

Welsh Affairs Committee

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

Thursday 28 January 2021

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

Questions 1 - 33

Witnesses

I: Rhys Wyn Jones, Director, RenewableUK Cymru; Hywel Lloyd, Chair, Re-energising Wales project advisory board, Institute of Welsh Affairs; and Professor Nick Jenkins, Leader of the Centre for Integrated Energy Generation and Supply Research Group, Cardiff University.



Examination of witnesses

Witnesses: Rhys Wyn Jones, Hywel Lloyd and Professor Nick Jenkins.

Q1 Chair: Good morning and welcome to this session of the Welsh Affairs Committee, where we are beginning our inquiry into renewable energy policy in Wales. We are delighted to be joined this morning by three very distinguished experts in this field: Rhys Wyn Jones, Hywel Lloyd and Professor Nick Jenkins. I will ask each of them to briefly introduce themselves and then we will kick straight off with questions. Mr Wyn Jones.

Rhys Wyn Jones: Thank you very much for the opportunity to provide evidence this morning. I am Rhys Wyn Jones, director of RenewableUK Cymru. We are an independent renewable energy trade body. Our work in Wales comprises mainly policy advocacy and facilitating engagement networks to influence policy direction. Our membership comprises mainly large-scale on and offshore wind developers, but we also have close links with the emerging floating offshore wave and tidal sectors, as well as the hydrogen sector.

Hywel Lloyd: Hello, thank you for the invitation this morning. I am here on behalf of the Institute for Welsh Affairs and a programme of work that is captured in this report where over three years, 2016 to 2019, we looked at an economic strategy for Wales that would be about renewable energy or making Wales 100% renewable. I am going to report on the findings of that final report and all the work that went into it, a series of nine papers involving a steering group of 22 colleagues across all sectors of the energy academic industry environment. I also work part-time at something called the Active Building Centre, which is part of the construction sector challenge and is partly based in Swansea, and I am a non-executive member of the UK100 local government network, seeking to be 100% clean energy before 2050. Thank you.

Professor Jenkins: I am Nick Jenkins, I am Professor of Renewable Energy at Cardiff University. My background, I am an electrical power engineer.

Q2 Chair: Thank you very much. Just to set the scene, when you look back over the last 10, 15 years at the development of renewable energy in Wales and the UK, particularly Wales, where do you feel that there has been noteworthy progress? What are the opportunities that you feel have been grasped and where do you think the opportunities in the near future lie that we should be aiming for? Mr Wyn Jones, perhaps you would like to start.

Rhys Wyn Jones: Purely in terms of the targets that Welsh Government have set for renewable energy, they have a target of 70% consumption of power to be from renewable sources by 2030. We are doing pretty well; we are over 50% of the way there. That said, the pace of renewables deployment has slowed in the last few years. I think in 2015



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something like 900 megawatts was installed and that had shrunk to about 126 megawatts by 2018, partly influenced by policy decisions around the subsidy regime affecting deployment of onshore.

Looking forward, given the scale of the opportunity presented by both the Welsh and UK Government's commitment to net zero and from the huge potential contribution the industry can make to recovery from this terrible pandemic, there are obviously massive opportunities. Wales has namechecked Full Square as part of the UK Government's 10-point plan in terms of EVs, floating and carbon capture, so there is a raft of things that we do stand to capitalise from. For our membership, in order to do that, addressing issues such as grid constraint, port infrastructure, seabed leasing and licensing and general resourcing will be the key determinants of success for the decade ahead, and they will have very profound implications for the timeframe out to 2050.

Hywel Lloyd: I would highlight, both at the Welsh and the UK level, the setting of targets and ambition. That is clearly noteworthy and has led to a variety of successes in renewable sectors. The industrial strategy of 2008-2009 and that again of 2016 have both helped drive some of that transition to renewable by investing in some of the technologies that are available and putting in, in a sense, a package of measures that support the supply chain that are not just about the end product. They are about how you get the jobs, the manufacturing and things like that into play, the east coast and North Sea wind being one specific example of that.

The other thing that is being grasped is that renewables come at all scales. At one end you can have a massive offshore wind farm, but at the other end you can have renewables that are part of building structures and offer opportunities in the domestic or local setting.

In terms of the near future, I think the most important thing, which reflects where our work came from, is a comment made in one of the CCC's launches in December that was to recognise that this is now economic strategy. This is a way of transforming our economies so that they are fit for a climate future, do the job that needs to be done on reducing emissions, yet return income opportunities and wealth generation to all parts of the UK. Of course with renewables being in different technology centres, it is ubiquitous that that could be part of a levelling-up proposition.

In our work we highlighted two and a half technologies that were particularly Welsh opportunities: marine and all the technologies that go with that—while that is improving and Wales is particularly putting measures in place to support that, there could be a better, stronger UK proposition on marine—biomass, partly picked up by the CCC, and then our half, to some extent because of when we were doing it, which is hydrogen. Clearly that has already moved on at pace and the Welsh Government have just released their hydrogen pathway. There is an opportunity in that as well.



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I would reinforce that for us it was always about the wealth generating, income generating opportunities and how they are retained and building the Welsh economy. There are other measures that are not specifically about the output, they are about the supply chain and all the things that go with that.

Professor Jenkins: To emphasise the positives recently, I would say we can be very positive about decarbonising electricity generation. The carbon intensity of generation has dropped pretty dramatically, but predominantly associated with wind and solar. The big challenges that face us at the moment are associated with decarbonisation and transport. That is where I think a lot of attention would be useful.

Q3 **Chair:** Thank you. Mr Wyn Jones, you mentioned seabed leasing, for example. Obviously there has been a lot of focus recently on floating offshore wind and the potential for those developments. Do you feel that with policy makers at Westminster and Cardiff, the role of the Crown Estate in all of this and the private developers, there is alignment across all of these different players to enable these opportunities to be unlocked, or do you feel that there is a disjointed approach that needs some attention?

Rhys Wyn Jones: Thank you for the question. It could be improved, there is no doubt about it. I think you are right to identify the huge amount of attention that floating is getting at the moment. The Offshore Renewable Energy Catapult estimated between 15 and 50 gigawatts in the Celtic Sea, which is vast potential. Indeed, the catapult has published a further report in the last couple of days saying that floating offshore wind could achieve below wholesale power price level by the end of the decade, so there is a real opportunity there.

Regarding the unifying of policies and workstreams to achieve this, the UK Climate Change Committee, when it makes its recommendations—it published its most recent report in December—reports on Wales separately. My view on this is that the joint ministerial group that the UK Government are establishing to oversee the Energy White Paper and the journey towards 2050 similarly needs to consider Wales's specific energy requirements in the round as part of that work rather than through the lens of various opportunities, various pots, various technologies. In Wales, you have the potential of round 4 off the west coast of Anglesey, you have the Celtic Sea, you have onshore, you have a zero carbon industrial hub potentially, and you have hydrogen. That requires a lot of co-ordination in policy, which is probably is not there at the moment, if I am honest.

Going back to floating, with that huge amount of potential it should be included in the ongoing offshore transmission network review, but it is not. The Crown Estate's leasing timeframe needs to integrate with grid availability. You need to consider what other large-scale renewable energy generators might be coming onstream in the next decade. You need to consider the fact that some ports in Wales might want to apply



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for free port status. What if the Welsh and UK Governments cannot agree upon the parameters under which that should happen?

The point I am trying to make is that there are a huge amount of opportunities, there is a huge number of technologies that stand to ensure that Wales makes an enormous gain from the energy transition, but we need to think of the energy system in the round when we think of Wales; otherwise there is a danger that we will continue to develop in silos and Wales as a whole misses out on the economic benefits that it stands to gain.

Chair: The other two panellists, Mr Lloyd and Professor Jenkins, is there anything you would want to add to what Mr Wyn Jones has just said in reply to my question?

Hywel Lloyd: I think there is a key idea in what Rhys has said, which is the Welsh-specific requirements. One of the challenges of doing policy at the Westminster UK-wide level is you tend to look for things that aggregate and make sense at that level, which then means you miss out on things that make sense at other levels, whether that other level is Wales, Scotland or even Norfolk. There needs to be a mechanism to allow those things to be seen and to be acted upon.

Marine is possibly more important to Wales and Scotland than to the UK, and maybe that is why in that aggregating of decision making and policy making it has been less visible. We need to work out how best to make it visible and then to have the policy support that would bring it forward. We can all appreciate the massive marine resources that could play in for Wales.

The other thought I have, which is slightly more philosophical perhaps, is that it good that there is a constructive tension between different policies; otherwise in a democracy you would have things steamrollered. Constructive tension is important, but what we probably need—and one of our recommendations certainly touched on this, our fifth one—is a co-ordinating device, an entity or organisation investing in people who can bring these things together to work them through. We would all be in favour of perhaps a bit of simplification, but not so clear that it is only one route or another. Invest in the people that can bring clarity and take projects forward; also recognise that not every great idea should necessarily be taken forward, and that would then play out in your creative dialogue.

Q4 **Chair:** That idea of a co-ordinating mechanism, would that be a particular branch of Government?

Hywel Lloyd: In our work we talked about resourcing the different elements of government. Wales is fortunate: it has an energy service. The very existence of that means you have some co-ordinating resources. We argued it could be bigger and could be better resourced. I think now, 18 months on, we might also suggest it should have some



responsibilities for digital, broadband and mobile connectivity, partly because some of the issues are the same, but partly because a lot of the energy transition will be based on data and digitalisation, and Wales could miss out if its broadband and other connectivity is not up to scratch.

That is one part of the equation. We talked about more resources for other parts of the Welsh system, if we could call it that, a dedicated team in the Welsh Government particularly to engage Ofgem—we note some progress has been made on that—and more resources for Natural Resources Wales for it to play its part. Other parts of the UK have set up agencies or things to advance that—I think Greater Manchester and to some extent London. It is possible. The downside of setting up something new is it takes time to have its relationships developed both within it and from it out. Perhaps the best Welsh solution is to build on what it has and strengthen it.

Professor Jenkins: The only brief remark I would make is that my perception is that floating offshore, with one apparently very successful installation off the coast of Scotland, is still slightly embryonic and it is technically extremely demanding. I do not think we should overlook the technical challenges of floating offshore.

Q5 **Ben Lake:** Thank you, gentlemen, for joining us this morning. I would like to focus on the measures that the UK Government might take to support the deployment of renewable energy generators in Wales. My question is a general one. What can the UK Government do to better support renewable energy in Wales?

Professor Jenkins: We should recognise that in terms of electricity generation the considerable success of the contracts for difference auctions, which have dropped very dramatically the price bid, the strike price, for very large offshore installations, bottom-mounted offshore installations. On that level that has been successful.

There is a challenge with encouraging the smaller installations of renewables by not giving them a simpler, easier to access support mechanism. That is particularly challenging if one is hoping for community engagement.

Hywel Lloyd: The smaller is where I would like to pick up. Renewable potential is ubiquitous; it can be captured anywhere. You might need different technologies to capture it in different places to reflect the land or the sea situation. That ubiquity is an important opportunity for each and every community. Sometimes that will be realised by their investment in a wind farm or a solar farm or something else as big as a tidal lagoon. Equally, it could be how you make your house and what you put on it, or how you make your workplace and what you put on that. Nick's point about the smaller goes all the way down to the domestic setting. We have had feed-in tariffs and that has made the difference. In the 2019 Welsh energy report, there were something like 55,000 solar



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domestic and building installations and 7,000 heat pumps, perhaps some of them supported by the Green Homes Grant.

What we do not have is a comprehensive strategy for renewable technologies over a period of time—by that I would probably mean at least 10 years—that recognises you want to encourage the variety of technologies because you want to be able to deploy in different working environments or different geographical settings.

Contracts for difference work at one end of the system, you might say. Various people did report to us that they did not think it worked very well for emergent technologies. Nick has mentioned floating offshore; we have talked a bit about marine, there is the tidal lagoon question, and feed-in tariffs have stopped in their incentive for domestic or building scale. I am not saying we should necessarily just return to having a feed-in tariff because you have to think about how it works and what it is doing. Paying lots of people to capture solar energy at the height of the summer when everybody else is capturing solar energy may not be the best systemic approach, especially if you do not install batteries or connect EVs that allow you to transition that energy from when it is available to when you want to use it.

There is definitely scope for a more strategic UK and hence Welsh and Scottish proposition. The challenge of being strategic is it cannot always be short-term price led because the things you will want down the road will always be a bit more expensive now. How do you make sure you have a mechanism that is almost going, “This is prudent technology functions and we want more of it, yet we need others, so this slightly less prudent technology, we need to give it a bit more support. It is really unproven but, my goodness, it has potential for the British Isles”? You need to have more of a strategic package.

Rhys Wyn Jones: If I start just with a comment on the smaller-scale stuff. It is not typically something that our membership is hugely involved with, but as a trade body we think it is so important because for one thing, small-scale renewables supported by subsidy take the pressure off the grid, they also engage communities and allow them to take a stake in renewable projects as well. I would reference the work of Egni Co-op in running the largest solar PV installation in Wales through a combination of access to the feed-in tariff and through an innovative share offer to communities, which is absolutely superb.

Moving back to where we started with contracts for difference, there is no doubt it has been a huge success story. The last round at the end of 2019 procured about 5.5 gigawatts of offshore wind at about £40 per megawatt hour. For reference, the day ahead price in the UK yesterday was around £60. I would not read anything into that specifically because it is yesterday’s picture, but what it shows is that projects coming forward at potentially substantially below market rates do represent a very, very good deal for consumers. In terms of the parameters for the



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next auction, we obviously welcomed the readmittance of onshore and solar technologies as part of that. We noted also that the Welsh Government had been calling for that for quite some time. We supported the creation of a separate pot for emerging technologies, including floating and then the separation out of fixed-bottom offshore into a third pot.

Hywel is right, and he touched on this, that the other part of the equation in terms of subsidy and its effectiveness is the marrying of the heavy lifting of megawatts that you can achieve today at a cheap price with the potential of emerging technologies to make a contribution some years down the road. I know as part of the Energy White Paper one of the things the UK Government are trying to hone down a little bit is the assurances that the industry can give around local content and increasing the local supply chain. That is something that our members are hugely committed to and want to work with Government on.

As I said a few moments ago, if you look at floating—I know Professor Jenkins is rather sceptical—the offshore catapult is predicting that that could achieve below wholesale prices by the end of the decade. That particular technology is going to move at pace just because it is going to have so much prior learning to bring over from the fixed-bottom environment as well. Overall I would say the subsidy regime has been a huge success but it needs fine-tuning.

Q6 Ben Lake: Mr Lloyd, I will bring you back in. I am interested in any thoughts you may have on the barriers that community energy projects may be facing and whether you could comment on those as well.

Hywel Lloyd: The point I wanted to add to Rhys's observations, this whole question of taking a stake, ownership, in the system we thought was as important as quite what the system is doing and how it is responding. The challenge of delivering that is one that in effect needs to be much more thought through and deliberate in policy choices, whether that is how one might invest in bigger deployments or how the building and construction sector gives you a house that does not need much energy. Of course the non-use of energy is cheaper than the cheapest energy. There are questions at that end of the scale.

In terms of barriers, I used to work in one of the Government Departments at Westminster as a policy adviser in this area and it struck me—and it continues to be the case—that communities are not seen in how many people understand the energy system. The energy system is sort of understood as things that provide energy—your power stations, your wind farms, whatever they might be— and consumers, possibly households, that use it and of course industry and business. It is these two notes that interact and share and exchange, when we also know that wherever you live there is also collective community. That collective community can be in a sense something particularly like a school or a hospital and all those people that work and use it, but it could also be a group of streets or a co-op that wants to have a wind farm.



There is almost an underlying question of are these things thought of as being part of the system. That makes it harder because they are not really thought through as part of what the system is trying to do. You might also argue that a lot of the regime within which Ofgem has to operate is trying to be agnostic of places, but the problem with that is where there is a good place-based solution, particularly ones that maybe interact a heat network with the electricity potential, it is unseen and not rewarded or supported. That is one thing.

In terms of practical issues, I think it would go to that whole question—perhaps it was Nick that mentioned it earlier—of access for smaller things. If we treat everything as a point that has to meet other criteria, whether you are a wind farm, a power station or in effect a small community village-based system, then that is disproportionately disadvantaging.

Ben Lake: Professor Jenkins, Mr Wyn Jones, do you have anything you would like to add?

Professor Jenkins: Only to emphasis, and I am sure Members know this, the difference of a large project and a small project. There is so little overall money in a small project that having to go through a tendering process and all the hoops does become disproportionately expensive.

Rhys Wyn Jones: On the point of barriers, the largest barrier that I can see in Wales is grid. We have spent years in mid Wales with developers wanting to develop on one hand and then a lack of grid, all parties staring at each other with no movement, with this huge amount of potential of shovel-ready cheap technology waiting to go. Ofgem, within its current pricing control, as I understand it, does offer a window through its net zero reopener of potential ways in which that anticipatory investment could come forward. I am keen to maybe try to understand further the extent to which that door is being shoved as hard as it could be at the moment.

The other point I want to make quickly is around scale projects. Our members are very keen to explore ways of actively doing this in which public bodies can take a stake in projects where capital expenditure up front requirements for local community to take a stake are obviously too great. If we were able to do that, that would accrue significant revenues to the Welsh Treasury and those revenues could be dispersed throughout the Welsh economy as well as into local communities. That is an avenue that we are actively exploring.

Ben Lake: Thank you, gentlemen.

Q7

Geraint Davies: I would like to ask the witnesses, starting with Hywel Lloyd, what they think the role of Welsh Government is and should be with developing renewable energy, in particular as Welsh Government might put a different value on local renewable energy projects in terms of the external impacts on the local environment, for instance, with clean



air, tourism and jobs and so on than the value of energy and net zero alone.

Hywel Lloyd: In the governance system it could be the local authority, it could be a mayor in England, the Welsh Government in and for Wales, have a key role in setting an agenda and being clear about their priorities and objectives. They need to make sure it ripples through the entity of the Government. Sometimes there are challenges where one part of the Government might say something about renewable targets and another part of the Government might not yet, although I don't think this is now true of Wales. Have planning policy aligned with what the proposition is about or the economic team valuing what low carbon and renewable technologies can bring.

Where Wales is at the moment, there is a pretty good sense of direction. There are some reasonably straightforward, understandable and meaningful targets. We argue that they could go further and faster. That is partly the move from considering renewables as part of energy into this is part of the economy, this is a foundational economic thing, so value it in that way and organise your resources, services, personnel to help deliver it. As you rightly pointed out, that can give you those other benefits, especially in local schemes. Whether that is clean air, biodiversity, better quality of life, all of those things can be legitimately part of what you want to deliver. In that sense, the Welsh Government are better placed, because of their legal establishment and the Future Generations Act, to be more holistic about what renewable energy is doing.

Q8 **Geraint Davies:** Should they have a bigger role is what I am getting at. There is a limit on the generation capacity that is devolved, isn't there? If they can perceive and receive greater localised benefits, should they have a bigger role in decision making?

Hywel Lloyd: I have had this conversation in Wales and with my UK100 hat on. The Welsh Government and local government in England have lots of capability; they don't always use all of it. I authored one of the reports that make up the package of this programme. It looked at powers and policy and how the Welsh Government could take them forward. Yes, you could argue they could have more, yet you can also argue that they do not use all those they have as well as they might.

Q9 **Geraint Davies:** Professor Jenkins, what do you think is the essential role of Welsh Government and what should it be? Do you think that if there is a perceived higher benefit locally, which includes jobs, air quality and so on, as well as the value of the energy itself, we should have more localised decision making? Can you also make a comment about local ownership of your assets?

Professor Jenkins: The first thing to recognise is that renewable energy by its nature is a very diffuse energy source compared to fossil fuel, so it will have an environmental impact that has to be managed very carefully



and will involve a lot of people. The environmental and social dimensions are absolutely key to deliver any scheme. The Welsh Government have a strong input in that area. The other point I am afraid I want to reiterate is that electricity in some sense is going reasonably well in the UK. The big challenge coming at us is heat and that will require engagement with communities and individuals and is a policy that requires intervention from Government.

On local energy systems, I hear that. I am a little engaged in the difficulties of balancing an electricity system. I think that being tied into a large electricity network that provides the stability that is needed is very desirable and that cannot be avoided. Have I addressed your points?

Q10 **Geraint Davies:** What is your position, in a nutshell, on local ownership?

Professor Jenkins: My position on local ownership is that recent history tells us it is possible to lose quite a lot of money on electricity systems and that always has to be considered.

Q11 **Geraint Davies:** Finally, I will turn to Rhys Wyn Jones about what should be the balance and responsibility between UK and Welsh Governments and what should be the role of Welsh Government. Should it change on the thresholds for activity, particularly for things like the Swansea Bay tidal lagoon, given the externalities of tourism and local air quality and the economy as well as energy?

Rhys Wyn Jones: There is so much in that. Now one of our members is beating down my door and saying, "We need more powers. We need Welsh Government to have more powers," for example, to consent the high voltage grid. No one is asking for that. Let's be honest, Welsh Government have significant powers under the Wales Act 2017 for consenting. They can consent anything up to 350 megawatts onshore and offshore. They can consent onshore up to any size they like, in fact.

On local ownership, I alluded earlier to ways in which we are trying to think with our onshore membership about how the public sector could potentially look at taking a stake in projects so that benefits and revenues can accrue, which can be dispersed widely throughout the economy. I think that is very important and it is something we are continuing to push for.

I appreciate that I am jumping around a little bit to try to cover as many things that I think are relevant. About 60% of the decarbonisation roadmap for Wales out to 2050—this is my back of a fag packet maths—is relating to powers that are not devolved, to reserved powers. We do not have control over seabed licensing or the grid. As I said, we did not take the decision to ban the sale of petrol and diesel cars by 2030. What the Welsh Government are trying to do to counterbalance that potential limitation on powers is to adopt a bottom-up approach to decarbonisation on an individual village, community, street, town, city-by-city approach, which is sensible, given those limitations of powers.



On where powers should lie, I think collaboration—and I have alluded to it—is absolutely key. I would point to growth deals. The mid-Wales growth deal was signed just before Christmas, I think; a £110 million joint commitment between UK and Welsh Governments, it is a very good example of putting decision making where it belongs, at a local level, and allowing local areas to decide for themselves what the priorities are. That model should inform some of the debates we are having about what happens with things like the Shared Prosperity Fund at the moment, which is not going that well.

Q12 Geraint Davies: To what extent do you think the Welsh Government are constrained by subsidy choices made by the UK Government? Do you think there is effective collaboration between the UK Government and the Welsh Government on delivering renewable projects subject to those choices?

Rhys Wyn Jones: I don't think they are necessarily constrained, but if you take floating offshore wind as an example—and I spoke earlier about the journey to 2050—the Energy White Paper talks about the joint ministerial group. I think that has to have a Welsh element rather than being a UK Government interdepartmental effort. Seabed licensing is absolutely key for floating offshore wind. We do not have controls such as they have in Scotland. They have the ScotWind process up and running at the moment. We need to have sight of a coherent, predictable seabed licensing strategy that gives developers predictability and that requires collaboration between UK Government and Welsh Government. The Welsh Government have done loads of work into scoping the opportunity for floating offshore wind in conjunction with the Offshore Renewable Energy Catapult.

Q13 Geraint Davies: Briefly, the same question to Professor Jenkins: do the subsidy decisions made in UK Government constrain the Welsh Government? Is there enough collaboration between the two Governments for balance of power and their roles to deliver projects effectively that we would want here?

Professor Jenkins: I am very sorry, I am not able to provide an expert view on that question. Forgive me.

Q14 Geraint Davies: All right, fair enough. Hywel Lloyd, do you have a view on that? Should we have a greater role in setting our own subsidies and is there enough collaboration between Welsh and UK Governments on effective delivery of renewables?

Hywel Lloyd: We found that there definitely could be more collaborative effort and a general observation about the relationship between the different entities of governance across the UK. Yes, that could definitely be—

Q15 Geraint Davies: In the case of the Swansea Bay tidal lagoon, in a nutshell, do you think there has been enough close working, or is it slightly apartheid?



Hywel Lloyd: I go back to my earlier observation. I am not sure if it is about close working. I think it is about the mindset on what it is and how it might be used or be useful. If you look at a UK level you could argue—or people have argued—that lagoons are not that important, not a priority, but as soon as you disaggregate that you can see that it is an important thing in the Welsh context. Helping the Whitehall system understand UK level aggregations or quantifications of view is a bit opaque. They need a better understanding of relative subnational, in the UK sense—or subregional, in the Welsh sense—advantages and how they could support them. That is part of the challenge.

Part of our job, and perhaps of others on this call, is to help illuminate what those opportunities look like and help make sure that the processes can accommodate them. The support we talked about earlier, CfDs and feed-in tariffs, was not a structural strategy that was designed to support all renewables. As Nick has acknowledged, they are diffuse, but I think they are ubiquitous also, so how do you get a system that can support all of those things? I am sure there could be more collaboration. Can I come back to your comment about heat and ownership?

Geraint Davies: Yes, go on then, briefly.

Hywel Lloyd: Heat, as you rightly point out, or Nick has rightly pointed out, is the next big challenge. There are only three solutions. We have to reduce demand through energy efficiency and how and what we build. Then you either electrify or you change the gas fuel that is coming in the pipes. Clearly with heat we are talking about everybody's homes and that changes the ownership equation perhaps. We have had two ownership models in this country. I am going to be hopefully not too simplistic, but we have had a nationally owned nationalised system and we have had a privatised system. You could argue that if everybody had kept the shares that they were able to buy as part of that privatisation system we would have a locally-owned system; it would just be distributably locally owned. We have tried those two models.

We are now moving, as Laura Sandys said in her recent reports on digitised energy systems, from a situation where there were a few hundred, perhaps a few thousand, energy assets to one where there will be 50 million, 60 million of them because EV becomes part of the energy system, your phone controlling devices become a part. We have to think about a different ownership model or models and we have to think about who benefits from those different models. In that, you are not necessarily affecting how the system works, because physics is physics, but you can affect who benefits and where the wealth goes, and that is what we were trying to get into.

Q16 **Tonia Antoniazzi:** I realise that time is of the essence, but my question on interconnection is very interesting. How could renewable generators in Wales benefit from interconnection with other electricity markets? I will be asking questions also about what benefits you would expect from the Greenlink Interconnector for Wales when it is completed in 2023. I will go



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to Professor Jenkins on this. Do you have a view?

Professor Jenkins: The way we are moving towards increased use of low carbon generation, either nuclear or renewables, puts a lot greater importance on our interconnectors. They are of primary importance in balancing the national energy system. In truth, I was not aware of the particular interconnector that you refer to before I was asked to give evidence here. I did have a look at it. I cannot see the direct benefit to Wales. It is a 500 megawatt link going into the national energy system. It is very important for the national energy system and it is likely to result in us being able to use a much greater fraction of renewables, but I struggle to see the direct link into what I thought we were going to primarily discuss today.

Hywel Lloyd: We did not touch on interconnectors in a specific sense, but we were clear that we were not trying to create a 100% renewable in Wales that was in any way disconnected from England or the wider electricity system of northern Europe. In that sense, you are talking about a bigger system that has more capability because renewables ultimately are dependent on weather conditions to some extent or a great extent. The bigger your system, the more capable you are in managing it.

We touched on one other thing, which is related to grid. Wales needs to think harder or put more thought into the distribution grid that serves homes, buildings and communities than the transmission grid. There is less of a vocalisation of it perhaps because, rightly, people who need transmission connections to big power stations can have an argument about what their needs are. But if we do not think hard about the distribution grid that serves each of our homes it will be harder for us to give the Welsh communities and the Welsh population opportunities to have EVs, it will be harder for them to make the most of things like agile tariffs that Octopus Energy and others offer where time of use allows the system to say, "We need you to take some energy or give some energy." It will make it more difficult for us to take the opportunities, as you will appreciate, from the Swansea Bay deal of homes as power stations. We were quite concerned that too often the conversation about grid is about the big connections and not enough of it is about the small connections.

Tonia Antoniazzi: Thank you. Mr Wyn Jones, do you want to add anything to what Mr Lloyd said?

Rhys Wyn Jones: I think interconnectors are very important. The main point I raise is that they reduce the amount, potentially, of electricity works necessary onshore and reduce the impact on coastal communities. Now that we have left the EU, those systems need to maintain optimum responsiveness and flexibility. They will drive down costs for consumers, but you need a level playing field between the markets that are at each end of those interconnectors—for example, carbon price. I know that the Greenlink project has been touted as having huge potential benefits for both Ireland and Wales. I think it is a £400 million capital investment. We



support that as part of the development of a strategic economic area plan for that part of Wales that prioritises community benefits.

Building on Hywel's point, I add a note about north-south transmission within Wales. That sort of thing could be considered featuring grid supply points connecting into the local distribution network and that would enable increased opportunity for onshore wind and community energy as well as facilitating net zero. If you think of an average house drawing anything between 1 and 5 kilowatts and you add on a fast EV charger drawing 7 kilowatts and a heat pump drawing 3 kilowatts, that is a hell of a lot of power. The aggregate increase in demand across every house and every business will be huge. That is not an interconnector point but a broader transmission and distribution network point.

Q17 Tonia Antoniazzi: Thank you. I will stay with you, Mr Wyn Jones, because I am moving to renewable energy subsidies, which I know you have spoken about already. What mechanisms can ensure that subsidies for renewable energy generators are good value for money?

Rhys Wyn Jones: I will not talk too much about the CfD system as we have only a short time. That has been a huge success. Last autumn it was £40 per megawatt hour, 5.5 gigawatts of offshore wind. That clearly represents good value for money, especially if you are bringing forward projects that will deliver power at below wholesale prices. The other part of the equation, as I alluded to earlier, is about what benefits the subsidy regime can deliver further down the track for local communities and the local economy from technologies that are emerging. There is a huge amount of opportunity, as we have identified, in Wales potentially.

Q18 Tonia Antoniazzi: On that point, what methods can be introduced to allow a significant source of economic benefits such as the job creation and the communities that you have spoken about already and which I have in my constituency as well?

Rhys Wyn Jones: There are consultations regarding supply chain at the moment as part of the Energy White Paper. I think the UK Government are very keen, as part of their ambition for UK content, and that is part of the offshore sector deal, for example, 60% of UK content by 2030. They are very keen and are consulting on ways in which developers of projects can offer greater guarantee or certainty on the amount of content that will accrue locally and to what extent communities will benefit. We are looking at that and working with members to respond on it, but I know that members are busting a gut to make sure that that is factored full square as part of their plans going forward. With the sort of deployment levels we are talking about, the sorts of benefits that could accrue are vast as well and we want to make sure that that happens.

Professor Jenkins: The only remark I will make is that although a feed-in tariff-type approach provides certainty, you are left with the problem of fixing the price or the cost at which you purchase the electricity. That is



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an unresolved problem of how you do that in a rapidly developing area where real costs are dropping very rapidly.

Hywel Lloyd: The only thing we would add takes us back to the nature of this challenge being an economic one. There is another way of looking at these payments, that they are investments and incentives. Do we have the right investments and incentive schemes and systems to reflect the variety of renewable technologies that we want to come forward, from the scale of the home as a power station all the way up to the bigger deployments that we are talking about? We did not look into it in great detail. I think you could reflect from the evidence we gathered from many of the people we spoke to that it is not a coherent package of support, as the CCC reiterated just before Christmas. If you want an economic strategy to make the most of this transition of every bit of the UK's infrastructure, you need that wider more thought through package.

Tonia Antoniazzi: Thank you very much.

Robin Millar: Gentlemen, good morning. I am up in Aberconwy where I look out at Gwynt y Môr. The plants at Awel y Môr are moving forward and I have an interest in the proposals for a north Wales tidal lagoon. As a former civil engineer, I am very excited about that and the big engineering that goes into that. I have found the conversation we have had on the UK very helpful. Wales is a net producer of energy of about twice what it consumes, I believe. The comments about the capital costs of generation and the advantages of being tied into a much larger stable network make a compelling case for that integration. But the UK Government have now produced an Energy White Paper and that is talking about a big shift from fossil fuel to—I think the quote is—a fit for net zero network for how we heat our homes, travel and so on. Could each of you set out two or three ways of what the implications are for the renewable energy sector in Wales? Professor Jenkins.

Professor Jenkins: The Energy White Paper does emphasise a very dramatic increase in electricity generation required. That presents obvious opportunities for renewable energy in Wales of all sorts. I think it was a missed opportunity not to progress a number of the barrage proposals that started with the Medway. The first one I was involved with was the Mersey barrage and all of those were of reasonable size to get a bit of experience before moving on to very much larger ones.

The attractions of the barrage, if I can spend just a minute on that, have now changed a little bit and their capacity for energy storage has become more important. I think electricity storage in particular will become absolutely key in the future. I return to the big opportunity in heat and the role of renewable energy in providing sources of heat.

Rhys Wyn Jones: RenewableUK welcomed the Energy White Paper. It is a clear commitment to low cost renewable energy and it references Wales in all sorts of way, in hydrogen, potential for carbon capture, utilisation and storage, floating offshore wind. The sums that we are talking about



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for potential job creation are eye-watering. You can see why people are getting excited about the scale of the opportunity. The challenge for Wales in grasping these opportunities properly—and there also has to be a commensurate recognition at the UK level—is that Wales, and indeed other parts of the UK, are not the Humber part of the North Sea. We are at different stages of development and just because different areas are at different stages of development does not mean that they do not have an absolutely vast potential to contribute in the future.

I question and add the concern about the extent to which we are resourced up possibly within Government to take advantage of the opportunities that exist. I know Covid and Brexit have sucked resource out of so many Government Departments and that is very difficult. It has a knock-on impact. I will cite two particular impacts that my members are representing to me about ports, which is quite recently devolved. Do we have the critical mass in the civil service to be able to support port development properly? We are having some difficulties engaging with officials around preapplication for onshore projects as well.

This is not an apportionment of blame, but just a recognition of the real resource issues that exist in grappling with and delivering the opportunity. It is all very well to have the opportunity, but you need the infrastructure to grasp it. Two recent examples I have read recently—

Robin Millar: You make that point very well about the resource and I am conscious of time, so I will go to Mr Lloyd.

Hywel Lloyd: The White Paper covers perhaps half of the recommendations that the final report, the 100%, made. It is certainly strengthening what the UK will do on housing and housing energy demand, through demand reduction, energy efficiency or the electrification-hydrogen switches that might be required. With a homes as power stations hat on, we talk about the importance of those. They are in the Swansea region deal. They can integrate that transition with the coming transition to electric vehicles. There is a real opportunity there. To touch on Rhys's point, if we don't integrate those technologies in homes and buildings there will be massive demands on the grid as well as for supply. But if we do integrate them, then that 11 kilowatt figure, if you add Rhys's figures up, need not be anything as high as that. That brings you a sort of distributed storage proposition.

The White Paper flags up the need for changing the governance of the energy system. We made a number of recommendations on how the Welsh Government should engage not least with Ofgem, and we know that the First Minister has regular meetings. We hope that Wales, as with Scotland and perhaps the English mayors, has a better presence in the system because the energy system should better reflect the ambitions of these places because net zero will be delivered in places by people doing things together. It is important that that plays out.



It is probably a point to reinforce that governance needs to start to further understand the implications for data and digital connectivity as the energy system becomes a digital thing.

It is good that marine is mentioned in the Energy White Paper, the offshore floating. It is a shame that it does not go further and recognise there are other marine technologies that are particularly Welsh opportunities. We talked robustly about making the most of that USP for Wales and then our half one was hydrogen. Clearly there will be a hydrogen strategy. We only hope that that properly recognises that hydrogen, while it is not a panacea nor is it universally the answer, it is clearly a Welsh opportunity and we must be allowed to take it.

Robin Millar: Thank you, the point about collaboration is well made.

Q19 **Simon Baynes:** Mr Wyn Jones first. The UK Government have recently pledged to invest £1 billion in carbon capture utilisation and storage technologies. How do you think Wales can benefit from this investment?

Rhys Wyn Jones: Potentially to a large extent, I know the Welsh Government and UK Government have been keen to support the south Wales industrial cluster. Carbon capture and utilisation storage could play a significant role there. I know the south Wales industrial cluster was recently in receipt of a share of £8 million to further develop innovation around zero carbon technologies, which is welcome. Whether or not that would go far enough to enable them to advance their plans I do not know. But certainly, as all industrial areas around the UK are grappling with, you are looking at how you can repurpose your industrial zone to be fit for purpose for net zero and for it to have a lasting legacy.

We do think that Wales stands to benefit significantly. There is probably a little bit more detail to investigate in terms of what the Government's plans are for carbon capture. We know that south Wales is one of four zones that they have identified and the job prospects are an eye-watering 50,000 new jobs, which would be magnificent, if shared around equitably. There is a little bit more detail to go through, but we do think there is a huge opportunity there.

Hywel Lloyd: Not very much to add to Rhys's observations. Two quick thoughts. We need to be clear how Welsh Government would have an input to the governance of the choice of that £1 billion investment. Then from an innovation point of view, I would be tempted to argue with the Treasury that it should invest in at least two because one will learn from the other. If it invests only in one then it might risk either being outrageously successful without any learning or outrageously not successful. I encourage it to double their money and invest in at least two.

Simon Baynes: That sounds very sensible.

Professor Jenkins: Only to say that my understanding—and I am not strongly in CCU or CCS—is that we have one or two very large point



sources of CO₂ but not the critical cluster that is likely to be attractive for an early demonstration of this. I am not sure we have the locations for the storage close. There are challenges for Wales in implementing or being early in the implementation of CCU or CCS.

Q20 Simon Baynes: What do you think will be the implications for Welsh businesses of the recently announced UK Emissions Trading Scheme and how do you think this scheme could create more jobs and economic growth in Wales? I will go again to you first, please, Mr Wyn Jones.

Rhys Wyn Jones: I do not have a huge amount of comment to make on this. We know that Welsh Government broadly welcomed the introduction of the UK ETS. It obviously has the most ambitious carbon targets anywhere in the world—5% lower than the EU ETS, I think—governed by a common framework. That is obviously an area of welcome agreement, it seems, between UK and Welsh Government, and Welsh Ministers will have a formal role in delivering it.

In terms of going forward there is an appetite in Wales for there to be a link between the UK and European ETS as part of a wider trade deal. There is some logic in that because if we have a higher degree of interconnectiveness as part of our future energy system, it would be logical that there would be a closer link between the relevant emissions trading schemes within the two blocks. That is all I have to comment on in terms of that.

Hywel Lloyd: Nothing to add to that. It did not form part of our work.

Professor Jenkins: I am very sorry, I am not an expert on this.

Q21 Beth Winter: Thank you for coming and giving us evidence. This is fascinating. The Covid pandemic has raised concerns about rising unemployment in Wales and we are entering a severe recession. At the same time we are facing a climate and ecological emergency. In my constituency in Cynon Valley I have set up an advisory group looking at the post-Covid economy, and the local people involved are focusing on tourism, climate and foundational economy. It is an opportunity for us to explore how the transition to a green economy and tackling the climate crisis can form an integral part and underpin the post-Covid economy. What opportunities are there for renewable energy to aid Wales's post-Covid economic recovery?

Hywel Lloyd: Probably the fundamental question, in many respects. The programme of work that we were involved in was very much orientated around renewables as part of an economic proposition and clearly part of a climate emergency response as well, which is why we did not just talk about the technologies and what was important, but we talked about the economics. Two of the preliminary reports looked at the Swansea Bay city region as a representative part of Wales to try to understand the economic and jobs potential of shifting to a 100% renewable proposition. That work is available.



The thing that resonates, as in the final report, is our first recommendation, that being that the Welsh Government should instigate an economic stimulus that is about making this happen further, faster and more effectively. We thought at the time that that would also help protect or insulate the Welsh economy against any Brexit consequences and the potential benefit of that. Clearly Covid consequences play into that as well.

In terms of what it might look like, some of it would be the job intensity that comes with renewing our homes. That is not just insulating and improving fabric, it is also about making them energy capable. There are opportunities to put storage on homes, to put energy capture devices on homes and to integrate EVs. It will not be for everybody all at the same time, but there is a programme of work there that could last 20 years, but it requires organisation and investment.

The other one I would touch on is the whole data digital area. The connectivity of Wales needs to be at the forefront of its economic opportunity. We are doing this from our different parts of the UK. The productivity that will go with this needs to be available to every Welsh citizen that wants it. I accept that one or two will not, but many will. How we make sure that that is functioning both in support of the economy and the particular elements of the digital energy transition, smart meters that help you manage your energies and that integrate those technologies would all be part of that. There are real opportunities.

It would probably require a Welsh low-carbon industrial strategy and I know the Welsh Government are producing their second low-carbon delivery plan. I would give that to Ken Skates's team and say, "Turn this into an economic investment strategy for Wales for the next five years," and that would be part of your answer.

Q22 Beth Winter: Obviously there are regional variations. I am based in the south Wales valleys, post-industrial communities, so it is very different to Swansea, also in terms of inequality, so people's opportunities to participate in green agendas varies. Would you agree with some of that information that is coming out of my advisory group in terms of opportunities for us?

Hywel Lloyd: There is definitely variety and it helps that there are now the four City Deals—I am not sure they have all been signed—but those provide a mechanism and some resources to prioritise this. Every community will need to reduce its energy demand through improving its housing and building stock, so that should be available to every community.

The ubiquity of renewables should mean there will be renewable opportunities available to them. It is important though in that second one that we make sure there is a bit of ownership retention so that some of the resource that is generating some of the economic benefit stays in those communities. We need a better phrase for communities that were



post-industrial. They are also pre something else. What do we want to talk about their future being? It has to be clean and green. If you live in the valleys—I have not benefited from that opportunity, my family are from Caernarvonshire—you can see green, pleasant lands most of the time. Let us have a pre something.

Beth Winter: That is why we are looking at tourism as well, thank you.

Rhys Wyn Jones: Just on that point, I know a lot of our members are working hard to ensure that communities do benefit from renewable energy projects. Vattenfall, for example, the Pen y Cymoedd in south Wales, committed £500,000 in the last year to support Covid recovery in the local community. But more broadly thinking about planning projects, what I am keen for us to do is for us to think more creatively about how public bodies can take a more meaningful stake in renewable energy projects that local communities might not be able to invest in necessarily that can then be capable of delivering funding to the Welsh Treasury, which can then be dispersed throughout all parts of the Welsh economy, wherever that renewable energy project happens to reside.

I have talked about the Energy White Paper and the way in which it refers to Wales's potential in terms of carbon capture and storage and hydrogen and all the rest of it. We did write to the Counsel General in May last year, talking about the role the industry wanted to play in green recovery, but also highlighting the potential breaks on that progress. I have alluded to the constraints with grid and also to ensuring that we have sufficient expertise and resource available to Welsh Government to work within industry stakeholders to unlock the opportunities that exist.

Big decisions on renewables are happening right now. The Port of Cromarty Firth in Scotland has just announced a memorandum of understanding with a French company around floating foundations. That is 500 jobs potentially. Sadly, in Wales we lost out to the Port of Blyth in terms of a gigafactory for batteries for EVs in the last few months. That is not me trying to apportion blame, but I am making the point that these huge decisions from which Wales stands to benefit are happening all around us now, so pace is of the essence.

Professor Jenkins: An energy future without fossil fuels, which is what we are talking about, is likely to be much more expensive unless we can do two things. One is demand reduction and the other is encapsulating this word "smart". We have to have better controls and we have to have very significant demand reduction for both electricity, heating and transport. Both of those will require a lot of doing in order to implement them and one needs to be able to build up to that over a sustained programme of work.

If I can refer back to the undoubted success of some PV installations, there is not a great legacy of PV installation companies that has come out of that large programme of work.



Beth Winter: Thank you all. I would welcome it if you would come and speak to local people in the Cynon Valley.

Q23 **Robin Millar:** I am conscious that in south Wales it was the case that the coal-mining community was more than just an economic exercise. It was the life, the soul, the whole social fabric and culture of the community too, looking at renewable energy and wondering about the opportunities there. As a councillor in Suffolk we bought a 14.5-megawatt solar farm, which took about £350,000 off our bill each year on public services. The Centre for Social Justice in 2013 wrote a report called *Turning the Tide*, which talked about onshoring some of the benefits of the renewable energies. It mentioned Great Yarmouth, where they had a skills account linked to the windfarm. In terms of thinking about the benefits of renewable energy, and in the case of the pandemic, do you have any good examples of how those benefits can be brought into the community more than just in terms of a cheque or the usual fund that comes with energy developments?

Hywel Lloyd: There are benefits. There are clearly financial benefits. I am a member of two or three energy co-ops; some in Wales, some in Scotland. I am a distant member, so I do not have the community presence benefits that they might have seen their energy being generated. The work that is being done in Swansea as part of their deal on homes and power stations gives you a slightly different benefit and when you group those buildings together then you have a local community energy system.

There is perhaps an opportunity in what you are describing for a better sense of what that community collective activity and response might be in recognising that if it saved—I assumed you meant your council—it that much money then that is a resource that could go into something else. There are quite a few local authorities that are doing work on renewables to deliberately create an independent unrestricted resource source of revenues that they can then use in future for social care. You are almost generating renewable energy for powering a care home for when you are retired. There are quite a few of those, but there could be more and we perhaps need to value what they give us over and above the cheque.

Rhys Wyn Jones: There are a couple of points I would make. First in relation to floating offshore, when the Offshore Renewable Energy Catapult did its supply chain opportunities study about this time last year, it estimated that around 43% of development expenditure for the industry for projects could be captured by the local supply chain. There is a very real opportunity around these emerging technologies to deliver real value, hard value, proper jobs, high-value jobs for local communities. That is what you want to get to.

In terms of how benefits can accrue properly to local communities in avoiding the pitfalls you have just described, it is something that our membership grapples with all the time. I alluded earlier to the fact that what we are trying to do now is think creatively about ways in which



stakes could be taken potentially in projects in a way that accrue funds to Treasury that can be dispersed throughout the Welsh economy according to Welsh economic priorities. Not just necessarily cheques going to local communities to support particular projects, albeit those are absolutely vital and our members do great work, but to support more strategic economic ambitions. That is where we are trying to get to.

Professor Jenkins: There are a number of technical initiatives looking at peer-to-peer energy trading in order to avoid using the transmission and the distribution network as much as one would otherwise need to. Those are moving forward. Some of them are using distributed leisure technology, blockchain. They are still at the R&D phase and have reached commercialisation successfully.

The other interesting question is again how to do a peer-to-peer energy trading but at a slightly larger scale. There have been some initiatives associated with those. They do tend to want to rely on the use of private networks and private networks are expensive. I do see in the Energy White Paper the ambition of the Government to move towards breaking the monopoly of the distribution companies. That has both advantages and potential disadvantages or potential hazards.

Robin Millar: Thank you very much, Mr Wyn Jones. I will just respond very quickly to your point. The stake is a fascinating way forward in this and I am mindful of big public projects like the purchase of the docks in Dover was effectively a public ownership exercise. There is some real potential there and would be interested to explore that further with you.

Q24 **Virginia Crosbie:** The Prime Minister's 10-point plan for the green industrial revolution advocates the creation of 250,000 jobs in clean energy across the UK by 2030. How well-placed is Wales for job creation and clean energy as part of this plan?

Hywel Lloyd: We certainly looked at the potential. It partly relates to the ubiquity, the economic ownership benefits when the returns come, so Wales could be well-placed to touch on a point that was raised earlier about what powers lie where. The Welsh Government have a lot of powers over planning and building standards of existing stock. That is an opportunity that is available to every part of the UK, but Wales should get its fair share.

There is a question of whether it wants to move further faster and gain some of the first mover advantages. That is being reflected in that Swansea Bay deal and the work on homes as power stations.

Some of the other things, it is less a question of what technology gets deployed where than how we organise ourselves to achieve that for Wales. More than a few of the contributors and interviewees involved in the programme of work highlighted that sense that Scotland is further down the road of making the most of this opportunity than Wales had been. I say "had" because it is slightly retrospective, but organising your



teams in the Welsh Government, organising your relationship with Ofgem, organising how you invest in things like NRW or in the National Infrastructure Commission for Wales or help make sure that you at least get your fair share. You could say the Scottish have been quite good at getting more than their fair share by doing that. We would emphasise that element. There is no reason why a significant number of those jobs should not and could not be in Wales.

Professor Jenkins: I am sorry, I do not have very much to add to that. Certainly in the academic sphere in which I work there is an understanding or recognition that Scotland is rather more effective than we are. We are trying to change that—certainly in south Wales—through collaborations with USW and Swansea, but it is a long process to develop those relationships.

Rhys Wyn Jones: I have made most of these points already but I will just pick out a couple of things. The joint ministerial group, which the UK Government are establishing as part of the overseeing process for the 2050 roadmap needs to have a Welsh focus and a Welsh standing membership, as well as having an interdepartmental oversight role. That is absolutely key. It needs to look at the whole energy system for Wales to be able to capitalise on these various strands of opportunity that exists.

We need to fundamentally address some of the headwinds that we face in grasping these opportunities. I alluded to constraints on the grid and the way that we need to move towards a strategic solution that unlocks all the generation opportunities that exist around Wales. We need to throw the kitchen sink backing the development of Welsh renewable clusters, whether or not that is the south Wales industrial cluster or a super cluster in the Celtic Sea of floating wind, which is interconnected to other markets, and the offshore energy alliance in north Wales as well.

There is a huge amount of work to do. I am fairly sanguine about our prospects but there is a huge amount of co-ordinating work to do and there is some fundamental headwind in terms of grid and resourcing to grasp the opportunity that we need to move at pace with.

Q25 **Virginia Crosbie:** With respect to Wylfa Newydd, we had some disappointing news yesterday regarding the withdrawal of the DCO, which particularly impacts many of my communities here across Ynys Môn. The Prime Minister, the Welsh Government and myself are committed to nuclear power on this site and together we are hoping to keep going. How significant does the panel believe that the success of Wylfa Newydd is to creating these energy jobs across Wales?

Hywel Lloyd: We did not look at nuclear; it is not renewable. Also we had a timeline of 2035. In our view, there was no scope for it to have an impact in that context.



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The challenge in terms of almost the purpose and the jobs question, it clearly will generate jobs. It will add to the power capability of the UK—and I do stress the UK—because the transmission connection was almost certainly a UK grid connection rather than a local energy for Wales connection. The risk that a number of our contributors identified was not so much a question of it in itself, but would it distract us from doing other things. Does it and has it distracted the Welsh Government and all their entities from making more of the case for marine? Because that is clearly an opportunity that Wales does have, which is not as dependent on UK and global investment decisions as any nuclear power station would be.

It was one of those contrast and compare the opportunity. We were concerned that it was taking away from more immediate opportunities in terms of how people were being deployed and that sort of thing.

Professor Jenkins: As I understand it, what we are discussing here is a collection of small modular reactors.

Virginia Crosbie: No, the DCO was for a large reactor.

Professor Jenkins: That was for the boiling water reactor.

Virginia Crosbie: Yes, but there is a lot of talk about different types of nuclear.

Professor Jenkins: I was concerned about the Hitachi boiling water reactor from a technical viewpoint—although I am not a nuclear engineer—as we had not previously had boiling water reactors in the UK. The new proposals are for a number of small pressurised water reactors, which are quite well-established technology so there are fewer worries about that. There are all the worries, which we all know of, because these small pressurised water reactors are just basically smaller versions of the current technology.

In those terms, I view both of those as separate from the question of renewable energy. The challenges of renewable energy are basically those of variability and intermittency. For nuclear, essentially they run at a constant output and they just take out some of the electrical load. They offer different challenges certainly to the operation of the electrical power system.

Rhys Wyn Jones: It is a tricky one. For me, as an organisation, we do not represent the nuclear industry, but also taking my renewables hat off, I know that a lot of people have put a lot of years of effort into that particular project. I was involved many years ago in the Anglesey Energy Island. It is difficult. There is a role for renewables possibly to step in. Round 4 represents a huge opportunity for the north-west coast of Wales—off the coast of Anglesey in particular—to deliver huge quantities of power.

But as I have spoken about quite a lot this morning, what we need to do is make sure that that opportunity is allied to a very high percentage of



local benefit that benefits local communities and which delivers the sorts of jobs that may not be forthcoming if new nuclear does not proceed. I do know that the Welsh Government are interested in small nuclear SMR reactors and I have seen in the news about Shearwater's proposals as well.

As regards RUK, we see an extensive role for hydrogen as the technology that would provide that kind of balance to the energy system in relation to managing the intermittency of renewables. I do not think I have anything else to add.

Q26 Ruth Jones: Thank you to the panel for coming along today. It is a useful session. I am going to look forward now to November and COP26. The Prime Minister said, with his typical flourish, that it is going to be a festival of ideas from everybody. How can Wales get engaged with COP26 and how can the UK Government make sure that this happens?

Rhys Wyn Jones: I do not have a huge amount of commentary to give you on this. I know the Welsh Government are going to bring regulations before the Senate shortly to strengthen its net zero roadmap. Obviously it is committed now to moving to 100% net zero as opposed to the 95% to which it committed previously. I am sure the Welsh Government will be keen to make that loudly understood as part of COP26 and as part of the UK's broader effort to encourage other countries around the world to embrace the same sort of commitment.

I know that there is a very strong international dimension to Wales's decarbonisation roadmap already. They will also be keen to extol the virtues of green recovery and the emerging renewables industry through the framing of the Well-being of Future Generations Act as well.

Further than that, I do not have a huge amount to say about COP26 other than it is of critical importance both to Wales and the UK. We are continuing to work with our members to develop a position about our narrative and what we want to say at that time.

Hywel Lloyd: I do not have a great deal to add. Perhaps the two things that reflect our work, because clearly COP and being in the UK came to be a decision that was made after we had finished, is the question of governance: are the Welsh Government appropriately and sufficiently involved in how this programme of work is going to be delivered? It is a programme of work as well as an event. There are opportunities for Welsh industry, Welsh business and Welsh civic society in terms of how the event is run and making their presence felt. One would hope that those things— and I am aware of some certainly once removed—work is being done to make sure that Wales is present and represented.

I would slightly disagree with the Prime Minister on a festival of ideas. It needs to be a festival of solutions the people adopt and put into action. The time for action is already passing, so we cannot still be thinking



about what we might do. We must be thinking about what we will do and how we will deliver on the UK's ambitions, but equally Welsh ambitions.

Ruth Jones: I agree with you there.

Professor Jenkins: I am part of a research project with Swansea and USW. We were at COP24—in the outer circle, of course—trying to demonstrate our work there as part of a stand organised by the Royal Society. We expect to do the same at COP26, which will be of course much larger, with a much greater UK presence from all the nations. We hope to be there as a sort of large research project. I am afraid the decisions are all going to be made in a much smaller circle to which we will not be invited. The stands in the various pavilions surround the outside of this event.

Q27 **Ruth Jones:** I understand what you are saying there. To follow on from that, we have looked at COP26 and we are anticipating it. If you had one takeaway from it, what would be the one practical outcome you would like to see for Wales from COP26?

Rhys Wyn Jones: It is a recognition that through adopting the principles of net zero, increasing its ambition over the last few months to move to that faster tracked pace around net zero, it would be good to have other countries taking a leaf out of Wales's book and doing the same thing. It is a global crisis and it requires a global solution. I have every faith that the Welsh Government will be very keen to talk about what they are doing with members of the international community in November.

Hywel Lloyd: To build on Rhys's observation and to take from the main recommendations of the programme of work, what we would like to see is the Welsh Government's low carbon delivery plan part 2, perhaps due out in October. We hope that would be out, but we hope it would be a Welsh industrial strategy for renewable energy and take the opportunity perhaps with a stimulus package, which was our first recommendation, to make this go further and faster. That, plus the Welsh way of looking at future generations, those two things might be unique at this moment. Hopefully they would not be unique by next year.

Ruth Jones: Fingers crossed. Thank you.

Professor Jenkins: I would like to return to a comment I made earlier on that the big challenge facing us is heating. We are still unresolved as to whether we are going to favour hydrogen or electricity. I do not expect that to be completely defined; there may be opportunities for both. But it does seem that a lot more effort and understanding of where we are going to go with decarbonising heating would be very desirable.

Q28 **Geraint Davies:** On the issue of COP26, given it is a global conference and air quality is a problem internationally, namely 7 million people are dying every year, do you think it is something that we should aim to do something about clean air for COP26? I appreciate that Wales has its own clean air bill going forward. Obviously some of us have been pushing for



World Health Organisation air quality limits. Is that something you think Britain might stand up and show leadership on?

Hywel Lloyd: Not particularly relevant in terms of how our work progressed, but clearly a move from fossil fuels of all sorts for all different functions and purposes to renewables will have a dramatic impact on local air quality, particularly from vehicles. We note that in the *Hydrogen Pathway* the Welsh Government published last week there is talk of an investment in 200 hydrogen buses. The UK has plans to invest in electric buses, although I do not think the towns chosen were in Wales.

I would be tempted to say by all means adopt those standards, but let us look at the actions that are required to deliver them in Wales. That would be how you shift transport and how you shift heat and make those a priority.

Q29 **Geraint Davies:** In other words, the delivery of sustainable transport and renewable energy to support that is part of the solution moving towards getting better air quality and part of the overall carbon ambition that we should be embracing COP26.

Hywel Lloyd: Your response helped me think about a slightly better way of describing it. Addressing air quality is about, "We have a problem, let's make it go away." What we want to be doing is, "Where do we want to get to?" We want to get to a completely renewably fuelled world where these emissions do not exist. Let us focus on what this is rather than what that was.

Q30 **Geraint Davies:** Professor Jenkins, do you see the linkage between air quality as a desirable outcome, which is aimed for in achieving net zero, and the role of renewables in Wales in that?

Professor Jenkins: Yes, because the options before us for heating are hydrogen, which essentially when you burn it produces water or electricity. As long as you can generate the electricity without reducing air quality then you achieve your end. I absolutely recognise the importance of air quality in terms of its implications for health, but in some sense by focusing on reducing the use of fossil fuels you get that benefit automatically.

Q31 **Geraint Davies:** Do you think therefore that given there is a benefit to public health—we spend £20 billion a year in Britain on the impact of NHS lost productivity from unclean air—should that be factored into the strike price for agreeing certain renewable projects? At the moment it is how much it costs compared to other energy sources as opposed to how much the value is of the public health benefits as well as the carbon benefit.

Professor Jenkins: I recognise that question. I tend to adopt a classical approach to evaluating energy projects only looking at their energy basis. The addition of externalities, which I think is the point you are making, is a valid one. I know we are in a policy discussion but it does move



towards the policy domain, away from the technical domain. I do not have a strong opinion based on evidence to answer your question.

Geraint Davies: I appreciate that, but it would be possible in theory, would it not, to have a tactical response in terms of measurement, the costs saved for productivity and health and to build that back into the economic benefit rather than have the simplistic energy cost?

Professor Jenkins: If you have a wider economic calculation that includes those factors then you can cost those factors, there is no doubt about that. You can do it numerically; you can do it quantitatively. It is just the assumptions of that calculation will be open to discussion.

Q32 **Geraint Davies:** Rhys Wyn Jones, what is your view on whether we can use COP26 as a focus for delivering clean air and the value of that partly through expressing our ambition on renewables and doing something about that and linking it all together?

Rhys Wyn Jones: Clearly net zero is not just about renewables, it is about whole society change as well. You would expect me to say the faster that we can decarbonise power, heat and transport the better, because the faster you can do zero emissions the cleaner the air will be. Seventeen out of 22 unitary authorities in Wales currently have fewer than 10 EV chargers, so it gives you an indication of how fast we need to move in that regard.

I briefly reiterate the point around the ability to create higher value, higher skilled jobs associated with renewable projects will have hopefully a beneficial multiplier impact, which also includes health and wellbeing impacts as well, which is something we very much welcome. I would also note the Welsh Government's strong focus as part of their transport strategy consultation, which just closed, that there is a huge emphasis on active travel, which is clearly something that we support also.

Q33 **Virginia Crosbie:** Continuing on the COP26 theme, COP26 is an opportunity for the UK to lead the way on the global stage both in terms of ideas and solutions. The Prime Minister has stated that he wants non-government organisations and civil society to be involved in the preparation for COP26. What is your assessment of the level of engagement so far with Welsh organisations on the COP26 prep?

Hywel Lloyd: I am not based in Wales, so I do not particularly have a great deal of evidence to assess that engagement. I hope it is taking place.

Professor Jenkins: I understand—the lady who is dealing with COP26 preparations is off sick at the moment—that our engagements at the moment are with Whitehall, not with the Welsh Government. We are in early discussions about what might take place there.

Rhys Wyn Jones: I would probably refer back to an earlier point regarding roughly 60% of Wales's decarbonisation pathway is reliant on



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powers that are reserved and therefore that pushes Welsh Government towards adopting a methodology of a bottom-up approach to decarbonisation, which very much emphasises the roles of individuals and communities; it is called Team Wales. Around 2,000 organisations pledged to make individual changes as part of the Welsh Government's climate change week last year. Those sort of things in terms of COP speak very well to each other. The Welsh Government would want to highlight their approach to decarbonisation in that regard in the way I have just described.

Ben Lake: Can I thank the panellists for their very interesting evidence this morning? We have managed to cover quite a wide brief, so I am very grateful to you all. Thanks also to the members of the Committee and the clerks and the team for arranging this evidence session. All that is left to me now is to draw the meeting to an end.