



# Energy Security and Net Zero Committee

Oral evidence: [Securing the domestic supply chain](#),  
HC 298

Wednesday 13 March 2024

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[Watch the meeting](#)

Members present: Angus Brendan MacNeil (Chair), Barry Gardiner, Mark Garnier, Sir Mark Hendrick, Mark Pawsey, Dr Dan Poulter, Lloyd Russell-Moyle and Derek Thomas.

Questions 123 – 195

## Witnesses

[I](#): Andy Reay, Head of Offshore Wind, Associated British Ports.

[II](#): Alastair Evans, Director of Corporate and Government Affairs, Rolls-Royce SMR, Rich Everett, Group Head of Supply Chain, Rolls-Royce SMR, and Victoria Scott, Interim Chief Manufacturing Engineer, Rolls-Royce SMR.

[III](#): Darren Davidson, Vice President for UK&I, Siemens Energy, Andrew Elmes, Head of Net Zero Business Development, UK&I, Siemens Energy, and Matthew Knight, Head of Market and Government Affairs, Siemens Energy.

Written evidence from witnesses:

– [Siemens Energy](#)



## Examination of witness

Witness: Andy Reay.

Q123 **Chair:** Good morning, and welcome to the Energy Security and Net Zero Committee. This is our second session on domestic supply chains and insights from key stakeholders. We will have three stakeholders this morning, each having about half an hour for their pitch and questions from the Committee. We have, in reverse order, Siemens Energy, Rolls-Royce SMR and Associated British Ports. Associated British Ports today, as I always do, I will allow you to introduce yourself—name, rank and serial number.

**Andy Reay:** Thank you very much. Good morning, everyone. My name is Andy Reay. I am head of offshore wind at Associated British Ports and also a director of RenewableUK, which is the offshore wind industry body.

Q124 **Chair:** It is a great pleasure to have you here. We will start off with how you see the world, the lay of the land, if you like, and then we will come in and maybe ask some questions.

**Andy Reay:** Excellent. Can I give a brief introduction to ABP for those who are not fully aware? ABP is the largest port group in the UK, with 21 ports around the UK, providing services for about a quarter of the nation's seaborne trade. We employ over 2,000 people in the UK and support in excess of 200,000 jobs in the wider economy across our port infrastructure.

We are an existing major provider of renewable port infrastructure to the UK, most notably with our joint investment with Siemens Gamesa on the Humber through the Green Port Hull blade factory.

We believe that ports will be a vital part of the energy transition to net zero. A lot of what is happening with the routes to decarbonise the UK economy, including hydrogen, CCUS, offshore wind and specifically floating offshore wind, happens in and around port infrastructure in the UK. We firmly believe that port infrastructure is the key enabler to the net zero journey and to facilitating it.

From ABP's perspective, we recognise our role in this net zero transition. Over the last year, we have developed our Ready for Tomorrow strategy, which is our sustainability strategy over the coming years. Not only have we approved £2 billion-worth of investment from our shareholders to facilitate the decarbonisation of our own operations in ports, but £1.4 billion of that is to help facilitate the decarbonisation of our current customers on our port estate and our future customers in ports such as Port Talbot.

We anticipate that port infrastructure will be vital to the decarbonisation journey for the UK. To facilitate that port investment, and hence the wider supply chain, we believe there are three key priorities—what we are terming the three Ps. The first one is pipeline. We need to see a consistent, regular pipeline of projects becoming available in the market,



## HOUSE OF COMMONS

specifically for offshore wind and floating offshore wind, to ensure that our potential customers, who are the supply chain organisations and the tier 1 fabricators and manufacturers, have the confidence to use our facilities. But we do need the facilities to be there in the first place to enable these tier 1 contractors to come and locate.

Having a pipeline of projects is critical. We are starting to see that emerge in the Celtic sea in the form of the Crown Estates 4.5 GW auction process, which has just kicked off. We are looking at how we can invest in excess of £500 million in our port in that region—Port Talbot—to support the supply chain and those developers to deploy that 4.5 GW.

But port investment is over a longer timeframe than just 4.5 GW of delivery in 2030-35. We are investing for decades, and therefore we need to see consistent policy and market development, particularly for offshore wind over the next 10, 15, 20 years. It is only in that environment that we can create a business case in which to leverage in our shareholders' capital to make these significant investments of in excess of £500 million—for example, in Port Talbot. So that is pipeline.

The second P is around industrial policy. At the moment, the market, particularly in terms of offshore wind, is being driven by the CfD mechanism. That single policy mechanism is not only being asked to carry the burden of delivering the cheapest green electron, but also being expected to deliver supply chain development and other economic value and local content.

We believe that there should be other policy mechanisms specifically designed to encourage certain outcomes. If we recognise that supply chain can only come to the UK when it has somewhere to come to, a physical location, which is the port infrastructure, that investment in port infrastructure has to happen significantly in advance of any market signals from the specific customers—so up to seven years, eight years in advance of the actual demand. Therefore, there is a market failure between the point where the port needs to invest and we get commitment from the supply chain, the tier 1 or the developer. It is in this region that we need to create some new policy mechanisms to help port investors through that transition.

My final point is around picking winners. I do not mean picking individual company winners; I mean picking strategic locations in the UK that, because of their existing infrastructure or their proximity to market, become the natural home for these new emerging industries, such as carbon capture and storage, green hydrogen and offshore wind. We are already starting to see clusters form in and around the Humber because of the ScotWind leasing process for offshore wind. We expect a cluster to form in the Scottish market, and we expect a cluster to form in and around the Celtic sea to deliver this. But we need to be strategic around that. We cannot allow those individual regions to be competing with each other. We will need it all. We almost need now, at this early stage, to start to pick winners—regional and industry winners—to help deliver that net zero journey.



## HOUSE OF COMMONS

A key element of that are schemes like freeports, which is a process by which we have selected some regional winners, but also schemes like OWMIS and FLOWMIS. The outcome of the competition for the FLOWMIS grant to support floating offshore wind port infrastructure will help us to focus on specific regions and specific port locations to help the supply chain come and locate in that area.

**Chair:** Excellent. Thank you very much, and ahead of time as well, which is always appreciated in Select Committees, because Members can take up the time. I have had two indications straightaway, so I will go straight to Mark Hendrick and then Mark Garnier.

Q125 **Sir Mark Hendrick:** I have two questions. First, what is the reason for the choice of location in Port Talbot? Secondly, what factors are there—perhaps the steel industry in Port Talbot, but also other firms in the area—that could significantly contribute in terms of the supply chain issues you raised?

**Andy Reay:** The reason that Port Talbot, in particular, is critical to the delivery of the Celtic sea is that there is already an amount of port infrastructure there. There is a tidal port, built back in the 1960s to allow very large vessels to come and deliver coking coal and iron ore to the steelworks there. We have the start of what are the right type of port features—deep water in a relatively sheltered area—in close proximity to the market. So the starting point is there, but it needs heavy-lift quays and investment to bring it up to the specification required to deliver floating offshore wind. That is partly why we have selected Port Talbot as the location, because we have a great kicking-off point, but, yes, it does need more investment.

There are other features around Port Talbot. It is an industrialised area already. The existing steelworks supports in excess of 10,000 jobs in the local economy, so we have the steel fabrication and supply chain in the tier 2 level already present in the area. We think we have the right physical features in the port. We think we have the right human resources in the wider economy. We think we have what is the starting point of the supply chain to deliver the floating offshore wind structures, which we are looking to build out of Port Talbot.

To come back to your point around the steel industry, I think we have all heard recent announcements around the trajectory for the blast furnaces in that area. At ABP, we believe that we need to work with the Welsh Government, the local authorities and national Government to give that region, which is already one of the most deprived in the UK, the opportunity to have something to work towards over the next decade. If we walk away from this opportunity now in that region, there will be significantly more deprivation. Floating offshore wind provides a fantastic opportunity to repurpose all of that industrial capacity, all the human resources in that area.

Q126 **Mark Garnier:** That was a very helpful introduction. Can I turn to your second point, where you were talking about the market failure to do with



## HOUSE OF COMMONS

the way the structure works and your investment? I spent 17 years as an investment banker raising money for exactly these types of port facilities and stuff. I completely get your point that, if you are an offshore wind generator company and you see a CfD, are you going to bid for that CfD if you do not know that you can build your plants or you have uncertainty about where you can build them?

What I am trying to get to the bottom of is that, with investment, to a certain extent, it is a bit chicken and egg, and the argument can go that if you take that commitment, the customers will follow. What I am trying to get some more flavour on is where you can provide evidence of market failure. Can you say that, because the ports and that ability to build these wind turbines and then service them are not there, the CfD market has failed and people have not then invested into it? So the problem is much more pronounced than the simple investment case you are talking about.

**Andy Reay:** We have looked at the pipeline going forward and at the ever-increasing size of turbines, and some of the turbines that have already been sold, which will be delivered over the next few years, are already larger than the ones we have currently installed. So when we look ahead, even over the next five to seven years, we know that port infrastructure in the UK will struggle to meet the loading requirements and the capacity requirements.

Q127 **Mark Garnier:** That gives you certainty of investment. Your investors can turn around and see you have a market failure in terms of that and, therefore, that there is a good case for building these things in order to be able to deliver that.

**Andy Reay:** Because the CfD happens so close to the construction period for the offshore wind farm, it is difficult for us to get commitment from a customer in advance of them having taken their own FID.

Q128 **Mark Garnier:** Just for a bit of clarity—I might have zoned out momentarily—are you saying it is a good idea or a bad idea that we should be picking winners in terms of the regions? I just missed that point.

**Andy Reay:** We need to strategically select locations where multiple elements of the net zero journey can come together.

**Mark Garnier:** So it is a good idea?

**Andy Reay:** . Yes.

Q129 **Mark Pawsey:** Could you clarify what exactly needs doing at the ports to enable these activities to take place? You spoke a bit about heavy-lift capability, for example, and I understand that. In most cases, these ports exist and, presumably, in most cases there is developable land for manufacturing around them. So what is the investment going to be made on?

To follow that up, we have heard in this inquiry about a lot of issues to do with the challenges of getting stuff through the planning system. Does the work that you intend to do require planning? In the main, is there



## HOUSE OF COMMONS

support from the local authorities in the areas where you are intending to do it, or do you see planning as an impediment to delivering what needs doing at scale to enable us to meet our decarbonisation objectives?

**Andy Reay:** Yes, we do have existing port infrastructure, but it does not currently have the capability to deliver what we predict to be the weights involved.

Q130 **Mark Pawsey:** What physically do you need to do to the ports to enable that?

**Andy Reay:** You need to improve the load-bearing capacity of the heavy-lift quays. That is one feature. We are also discovering that the scale of the projects means that you need significantly more storage land in and around—in close proximity to—the quay to allow it to efficiently deliver the offshore wind project. That is particularly relevant when we look at floating offshore wind. Floating offshore wind, particularly for the large foundation structures, needs an order of magnitude more land than you would need for a comparable fixed bottom.

Q131 **Mark Pawsey:** And the land exists around your existing locations.

**Andy Reay:** We still need investment in the land because we need to raise the load-bearing capacity. We need to prepare it for the structures.

Q132 **Mark Pawsey:** In the absence of the engineering works you are telling us about, are you suggesting that we are not going to be able to deliver, or that some of the other witnesses who have projects are not going to be able to get those away, because the ports will be inadequate if they are not amended in the way you describe?

**Andy Reay:** It is a combination of a lack of capacity but also a lack of capability in certain port locations.

Q133 **Mark Pawsey:** And the planning question?

**Andy Reay:** Our concern is that the planning process to deliver port infrastructure investment rightly has to consider a lot of parameters, but the timescale it takes to go through that process is significant.

Q134 **Mark Pawsey:** Is that going to be an impediment? Will the time it will take to get the ports in good order impinge on our ability to deliver renewables at scale?

**Andy Reay:** There is a risk of that because we are having to start that consenting process so far in advance of the market signal, and it can cost significant amounts of money to go through the consenting process. We are effectively spending money at risk before we get a strong market signal.

**Mark Pawsey:** Which is why you want your three Ps.

**Andy Reay:** Yes.

Q135 **Barry Gardiner:** We are always surprised when someone writes to us and says public funds should not largely be focused on ports.



## HOUSE OF COMMONS

**Chair:** Yes, that was a surprise.

**Barry Gardiner:** We are sometimes so happy about that, that we ignore some of the other things in the submission. It seems to me that you may not want the money, but, boy, do you want autonomy here! Given all the stuff that you have put in your submission about planning, freeports, the expansion of permitted development rights into ports, and having “a system of self-certification once mitigation measures in respect of environment/ecology are agreed with a cost ceiling measured against the total cost of the development,” it seems to me that you want a very free hand and no constraints from planning.

You are asking Government for a lot here in terms of, “Stand back! We’ll get on with it,” but you want the Government funding to go into the penumbra, the supply chain. You have also mentioned in your oral evidence that you wanted the Government to step into that space—the gap you said there was—with new policy levers. What are those new policy levers? Am I being overly suspicious about how much freedom you want in your freeport structure from any other environmental constraints?

**Chair:** Can you answer those 75 questions as quickly as possible?

**Andy Reay:** I do not think our comment was specifically related to freeports. We want the environmental considerations to be considered at the outset, which then gives us a window within which we can operate. We do not mind having parameters set, but once those parameters are set, you should allow us to deliver the investment, the supply chain, the building size—

**Chair:** Don’t change the goalposts halfway through.

**Andy Reay:** Exactly, and do not adapt those conditions as we go forward. We want an envelope within which we can operate. We are quite happy for various stakeholders—Government, local authorities and so on—to set those parameters once all the environmental considerations are taken. But, once they are set, allow us to get on with the business of bringing in the supply chain.

Q136 **Barry Gardiner:** But you know already what the statutory biodiversity net gain is and what all these things are. So what, in particular, are you pushing for? It is not as if planning regulations change in that way when a project has been approved. I am not quite sure what your fear is here.

**Andy Reay:** If you do not mind, I do not have that information to hand, and it is not my particular area of expertise, so perhaps we could provide a written response on that.

**Chair:** Evidence is evidence, and we would be happy with that.

Q137 **Barry Gardiner:** What about the policy levers that you want the Government to bring in to mitigate that gap?



## HOUSE OF COMMONS

**Andy Reay:** The FLOWMIS scheme has been a welcome intervention into the market. I think that the Government did recognise that there was a failure here in terms of these port projects being developed, and therefore the scheme was very much focused on floating offshore wind port projects. It is about schemes like that—some form of enduring scheme—to help strategic port projects go through that initial period. Once you have your consent in place, you can make quite rapid decisions around the construction process and you can have things constructed in a timely manner.

Q138 **Barry Gardiner:** We are going to hear this afternoon from the Minister and from Ofgem, and I presume we will be chatting with them about the new National Energy System Operator and the strategic plan they have to come up with. They are supposed to be in place and fully operational by summer this year, but their plan will not be ready for a little while. What delays do you envisage with the new NESO, and how is that going to affect the timely delivery of the clean energy that you are building this infrastructure to get?

**Andy Reay:** That is another topic that I am not particularly fully up to speed with—grid and future network operator. Perhaps we could provide written evidence on that.

Q139 **Sir Mark Hendrick:** You mentioned the heavy-lift requirement that will be needed at Port Talbot. I have two questions again. On things like the blade manufacturer, you said you did not want the regions competing with each other, quite rightly, because there should be the capacity there to meet our net zero targets in terms of the wind energy contribution. Is it your plan to transport a lot of the stuff to Port Talbot from the north-east, where there is that manufacturing capacity at the moment, or are you looking to make it more localised, such that heavy steel products should be manufactured in the Port Talbot region itself, rather than being shipped right across the country from the north-east to south Wales?

**Andy Reay:** I will let Siemens Energy comment on blade transportation during their evidence.

There are strategic locations in the UK that have a natural affinity. On the Humber, for example, they manufacture blades and they export those blades back into Europe and provide them to UK projects. I can entirely see a world where they are shipped round to a port location in the Celtic sea.

What we do not currently have at sufficient scale in the UK is the ability to assemble and build the sub-components for the foundations for floating offshore wind. If we recognise that we do need a new facility to be able to do that, we should do it as close to the relevant market as possible, acknowledging that there may be capacity on Teesside to manufacture some of the sub-components, and then transport them around to other locations.

That is, in effect, how the current European manufacturing supply chain works. They ship components around to where they are needed. You do





## HOUSE OF COMMONS

not build a cell factory in every single region to deliver the offshore wind in that region. You build factories in certain locations, which becomes a strategic hub from which you distribute components to elsewhere.

What I would say is that, for the construction phase of these projects, it is vital that you have local port infrastructure to bring all those components together and then install them offshore.

Q140 **Mark Garnier:** This is a very slightly random question. I keep hearing people talking about the opportunity at the port of Ardersier, near Inverness. Have you ever looked at it, and what is wrong with it? Why do entrepreneurs keep coming in and looking at, and the serious guys like you ignore it?

**Andy Reay:** I would not like to comment in any detail on that.

**Mark Garnier:** You are obviously aware of it though.

**Andy Reay:** I am absolutely aware of it. We have taken an option on a piece of land up on the Cromarty firth, in addition to Ardersier and the port of Cromarty. ABP understand floating offshore wind very well through our interaction with developers and the wider supply chain. We feel we have a very good view about what is required from a floating offshore wind construction hub port. We absolutely believe that Port Talbot is needed in the Celtic sea to deliver that. We have not quite made our mind up what is needed in and around the Cromarty firth to deliver.

Q141 **Chair:** Similarly, in Stornoway, in my constituency, they are building a deepwater port at the moment. It started off with cruise liners, but there is a FLOWMIS and there are steel fabricators next to it at the yard in Arnish, which I have no doubt you will know about as well.

But over and above that, this model you are talking about is in Port Talbot. Where else in Europe is this happening? I am imagining that this is an idea that is not brand-new. It is not the first time this has been done in the world or in Europe. This is a new one for the UK, is it?

**Andy Reay:** There is a whole network of fixed-bottom offshore wind ports in and around Europe currently—Esbjerg, the Humber, Ostend, Cuxhaven. There is a whole host of them. But in terms of floating offshore wind, proximity to the final location is even more critical.

**Chair:** Construction is a cost saver.

**Andy Reay:** Yes.

Q142 **Chair:** You will fabricate close and then you will move the stuff as little distance as possible and anchor it.

**Andy Reay:** Because you have to tow it from that port location to its final location.

To your comment, France at the moment, in Brest and Cherbourg, have already invested in port infrastructure to help them deliver French floating offshore wind, which will come online over the next 10 years.



## HOUSE OF COMMONS

Q143 **Chair:** When I look at the map and see where Port Talbot is, and I hear you talking of the Celtic sea, I notice that Ireland is, of course, in and around that geography as well. Do you have an eye to what the Irish Government might be doing as well to use Port Talbot for fixing things in Irish waters?

**Andy Reay:** When we look at the business case for Port Talbot, we absolutely see it delivering not only the UK Celtic sea, but also potentially providing services into the Irish market and back into the French market. What is absolutely critical for the UK is that we take first-mover advantage. We have an opportunity to invest in a port and for it to become the focal point of the Celtic sea region. Once it becomes a focal point, then in terms of the manufacturing and the supply chain, we will have the momentum to attract that into the region.

**Chair:** We have your big message on pipelines, industrial policy and picking winners. Time is not allowing me to do this now, but I will investigate that with others as well, and I imagine the message will be similar.

I think Barry wanted to raise a brief point. You have a minute.

Q144 **Barry Gardiner:** It is unlikely that CfDs or SIRs will be sufficient to drive supply chain investment. Why, and what more do you think is needed in order to do so?

**Andy Reay:** We do not believe those two in isolation send the right signals to the market, but once you combine them with things like the IGP, the industrial growth partnership programme, and the GIGA scheme, that all of a sudden appears to be quite a significant package of support for the supply chain. Just having a CfD mechanism in isolation does not in itself encourage supply chain. You need these other policy mechanisms all working in harmony towards the same goal.

Q145 **Barry Gardiner:** Was there any fear that the others would be withdrawn or taken away? I am not quite sure why you focused on them being insufficient on their own. What was behind you saying that?

**Andy Reay:** From a ports perspective, the reason is that we need to invest significantly in advance. We do not see market signals from CfDs helping us seven years in advance.

**Chair:** It is system-led rather than the blind hand of the market or whatever it is.

Thank you very much for that, Andy Reay, from Associated British Ports. Seamlessly, like a Rolls-Royce engine that is well oiled, we are going to move on and have Rolls-Royce SMR on the panel in front of us—I have been waiting all morning to say that, so thank you, Rolls-Royce.

### Examination of witnesses

Witnesses: Alastair Evans, Rich Everett, and Victoria Scott.



## HOUSE OF COMMONS

Q146 **Chair:** Thank you very much for that swift changeover. Can I ask our witnesses from Rolls-Royce SMR to introduce themselves? Name, rank and serial number, starting on my left.

**Alastair Evans:** Good morning, Chair. I am Alastair Evans, director of corporate affairs for Rolls-Royce SMR.

**Rich Everett:** Good morning. I am Rich Everett, the group head of supply chain for Rolls-Royce SMR.

**Victoria Scott:** Hello. I am Victoria Scott, and I am the interim chief manufacturing engineer for Rolls-Royce SMR.

**Chair:** Brilliant, you are starting your 10 minutes bang on time. On you go.

**Alastair Evans:** Let me provide some introductory comments, and then I will pass over to my colleagues to talk about their areas of expertise. Thank you for the opportunity to talk to you all this morning. Let me give a quick status update.

Rolls-Royce SMR are in a procurement process. That is why we have marked our evidence as not for public dissemination, but we will, of course, endeavour to answer as many questions as fully as we can today, save to say that some of the information that Rich and Vicky are working on obviously has implications for the submission we will make to the Great British Nuclear procurement process.

I will, like the expert who led earlier, Andy, start with three key points. We have a once-in-a-generation opportunity with Rolls-Royce SMRs and SMRs as a whole. We have a blank sheet of paper on which we can design what the supply chain needs to look like and how we can most efficiently and effectively ensure that the UK secures its maximum opportunity for the deployment of SMRs at home and in our project through export.

It is a significant market. It is estimated at £250 billion-plus globally. We are talking to multiple countries, as you will all know, about potential opportunities. This is an opportunity to revitalise the UK supply chain, and we want to create an enduring supply chain. What do I mean by that? We need to identify those match-fit players who can be with us from the start and those that we can work with over time to develop.

But the aim here is to create an enduring supply chain. Otherwise, as you begin to export and localise content, each project becomes almost a first of a kind, again. We do not want to do that. We want to have an enduring supply chain from the off. So the first point: this is a once-in-a-generation opportunity, so let's get it right from the start.

How do we do that? Again, as you have heard many times: programme and project certainty. I have worked in the large nuclear space in a project that did not go forward. We spent four or five years preparing the supply chain, asking them to invest, preparing their codes and standards,



## HOUSE OF COMMONS

and investing in their abilities, and those projects failed—they did not go forward. So we marched the supply chain up the hill and then pulled the rug from under them. We cannot do that again.

Clearly, Great British Nuclear has recognised that, and they are seeking to give project certainty through the procurement of reactors. That is a positive. That means that suppliers, many of which Rich and Vicky speak to, can invest with confidence, so we do welcome that.

Finally from me, as a key point about the levelised cost of electricity versus UK content, where does the decision making sit for this? If you go and have a conversation with the Treasury, you will of course want the cheapest possible project. You are going to speak to different parts of Government, and they will want to maximise UK content. Is this about industrial strategy and maximising UK content, or is it about the easiest, cheapest, fastest route, which would have a higher overseas content for the simple reason that many of those overseas players have been producing the goods and services that we will need for decades, whereas in the UK we are having to start it up again. Perhaps that is the moment for me to pass over to Rich, who engages with the supply chain on a daily basis.

**Rich Everett:** In my role as group head of supply chain for Rolls-Royce SMR, it is my responsibility, and accountability, to source all components that need to be delivered to UK and also international markets. As part of my role, I spend a lot of my time assessing and evaluating the capability and capacity of the supply chain, in the UK, European and international markets.

Our focus is to maximise UK content. Currently, we believe we could hit up to 80%, but that is not without significant challenges, especially with regards to a first-of-a-kind or first unit. The more likely figure is around 60% to 70%, but, once again, that is not without challenges. This is where there is a requirement for supply chain intervention, both from industry and from Government.

When I talk about supply chain capability and capacity, we do a very detailed analysis of the available or capable supply chains on offer to us today. We identify them as organisations that have capability today, and the products or components that we are talking about are things like non-nuclear components, module productions, nuclear valves, and also some electrical control and instrumentation commodities.

We then have areas where there is no capability to date in the UK, and that is for things like steam generators, steam turbines and complex nuclear components as part of the reactor components. That means our aim is to focus on everything that is in the middle. This is where the greatest area of opportunity is to maximise those contents within the UK.

As part of that process, we also understand what the value is, because this is about ensuring that, when you identify and develop a supply chain, you develop it based on the ability to be able to supply, not just for the



## HOUSE OF COMMONS

first of a kind but also for the multiple units and fleet approach as part of that activity. That allows us to work and engage with those supply chains to allow them to prepare and be able to access those markets as part of the standard bidding processes that we go through.

Why do we see ourselves at this point today? Historically, and probably for the last number of decades, the UK nuclear industry has been supporting projects, and those projects are piecemeal and other, more bespoke decommissioning activities.

My last point is that, as part of my role, I also speak to international organisations. Those organisations manufacture components in the European Union and also wider afield. They have all expressed an ability or desire to potentially support, or manufacture in, the UK, subject to the right investment programme or the ability to invest in that process. I will hand over to Vicky now.

**Victoria Scott:** My role as interim chief manufacturing engineer covers responsibility for internal manufacturing development, and that includes the associated factories for those products. That forms part of the wider supply chain solution into the SMR.

We are currently developing in-house the manufacture for some of the systems that contain some of the highest integrity requirements for the power plant. It is extremely important that we maintain that. Our aim is to build in the UK.

However, as Alastair mentioned, we need that commitment to the project so that we can continue with the investment required. That includes continuing the manufacturing development and moving that forward, so that we have a production-ready solution for the factory. It also includes the site selection for the factory and understanding where we are going to place that site. We cannot commit to a site until we have that level of commitment elsewhere.

Once we have that site identified, that enables us to properly engage with training partners in the region, because we need a significant number of employees—in the region of 330—within this factory in the first instance to deliver that capability in the UK. We need four-plus years to be able to develop those programmes and train apprentices through those schemes as well.

Beyond that, it is important that we can continue quite quickly now with the design of the factory itself—that we can secure investment and funding for the design of the factory—and then ultimately build the factory and deliver it to the programme within the UK.

Q147 **Chair:** Excellent, and you finished ahead of time as well. Thanks very much. Just before I turn to colleagues, I have two questions. First, Vicky, what you are saying there seems quite a job—it is almost like conducting an orchestra. You have to get a lot of moving parts coming together before you can make these decisions. That is not easy. You need



## HOUSE OF COMMONS

signals. Government often talk about market forces, but you seem to be suggesting that Government have to realise it is the biggest force in the market and to really make clear signals.

**Victoria Scott:** Right now it is, yes. We are moving forward with the investment that we have at the moment through the current phase, but obviously we need that commitment beyond that to then engage properly with the external parties that need to invest—local authorities and other organisations that are going to support us through the construction and development, as well as the actual manufacturing development as well.

**Alastair Evans:** Just to add, if I may, that Vicky is absolutely right. My job is to engage with the board on making the case and explaining that they should have the confidence to invest. That is where Great British Nuclear is getting to in its procurement.

Q148 **Chair:** Quickly, either Alastair or Rich mentioned that UK content can be more expensive and you can get things cheaper elsewhere. But you seem to be hinting that, if you start making it in the UK, it will become cheaper over time. Am I seeing nods on that one?

**Alastair Evans:** Yes, absolutely right.

Q149 **Barry Gardiner:** It is Friday evening, and they have just finished doing the resurfacing. They have some excess shingle and they come in to you and say, "We have to offload this shingle. Would you like your drive done? We can do it cheap for you, but you have to have it now. You have to make the decision now because we have to go, and it is the weekend coming up." When you tell us not only that you cannot make this decision without a contractual commitment from Government, and that a commitment to any more than two designs in the GB Nuclear process in the immediate term will begin to dilute the benefits, I begin to feel like the householder who has just had the contractor come and knock on my door and tell me I need my driveway done.

Mr Evans, you started off by saying, "This is a great opportunity. We are at the forefront of the technology," but you concluded your remarks by saying, "Actually, we are playing catch-up with the rest of the world here, because they are a fair way ahead of us on many of these things." Mr Everett, you laid out very well, I thought, the hugely complex supply chain that we need here, but you did not talk about the skills supply chain, and I would like to hear where we are on that. But most of all, I want to know that you are not trying to hold a gun to the Government's head here and saying, "You have to decide now. It has to be us, and it has to be nobody else but us. Otherwise you will lose the benefits of what could potentially be a great British success story."

**Alastair Evans:** Let me try to pick up on that latter point.

**Chair:** Can we answer quicker than the question?

**Andy Reay:** My team here cannot do their work until there is certainty, because Vicky cannot go to the market and secure a site, and Rich cannot go and procure long-lead items until there is certainty. That is why I



## HOUSE OF COMMONS

wanted to make the point about large nuclear projects failing, because there was that significant ramp-up in activity and the projects did not happen. That is where the certainty comes from.

I will not use your language exactly, but why is it important that we do it now? Because we are ready, and we are in a global race. We are competing against US and French technology in a global market in many countries in Europe and further afield, and we need to make progress in our home market. Essentially, Mr Gardiner, we have a tremendous opportunity to do something here.

**Q150 Barry Gardiner:** I agree with you, but there will be costs, aren't there? I want you to be up front with us about what those are. I also want you to be up front about what the risks are.

**Alastair Evans:** You mentioned that overseas countries are way ahead. That is probably not quite the right characterisation. We are competing to secure contracts in a number of countries, and we—

**Barry Gardiner:** Having to build the supply chain.

**Alastair Evans:** Exactly right.

**Q151 Derek Thomas:** I would answer that question by saying that it was because the Government—George Osborne—that fired the starting gun and challenged you to do this in the first place. So I have always been supportive, right from that date, of the SMR potential for the country.

I might not have understood what was said, so could you set out—this is probably to you initially, Mr Evans—what share of UK energy supply small modular reactors could deliver, and what the impact would be on customer pricing, assuming that pricing changes? On energy security, will small modular reactors make our energy more secure, because there are lots of them, rather than one or two big sites?

Can I then quickly move on to UK plc? My understanding, from when we talked about this years ago, was that the opportunity for export of the energy, the IP and the technology was significant for the UK, which is one of the reasons why Government should bite your hand off. Can you say a bit more about those two things?

**Alastair Evans:** Let me quickly pick up on the first one. I will try to be as brief as possible. At 470 MW per reactor, that is power for about 1 million homes. They are pretty large entities. They are very similar to the AGRs that already exist in the UK. There are already stable supplies, and a 60-year operational life. You would put multiple small modular reactors at each site, for the simple reason—colleagues earlier were talking about planning—that the planning process for one SMR is largely the same as it would be for four on the same site. If you are going to go through the process, you would want to build two, three, four reactors on one site. Your second point was on?

**Derek Thomas:** I asked about the impact on consumer price.



## HOUSE OF COMMONS

**Alastair Evans:** Nuclear has no automatic right to be in the mix. It has to be competitive. The first of a kind, to Mr Gardiner's point, will cost more. The aim here is replicability: your second is cheaper, your third is cheaper, your fourth is cheaper and on you go, because you have invested in the factories and in a sustainable supply chain.

I do not want to throw numbers around—that will be an element of the Great British Nuclear process—but if we are not offering value for money, we will not secure contractual commitments from the Government, and rightly so.

Q152 **Derek Thomas:** The second point was whether we have lost the advantage, or is there still an opportunity for UK plc to benefit from export in several different ways?

**Rich Everett:** I identified where we have no capabilities because we missed out on that opportunity, because the US and French markets have already taken some of those activities. There is still 80% capability that we want to develop. That is in the highly complex, high-skilled technological jobs that we could do. The approach is that we do not want to create multiple supply chains in multiple regions. This is about developing an international supply chain that can supply internationally.

Q153 **Dr Poulter:** You suggested in your evidence that the nuclear supply chain is robust and can handle the growth that will come in the sector. However some aspects of the supply chain are also shared by non-nuclear industries. What makes you certain, or gives you reassurance, about the robustness of supply chains in that context and in the international context you have already alluded to?

**Rich Everett:** First, there is capability in the UK supply chain. The issue is the capacity of that supply chain to be able to support this programme. The secondary point is that this is then compounded by other nuclear programmes and other, associated industries. As part of that process, we are looking not just at the nuclear supply chain. We cannot just look at the nuclear supply chain, because it does not have the capacity to be able to meet this requirement. So we are looking at associated industries—the oil and gas industry, the energy industry and so on—to be able to support the process of providing that capacity. In addition to that, we look at what we need to do to develop those supply chains to provide support.

Q154 **Dr Poulter:** If you are looking at delivering projects on time and on cost as well, if the supply chain is disrupted, that could obviously have an impact upon the cost of delivery.

**Rich Everett:** Very much so. That is one of the main principles for the Rolls-Royce SMR design. It is a factory-based product. It means that we are able to control the manufacturing processes much more closely. But, yes, absolutely, if the supply chain is disrupted, that will have an impact on our ability to deliver.

**Alastair Evans:** But that is why you would build strength in depth in the components and make sure you have multiple suppliers—potentially UK





## HOUSE OF COMMONS

focused, but also a back-up supply chain—with that strength in the long term.

Q155 **Dr Poulter:** Secondly from me, you are obviously part of the SMR competition. If Rolls-Royce were successful, how soon would we see actual deployment and roll-out?

**Alastair Evans:** The bit that we are in control of is the construction of the power station itself, and that is 5.1 years for the first of a kind, coming down to four and three years, which will be the eventual aim. Five years is what we are in control of and know how to do. The earlier stage, the planning process, four, five, six years, that is the bit that we are not in control of and that is open to a range of factors. But, essentially, you are looking at early to mid-2030s for first power if you cannot make any changes to the existing way that we deliver planning permissions in the UK.

Q156 **Mark Garnier:** I have three quick questions. Financial: as I remember it, you have had £240 million from the Government and £260 million from the consortium, which you lead, or is that the other way around?

**Alastair Evans:** We have had £210 million from UK Government and £280 million from investors.

Q157 **Mark Garnier:** You have had half a billion so far. The first question is, when you start rolling things out, where is the further investment going to come from? Do you need Government money, or can you get it from the markets?

**Alastair Evans:** Part of the Great British Nuclear competition is talking about co-investment. That will be a similar matched structure. We do believe we could secure further capital from the market.

Q158 **Mark Garnier:** Fantastic. What is the cost of the electricity you expect to be produced, compared with current, traditional nuclear?

**Alastair Evans:** I am going to give you a vague answer, so I apologise. It is £40 to £75 per megawatt-hour—2019 economy. But it depends if you are using a contract for difference or—

**Mark Garnier:** £40 to £75 is quite good. That is below the current strike price of electricity.

**Alastair Evans:** Correct.

Q159 **Mark Garnier:** That is very encouraging. You also made a point about the global markets. You are in competition with the French and US manufacturers. Is the globe not big enough to have more than one manufacturer?

**Alastair Evans:** There will certainly be more than one. There will be multiple SMR technologies, and there should be—there are multiple reactor types in large projects at the minute. You want strength in depth, and we expect more than one to succeed in the UK. There will likely be



## HOUSE OF COMMONS

two selected by Great British Nuclear. That is good. That introduces competition in the long term. That is a good outcome.

Q160 **Mark Garnier:** You are good at this. You do nuclear submarines at the moment, which I realise you cannot cross-reference, and you have the space stuff going on as well.

**Alastair Evans:** It is a high barrier-to-entry market. We have significant experience, and we are ready to go.

Q161 **Sir Mark Hendrick:** This question, which will not surprise the panel, given that I have met them before—or two of them at least—is about fuel. You mentioned UK content in production. Clearly, you want the percentage to be as high as possible to meet requirements. What happens, though, when you are over the line? I think when we discussed it last time, Alastair, you hinted that, given economic considerations which may be further down the line, you might be looking at fuel from abroad—for example, from France and EDF. Clearly, I have a British interest, in that I have Springfields on my doorstep. How do you see that panning out?

**Alastair Evans:** Let me start, and Rich will perhaps take over. We have placed a contract for the design of our fuel with Springfields and with Westinghouse. So there is a UK-fuel route being developed for our solution. Rich, is there anything you want to add?

**Rich Everett:** It comes back to the comment about security. We have also placed a design contract with a French organisation for that fuel process. We are looking, either way, for the manufacture of that fuel to be in the UK.

Q162 **Sir Mark Hendrick:** You are backing both horses at the moment, but further down the track how do you see things panning out if EDF is producing it cheaper?

**Alastair Evans:** That is a consideration that will form part of the Great British Nuclear process and the selection. There is clearly an intent to maximise UK content. The UK has significant experience in fuel and is investing further in its domestic fuel supply and strengthening Urenco, strengthening Springfields, which is extremely welcome.

Q163 **Mark Pawsey:** Only yesterday, I think, you announced a desire to have generation take place closer to where the energy is used. Where would you anticipate being good sites for SMRs? Is it about replacement of the existing nuclear fleet, or is there a possibility that this technology can be used in other locations, in which case, what sort of locations, and what are the planning issues, as we discussed with the last panel?

**Alastair Evans:** In the first wave, we are certainly looking at existing nuclear sites. You have extremely strong public support at those sites, whether it Moorside, Wylfa or Oldbury down in the south-west. Your starting point would clearly be the already identified nuclear sites. That is your short term. You could put multiple SMRs on those sites.



## HOUSE OF COMMONS

Medium term, you could look to identify new sites. Teesside is a good example where you have significant energy-intensive demand, and it is a non-nuclear site. In terms of making the case, Government are seeking to go that way with the alternative siting consultation that is under way at the minute, so they are seeking to open up new areas for SMR deployment. In the medium term, that would certainly be our thinking.

**Mark Pawsey:** So non-nuclear sites are potentially—

**Alastair Evans:** And Government are consulting on that premise at the minute.

Q164 **Mark Pawsey:** Would you face any planning problems there?

**Alastair Evans:** You would go through the planning process in the same way you would if you were building a gas project or a large onshore wind project.

Q165 **Mark Pawsey:** You spoke about five years reducing down to four or three from order. If you had to add on a planning application, by how much longer would that be extended?

**Alastair Evans:** To take a rough order of magnitude, we are talking about around 10 years for first of a kind, including your planning and to your first power. We would want to bring that down, with our pace increasing as we deliver units, and with planning processes becoming more streamlined in time, so that it is not taking longer to plan and consent than it is to build.

Q166 **Chair:** You plan to displace gas?

**Alastair Evans:** Our view is that gas is going to have a role, but it is obviously—

**Chair:** The Government are now looking at gas in 20 years' time. Would you not be there in 20 years' time?

**Alastair Evans:** Nuclear could be displacing gas in the 2030s.

Q167 **Chair:** One of the themes that is coming over from Associated British Ports and yourselves is that the UK Government cannot be passive with this—passive with market signals. They must get active in the project with you. Is that a fair assessment of what you are saying?

**Alastair Evans:** I think that is fair. That is recognising that, 10 years ago, there was a developer-led market in nuclear—that is, "Go and spend £1 billion to £2 billion, and fingers crossed it will happen." That failed.

**Chair:** Was that the George Osborne firing gun that failed?

Q168 **Alastair Evans:** No, that was the large nuclear project that failed. Now Government recognise that they do need to be part of the solution. That is where you get into the Great British Nuclear procurement.

**Chair:** We have a couple of minutes left. We have Barry Gardiner and Mark Garnier. Will you both be mindful of each other?



## HOUSE OF COMMONS

Q169 **Barry Gardiner:** Mr Thomas was asking about skills. Can you flesh that out and tell us whether there are any bottlenecks in the skills capacity we need and what delays they might create for you?

**Victoria Scott:** There most probably are some bottlenecks in skills, because the nuclear industry has not been in existence to the state that we want it to be in in the future. For the factory—we will need more for the site—we will need in the region of 330 employees. They will all be highly skilled individuals, predominantly in welding and non-destructive examination. We want to move into an apprentice scheme and to see a regular throughput of talent to sustain that number of employees within the region. We need to establish training facilities and partners within the region to deliver that.

Q170 **Barry Gardiner:** Let me try to push you a bit. Is there a dearth of high-level STEM skills in this country? Who are you competing against, given that this is not just about nuclear? There will be huge demands from the rest of the push to net zero. What are you asking Government to do? What recommendations should we be making to Government about the skills that are required to ensure that those skills bottlenecks do not delay delivery?

**Victoria Scott:** We are aligning ourselves with some of the national programmes to deliver nuclear skills and engineering skills. We are putting commitments forward about the numbers that we want to see come through the graduate and apprenticeship route. A lot of those schemes are in place and are supported by other large companies. It is a case of making sure that we keep pushing on that and that they deliver what they are intended to deliver.

Q171 **Mark Garnier:** Very quickly, Alastair, you were talking about going to Tyneside and locating on existing sites. If you go to Tyneside, is that because you agree with the idea of regional pricing? Would that help? The second question is, are you confident that, if you follow the regional pricing where there is a demand, you will get access to the grid?

**Alastair Evans:** It is not a regional pricing push. The first sites we would go to would be existing nuclear sites where they have grid connections, so that you are reducing the burden and the demand on new grid requirements. We are looking at energy-intensives particularly—so data centres. It is very difficult to build data centres in the UK at the minute, because of the power demand. Are there locations—Oldbury is a good example, as is the neighbouring Berkeley site—where you could catalyse significant investment in data centres, rather than looking at the regional pricing aspect?

**Mark Garnier:** You have to go where the demand is. Fantastic. Thank you.

**Chair:** Thank you very much, Rolls-Royce. We will get you out as smoothly as we got you in, and we will have Siemens.

Examination of witnesses



## HOUSE OF COMMONS

Witnesses: Darren Davidson, Andrew Elmes and Matthew Knight.

Q172 **Chair:** Good morning, Siemens Energy. In many ways, the quality of your evidence, which was exceptional, has resulted in us having the format we have this morning. We will carry on as we have, and I will ask you to introduce yourselves, and then we will blast on.

**Andrew Elmes:** Good morning. I am Andrew Elms, and I look after net zero business development for Siemens Energy.

**Matthew Knight:** I am Matthew Knight, and I am head of Government affairs and understanding the market for Siemens Energy.

**Darren Davidson:** My name is Darren Davidson, and I am the head of Siemens Energy for UK and Ireland. Maybe I will take the lead on giving an overview of our evidence. Just to introduce my colleagues, Matthew and Andrew are responsible for Government affairs.

I would like to say a few words of introduction about our business. Siemens Energy is one of the leading energy technology providers globally. We are now a completely separate business from Siemens AG. We employ around 97,000 staff globally. Size-wise we are around a £31 billion business globally.

We manufacture, install and service a wide range of products that underpin the energy system: wind turbines, grid transmission, gas and steam turbines, transformers and interconnectors. We are also interested in technology such as carbon capture, energy storage and hydrogen.

Our business has been present in the UK for over 150 years. We employ 6,000 people across the UK, in sites in England and Scotland, including at our grid centre of excellence in Manchester, our service centre for offshore industry in Aberdeen, our gas and steam turbine service facility at Newcastle, the UK's only remaining gas turbine manufacturing plant in Lincoln, and our Siemens Gamesa wind turbine factory in Hull.

Siemens Energy is already a big investor in the UK supply chain. We have spent £500 million in Hull creating more than 1,000 new jobs. We have invested tens of millions across the rest of the footprint in this country. There is a huge opportunity for us and businesses across the country to invest more, delivering a more resilient supply chain and creating thousands of new jobs.

But we have to recognise that there is a massive competition internationally for investment, including within Siemens Energy. Many countries are looking to decarbonise at the same time as us. All of them are competing for space in the global supply chain, and all want to build up their domestic supply chain capacity.

Supply chain businesses like Siemens Energy will respond to long-term, consistent signals about the UK's commitment to decarbonise energy and a strong pipeline of future work, and also if the UK is a good place to do business. We have demonstrated that with our recent investment in Hull.



## HOUSE OF COMMONS

Our industry will also respond positively to an industrial strategy which provides a road map for skills and investments out to 2035 and 2050.

I think we need to look back as well. Up to now, I think the UK has done well. We should be particularly proud of our record when it comes to the development of offshore wind and the departure of coal from an energy perspective, but we firmly believe now that we need to step up that pace.

We need clear and consistent direction when it comes to policy for long-term planning. We need the Government to be flexible and rapid in making decisions, particularly when it comes to transforming the grid and also hydrogen. We also need the Government to provide targeted financial support if they want the UK supply chain to grow.

A good example is last year's contract for difference auction round 5, which failed for offshore wind. The changes in AR6, including the extra budget, are most welcome and will secure between 3 GW and 6 GW in this auction round, but more than 10 GW of projects are ready to be built. To reach the goals, and for industry to invest, we need to see the targets out to 2035 and not through individual auction rounds. We need to have the confidence that future auction rounds will deliver that 7 GW of aspiration and of new capacity every single year.

In grid, again, we have made some improvements. The Winser review was positive, but now it needs to be implemented at pace. If we want to help the supply chain, we should learn from countries like Germany that have offered a 10-year programme for projects in grid.

The UK has huge advantages when it comes to carbon capture and hydrogen, but we need to move quickly to get those first-of-a-kind projects implemented and over the line. We also appreciate the GIGA fund. The GIGA fund is welcome, but we now need to see the money being allocated and investment supported in the context of an industrial strategy.

We all accept that this is incredibly challenging. It is, and we know that, but we truly believe that this is the opportunity of a lifetime for us. We have the chance to cut emissions, reduce energy bills, increase our energy security and, at the same time, give people rewarding and lifelong careers in the energy sector.

I started my own career in this sector 35 years ago as an apprentice, and I am proud that, today, we continue with our passion for apprenticeships. We have over 300 apprentices in our 6,000-strong team. We want to continue to do that, and we are passionate about creating high-value jobs in this dynamic sector.

We all accept decarbonisation is hard, and we all accept that building up the domestic supply chain is difficult, but if we are all committed and decisive, I truly believe we can all do very well.

Q173 **Chair:** Excellent. There is a lot of good stuff there. Before I turn to Barry Gardiner, you mentioned pipeline, which is quite important and a theme



## HOUSE OF COMMONS

that has gone through this morning, and long-term, consistent signals. You mentioned in your evidence that your initial investment in Hull in 2010 was going to be quite large but was scaled back between various announcements the Government made between 2010 and 2014, and reduced several times because of political signals. What do you want Governments to do and not to do?

**Darren Davidson:** I think it is clear. If you visit Hull, you see we have invested heavily with ABP to build that capability in Hull. That all comes from the visibility of the projects and the pipeline of those projects. I will ask Andrew to contribute, because he was part of that journey of building that investment.

**Andrew Elmes:** I was lucky enough to be part of the project team that built Hull and that has since gone on to build offshore wind farms that have used the blades that come out of our factory in Hull. Hull was not built on the back of the contracts for difference. It was built before that as part of a mechanism called “feeder” that gave certainty to a number of projects.

Q174 **Chair:** What did politics do to make it less certain between 2010 and 2014 and make the millions you were spending decrease?

**Andrew Elmes:** Matthew was part of that, so he can give some more of the detail, and we can follow up with a written reply on that. But, effectively, it was a reduction in commitment from 2010 through to 2014 in terms of what the UK was willing to—

**Chair:** These words were costing millions of pounds.

**Andrew Elmes:** These words cost us on the size of our commitment, because our commitment reduced accordingly. We started off looking at whether it was going to be a cell factory, and even towers, as well as a blade factory. The ultimate decision in 2014 was to stick with the blade factory, and we put the cell factory elsewhere—it ended up in Germany.

**Chair:** Because of political pronouncements.

Q175 **Barry Gardiner:** You spoke in your evidence of the problems with the roll-out of the grid and with the bottleneck of connectivity. I think we have to create four times as much grid in the next six years as we have in the last 30 years. You said: “It is unlikely that every country will get what it needs on time,” which I think is a great understatement. What is it that Germany has done in its 10-year project grid programme that we need to learn from?

**Darren Davidson:** From a grid transformation perspective, Germany was very clear on the visibility of their plans for the next 10 years, and they awarded contracts. TenneT, who is the system operator in Germany, presented a plan as to what they wanted to do and awarded contracts for a full duration, whereas what we see are single-type contracts for a project.

Q176 **Barry Gardiner:** NESO, the new national systems operator, will be



## HOUSE OF COMMONS

coming forward with its strategic plan. What representations are you making to ensure that that sort of programmatic development and roll-out is part of that plan?

**Darren Davidson:** From a system operator perspective, we are very heavily active in some of the HVDC projects and the grid restoration projects. We work with the system operators to provide that.

**Andrew Elmes:** I will add one comment on that. The system in Germany is slightly different from the UK's. In the UK, a developer develops the whole project, including their offshore transmission assets. The Netherlands and Germany have at times taken a different approach, where, effectively, it is more plug and play, with developers doing the wind farm that plugs into the offshore connection. That has allowed the German Government and TenneT to do a mass procurement approach, whereas in the UK it is project by project.

Q177 **Barry Gardiner:** So a recommendation from this Committee, in the light of your evidence, is that we need to have programmes, not projects.

**Darren Davidson:** I agree with that statement, but I think it is more about the visibility of the pipeline. If we take that back to offshore wind, we need the visibility. Our aspiration is to get to that 7 GW every year for the next 10 years, not individual auction rounds.

**Chair:** So you can build the port facilities and do the rest of it, and not rely on the Government.

**Darren Davidson:** Yes.

Q178 **Barry Gardiner:** I have a final, short question. You said, quite rightly: "A CfD is not the answer to everything, and it is the wrong answer for less mature technologies such as green hydrogen." What is the right answer for green hydrogen?

**Matthew Knight:** We wrote to the Energy Minister in February 2020 to say what we thought was the right answer. The point has already been made this morning that the sooner you can get a pipeline of work going in your country, the bigger your chances of attracting a supply chain. Back in 2020, no one had built any hydrogen projects anywhere in Europe. It was a blank sheet of paper. We urged the UK Government to move forward with a quick and simple scheme, which could have been based on either tax credits or a very basic premium for hydrogen.

Instead of that, the UK Government have chosen to develop the enduring regime, which we will need, but it has taken four years to do that. Just before Christmas, the Government announced the first project in selected CfD contracts. They have yet to sign those contracts, and none of them has yet awarded a contract to an electrolyser manufacturer. Meanwhile projects have gone ahead in Europe. That is why 16 manufacturers have announced factories in Europe in the last three years, and the UK has yet to get out of the starting blocks.

**Barry Gardiner:** You have just outlined our question for the Minister this





## HOUSE OF COMMONS

afternoon. Thank you very much.

Q179 **Chair:** While the UK Government pondered, continental Governments got on and built.

**Matthew Knight:** Yes. Now, every country has its own issues, and no place is perfect, but the UK missed an opportunity to be right out in front. We have some tremendous advantages for hydrogen in this country—geology and geography, where the wind is and where the storage can be—so it is still not too late. But there is much greater value in getting those first-of-a-kind projects away and then following them up with a pipeline of projects and building a supply chain from the start.

Q180 **Chair:** Briefly, why couldn't you just do that as a company? You are a big company, you have £31 billion globally and you have 97,000 employees, including 6,000 in the UK. Why don't you just go on and do it?

**Matthew Knight:** We have done it. We have announced a factory in Berlin, because that is where—

Q181 **Chair:** You needed a Government?

**Matthew Knight:** No, we needed a pipeline of projects. It is very interesting. I drew the map a year ago to show where all these European factories are. If you were just saying, "Europe is a big market. Where are the cheapest places to manufacture," you would probably put your factories in eastern Europe. But it is really noticeable that the factories are in Denmark, Germany and France—in the countries that have come up with projects first.

**Chair:** And funding for the projects?

**Matthew Knight:** The first location for the supply chain is where the projects start first. Once you have an established industry, which wind or grid or other things are, then you have a different question, which is where do you build a second factory? That is a much larger decision and more of a beauty contest.

Q182 **Barry Gardiner:** Mr Knight, you chair the Government's hydrogen working group. Why the hell did they not take any notice of you?

**Matthew Knight:** The sequence of events was that we wrote to them about this in February 2020. I became chair of the working group in 2023, I think.

**Darren Davidson:** The Hydrogen Delivery Council is doing some very, very good work. There is a real ambition to try to get momentum on that. From a HAR1 perspective, I think there has been some success, but it is very, very small—it is 125 MW of hydrogen.

The second round, HAR2, is 825 MW. There is a real desire to get going but, as Matthew says, not one of the projects has achieved FID yet. There is an ambition to get them there, but if you look at the scale of what we are trying to do across all of the energy transition, all the stories are like this—they are all stories that we are not getting going.



## HOUSE OF COMMONS

If you ask me about hydrogen, there is a very clear view of HAR1, there is a very clear view of HAR2, but there is no defined road map as to what we are going to be doing in the next three, four, five years, which will allow companies like ourselves to look at the UK market. Again, we are in competition with all the other countries doing energy transition. From a Siemens Energy perspective, to say that the UK market is the right place to invest—and what we probably heard from the other two panels today is quite similar—

Q183 **Chair:** Can I understand something? You went to Germany. You are a private company. Were you doing a paper round or a milk round looking for the best subsidy, and did you go to the country that was giving you the best support and subsidy? Big Siemens, of £31 billion? Government subsidy was just so important?

**Barry Gardiner:** It was the supply chain.

**Matthew Knight:** Germany was the country that was most active in hydrogen. Our company is headquartered in Berlin.

Q184 **Chair:** What was the Government doing to be active in hydrogen? Was it Government or was this—

**Matthew Knight:** The German Government was supporting real projects to get under way.

**Chair:** With a subsidy?

**Matthew Knight:** Yes, with a variety of different subsidies.

**Darren Davidson:** I would also say that, on grid for example, Germany had that long-term vision—that 10-year vision—which allowed—

Q185 **Chair:** On a new thing like green hydrogen, it was where the subsidy was that started the cluster, in effect. It was not market forces; it was where the Government designed and used their system and thought, “If we put money in here, we will create a cluster and then we will not need to subsidise this, because we will now have it anchored.” The anchor gets dropped. So the subsidy was used to drop the anchor.

**Matthew Knight:** That is right. Last year, the UK ran its first HAR1 round, which was great, but it was one of six countries in Europe that had processes for awarding subsidies for hydrogen last year, and there were already projects built in Germany, Denmark, the Netherlands and other places.

Q186 **Mark Garnier:** This is interesting stuff. Slightly carrying on from this, and it is a little bit of a history lesson, I cannot remember whether it was Darren or Andrew who was talking about the Government back-peddalling between 2010 and 2014. I would like a bit more flavour of what was going on then, when we had this back-peddalling, which got us to where we are now.

**Matthew Knight:** In about 2009, there was something called the strategic environmental assessment for offshore energy, which included



## HOUSE OF COMMONS

offshore wind. It talked about 30 GW of offshore wind. Gordon Brown and Ed Miliband at the time were talking about 30 GW by 2020. That was maybe unrealistically optimistic, but that was the aspiration. A year or so later, we were talking about 20 GW by 2020 because it—

**Mark Garnier:** This was under a new Government?

**Barry Gardiner:** A year or so later, we are talking about cutting “the green crap”.

**Matthew Knight:** Yes. And in—

**Mark Garnier:** We should be interrupting this one.

**Chair:** Steady on.

**Barry Gardiner:** I was just trying to clarify the situation.

**Chair:** He is trying to move things on speedily. Thank you.

**Mark Garnier:** Sorry, there is tomfoolery going on.

**Matthew Knight:** In 2012 we had what I think was called the offshore wind road map, which gave an envelope by 2020 of—

**Mark Garnier:** Can you remind me who was Secretary of State at the time?

**Matthew Knight:** There were various Secretaries of State.

**Chair:** Andrea Leadsom? Amber Rudd? It was before their time.

**Mark Garnier:** Was it Vince Cable, because it was part of—

**Matthew Knight:** It was Ed Davey. One of the powerful things about the early days of the coalition was the fact that we had two parties represented in the Department, and they were both very much on the same page. That broke down later in the coalition. I do not know whether I should mention an individual, but there was a speech that killed a thousand jobs—that is what it was known as in the industry.

**Mark Garnier:** Say!

**Chair:** It is worth knowing.

**Matthew Knight:** John Hayes. What happened was that the ambition went down and down. I think 11 to 18 was what was stated, but we know that that document said 9 to 15 the day before it was published. The industry and the Government were doing a dance. Government would not commit to the industry until the industry could commit to reducing costs. The industry could not invest to reduce costs until it had a pipeline of work. We found a way through that. We had a collaborative process called the Offshore Wind Industry Council, and in 2013 that came up with the final investment decision enabling contracts, and that led to us announcing our factory in the spring of 2014.



## HOUSE OF COMMONS

**Darren Davidson:** With all respect, I think we are here today to look at what we need to do to transform the future.

**Mark Garnier:** I completely agree and, I was going to say that my history lesson is not about apportioning blame.

**Darren Davidson:** I understand that.

**Mark Garnier:** But it is important, because there are lessons that can be learned by how Government failed to—

**Darren Davidson:** As I mentioned in my delivery notes, there are some real successes as well. We are sometimes very hard on—

Q187 **Chair:** Can I probe you a little bit on that? You said something quite interesting when you were speaking about the 3 GW to 6 GW that CfD round 6, I think it was, was going to deliver. You are ready to build 10. Do you want that 10 to be green-lighted now, or does that give you confidence that, in CfD round 7, presumably, there is more to come? Talk me through that.

**Darren Davidson:** I will let Matthew talk through that, but from my perspective, if you look at industry and the wind industry, I think there was a desire to deliver more in auction round 6. We need to be getting back on track. We had a disastrous auction round 5, where we got zero.

**Chair:** So 6 should have been bigger to compensate for 5?

**Darren Davidson:** Yes. The bigger number needs to compensate for what we have missed in auction round 5. But I think there is a belief from a market perspective, in terms of growth in wind and getting to our targets, that we need to be getting auction rounds with 7 GW to 10 GW of power. And while it is welcome, we are not going to achieve that.

**Andrew Elmes:** If we are aiming for the 50 GW by 2030, you need to allow three to four years for those projects to be built. You need to be auctioning all of that 50 GW in the next couple of auction rounds. That takes you to CfD 8 at the latest. Sorry, CfD 6, just to go to your point, was a catch-up of CfD 5, because it was an annual auction and we lost all volume—the 5 GW that was there for CfD 5. Nobody bid, so we had to catch that up. CfD 6 has also been a rebid of some of the CfD 4 projects, where the costs have come down, but, of course, in the post-inflation regime, the prices have gone up—the CfD strike prices have come down, but the costs have gone up, sorry. Therefore, some of those projects are rebidding, and that is taking away some of that budget volume.

When you have that catch-up of CfD 5, making better some of the CfD 4 projects, and the projects that are now ready for CfD 6, all of that volume is more than 10 GW, and the budget just is not there for those to get away, which is why we are saying that it will get, at most, 3 GW to 6 GW.

Q188 **Chair:** You are saying that anything that meets the strike prices given in that round should be included?



## HOUSE OF COMMONS

**Andrew Elmes:** It is a competitive auction. There is a strike price and then, within that, you compete in order to get—

**Chair:** So if you have a bigger round, you are taking in those who are less competitive, who you could argue to be—

**Andrew Elmes:** The budget is set according to how much volume the Government think is going to go in. It is quite an iterative process. Knowing that there are 10 GW there, of which some is caught up in improving CfD 4 business cases, catching up CfD 5 and getting on with the momentum towards 2030 targets, we need a budget for that—double the budget that we have now.

Q189 **Mark Pawsey:** The message we are getting from all of our witnesses is about the need for a pipeline. I want to ask about skills and the ability of the workforce. If we get that pipeline, do we have the college infrastructure to bring technicians, particularly with the skills to deliver at pace?

**Darren Davidson:** We are part of the Green Jobs Delivery Group. We sit in that group and contribute. Some really good work has been done on future apprenticeships and future training programmes. That is a positive. But given the scale we need in order to move forward—trying to get an additional half a million people into the industry—we need to do something really dramatic.

Q190 **Mark Pawsey:** Apprentices need to know that there is a future in the industry, in the same way as the investors do.

**Darren Davidson:** The energy sector is a wonderful place to work. Given the right opportunities, people stay there for the rest of their lives. We need to be making it as attractive as possible for people to see the energy sector as a career choice for them, from an apprenticeship perspective and from a degree perspective as well. How can we incentivise people to come into our sector?

Q191 **Mark Pawsey:** Do the colleges have the capacity to deliver?

**Andrew Elmes:** Do you mind if, by way of answering, I give a little case study of what we have done in Hull? You heard from Andy earlier about the port infrastructure and the factory. The third part of that programme, which was the most impressive part, was about how we staffed the factory. You cannot go and recruit 1,000 people who know how to make a wind turbine blade. So we started off with the technical colleges and the university, recruiting 97%, I think, from the Humber region, to get 1,000 people. In just two years, we recruited and trained people to start making blades in Hull. The point of that is that if you give the pipeline and you give the certainty, industry—the private sector—will respond. That is a case study of the energy transition, right there in the post-coal industrial setting of the Humber, which we have turned into a blade manufacturing site.

**Darren Davidson:** To add to that point, you have heard about pipeline and the predictability of pipeline today. The projection of what the work



## HOUSE OF COMMONS

looks like in the future allows us to take a longer-term view of how many people we need in Hull to support the market.

Q192 **Barry Gardiner:** I am keen to get the figures that you just talked about, Mr Elmes. You said that the target was 50 by 2030?

**Andrew Elmes:** Yes.

**Barry Gardiner:** The rebid from CfD 4 was how much?

**Andrew Elmes:** CfD 4 got away 7 GW of capacity. However, a number of those projects can rebid into CfD 6 because of this post-inflation cost issue, and we understand that some 1.3 GW of projects will do that. I can name those projects—we can follow up.

**Barry Gardiner:** That was 1.3.?

**Andrew Elmes:** Yes, that is the 1.3. That is now diluting the budget that is available, because they are going back in for a second bite of the cherry, which is eligible and fine—

Q193 **Barry Gardiner:** There is a rebid from 5 as well.

**Andrew Elmes:** The rebid from 5 is 5 GW, say. Yes, it was 5 GW that was eligible for CfD 5. Whether they all go back in again, we will see. Then we have a number of projects that are going in for CfD 6. We do not know exactly who is bidding yet. Those developers will make the case.

We have our own forecast. Up to 14 GW could go into that auction, because a project called Berwick Bank could get its consent. Between 14 and, we think, 10 is the range of projects that could be eligible to build in CfD 6. Right now, more than 10 that have their consent and could go now.

Q194 **Barry Gardiner:** You would have to take the 1.3 and, potentially, the 5 off that 14 to see what is genuinely new here.

**Darren Davidson:** We have 15 GW of installed units in offshore now. It is about bridging that gap to get to that 50 GW aspiration. How do you bridge that 35 GW?

**Barry Gardiner:** That is in the next six years?

**Darren Davidson:** Yes.

Q195 **Barry Gardiner:** But you were saying that we now need to be seeing 7 to 10 in the next couple of years because of the delays, in order to get them in.

**Andrew Elmes:** Because they need a construction time in order to hit your 2030 target. Sorry, just to add, that is also why we need a target beyond 2030. That is not a long time in terms of a construction period. We need 2035, 2040.

**Chair:** That is the pipeline.



# HOUSE OF COMMONS

**Andrew Elmes:** That is pipeline.

**Chair:** The pipeline is a big, strong message for Government and everybody else in this area.

Can I thank you all very much for being here this morning, especially Siemens? I reiterate how good your evidence was and how influential you were in this morning's structure, so thank you. I also thank Rolls-Royce SMR and Associated British Ports. It has been a very lively, informative session, and there is a lot to go with. Thank you all very much.