects more quickly?

Christoph Harwood: I think that form of subsidy will be required. We have had the Swansea Bay city deal helping Pembroke Dock already. There may be some increased requirements there. If you look at, say, Port Talbot, there are some investment requirements there. I think there is a need for something that came together for Pembroke Dock to carry on again and for the other ports to look further at Pembroke Dock.

The Welsh Government have been supportive. They are doing a port study that they will be sharing with us, and we will be looking at that at a strategic level. There has also been set up a Celtic Sea cluster, which looks at how the supply chain can co-operate across the whole English and Welsh part of the Celtic Sea. That goes down to Cornwall, as well as through Wales. So we are seeing collaboration coming through, but this is a new area. It is not like the east coast. The east coast has oil and gas. It has infrastructure in place to grab hold of the offshore wind opportunity. In the Celtic Sea we do not have this oil and gas legacy and we have to play a bit of catch-up and have the parties work together to make that happen.

Q58 **Geraint Davies:** Could that fit in with the Swansea Bay tidal lagoon, all you have been talking about?

Christoph Harwood: The lagoon is a different engineering challenge. It is much more of a civil engineering challenge than it is about marine operations and marine offshore. That is my personal view, but it is not my expertise.

Q59 **Geraint Davies:** Finally, Christoph, Tom or Jess, do you have any final points about future investment to facilitate marine energy being brought forward?

Tom Glover: Yes, maybe a couple. I will move away from the Celtic Sea, which is important, to the Irish Sea. As I said before, Awel y Môr, our big project is happening this decade, and therefore there are opportunities this decade in north Wales.

We work with the north Wales economic ambition, and we also have a cluster with north Wales and north-west to try to develop the area for jobs, skills and investment. There are opportunities for development in Anglesey and Holyhead, et cetera. We say do not ignore that, because there are going to be some big projects after ours as well. There is our project and then there will be the BP project.

I think working together as clusters, as Christoph says, makes sense. We are also down in the south Wales industrial cluster trying to make sure that we are all working as one area to bring all these opportunities together, whether that be offshore floating, hydrogen, carbon capture and storage or whatever.



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As well as direct intervention into ports, we need continued funding by the Welsh Government or the UK Government of these industry clusters where we are all trying to work together to make this thing work. Continued funding of the south Wales industrial cluster would be good so that we can develop these ideas and end up with an integrated energy framework. That would be good.

One other point. To bring it back to the Budget, which was your original question, what is missing for renewables as a whole, not just marine? It is long-term certainty of carbon pricing. All projects, whether they have subsidies or not, require good direction of where we are on carbon pricing. What was disappointing in the Budget was, yet again, just one-year certainty on carbon-price support. We get only one year where the Government say it is £18 a tonne for next year. That is useless for us as developers building renewable projects, because we do not even bring them on for four to 10 years.

We need long-term price certainty, almost a framework, of where that carbon price will go and we are not getting that off the Government. We are not getting it in terms of the new UK Emissions Trading Scheme. There is no clarity of whether it will be linked to the EU Emissions Trading Scheme. There is no long-term clarity on which sectors will be in or out. If you want to move away from subsidies and support, you need to get this carbon pricing right. That is the overall missing framework at the very top level that will drive low carbon in all parts of the economy.

Q60 **Geraint Davies:** Should that be built into trade agreements as well, do you think?

Tom Glover: Absolutely. Under the European trade and co-operation agreement there is a clear clause that says we will investigate linking the UK ETS to the EU ETS, yet when we ask BEIS whether those discussions have started and what the plan is, we get a blank. We do not know what it is doing. Maybe it is getting on with it, but we have no certainty about whether that linking will happen, yet every day we have to despatch our power stations on an assumption about whether it will happen or not.

Q61 **Geraint Davies:** This is something we should focus on at COP26 and taking a lead, presumably, in terms of renewables.

Tom Glover: That would be a great start, because this is global problem, as Paul said before. Ideally, you want a global price of carbon. Maybe that is a bit ambitious, but the more places you link the carbon price to, the more efficient we will get towards decarbonisation; the lower cost to the consumer it will be to get to decarbonisation. We would say let's not just stay as a UK Emissions Trading Scheme; let's go as international as possible. If we can do that as part of COP, that would be great.

Q62 **Geraint Davies:** Paul, very briefly, because I am taking too much time here, in terms of looking to the future for investment in ports and the idea about the future price of carbon, do you have any advice for the



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Government on how to set a framework on which investors can invest into renewables for the future?

Paul Hewett: On ports I would not, but on carbon pricing I completely agree with Tom. I think that by using the CfD mechanism to subsidise renewables, you are not directly addressing the major externality that we are trying to counter, which is the production of carbon. That creates a load of discrepancies in the market and market distortions by having some projects that are subsidised or supported, other projects that are not, and parts of the economy that are supported and parts of the economy that are not.

The main reason we have had to do that is because we are not properly pricing the externality that is caused by the production of carbon. I completely agree with Tom that not having a clear path to how we are phasing out carbon through charging that externality properly makes it very difficult to be comfortable about investing in merchant renewables particularly.

Christoph Harwood: Carbon pricing works well when you are looking at large-scale, long-term markets, but in innovation and development of new technologies, carbon pricing does not work. You need that level of support through revenue support schemes.

Q63 **Geraint Davies:** Finally, Jess, is this something your members would support, greater long-term clarity of carbon pricing alongside immediate investment in the grid, port infrastructure and so on?

Jess Hooper: I cannot comment on carbon pricing, but from a grid and infrastructure investment point of view it is important to recognise that the investment leads to multifaceted benefits. Christoph has talked a lot about floating offshore wind and being able to service that industry, but with that comes operation and maintenance specialities, vessels that come into the area. They are all transferable skills and activities that go to support marine renewables.

You only have to look to EMEC in Scotland, the European Marine Energy Centre based in Stromness. The port has seen massive booms as a result of marine renewables being linked there, and that is a direct result of infrastructure investment going in. We would very much anticipate something similar happening up at Holyhead, and potentially down in Pembroke Dock, as we have seen the Swansea Bay city deal coming through and the north Wales growth deal for Anglesey.

It is crucial to home in on the fact that innovation begets innovation. Where you have these little hubs that are invested in and begin to flourish, you end up with a growing network of innovation; like Silicon Valley, if you want to go really techy on it. There is an opportunity to anchor these projects in these coastal locations that serve well for the levelling-up agenda. Also from the green recovery point of view, you are



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taking that investment into these areas that need it the most and multifaceted benefits can come through.

Geraint Davies: Thank you. I am sure, as the Chair said, we would welcome any additional suggestions to add to our recommendations on how to move forward. Obviously this is a complex area and time is limited.

Q64 **Ruth Jones:** You have outlined very eloquently, all of you, that the lack of grid capacity is affecting the renewable sector across Wales. I will not pinch Simon's question—he will talk about the north and I will talk about the south—but I am very conscious that there is a big chunk in the middle.

If you had one ask, each of you, what would it be to make sure that you can progress? You have talked about the problems. What is the one solution you can think of that would help unblock this pipeline and get things moving?

Christoph Harwood: Sorry, is your one ask on grid or just one thing in general?

Ruth Jones: On grid, because you have all highlighted the fact it is no good having the renewables if you cannot get them to the network and get them into people's homes and industries.

Christoph Harwood: I would ask that the regime moves to predict and provide, that we move where we recognise there is 50 gigawatts of floating wind in the Celtic Sea, we are going to need that. The Committee on Climate Change says you need 100 gigawatts of offshore wind by 2050, and we know we need a grid to do that. If we only upgrade the grid where there is a project, that is not very strategic. I would say we know it is going to come from the Celtic Sea. Let's put the power lines in now, and then we know the projects will follow.

Ruth Jones: Thank you, that makes sense.

Paul Hewett: I agree. We need to accept that we need to make ambitious change to the grid. We are going through a transition from the way that we generated and used electricity 20 years ago to the way that we will generate and use electricity 30 years from now. You would not design the grid network in the way it is currently designed for the future scenario. The future scenario is how we are going to continue generating electricity going forward.

The current mechanics we have through the way that Ofgem regulates the operators, the way that we charge for grid connections, the way that we charge ongoing charges for grid connections are all still based around an old model, and the changes that have been made are very incremental. We need to take a step back and ask strategically what this needs to look like in order, exactly as the other panellists have said, to be able to be more strategic about creating the grid that is going to serve us for the future and not try to sticking plaster the grid that we had in the



past. In the long run that will be the lower-cost way of producing electricity. It is accepting a potentially slightly higher short-term cost for a much longer lower cost going forward.

Jess Hooper: I reiterate the need for a strategic review of the needs. We are uniquely placed, because we have grid lines in place along both the south and north. I appreciate that I am skipping the mid-Wales areas, but compared with somewhere like Scotland, we have the infrastructure, or the beginnings of the infrastructure, which does require upgrade and development. A forward look that considers that and looks at where the projects are geographically located enables you to think much more strategically.

I should probably also mention the opportunities that come from the various diverse and resilient energy types that we have in the marine renewables environment. I have mentioned tidal stream and wave, but there is also tidal range, the lagoons opportunity, and making sure that diverse energy mix enables us to supply electricity to the requirements that we will have. We are facing electrification of everything, pretty much.

There are obviously vectors that we are looking to explore with hydrogen and with storage that can support that, but ultimately having a network that services that provision is key. That strategic view is of ultimate importance.

Tom Glover: It is a full house here. It is anticipatory and strategic investment of grid, and how you are going to make it happen in the very quick term is by changing Ofgem's mandate to stop looking at immediate cost to the consumer and look at the most efficient long-term way to get to decarbonisation, because we are going to have to get here. Secondly, under the current RIIO price control, get National Grid to start the work. Get them to spend this £2 million and start the strategic design this year.

Ruth Jones: Thank you, Tom, that is helpful.

Simon Baynes: Thank you. I suspect the issue has been very well covered already. Like Ruth in the south and my colleagues in mid-Wales, we all come up against this issue in terms of talking to renewable energy suppliers. You have covered the matter very well, and I will leave it like that.

Chair: Thank you. We are drawing to a close, unless there are any other questions from colleagues on the Committee.

Q65 **Geraint Davies:** Can I ask whether the panel think there is a strong case to also have a hydrogen grid, and whether that should be upgraded at the same time? Obviously that would be an upgrade of the gas pipelines, I guess. I am thinking about what the infrastructure of renewable energy delivery across Wales would be in the future. Does anyone have a view on that?



Tom Glover: Yes, is the clear answer. If you can get 50 gigawatts of wind into the Celtic Sea and you already have facilities like LNG and gas-fired power stations in Pembroke, you can definitely look at creating a hydrogen hub and hydrogen infrastructure. We are already looking at whether we can burn up to 20% of hydrogen in our gas station at Pembroke. That is what our ambition would be.

With the LNG facilities, we are used to treating large amounts of gas and processing it through Wales. Having that also helps with your larger industries. Ultimately, some industries will need hydrogen or will need carbon to survive; they cannot use electricity in their processes. For those it is important that you have carbon capture and storage and/or hydrogen. Why not Wales when you have that 50 gigawatts?

In a way, it solves the problem a little bit because one of the disadvantages of the Celtic Sea—and Christoph might disagree with me—is it is not very close to electricity demand, but what is nice is you can make it close to hydrogen demand. You can make it close to electrolysers and then you are shipping hydrogen, and you have some big gas pipelines because of the LNG facilities that go all along the south of Wales. That could be a neat solution.

It is early stages but that is why, as I said before, continued funding of the south Wales industrial cluster that is coming up with these ideas is the way to try to turn them from my theoretical ambition to real plans and real investment.

Q66 **Chair:** Could I play devil's advocate for one moment? I have been a strong supporter of marine renewables and development of wave and tidal, for the opportunities that might bring to my own corner of Wales in Pembrokeshire. But given all the emphasis this morning on the potential energy offering from offshore wind and floating offshore wind, and given how large some of these turbines are that are being built for offshore wind generation, is there room alongside that for developing marine renewables? Jess, you spoke eloquently earlier about the potential of this. Would it not just be easier, if Governments are looking for quick wins on the climate change agenda, to smash all their resources into ramping up offshore wind?

Jess Hooper: Christoph might shoot me for saying this, but you have to consider that wind is ultimately intermittent. A resilient energy mix will look at how you address the need for electricity when the wind is not blowing and the sun is not shining. Tidal and wave are phenomenally good for filling that gap.

Wave is essentially the storage of wind. It arrives after wind, so you get a natural delay. The waves will hit our shores and therefore be producing electricity after the weather system has potentially passed through. Similarly with tides, they are predictable to the minute. We can predict the tides out years and years. When you combine both tidal range and tidal stream, you create, with tidal range, potentially your baseload that



you can assume is there, as we use coal and gas at the moment to substitute when we have low periods of wind. It gives you an alternative that is clean and green.

Some people might argue that hydrogen as a vector could potentially solve some of that, but you have to remember that hydrogen is quite inefficient as a storage vector. Batteries may be a better solution, but it takes a lot of energy to power an electrolyser to produce the hydrogen and then to reconvert that hydrogen back to electricity. It is a real challenge. It is very much about having that energy mix and ensuring that we have a resilient prospect for net zero and building that all together, rather than focusing on one particular sector as being the solution to the problem.

Christoph Harwood: We are blue economy project developers, so we are not just developing floating wind. We are developing the first site of combined wave and wind on the west coast of Ireland. The research we have done shows that those two technologies work very well together to increase the capacity of the site. Waves, as Jess says, follow wind, so when the wind drops off you still have the wave energy coming through.

There is a BEIS consultation at the moment on energy systems. I was writing our response yesterday. If you look at what is the best option for long-term storage—we can all do short-term storage—with solar you need the storage at night, because the sun does not shine at night. When in winter we have a few calm days and the sun is not shining, we could store hydrogen but hydrogen has big conversion losses. It takes the cost of hydrogen, if you are buying it at £40 a megawatt hour as power, by the time you convert it into hydrogen and you convert it back into electricity again, it might be three times that cost, given all the conversion losses.

You have technologies like wave, tidal stream and tidal range that can plug those gaps. As an industry, we are coming to see that these new technologies are competing against the cost of long-term storage more than they are perhaps competing against offshore wind or onshore wind. How do we plug those gaps? We know there will be days when there is no wind blowing, so what is the best way to plug those gaps? Long-term storage is a tricky thing. Therefore, let's find other technologies that can operate when wind is not.

Q67 **Chair:** Thank you very much. This is a fascinating area, and all four of you have done a good job of providing us with very full answers in terms that laypeople like ourselves can readily understand. Thank you very much.

If there is nothing else and no other remarks from the panel, I will say thank you very much. Thank you to my colleagues on the Committee as well for your contributions. Do not forget we are back again in two hours' time for the session with First Minister Mark Drakeford.



Paul Hewett: I would like to make one final remark, if that is okay. I am conscious that one topic we have not addressed is planning. We have not talked about it at all. For onshore renewables particularly, it is an incredibly important topic. Planning in Wales is obviously a devolved power, and we are quite buoyed by where Future Wales is headed and the political climate there. But there is a key discrepancy between what is being said at a political level about the climate emergency and tackling that, versus actual decisions that are being made on the ground.

If you look at onshore wind projects in Scotland that have been applied for since the climate emergency became a material consideration in planning, 70% of projects have still been rejected. The vast majority of those projects have been rejected because of visual impact; visual impact not on national parks or areas of outstanding natural beauty but just visual impact in general. There is a discrepancy between where the Government and strategic thinking is, where potentially individual public and local thinking is and where local decision making and even decision making on a country level is.

Something that the UK Government need to tackle is ensuring support by doing wider public education of what needs to happen in order to tackle climate change. We have to tackle climate change. The only way to do that over the next 30 years is to deploy significant renewables. Those technologies are temporary, and if we find a better solution in the future, we can return the land to the way it was. In the meantime we have to get over the stigma that wind turbines and solar parks are a bad thing and negatively affect landscapes. We should be encouraging the public to feel good and proud about having projects near them.

Particularly with respect to Wales, one of the pieces of feedback we often get is, "England is not putting up wind turbines, so why should we in Wales? Why should we export power from Wales to power London?" Taking that on board, thinking about English planning policy and aligning that with the ambitious policy that the devolved Governments have moved towards, and also giving Wales credit for being an energy exporter in some way, will significantly improve the likelihood of projects getting planning through the Welsh system.

Chair: Thank you very much, Paul, a strong point there.

Q68 **Simon Baynes:** I want to come back to Paul on that, because it is important in this entire process that the needs and views of people locally are taken into account. When I asked you earlier in the session about local plans and so on, you were very articulate about how important it is to involve the local community. I would probably go a bit further than you were saying, but be that as it may.

One of the problems with what you are saying is that the companies that want to put up wind turbines in areas of outstanding natural beauty appear to be quite insensitive to the desires of local people, many of whom depend on tourism and visitors coming to the area. There is great



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reluctance, for instance, to bury power lines, which obviously will cost the producer more but would provide the acceptable compromise.

So while I hear what you are saying, the words you have spoken do not seem to take into account the issues that I am referring to. Those issues are very passionately held, and very logically held from an economic point of view. Yes, we have to improve renewable energy, but not at the cost of the beauty and the local economy in large chunks of rural Wales.

Paul Hewett: Thank you, Simon. I absolutely take the point. There are a lot of studies to show the effect of renewable energy and windfarms on local tourism, and we can provide evidence to talk through that.

I completely agree with you that we need to find a way to incentivise renewable energy developers to find ways to pass value back to local communities. At the moment, community benefits are not a material factor in planning decisions. They are not a factor at all in planning decisions. We know of developers who are deciding not to offer community benefits because the Government have essentially said that that is not important and not valuable. To include community benefits and the way that communities are supported as part of planning decisions and take that into account as a material factor would be beneficial both for the local communities and for projects, because it would give them a way to get planning if they are doing the right thing. I completely agree with you on that.

Simon Baynes: Chair, I will not continue, but I want to say one more thing quickly. It is not necessarily an issue of community benefits. I have lived most of my life in the borders of mid to north Wales, so I have lived through this and it is something that comes from the local communities. It is not so much about community benefit as it is about whether the installations in certain circumstances will have a material effect on the community. In that case they are not worried about community benefits but they are worried by the intrusion of the renewable energy into their lives. I will leave it there.

Chair: Thank you, Simon. This is a fascinating and important discussion, and maybe we can find a way to return to it somehow.

Jess, Christoph, Paul and Tom, thank you all so much for your input. It has been a helpful and useful session.