HOUSE OF COMMONS

Public Accounts Committee

Oral evidence: Decarbonising the power sector, HC 1003

Thursday 23 March 2023

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Watch the meeting

Members present: Dame Meg Hillier (Chair); Dan Carden; Mr Mark Francois; Peter Grant; Anne Marie Morris; Sarah Olney.

Gareth Davies, Comptroller and Auditor General, Simon Bittlestone, Director, National Audit Office, and David Fairbrother, Treasury Officer of Accounts, HM Treasury, were in attendance.

Questions 1-114

Witnesses

I: Jeremy Pocklington, Permanent Secretary, Department for Energy Security and Net Zero; Ashley Ibbett, Director General for Energy Infrastructure, ESNZ; Jonathan Mills, Director General for Energy Markets and Supply, ESNZ.

HOUSE OF COMMONS

Report by the Comptroller and Auditor General

Decarbonising the power sector (HC 1131)

Examination of witnesses

Witnesses: Jeremy Pocklington, Ashley Ibbett, and Jonathan Mills.

Q1 **Chair:** Welcome to the Public Accounts Committee on Thursday 23 March 2023. Today, we are revisiting the issue of net zero, but particularly looking at decarbonising the power sector, which is absolutely vital if the UK is going to meet its decarbonisation target and the net zero targets set out in law.

In front of us as our witnesses, I am pleased to say that we have Jeremy Pocklington, who is the new permanent secretary at the new Department for Energy Security and Net Zero. Perhaps when you start in a moment, you can explain exactly the new architecture of the Department for clarity. He is joined by Ashley Ibbett, the director general for energy infrastructure at the Department, and Jonathan Mills, the director general for energy markets and supply. Both Mr Ibbett and Mr Mills have been in front of us before when they were dealing with this issue at the old Business Department. Mr Pocklington was, of course, until recently the permanent secretary at the Department for Levelling Up, Housing and Communities.

Before we got into some pre-questions before the session, Mr Pocklington, do you want to explain exactly the responsibilities of your Department, for absolute clarity?

Jeremy Pocklington: Of course. The Department does what it says on the tin: we are responsible for all aspects of energy security and net zero, in particular for making sure that we have the markets and institutions that we need to deliver energy security and the infrastructure that we need, and for co-ordinating across Government the overall delivery of our net zero objective, leading the work on that domestically and internationally—the COP unit has joined the Department from the Cabinet Office, as you might know. We also deliver a lot of schemes related to energy efficiency, particularly as it relates to buildings.

Q2 **Chair:** You are dealing with net zero across Government—we discussed that with your predecessor, in the sense that she can be called your predecessor—and that can be very challenging, because you have each Department doing its own thing. How much clout do you have? Do you get extra support from the Cabinet Office? How much is No. 10 engaged in what you are doing?

Jeremy Pocklington: We work very closely with the Cabinet Office and No. 10 on net zero. Obviously, it has to be a whole of Government effort. There is a Cabinet Committee as well, responsible for co-ordinating the Government's overall approach—the Domestic and Economic Affairs

Committee relating to energy, climate and net zero—which also provides us with a degree of influence across Whitehall. Finally, we have a number of joint units. For example, the Office for Zero Emission Vehicles is joint with the Department for Business and Trade and the Department for Transport.

Chair: You are navigating not a new, but an old landscape, and trying to bang heads together across Whitehall. Good luck to you in your head banging. Before we go into the main session, we want to pick up some issues that arose in the Budget. I will ask Sarah Olney MP to kick off.

Q3 **Sarah Olney:** Last week, the Chancellor of the Exchequer announced in his speech that nuclear will now be classed as an environmentally sustainable energy source. It will come as some surprise to people that nuclear waste will now be regarded as environmentally sustainable. Can you explain exactly what the Chancellor meant?

Jeremy Pocklington: The key issue is that nuclear is a low-carbon form of generation. I fully understand the sensitivity around nuclear waste. Absolutely fundamental to our approach to new nuclear is that waste needs to be dealt with safely and that that needs to be fully funded through decommissioning plans to ensure that it is dealt with appropriately.

Q4 **Sarah Olney:** Okay, but nuclear waste remains an issue for nuclear generation. Do you not think that it is a bit problematic to describe it as environmentally sustainable?

Jeremy Pocklington: Look, I am aware of the political debate around the role of nuclear, but new nuclear is a low-carbon form of generation and it will enable us to deliver our net zero objectives at the lowest cost to consumers—I am sure we will come on to talk about that. It is important that the waste is dealt with and managed appropriately. In the long run, of course, we have a programme to deliver the geological repository, but that is a long-run programme and we need safe and secure storage of nuclear waste until that time.

Q5 **Sarah Olney:** The Chancellor, in his speech, also announced the creation of Great British Nuclear. Can you tell us what difference that will make? What is this organisation, and what will it do?

Jeremy Pocklington: We will set out further details next week in the energy security plan, as the Treasury noted in its Budget documentation. That organisation will address constraints in the nuclear market. We have indicated that we want to begin a competition for SMR technologies, looking at both domestic and international options, with an ambition to select leading technologies by the end of the year. GBN's first priority will be to lead and support the Government in that process, but over time it will develop its capability to support the industry more widely to navigate the development of nuclear power stations in this country.

Q6 **Sarah Olney:** On those small modular reactors, you said that there was going to a competition. Are small modular reactors already being used elsewhere

in the world that are effective and that we think we could deploy in this country?

Jeremy Pocklington: There is a lot of interest in small modular reactors, but you are right—I think this is your thinking behind that question—that we have not yet seen them deployed at significant scale to really realise the benefits of moving beyond first of a kind into an actual programme and the cost reduction that we want to see. But there are real reasons for looking at SMRs. Delivering gigawatt nuclear power stations is tremendously challenging, and we are working hard, as you will know, to deliver to get to the final investment decision for Sizewell, following the Government investment decision last year. Having a balanced portfolio that includes SMRs has the potential to be more manageable—that is why we are running the competition—and to deliver better supply chain benefits in this country as well.

Q7 **Sarah Olney:** Sure, but does that mean that we are building a strategy on the assumption that we will be able to use something that does not exist yet?

Jeremy Pocklington: I am sure that this is going to be a theme of the hearing—we risk getting drawn into the main themes of the hearing. Our overall approach is to develop technology options to help us to decarbonise the power sector and deliver net zero. We know that there is potential for new nuclear, and we know that, within that, there is potential for small modular reactors as well. We will work very hard to deliver that, but we will not be in a position where we are absolutely beholden to any individual project on our pathway to deliver net zero.

Chair: Okay, but we will certainly come on to that more generally. We will hear briefly from Mr Francois.

Mr Francois: Thank you. The Ministry of Defence, after very many years, has started decommissioning their old nuclear submarines.

Chair: To be clear, they have not actually decommissioned a single one yet, but they are nearly there with the first one.

Q8 **Mr Francois:** Well, they have decommissioned them from active service, so those submarines are no longer in commission, but they have now begun to remove low-level nuclear waste from some of those submarines. Some of them were taken out of service three decades ago or more, and the MOD are now beginning to take out medium-level waste. Obviously, the highest level is the reactor itself. The idea always has been that it will end up in this deep depository, so I was a bit concerned to hear you say that we are still a long way away from that, because the MOD's decommissioning programme hangs on finally having somewhere to put the stuff. Can you update us on exactly where we are on the deep depository, and what are the timings, please?

Chair: If the answer is no, please say so.

Jeremy Pocklington: I am happy to write to you with that update. It is a long-term programme, and there is a siting programme under way at the moment.

Q9 **Mr Francois:** Do we even have a location yet?

Jonathan Mills: As Jeremy said, the long-term decisions on the geological disposal facility have not been taken yet. That is a process that has been under way for some time, but we have long-standing arrangements across civil nuclear for dealing with exactly the sort of nuclear waste that you have described, so the programme that the Nuclear Decommissioning Authority has been running across the existing civil nuclear fleet deals with that highly radioactive waste.

Q10 **Chair:** At Sellafield, we visited a 100-year storage facility that was being built. Is that what you are talking about?

Jonathan Mills: There is a whole range of different facilities.

Q11 **Chair:** But that sort of scale?

Jonathan Mills: In the long term, that waste can transition into geological disposal.

Q12 **Mr Francois:** This is important. This work on the deep depository has been going on for nearly two decades, so, after nearly two decades, we still do not have a location.

Jeremy Pocklington: The simplest thing would be for me to write to you—

Q13 **Chair:** Mr Pocklington has been in the job for a matter of weeks. To be clear, we were talking about Cumbria. Is Cumbria off the table?

Jeremy Pocklington: I will write to you with an update on that.

Q14 **Mr Francois:** Just to be clear what the question is. We want to know, first, where are all these submarine nuclear cores going to end up, and, secondly, what are the timings—wherever the place is going to be. That is just so you are clear what the exam question is.

Q15 **Chair:** Thank you very much indeed. That is very helpful, Mr Francois. In the Budget, the Chancellor announced a welcome step for those of us who represent many constituents with pre-payment meters who have always had to pay more for their energy bills than anyone paying on a direct debit, but who have valued that flexibility in order to budget. He said that there is now going to be a change in that. Mr Mills, what does that actually mean and when will it happen?

Jonathan Mills: That is correct. We are going to use the mechanism provided by the energy price guarantee to remove that differential between the tariffs paid by customers on prepayment meters and direct debit customers. That change requires a bit of work in the wiring of the energy price guarantee. At the moment, it delivers a universal reduction from the tariff rate—

Chair: Per unit.

Jonathan Mills: Per unit. So we are working with the suppliers to ensure that it can be changed to just deliver a reduction to that premium. That will stay in place even if the overall energy price is below the level at which the energy price guarantee would otherwise be in place—which some forecasts say it will be. We should have that in place for the next round of the energy price guarantee, which starts in July. That means that it will be in place well ahead of next winter, which is when the majority of household consumption takes place, and that's particularly important for prepayment meter customers, given that, unlike direct debit customers, they can't smooth their consumption over the year and so they actually are paying a much higher proportion of their energy costs during that period as well as using more energy in that time.

Q16 **Chair:** It is interesting that it sounds quite straightforward, after all the years that people have been raising this concern. Have you had any pushback from energy companies? They have always argued that it is more costly to run prepayment meters than it is to do this through direct debit, and that is one of the reasons why that was cheaper—to encourage people to go on to a direct debit.

Jonathan Mills: There are a couple of things going on here. In terms of the costs faced by the energy companies, it is obviously very important that they are not running prepayment meter customers at a loss, because that would create some very difficult incentives for how they attract those customers. So the changes that we are putting in place through the EPG scheme will ensure that they still have cost-reflective revenues. Separate work is under way by Ofgem to assess whether the costs are correctly attributed across different customer groups, whether the factors that led to that differential being in place are still true, and whether there may be a long-term solution that doesn't require the EPG to top up in a differential way in the way we are implementing that.

Chair: Okay. That is welcome news and we will keep an eye on it. Certainly this is a very big issue for our constituents.

Q17 **Anne Marie Morris:** Mr Pocklington, I don't know whether this question is for your good self or Mr Mills, but I am looking now at energy-intensive industries and I am going to try to bunch together three groups: first, swimming pools, on which there was a Budget announcement; secondly, hospitality—pubs, hotels and so on—and then the rest, the others that fall into the scheme. For swimming pools, there was a welcome announcement that there will be support, but there was a lack of clarity as to who gets it. Certainly a number of my constituents, community groups running pools, were in a flat spin, because it looked like they were not going to get help. I understand now that they will, but from a different source, and it will be a bidding pot, as opposed to something that is in the public sector. If you could explain how that works, that would be really helpful. That's the first thing. The second thing—

Chair: Can we do one at a time, because that's easier to follow? So swimming pools—we recognise that this is not your Department's policy.

Jeremy Pocklington: No, I think DCMS are in the lead, so let me add that in the letter. It is a process of bidding, so that's correct, but I don't have the precise details. Let me get that to the Committee.

Anne Marie Morris: That would be helpful, together with the timing and the process, because I am not sure all of it is bidding. I think community may be, but I think public sector is being dealt with in a different way. Thank you.

Chair: We recognise that this is not your Department's policy directly, but of course swimming pools are very big users of energy, so I'm sure it's on your radar in a general sense.

Q18 **Anne Marie Morris:** To move on to pubs, hotels and so on, there was much lobbying with regard to their inclusion as highly intensive energy users, and the Chancellor did indicate that he would review this after those submissions were made, but nothing further has been heard. Have you got any update in terms of where we are? I ask because those businesses, given that they did not get any other particular help in the Budget, are really struggling. We'll deal with that and then with the others. Is there any update on whether the category of being a highly intensive energy user has been looked at, reviewed, with a view to extending it to cover pubs, hotels and so on?

Jonathan Mills: I don't think we have any further announcements on the scope and definition of those schemes. The position is as it was set out in the Budget.

Anne Marie Morris: And you are not aware that anybody has asked you to look at that again, in terms of the modelling?

Chair: It would be a different Department looking at the modelling on that.

Q19 **Anne Marie Morris:** Okay. Then we come to the main scheme—those highly intensive energy users who are in the scheme and on the list. At the moment, as I understand it, there is no clarity as to how much, how they apply and when the scheme opens. Is there a timeline for that?

Jonathan Mills: We are working very hard to get the scheme up and running very soon. I don't think we have publicly stated a date for it launching, but it should be very soon.

Q20 **Anne Marie Morris:** Soon being weeks or months?

Jonathan Mills: It should be imminent.

Anne Marie Morris: Imminent? Fine.

Q21 **Chair:** I just want to ask about Bulb and the latest situation on that. We will be doing some further work on this, but I don't know if you have a quick update that you can provide now about the situation with Bulb.

Jeremy Pocklington: We discussed it at the last hearing. I think the key point is that continued low wholesale gas prices mean that the costs to the taxpayer that were incurred in the first part of the special administration are continuing to unwind. We will have a better idea of the net position in a matter of weeks, and I am sure we will have that for the hearing, which I think is scheduled for the middle of May.

Q22 **Chair:** That is fine—well, it's not fine, but we will be looking at it and discussing it with you. We will be keen to hear about lessons learned and, in terms of this Department's very particular responsibilities, the issue of energy supply in the market. It is hopefully going to be a useful session, although it feels a bit like doing it after the horse has bolted. Nevertheless, we will look forward to that.

We are now going to move on to our main session and look at the big and wide-ranging issue of decarbonising the power sector—something that is obviously absolutely vital to achieving net zero under the Government's set-out legal target. I am going to ask Sarah Olney MP to kick off.

Q23 **Sarah Olney:** Thank you, Chair. In October 2021, the Government published its net zero strategy, saying it wanted to decarbonise the power sector by 2035, which is obviously a very ambitious target that is only 11 and a half years away. But we do not yet have a plan for how it is going to be achieved. Why is it taking so long?

Jeremy Pocklington: We actually have a number of plans already to help us to achieve that. There is no shortage of plans in this area with the British energy security strategy, and next week we will be publishing the energy security plan, which will set out the next stages of our plans to deliver the 2035 ambition. Last year we published the holistic network design, which is our plan for the transmission network. We have begun consultations on our plans for the right and appropriate energy markets, and we will have a further consultation on that later this year. But what the NAO Report is referring to is: do we need to pull all these plans together more clearly? Our view is that, yes, there is a case for a clearer overarching plan. That is not to say there has not been a lot of planning already, but given the scale of the ambition, there would be some benefit in an overarching plan. It may help the Committee if we think about what should be in that overall plan and what should not be in the plan, reflecting the nature of the challenge.

Q24 **Sarah Olney:** My follow-up question is, given that you have all these little plans—I am sure they are not little in themselves; perhaps they are subplans—how can you be confident, without having already produced the overarching plan, that decarbonising the power sector by 2035 is possible and is something that we can reasonably expect to be able to achieve?

Jeremy Pocklington: Because we run a great deal of very sophisticated modelling in the Department that tells us it is possible, but very challenging, and will require sustained effort over many years and many Parliaments.

Sarah Olney: Not by 2035.

Jeremy Pocklington: No, agreed. The Department runs thousands of simulations in order to identify the least-cost pathways to achieving that goal. That is based on technical expertise from the Department, from external experts and from the sectors involved, to understand what the potential is for each of the relevant technologies. We ran thousands of simulations to identify the least-cost pathways. There is not a single pathway—not a single way—to decarbonise the power sector. There is not a single blueprint that we need to build out of exactly which power station should be where. We need to have a plan and to attract the private investment that we need to achieve net zero. We need to allow markets to determine the right outcome, create confidence for investors and also remain open to innovation. That is the challenge that we have if we are going to achieve this at the least cost to consumers.

Q25 **Sarah Olney:** I have two questions on that. Without the overarching plan and a clear strategy that everybody can see, how do we expect to attract private sector investors to invest unless they have got a sense of that very clear pathway, which I think only an overarching plan would provide?

Jeremy Pocklington: We do provide a lot of detail for investors. Some of that is referred to in the report, and that is where sector-specific ambitions can help. We have set out our ambition to secure up to 50 GW of offshore wind by 2030. We have also developed the right instruments—in some ways, we are world leading—that give global investors confidence to invest at scale in low carbon generation in this country. The contracts for difference have been a success. A fixed price lowers the cost of capital and provides certainty of support. Our move to annual auctions, the parameters for the first of which we published last week, also provides certainty about the timing windows for when investors can bring projects forward. So there is a lot that we can do and that we are doing. We have a track record of attracting investment, but there is a case for doing more now, given the acceleration that we need to see in the next 12 years.

Q26 **Sarah Olney:** My second follow-up question is this: without the overarching plan—without the holding strategy—how do you know what the biggest obstacles and risks are to achieving decarbonisation by 2035?

Jeremy Pocklington: We have extensive analysis and understanding of what the key barriers are, which I can outline. Probably the biggest single constraint or challenge at the moment relates to building out the networks that we need. The constraint behind that is ensuring that we can get planning permission. Planning is a very important process. Ensuring that we can obtain the planning permission that we need and also the skills that we need—

Q27 **Chair:** When you say networks, do you mean the transmission networks?

Jeremy Pocklington: Transmission networks in particular. It is probably the biggest single constraint that we have. Would it help if I set out a bit more about the timing and plans—what the Department is proposing to do and what our intention is? We recognise that we need to pull together the planning that we have in a clearer portfolio delivery plan. Our intention is that we should do that through our annual response to the Committee on Climate Change on decarbonising the power sector, and we should do that from this autumn, which is when the next response will be, following the publication that we have in the energy security plan next week. We also have coming out this summer an extension to the holistic network design around the transmission network that we need. We also have a further consultation on the future of energy markets coming this autumn. We want to bring these things together. We are doing that internally, but there is merit in doing that more holistically and more clearly as well.

Q28 **Sarah Olney:** Thank you. Obviously, other challenges have arisen since the net zero strategy was first published, including Putin's illegal invasion of Ukraine and the impact that that has had on the domestic energy market. Did you find that having to deal with that short-term challenge— we hope it is a short-term challenge—has distracted the Department, or its successor, from working on the net zero plan?

Jeremy Pocklington: I think it is recognised in the NAO Report, and I am sure the Committee would also recognise, that dealing with Putin's war in Ukraine has been the top priority for the Department in recent periods. We talked at length a couple of weeks ago about the energy schemes that were put forward by not me, but by the Department—led by my predecessor—at great pace, and the impact they have had.

That has not been at the expense, though, of progressing our major agenda to decarbonise the power sector. There has been a lot of work under way in the Department, whether that is continued delivery around new nuclear or continued delivery of renewables. I mentioned that last week the parameters for auction round 5 were published, with an awful lot of work on carbon capture, usage and storage, as well as developing a hydrogen competition around low-carbon hydrogen production. All this work has continued through that period.

I think the consensus is that war in Ukraine and the impact that has had on prices globally will actually accelerate the transition to low-carbon generation. Of course, dealing with the energy schemes has been our immediate challenge.

Q29 **Sarah Olney:** Thanks. What about the recent changes? Obviously, the responsibility for this has shifted from BEIS to—how do you pronounce your new acronym?

Jeremy Pocklington: The Department for Energy Security or the Department for Net Zero.

Q30 **Sarah Olney:** Okay. It has moved from BEIS to the Department for Net Zero. Is that going to disrupt the progress of achieving decarbonisation by 2035?

Jeremy Pocklington: No, it won't. I think the creation of the Department has been well received by stakeholders. It is giving this vitally important agenda the focus it needs. We have been helped, pragmatically, by the fact that we have effectively been able to lift and shift many of the teams. The senior management structure is all in place, and we have been able to continue to focus on delivery. Disruption has been absolutely kept to the minimum, but I think having a single Department on this will give us the focus and the bandwidth to deal with it. The scale-up of activity required is very significant.

Q31 **Sarah Olney:** In terms of producing the plan for decarbonising the power sector, do you think there are opportunities to perhaps bring in learning from other Departments that are now within the Department for Net Zero, in a way that perhaps was not possible when it was within BEIS?

Jeremy Pocklington: I noted that the international unit had already transferred. I think that was a separate decision, actually, from the machinery of government change. What is essential is that we build strong partnership and collaborative relationships with the relevant Departments in Whitehall and that we as a Department play a leadership role, working with No. 10 and the Cabinet Office to ensure that all Departments are aligned. This is something that I find Departments want to get behind, and there is an awful lot of work under way.

Q32 **Sarah Olney:** Looking at figure 3 in the Report, it is obvious that there has already been a significant reduction in carbon emissions. What lessons do you think the Government have learned so far from the progress to date?

Jeremy Pocklington: We have made a lot of progress. In 2021, I think 55% of electricity generation was from low-carbon sources, up from 23% in 2010, so there has been very big progress.

There are three lessons, if I may. First, there is the necessity of having the right instruments, as I said earlier, to give global investors the confidence to invest at scale in this country, and CfDs—contracts for difference—have done that. I think 27 GW of capacity has been brought forward through that instrument.

The second lesson would be the importance of enabling competition to drive innovation and cost reduction. Offshore wind is the best example of that, where the costs fell far faster and more steeply than anyone in the Department or anyone else was expecting. The assessment in the Department for Energy and Climate Change in 2012 was for a levelised cost of £125 per MWh in 2025. Our latest estimate for the levelised cost for that period is £50. No one was expecting that. That was driven by sustained investment and by innovation from the private sector.

The third lesson, which is related to that, is that we can't get trapped in a single pathway. We need to maintain a degree of optionality, so that we can provide that balance of certainty and confidence to investors—that is our plan—but we can change and adapt and evolve our course as we learn new information and as new technologies emerge.

Q33 **Sarah Olney:** Thank you. I was interested in the NAO comment that "Greater energy efficiency has…reduced total electricity demand" and that that has had a significant role to play in reducing carbon emissions. Does the Department have plans to do more to encourage consumers, industry and households to invest in greater energy efficiency?

Jeremy Pocklington: It is a really important part of our strategy. We model a range of scenarios for electricity demand, including factoring in different progress on energy efficiency. It means lots of different things in the context of the electricity system. It can mean short-term demand flexibility, such as we saw this winter, to encourage consumers to switch off their television at peak time, but it is also about underlying energy efficiency and the progress that we have made.

Only yesterday, I think, the Department announced £1.4 billion of Government funding to upgrade energy efficiency for low-income private households, and the next stage of the social housing decarbonisation fund, but also the public sector decarbonisation fund—reducing carbon emissions from buildings like schools.

The autumn statement set out a plan to spend a further £6 billion of taxpayers' money on energy efficiency between 2025 and 2028. The energy efficiency taskforce, led by Lord Callanan and Alison Rose, is now helping us work out the delivery of that plan.

We need to make progress on this. Some of the most challenging aspects of the net zero objective will be around decarbonising industry as well. That is almost a hearing in its own right, I suspect.

Q34 **Sarah Olney:** What about private householders? Is there anything new for them, after the green homes grant?

Jeremy Pocklington: We are developing our plans for that for the next round of the energy company obligation. I don't want to get too far in advance of where we are and of what is coming next week, but we recognise the need to make progress on that as well.

Jonathan Mills: As has been said, we have the energy efficiency taskforce looking at precisely that set of issues—how we can align incentives across the private sector, across households and across Government.

Lots of the energy savings that we have seen over the last period come from a combination of those factors—through people using more energyefficient products, and more recently through people's ability to use smart metering

to understand their own demands. That is the sort of space that the energy efficiency taskforce is working in.

Q35 **Anne Marie Morris:** The good old consumer—the customer—is clearly as important as businesses. We need them to buy into all of this. It is one thing setting up in your energy efficiency taskforce all sorts of wonderful things that they can avail themselves of to use energy more efficiently, but they have to be brought into this, rather than it simply being imposed upon them, because they will just vote with their feet.

Smart metering was supposed to be one of the key mechanisms. Targets were set for each of the energy companies. Do you know where they are on fulfilling those targets? How many households have they got on to smart metering, and what has been done to try to engage with the customer who feels that there is a good reason for doing it?

Jonathan Mills: In terms of the general point about consumer engagement, I absolutely buy that. We see that increasingly across our programmes, as they get into household energy use.

In terms of the detailed numbers on smart metering programme roll-out, I don't think we have anyone on this panel who is directly in that programme, but we can give you updates on that information.

One of the things I have observed during this winter, with a much higher level of public concern around energy bills and a focus on security of supply, has been how smart metering has been used, and how National Grid particularly has been able to use smart metering to give people opportunities through the demand flexibility scheme to shift their demand and get rewarded for it. I think that is probably a sign of innovation to come, in terms of enabling people to see the upsides and benefit from the additional strength that it gives to our electricity system if people can manage their own demand.

In this scheme, as you may be aware, people who volunteered were able to get extra payment if they reduced their electricity demand during peak hours. That was entirely voluntary, and it had really good uptake. At peak times it was the equivalent of a medium-sized power station's worth of demand. It was starting to demonstrate the upsides for the consumer that could be provided for the system benefits that we are going to need. I am sure that later on we will get on to system flexibility and how we get security of supply in a low-carbon world.

Ashley Ibbett: To add one additional point, with the new Department we have a new set of Ministers. Amanda Solloway has brought a new, consumer-focused role into the organisation, which I think is very welcome.

Anne Marie Morris: That would be very welcome.

Chair: I think the Committee is nearly falling over at the idea of actually focusing on the consumer.

Q36 **Anne Marie Morris:** I will take you up on your offer, Mr Mills, to let me know what the targets are, how well the individual energy companies are doing against them, and what you are asking the companies to do in terms of communicating with customers—some of my constituents are saying, "I feel I am being forced to have this new meter, and nobody is telling me why". It is a question of there being a target that the energy company knows it has to meet, so I understand why it is doing what it is, but the consumer needs to be brought in.

Jonathan Mills: We will get you an update on the latest data on roll-out and consumer engagement particularly.

Q37 **Anne Marie Morris:** Okay. In terms of trying to keep the consumer engaged, you have done your pilot, but clearly you need to look at the

bigger picture and extrapolate from not just that but the other data you have collected around smart metering and other things, to see how realistic it is to get consumers to change their behaviour. I am guessing your modelling recognises that there are some things in the day that will not change—breakfast, lunch, dinner, dealing with babies and getting kids to school.

There are some things that you fundamentally cannot change, so how much difference can smart metering and trying to tweak people's behaviour actually make, and how much can you chop off that peak? I think that is what you are trying to do, so any modelling you have got on that would be good to see. Do you have any comments on that?

Jonathan Mills: Absolutely. Jeremy talked about the different pathways we look at when trying to model how 2035 could look. One of the variables is the uptake of electrification into other sectors—electrification of transport and heat, in particular. If you start seeing widespread electrification of those sectors, then your demand is made up of different sorts of activities. It is still putting the oven, the lights and the television on, but there are also different sorts of demand around charging EVs and using heating, which may have different time patterns and flexibility across the day. That is one of the things that we model.

As you look further out, there is also a question about home electricity storage. We have seen a growth in people who have local generation, such as solar panels on their roofs, and have bought battery storage at home. It is a relatively small number at the moment, but it gives those households more flexibility around how they manage their demand. There are quite a few variables that we take into account when looking at different trajectories for 2035. We absolutely accept that, at this point in time, you cannot know for sure which of those pathways we are on.

Q38 **Sarah Olney:** Quickly, on the point about energy efficiency, the private rented sector is going to be required to ensure that properties they rent out are at least a minimum of EPC rating C. Have you done an assessment of what impact that might have on the rental market, and whether it is

difficult or expensive for landlords to achieve that? What impact might that have on them exiting the market as a result?

Chair: This is where your last job and your new job collide.

Jeremy Pocklington: Indeed. The requirement is for all homes to meet the EPC standard C by 2035, I think, where cost-effective, affordable, and practical. Some of that is being worked through. A great many more homes are now achieving that standard. I think we are now up to 47% achieving level C, which is up from 14% in 2010. But the debate happening around the private rented sector is whether there is a maximum amount that landlords should have to pay. That is where the policy debate is.

Q39 **Anne Marie Morris:** Can we look at your ambition for scaling up wind and nuclear? Clearly, they are a key part of the overall strategy. How confident are you that you will meet the predicted 50 GW for offshore wind by 2030 and 24 GW of nuclear power by 2050?

Jeremy Pocklington: I will ask Ashley to talk about offshore wind first and then I will do new nuclear.

Ashley Ibbett: We work very closely with the offshore wind industry in trying to bring forward investment and the pipeline. There is around 80 GW of offshore wind in the pipeline. Obviously, not all of that will ultimately come forward, but new projects will be added to that pipeline.

We work closely with the Crown Estate, which is responsible for seabed leasing, and Crown Estate Scotland in Scotland. We established, through the British energy security strategy, an offshore wind acceleration taskforce with Tim Pick as our offshore wind industry champion to look at the barriers that projects are facing to being brought forward. We are confident we have the pipeline there.

Q40 **Anne Marie Morris:** A pipeline is one thing; delivery is another.

Ashley Ibbett: If you look at the amount of capacity we have secured through contracts for difference auctions, in the first auction, we secured just over 1 GW at a price of around £120 MW/h. In allocation round 4, we secured nearly 7 GW at a price of under £40, so we have seen dramatic falls in cost and increases in capacity.

We have set out that we will run an annual auction process. As the permanent secretary said, we launched the budget parameters for that last week, and we will launch it probably at the end of the month. That will provide the industry with the confidence it needs to continue to invest and bring projects forward.

Q41 **Anne Marie Morris:** And what about nuclear?

Jeremy Pocklington: The ambition is to deliver up to 24 GW of new nuclear by 2050, not 2035. We have set out our ambition for a further final investment decision this Parliament—Sizewell is the project we are discussing—and two further final investment decisions next Parliament.

Delivering any new nuclear project is a massive endeavour and should not be underestimated, but we have shown with Hinkley—a very different model; economically, a very different model to what we are proposing for Sizewell—that we can secure investment. Hinkley is under construction at the moment. We are building the capacity, expertise and a regulatory regime to enable us to expand the pipeline throughout the coming years, but this is a long-term endeavour. It needs sustained oversight if we are going to achieve it.

Q42 **Anne Marie Morris:** What feasibility testing did you put in place? What I am hearing from both of you is a wonderful process, but processes often get disrupted by the reality of what happens on the ground. You talked about the regulatory changes the Government have made, but there is also the human factor—local communities objecting, the challenges of selling nuclear and its safety to the general public. There are an awful lot of things that could get in the way—

Chair: And have done in the past.

Anne Marie Morris: Indeed. I want to know what steps you have taken to properly model all those possible blockages, what you need to do to get people to come with you, and what you are actually going to do to ensure you get the investor to invest at the time you want them to.

Jeremy Pocklington: The first thing to say is, that is why we run thousands of simulations rather than focusing on a single pathway on a single set of technology. The thing we are trying to avoid is getting beholden to a single technology or a single project. All our analysis shows there is great benefit if we can have the range of technologies. New nuclear will lower the cost to consumers by 2050 if we can deliver it. We are then working with experts in the Department and technical experts to understand the potential for each technology. We do that in a lot of detail, with a lot of technical reports and understanding, before we decide which of those scenarios is more likely to be achievable.

For each technology, we are establishing quite significantly sized teams in the Department to look at all the aspects and barriers. For example, what does the full supply chain look like, and what are the full approvals that will be needed to secure approval? Obviously, you are right; things can change on the ground. That is why we need to maintain optionality.

We are well aware of the importance of community support as well. For example, EDF has worked incredibly hard on that with Hinkley. In a different context, we touched on transmission lines earlier. The Department will shortly be publishing a consultation on community benefits around transmission lines. We understand the sensitivity around it, but ultimately we are all going to have to work together to identify the right ways to build the infrastructure that we need.

Q43 **Anne Marie Morris:** What is plan B if it doesn't work?

Jeremy Pocklington: That is why we maintain optionality, so that as we learn we can flex our options as things progress.

Q44 **Anne Marie Morris:** What is this optionality? What are we going to do if you can't manage to deliver on this?

Jeremy Pocklington: You use the phrase "if it doesn't work". I think that is a little bit black or white, if I may. The reality is that it might prove not possible to achieve quite our ambition in one technology, but we might over-achieve in another technology. In the cases that we are talking about, there is not a simple black or white solution. We need to maintain the range of options and work incredibly hard to deliver them. That will ultimately be the least-cost approach for consumers.

Q45 **Anne Marie Morris:** You keep talking about optionality. What are the other options? What other things are you looking at? You need to look at them now; it will be too late to start looking at things that will kick in if we don't quite get enough wind or enough nuclear. Something else needs to be modelled alongside to fit.

Jeremy Pocklington: Indeed. Two examples of where we need to develop strong options—and I will bring in Ashley—are carbon capture, usage and storage, and hydrogen. Those are some concrete examples; there are others as well.

Ashley Ibbett: We obviously have set our ambition to abate 20 to 30 megatonnes of CO_2 by 2030 from carbon capture, usage and storage. As part of that, power CCUS can play a role. We are also looking at a hydrogen programme. We are looking at what we call blue hydrogen, which is where you take methane, strip out the carbon and store it, and then use the hydrogen as means of generating energy.

Alongside that, we are looking at green hydrogen, which is where you use electrolysis to produce the hydrogen. We have an ambition of up to 10 GW of hydrogen production by 2030, of which at least half should come from electrolytic hydrogen.

Very soon, we will be announcing the outcome of the first electrolytic allocation round, which we have been running in the Department to bring forward the very first hydrogen electrolysis projects. As the Committee on Climate Change noted in its recent report, they are potentially very important energy vectors to provide additional flexibility on the grid. We are working to bring forward the right commercial arrangements, which is challenging. I have been involved in carbon capture, usage and storage for a long time. It is a challenging endeavour, but we are working really hard with the private sector and with the different clusters to bring forward those projects.

Q46 **Anne Marie Morris:** You talk about the options and you talk about hydrogen; I think my Chairwoman will want to talk to you a little bit more about carbon capture. However, we have seen recently a proposal to try to pilot

hydrogen in one small village. The people there were absolutely up in arms: "We're not going to have hydrogen replacing our natural gas". What are you doing to try to deal with those who will say, "Actually, in terms of technology, we've not really got there in terms of hydrogen"? Secondly, what are you doing to get households to feel positive about this, rather than negative?

Ashley Ibbett: Our approach to hydrogen at the moment is to not rule any particular use of hydrogen in or out, because what we need to do is to identify where it will provide best value in the economy and where it provides the greatest decarbonisation optionality. That might be use of hydrogen in homes, but equally it might be used in power generation. Actually, a really important area is its use in industry, where there aren't really many other solutions for some heavy industry other than to use hydrogen as a fuel source.

We have said that we will take a decision on hydrogen in homes in 2026 and we're doing the work now, working very closely with the trials that are taking place to understand what those consumer barriers are, what the concerns are and how we can address them, to give us the right evidence base to make that choice in due course.

Q47 **Sarah Olney:** Mr Pocklington, at the beginning of the session when I asked you about risks and obstacles, you identified planning permission as being possibly the biggest obstacle you are facing. Can you tell us a little bit more about the extent to which that is an obstacle? How long do you think the planning process will take for some of the projects that you will need to get permission for? And how significant is that risk?

Jeremy Pocklington: Planning obviously affects different technologies, but I think the issue that we are probably most focused on is how planning affects development of the right transmission network that we need.

The first thing to say is that planning is obviously an important part of how our society works, making sure community views are taken into account—

Q48 **Chair:** We take that as read. We are MPs, after all.

Jeremy Pocklington: You know that; you take that as read. I am not proposing abolishing the planning system, but it is the key enabler.

I think that 60% of the nationally significant infrastructure projects over the next decade will be in the energy space. They are the projects that we are talking about today.

What we will be doing is publishing proposals. We will be publishing the consultation very soon. Updated energy national policy statements—those will be key to set out the Government's position, approved by Parliament, as you know. We have those coming on energy renewables networks and on gas generation and pipelines. We will also have one coming on new nuclear. The Levelling Up and Regeneration Bill is also important. That will

enable full cost recovery, as well; I think there is strong support from stakeholders to help us build capacity.

Yes, we need to go through the planning system, but we need to go through it in an orderly and timely way. I have already mentioned the consultation on community benefits.

Q49 **Sarah Olney:** Related to that, we know that a lot of infrastructure projects at the moment are being held up by the increased cost of materials but also by a shortage of labour in the construction sector. Do you think those will be risks and obstacles for your decarbonisation plans?

Jeremy Pocklington: Like all large parts of the economy, I think the issues of supply chains and skills are ones that all companies talk about— it's certainly what I'm hearing—coming back into this area.

We have a lot of work under way in the Department through the green jobs delivery group, to work with industry to try and unlock the skills that we need. But it will not be straightforward. The shortage of skills in the nuclear industry in particular will not be straightforward to fix; that is something we are going to have to work on over the coming years.

Q50 **Sarah Olney:** Are these obstacles—planning and construction—being built into your plan to decarbonise by 2035?

Jeremy Pocklington: Yes. Obviously, when we are thinking about potential, we are very much thinking about the supply chains and estimates of how quickly supply chains can grow and expand. But obviously the unexpected will happen, and that's the nature of things, I think, including in this conversation today. I don't know if Ashley can say more.

Ashley Ibbett: I think that is right. We talk to the industries we work with all the time about these sorts of issues. Obviously, in the offshore wind sector deal, which was published some time ago, there are some clear commitments on bringing forward skills, training up apprentices and so on, so the industry is doing a lot. We have the offshore wind acceleration taskforce, which is looking at precisely the issues that can arise and what we can do to overcome them.

Q51 **Peter Grant:** Good morning. I apologise for being late. I had responsibilities in the Chamber before I came in.

I am going to direct my questions to you, Mr Mills. I think they fit within your responsibility, but, if you would prefer to pass them over to a colleague, feel free to do so.

Assuming that the Government achieve what they have set out with regard to the timing of the increase in nuclear capacity, what impact will that have on the United Kingdom's demand for uranium?

Jonathan Mills: I am not sure that is directly within my responsibilities. Is your question about whether it increases our demand for uranium and the supply chains behind that?

Q52 **Peter Grant:** Yes. We know that, if you have a gas-fired power station, you need gas. If you have a uranium-powered nuclear power station, you need uranium. Has an assessment been done of the increase in the UK's demand for uranium if all of these new nuclear power stations came onstream at the planned times?

Jonathan Mills: I can absolutely assure the Committee that issues around supply chains for all of our sources of power, particularly the specific supply chains involved in relation to nuclear power, are considered across Government and with the appropriate input from foreign policy and national security colleagues, as well as from the energy side.

In terms of your specific question about the numbers around that, that is not a number that I have to hand, but it is an issue that we are well apprised of, as we are of the wider issues around critical minerals. You will have seen the critical minerals strategy, and I think your wider point here is that, while the vulnerabilities associated with fossil fuels have been very conspicuous over the last year, we should not be blind to the fact that supply chains are involved in all power sector technologies. We need to ensure that we are protecting against vulnerabilities that may affect us in the low-carbon future, as well as those that we have seen in gas already.

Q53 **Peter Grant:** What percentage of the world's uranium reserves are held in countries that we can rely on to be politically stable for the next 50

years?

Jonathan Mills: I think, if we are going to get into very detailed questions about uranium supplies, we don't have quite the right expertise on this panel for that, but I am sure we can follow up.

Q54 **Chair:** They are pretty critical questions for delivery. We appreciate that you may not have the facts at your fingertips, but can you assure us that the Department is on top of this?

Jonathan Mills: Absolutely, and not just the Department for Energy Security and Net Zero. These are issues that are absolutely considered across Government as part of our wider—

Q55 **Chair:** Elements we need in things such as electric vehicle batteries and so on. That is also really critical.

Jonathan Mills: And critical minerals, as I say, are absolutely something that we worked on very hard in the old BEIS Department. The critical minerals strategy underpins the approach that we are going to take in the future.

Q56 **Chair:** It would be helpful to have a note on that because, without that— or with any issue with the supply chain—we will be in real difficulty, and there will be competition around the world as things progress. Thank you very much, Mr Grant. Earlier, Mr Ibbett, you talked about carbon capture and

storage and this ambition to achieve a certain capacity. I think you said by—forgive me on the date. Was it by 2030?

Ashley Ibbett: It is 30 megatons by 2030.

Q57 **Chair:** We have had some evidence—actually, I should say a lot of good evidence from lots of people, including the Carbon Capture and Storage Association. Unite the union also talked about carbon capture and storage in its evidence. Call me a cynic; I think we have seen three competitions on carbon capture and storage that never got off the ground. What is going to be different, and how on earth are you going to get it delivered in the timeframe that you have suggested?

Ashley Ibbett: I think our programme for carbon capture usage and storage, in the current programme, is hugely ambitious.

Q58 **Chair:** Hugely ambitious, did you say? You rushed over those words very quickly.

Ashley Ibbett: Hugely ambitious.

Chair: That is a good "Yes Minister" word. Right.

Ashley Ibbett: Having been in charge of the previous CCS competition, there are a few differences that I think it is worth talking through.

Chair: Please do tell us.

Ashley Ibbett: What we have said throughout the programme is that we are aiming to decarbonise up to four industrial clusters. We have worked really closely with the two track 1 shortlisted clusters—HyNet on the west coast and the east coast cluster—to bring forward a portfolio of capture projects and different types of CO_2 sources, and put that with the transport and storage infrastructure that we are going to need to safely store it under the sea. So it is a more holistic approach than the competition that I was involved in, which was a power-based competition with the aim that, later, industrial emitters would join the infrastructure. We will be saying something about the next phases of that process next week as part of the announcement that the permanent secretary talked about, so I do not want to get ahead of that.

Q59 **Chair:** But I am right in saying that you have to have quite a big capital up-front investment to deliver carbon capture and storage. This has been one of the great problems in previous competitions, because an awful lot of investment is needed for something that is still untested in the UK arena. I think it is only America that really has got anything like this off the ground, isn't it?

Ashley Ibbett: America has projects. There are projects running in the middle east and other places as well. Norway has—

Q60 **Chair:** When you say "running," are they actually up and running?

Ashley Ibbett: Yes, I have visited them.

Chair: Okay. That's a good start.

Ashley Ibbett: So you are right. The technology is deployed. It is not as widespread as perhaps some people hoped, looking back in time, but there are projects up and running, and for us, we know that all the different parts of the chain work. It is a question of bringing together the right arrangements to pull that whole chain together. I am confident the technology is there. What we are working really hard on is making sure that we have the right business models—both for transport and storage and for capture and power generation—and that we have all those elements together to bring forward those clusters.

Q61 **Chair:** Okay. Those are lots of words about the ambition, but what is the Government's role in making sure that those bits get stitched together, and what is going to be the incentive for carbon capture and storage companies, engineers and people involved in that chain to actually deliver? They will need security. They will need to know that it is going to be stuck with this time, not like the last three that did not get off the ground. What is the incentive? Why would a business want to invest? What security is there?

Ashley Ibbett: The Chancellor announced £20 billion for carbon capture usage and storage at the Budget. That is a large number, which I think signals the Government's commitment to bringing forward these first clusters.

Q62 **Chair:** Okay. We will wait to see the announcement next week in more detail, but we are a bit sceptical on this Committee, because we have seen it before—been here, done that. You also mentioned the ambitions

for hydrogen generation. Can you tell us what that would look like? Would there be factories that do this electrolysis—the two different types, the blue and green hydrogen? Can they be done on the same site? How big will these be? What kind of planning permission issues will you have?

Ashley Ibbett: They are different technologies. Electrolysers exist today. They are a known technology. They are used around the world for different things. They are not being used at a particularly large scale, and they can be geographically dispersed. Through the process that we have run for the first electrolytic allocation round, we have had a lot of interest from projects all around the country, and we will be saying something about the next steps on that next week.

Q63 **Chair:** Physically, how big are they?

Ashley Ibbett: They are about the size of a small family car, for one electrolyser.

Q64 **Chair:** Okay. Will we see factories built? Are we going to have warehousetype buildings around the country where this is all happening?

Ashley Ibbett: You will see different scales of electrolyser projects come forward—some small and some larger. In the process we have been running, we have a mixture of both smaller and larger.

Q65 **Chair:** As you can perhaps guess, I am hinting at the planning permission issues. If it is a small, clean site, that is much easier to get planning permission for than a mega facility.

Ashley Ibbett: Indeed.

Q66 **Chair:** So you are going for lots of smaller rather than for big mega facilities.

Ashley Ibbett: In the first round that we have been running, we have a mixture of smaller and slightly larger, but I do not think you would call them mega factories.

Q67 **Chair:** We talked about the challenge of facilities in the community with Mr Pocklington earlier. Do you think these are relatively low impact for a local community?

Ashley Ibbett: They are not enormous installations.

Q68 **Chair:** And you are confident that that is going to be achieved in the next seven years.

Ashley Ibbett: That is what we are working very hard to secure, yes.

Chair: That's not quite the same thing. There are lots of near-range targets when we look at this overall. I think you clearly said at the early stages of this hearing how hugely challenging it is going to be, Mr Pocklington. I think we would agree with that. Another interesting area, of course, is bioenergy. We have had some evidence about the Drax plant. What role do you see bioenergy playing in the mix going forward?

Ashley Ibbett: We will be publishing our biomass strategy later this year—we are targeting the second quarter of this year. Biomass is potentially a very important technology because it can provide emissions space, which means other sectors of the economy don't necessarily have to work quite so hard to reach net zero, as you know. What we are doing through the strategy is trying to identify the best potential uses of biomass to give the maximum bang for your buck, if you like, of what we know is ultimately a limited resource.

Q69 **Chair:** There are examples where wood chip has been shipped in from a long way away—it is not always very green. Are you going to have a standard against which all new biomass has to be measured?

Ashley Ibbett: We already have very tough sustainability standards for biomass, which take into account full lifecycle emissions from harvesting, transport and so on. We will say more in the strategy about those sorts of standards moving forward.

Q70 **Chair:** Earlier, Mr Pocklington talked about the three key issues that lead to lessons learned about how to develop this, from the past good and bad experiences. One was enabling competition to drive innovation, drive down cost and make sure that all this is delivered. In each of those sectors—biomass, carbon capture and hydrogen; let's focus on those for now—are you confident there will be enough competition to do that, or is that not really realistic? We have seen competition in many other sectors of Government where a regulated competitive market actually does not deliver—energy included. Are you confident that there will be enough competition, as set out by Mr Pocklington?

Ashley Ibbett: Across all those things, our plan is always to bring competition to bear when the market can bear it. In the very early stage, providing the right environment for these technologies to grow and develop is important. If you look at what we did with renewables, for example, we brought in competition through the contracts for difference auctions, but prior to that, we used administrative strike price setting ourselves to bring forward projects. We always envisage transitioning to competition when the time is right and the technologies are well positioned to take advantage of it.

Q71 **Chair:** Of those three, there is not going to be much competition yet for carbon capture and storage, is there? Nothing has really got off the ground there. How do you envisage competition playing a part, if that is part of your strategy?

Ashley Ibbett: Obviously, we will be setting out the next stages of what we are doing with carbon capture and storage next week, but we are in discussions with the projects involved in each of the clusters, and we are negotiating commercially with them to try to make sure that we deliver value for money for the taxpayer. I think we have built the ability to drive down costs into that process.

Jeremy Pocklington: The cleanest solution is a full competitive auction, which we now have for offshore—

Chair: For new technologies, that is not really going to happen.

Jeremy Pocklington: I appeared before a version of this Committee a long time ago to talk about the FID—final investment decision—enabling projects for offshore wind, where we didn't have a competition because the market was not developed enough. We set administrative strike prices, and there was a long debate about whether we had done that correctly, but ultimately the net effect of having that period and then moving to competition helped. There are other ways, though, in which you can create competitive tension without having a full auction. For example, you can have a sort of shortlisting process to decide which are the best bidders or the best potential partners to work with. That creates competitive tension as well.

There are some aspects of what we are doing that look and feel more like regulated monopolies, in which case it is much harder to get competitive

tension, although, even there, we are looking at what we can do. For transmission networks—the classic regulated monopoly—we are looking at how to introduce competition for the construction of some network capacity after 2030, I think—you will need planning and the lead time to make that happen. Competition has a really important role to play. There are actually different ways you can introduce competitive pressure, depending on the technology. Hydrogen is a competition, I think, at the moment, for the first stage of hydrogen low-carbon production.

Chair: Because it is an easier technology and it is better established, presumably?

Jeremy Pocklington: Yeah.

Q72 **Chair:** Okay. There has been a lot of discussion about interconnectors with other countries. I think many average citizens would have concerns about security regarding that. I wonder if you have anything to say to reassure people on that.

What long-term role do they have to play, and how are you ensuring that the security of supply through interconnectors is maintained? And, are there any risks? Obviously, we have seen the war in Ukraine and concerns about the gas pipeline. Could you just talk to us about interconnectors in that sense?

Jonathan Mills: I will focus on electricity interconnection for these purposes, although gas interconnection has also been very important historically.

Chair: Because of the gas headlines, I think that is just the way people ask questions about these sectors.

Jonathan Mills: Yeah. As the Climate Change Committee outlined, one of the things that we absolutely need to square, in a low-carbon power sector in 2035, is where we get the flexibility from. We will have lots of sources of generation that provide essentially fixed or non-variable amounts of electricity, so we need to get the flexibility from somewhere.

We have talked about CCUS just now, which is one potential source of that. We also talked about demand management earlier, as a second source, and there are other technologies around storage that we can come to later. However, interconnection will be increasingly important in enabling us to manage weather-related risk, particularly across geographies. So, in recent years, we have seen a significant expansion in our electricity interconnection, and there are a range of projects to enhance that further in the future.

Why are we confident that that is an asset for our security of supply? Well, first, we know that, in relation to weather-related risks, which are particularly important for wind and, to some extent, solar, those risks are geographically concentrated, so the ability to spread our risk across the network really helps to manage that. We also know that different sources of

generation are located in different countries. We are interconnected with Norway, which has very strong hydroelectric power resources. We are obviously also into the heavily nuclear system in France, and that gives us a different risk profile.

But, to make that work, we need really close co-ordination with those countries with which we are interconnected. Now, I have been very closely involved in work around security of supply this winter, working with colleagues in the electricity system operator, and their co-ordination with the interconnected countries that they work with was very effective in ensuring that we managed through the different patterns of demand in this year's very unusual winter. That will be a really important arrangement for the future.

To give us a kind of strategic oversight of that, you will be aware that we are establishing the future system operator, which will sit outside Government but will be able to look at exactly these sorts of systems issues and bring together engineering, commercial, economic and modelling expertise, in a proper operational setting, to advise us on those risks.

Q73 **Chair:** What is the biggest risk around interconnectors? Or do you think—you described it as you managing those risks, but it is not risk free because nothing ever is. What is the biggest—does anything worry you? Does anything keep you awake at night?

Jonathan Mills: Like a lot of aspects of the transformation we are talking about now, it changes the profile of risk, so we need to ensure that we have the right modelling, analysis and co-ordination to look at a different set of risks from those that we have looked at in the past. So, we are, now, not really vulnerable to risks associated with coal supply. If you talked to our predecessors in the 1970s, that would have been the thing that they were most concerned about. They were concerned about the disruption of docks and things like that— **Chair:** But the interconnectors themselves—

Jonathan Mills: But there are other things that we would be concerned about now. We need to have a good line of sight to any system risks in those countries that we are interconnected with. Our interconnection needs to be sufficiently distributed that we are not overly exposed to one country, or one source of supply, and, overall, we need to have the right insight to look at a different risk profile in the future. I don't think it is a riskier situation, as such, but it is of a different nature with a different kind of risk.

Chair: So it is just about constantly watching, well, global issues—

Jonathan Mills: And having the right institutional architecture to manage that.

Chair: Thank you very much. Anne Marie Morris?

Q74 **Anne Marie Morris:** Thank you, Chair. I will continue with this theory of security of energy supply, which is actually not just a theory but pretty

critical. Clearly, of the green energies, nuclear is stable, but wind and solar very much depend on weather conditions and will not do baseload, so inevitably you need some sort of trade-off in terms of the different sources you use. How are you going about making those trade-offs? Clearly we want net zero, and clearly we want more of the truly green, but that will not deliver on its own. How are you going about making those trade-offs? What do you want to keep in the system, and what do you recognise that we will have to keep to make sure the lights don't go out?

Jonathan Mills: There is definitely no trade-off with security of supply. That is not something that we could contemplate. The precise specification of our objective for 2035 is that that will only be achieved consistent with security of supply. The question is: how are we going to be able to assure that? We have touched on some of the ways in which we do that. As you say, wind and solar generation are dependent on weather conditions. Some of the other sources of renewable electricity are not, but we would expect wind to be a major part of our generation mix. There are some ways to mitigate that risk. Obviously, the geographical distribution of our wind sites affects our risk because the weather patterns around the coast are not always closely correlated.

We then need to make sure—this is one of the things the CCC report brings out really helpfully—that we have the right portfolio of flexibility to back that up. CCUS will have a critical role to play. We have just talked about using interconnection and demand flexibility, and then storage technologies are the fourth one, which we haven't really talked about yet. There is lots of very interesting innovation in that sector, including flywheel technologies and using heated sand to store energy. Making sure that we have the right framework to support those technologies is the fourth part. If you look at the work we are doing through the review of electricity market arrangements, one of the areas that we are really keen to make sure we are driving forward is having the right support arrangements for those storage technologies, because there is scope for quite a lot of further progress there.

Q75 **Anne Marie Morris:** That is very helpful. Mr Ibbett, you will recognise from what has been said that this will all hopefully be in place by 2030, but we are now in the period '23 to '30. Assuming that 2030 delivers with all the technology that has been reviewed, we still have to get there. We still have a challenge. We will still have to use gas and some of the other less environmentally friendly energy sources. Between now and 2030, how do you see those less environmentally friendly sources interplaying with wind and so on? What impact will that have on cost and getting to net zero? The switching challenge when you switch from one type of supply to another can give rise to glitches in the system, which can pose a risk for security.

Ashley Ibbett: It is worth noting that even in what is called a zerocarbon grid, the Climate Change Committee's modelling still includes the use of some unabated gas that runs for very short periods of time. That is

consistent with our goals, and that can provide additional security of supply at times when you need the resource.

On some of the other ways the market might develop, if you have, for example, abundant renewable electricity at times of low demand on the grid, you can use electrolysis to convert it into hydrogen, store the hydrogen, and later bring that power back to the grid from the energy you stored. That is a way we think the market could develop in what we might call the shoulder periods, when you need to ramp up demand to meet supply. That is why hydrogen can be important. Again, carbon capture, usage and storage allows you to keep using fossil fuels on the system in a way entirely consistent with your carbon goals.

Q76 **Anne Marie Morris:** One of the challenges is switching, which we haven't really talked about. It is a bit clunky now, and it is also very expensive. What are you looking at, particularly with all these new technologies coming on stream, to improve the switching—both the physical way we do it and the cost of doing it that way? We should also look at what we might do going forward when we look at local generation and try to lock it into nationally conceived generation.

Ashley Ibbett: Obviously, the electricity system operator deals with these sorts of challenges today. You are right that as we transition to a zerocarbon grid, those challenges will perhaps become more acute, but that is why we are establishing the future system operator through the energy security Bill. They will be in a position to provide us with expert guidance and advice on how best to manage a decarbonised electricity grid, so we will look to them to advise us on the most appropriate way to deal with these sorts of issues, such as switching and other types of issues.

Q77 **Anne Marie Morris:** Okay, so it is coming but is not here yet.

Ashley Ibbett: The energy security Bill is passing through Parliament right now.

Jeremy Pocklington: We already have a system operator tasked with managing the grid, and there have already been very significant improvements. What we are talking about today—it's a common theme—is, given the acceleration that we need, what is the next stage in the right institutions that the Department needs to create in order to make the system work effectively? That is why we are putting the future system operator on a statutory footing through the Bill. We will separate it completely from National Grid. It will be regulated as a separate entity in order to manage the grid in a way that leaves it free from any perception of a conflict of interest.

Q78 **Anne Marie Morris:** Okay, and we are not going to find ourselves, I hope, continuing to pay for suppliers to turn off their supply.

Ashley Ibbett: Constraint costs are not a new feature of the UK's electricity system; they have been present for a very long time. In a way, they are a natural part of any electricity system, so I don't think you could ever

eliminate constraint costs. They are a natural function of allowing the system operator to manage the grid in the most effective way.

Jeremy Pocklington: The least cost to consumers would not be zero constraint costs. It is counterintuitive, because then you would have too much network capacity on the system. You need an appropriate level—the least-cost amount of that. It might be that more transmission network will help, but it may be that there are other solutions that will ultimately involve storage as well.

Jonathan Mills: We are increasingly going to see periods of time when we have more electricity available than we need domestically in GB for consumption in that minute, which is why it is about making sure that we have the pricing in place and the systems in place so that people know when is a really good point at which to charge their EV, or that we have the interconnections so know when is a good time for us to export. We will be managing that variability so that we don't have to get into a position where energy is just being wasted, and we will be making use of that between countries and over time.

Q79 **Anne Marie Morris:** Okay, so we are going to have a much more straightforward system. Right at the outset, you accepted that carbon is inevitably always going to be part of the system. What is your tolerance? What is the percentage that you think we will be left with at the end of the day in terms of gas, which is what I think you referred to, still being part of the system?

Ashley Ibbett: In the modelling process that the permanent secretary described at the start of our hearing, we set a constraint in terms of the carbon grid intensity. That is a proxy for running hours, but it is an accepted methodology. The 2035 runs will use a grid intensity of 10 grams of carbon intensity. I think today's number is 200—I have not checked this morning, but it is around 200.

Q80 **Chair:** So it is a big jump.

Ashley Ibbett: It is a big jump.

Jeremy Pocklington: But it's not zero.

Chair: Obviously.

Anne Marie Morris: That is very helpful. Thank you.

Q81 **Chair:** We are hearing a lot about what needs to be achieved, but what we have not talked about much is energy demand. In the past, the nudge unit was involved. What are you doing to try to reduce energy demand, and in which sectors in particular?

Jeremy Pocklington: It is a very complicated space, so let's move on to demand. Even before we look at energy supply, we need the right input, which is energy demand, and we look at a range of scenarios for electricity

demand that are inputs into our model to determine what supply we need. In particular, we look at low scenarios and high scenarios, which will not surprise this Committee. Even in the period to 2035, we are expecting demand in all scenarios to increase.

Q82 **Chair:** One problem is that when we electrify to be greener, there will be more demand for electricity.

Jeremy Pocklington: Indeed. Total demand at the moment is roughly 300 TWh; in 2035, we think it will be between 450 TWh and 485 TWh. By the way, the big jump comes after that, to 2050, when our modelling is based on total demand between 580 TWh and 770 TWh.

Q83 **Chair:** What is driving that then—electric vehicles?

Jeremy Pocklington: The electrification of other sectors. This is the key. Often, we start by focusing on energy efficiency, which is very important, but elsewhere in the forest we are increasingly looking at the electrification of other sectors, particularly transport but also potentially heating as it relates to building—for example, air pumps.

Q84 **Chair:** So demand will go up because of this new technology and electrification, but what are you doing about reducing demand, covering everything from how many loads of washing you do a week to whether you leave your chargers plugged in—from the very small scale to the big, high-energy users? What is the strategy for encouraging both consumers on a domestic level and businesses to reduce their demand? Are you looking at price incentives or anything like that?

Jeremy Pocklington: That is another arm of the Department.

Chair: In your empire, Mr Pocklington.

Jeremy Pocklington: We have also set out our plans around this in, for example, the heat and buildings strategy.

Chair: Which we discussed with your predecessor.

Jeremy Pocklington: We also have a strategy for decarbonising industry. There is a great range of policies that are designed to do that, and they stem from domestic energy efficiency, and we have talked about supplier obligations there as well. In industry, there are things such as carbon pricing and the so-called ETS, which is essentially the carbon price in this country, to drive the right decisions. It is about driving the reduction in carbon, which may be through energy efficiency or through other sources of delivering the business need as well.

Incentives? Yes, but look: politicians—not me—would be wary about saying that the answer to achieving net zero is to increase everyone's energy bills. You have to be very, very wary of that.

Q85 **Chair:** I am not suggesting incentives in that way, but it is partly about consumer behaviour. What are you doing on that front?

Jonathan Mills: Just to add a couple of other things, when we are talking about moving towards the electrification of heat, many of the energy efficiency measures that we might be undertaking now in order to help people to reduce their demand for gas would, in the future, reduce their demand for electricity. If their home is better insulated, that will help with electricity demand in the future and gas demand now.

The way that the retail market works will change. We are already seeing this. We talked earlier a little bit about smart meters; I think we are still in the foothills of how that translates into tariff offers for people. We see more flexible tariffs around. People have fond memories of Economy 7— there is scope for much smarter versions of that in the future.

Chair: We are obviously of a similar generation. Just so that people who are following understand, this is where it is cheaper to use electricity at certain times of the day or night.

Jonathan Mills: And you will see us moving forward on retail market reform, and indeed moving so that people have the ability—

Q86 **Chair:** At the moment, it is still in its infancy. Everything that we have talked about today is going to happen; how quickly is this going to happen?

Jonathan Mills: We have said that we want to move forward to set out our vision for the retail market. Again, I do not want to get ahead of myself by pre-empting announcements, but I think that is something on which we will set out a direction. We can make sure that the retail market works for new ways of supplying energy as a service and providing that kind of flexibility.

In the very short term, we have done quite a lot in the Department to provide consumer advice around energy-saving measures this weekend. The Secretary of State himself has his video of the Elf on Shelf from before Christmas, which is no longer seasonal but sets out the things you can do. We have a campaign that has been providing consumer-facing advice on basic tips and things people can do to help to save energy now. We are very seized of this and I am trying to look at it in the long, medium and short term.

Q87 **Chair:** Okay. Of course, in the immediate term there are people's bills, but the long term will require more help. It seems there is a lot of work to do there.

There is one big issue that the Committee has covered before, so we do not need to go into a huge amount of detail on it. In paragraph 11 of the Report, the NAO talks about the cost to the consumer of decarbonisation. The challenge of going fast is that the competition and the market will not be out there, so a lot of taxpayers' money is going to go into. Ultimately, the consumer, as either a consumer or a taxpayer, pays for it. How are you looking at that cost and what are you doing to protect consumers?

Jeremy Pocklington: We are obviously very mindful of the position of the consumer. The whole objective is to achieve our goals at the least cost to

the consumer. I would say that the most important thing is that, to an extent, the trade-off that may have existed 10 years ago does not really exist in the same way today, particularly when gas prices—

Chair: You mean paying more because it is greener.

Jeremy Pocklington: Exactly. Particularly given where gas prices are, it is actually cheaper to invest in low-carbon forms of generation and to do that quickly and at scale, even accounting for the wider costs that are, if you like, imposed on the system by virtue of its intermittency. I am not sure that I accept that the trade-offs are what they were; none the less, it is absolutely right that some of the investment that is required, particularly in more nascent technologies, such as carbon capture, usage and storage and nuclear, will undoubtedly be very significant indeed. We need to find the least-cost way to bring it through.

Q88 **Chair:** It is interesting that at the end of that paragraph, which is in the summary on page 8 of the Report, the NAO highlights the fact that a "clear delivery plan could also increase the confidence of investors to fund new infrastructure, which could reduce their costs of capital." Crucially, they say: "In the past we have highlighted how a lack of clarity and changes in policy direction from government can affect investor confidence, increasing their required rate of return".

I have served on this Committee for more than a decade and I used to shadow this portfolio for the official Opposition, and we have seen ups and downs: it is like a seesaw. Some of the incentives—things like the feed-in tariffs and the incentives for home insulation—come, they are short-lived and they go. The Department, or the Government, will be making announcements next week; can you give us any certainty that there will be some longer-term certainty? It is that seesawing—the zigzag costs of incentives that are taken away within a few months and so on—that has dented confidence in many aspects of the market that would need to deliver energy efficiency and, indeed, zero-carbon power.

Jeremy Pocklington: Providing confidence to investors is obviously key to getting the lowest possible cost of capital. Having come back into this policy area in the past month or so, I have been incredibly struck by the fact that for most of the large investors I am meeting—they are global players; certainly European and often now global—we are a choice for the main board. Whether to invest in this country will be based on certainty and return but, ultimately, consumers will benefit.

Chair: Compared internationally, you mean.

Jeremy Pocklington: International companies have to make decisions about how much to invest in this country.

Chair: And you are saying the UK is attractive.

Jeremy Pocklington: Yes, because of the reasons that I set out at the outset. We have the market mechanisms that will make the difference and we are developing the business models and regulation that is needed. We will never be able to compete with, for example, the US in terms of our bank balance; we need to be smarter in how we compete internationally for that investment. That is about having a predictable approach to, for example, our auctions—Ashley has talked about having annual auctions now—and providing certainty as much as we possibly can.

The challenge, and this is why it is hard, is that we also need to make sure that our markets evolve to reflect the challenge that we have. That is why Mr Mills is leading our review of electricity market arrangements to make sure that they remain fit for the future—to 2035 and beyond.

Q89 **Chair:** We can read that as it being positive that people want to invest but, as I highlighted earlier, there is a lot of capital cost to some of the programmes we have been talking about, so bill payers will not see a benefit—as the NAO highlight, that capital investment goes in in this decade and may taper off after 2035. When do you expect to see bill payers see the dividend of all this investment in the form of lower bills?

Jeremy Pocklington: It depends—sorry, it is not possible to give a very simple—

Q90 **Chair:** I recognise it is not all paid for by bill payers; there is some from taxpayers as well.

Jeremy Pocklington: In many cases for renewables now, we have a system where bill payers are not paying any of the charges up front. That is the same with Hinkley, by the way.

Q91 **Chair:** For the new technologies particularly, there's got to be investment, so it is either the taxpayer or the bill payer, at the moment, that will be paying for many of the technologies—not everything.

Jeremy Pocklington: It is only in a very small number of cases that the bill payers are paying up front for the capital investment.

Chair: No—

Jeremy Pocklington: Let's be specific. The model, potentially, for Sizewell, which we have consulted on—it's well known—is an example. Bill payers will be paying a small amount of money through the regulated asset base model, the RAB model, before the plant is operational; it will be a very, very small amount. In the long run, that will produce a much cheaper cost of financing as well.

Q92 **Chair:** In the previous model, of course, there was no up-front capital cost, but it was all laid on bills later—

Jeremy Pocklington: It came on bills later. That was the initial approach that we took with Hinkley. But actually—including as a result of work from

the NAO and work with this Committee—we think that, in the longer run, it is better value for consumers to move to the RAB model. But in most cases—I don't know whether my colleagues want to add anything—it is not the bill payers paying up front; it is once we have the technology.

Jonathan Mills: I was just going to say this. Your question was: when do consumers start to see the benefits in their bills? That is happening now. Ofgem's analysis for their most recent price cap determination says that the renewables under the CfD are reducing household bills by an average of £54.

Q93 **Chair:** It is difficult for people to see that at the moment, of course.

Jonathan Mills: Well, it's money that is being paid back because of the way the CfD works, and that should grow over time as we see more of those projects in the CfD system. So some of that is happening already.

Q94 **Chair:** It's still a bit of a hard sell with the energy price increases for other reasons.

Jonathan Mills: Of course. It's against the counterfactual of a high gas price.

Q95 **Chair:** I want to move on to the new future system operator. We are not going to see this in place until 2024. Is that still— ***Ashley Ibbett:*** That is our working assumption.

Q96 **Chair:** It is the working assumption. And how are they going to work with the other bodies—there are a lot, and I won't go through the list of all the bodies in the Department; I'm assuming they are still in the Department now that you're a new Department—that are doing some of this work already. How do you see it interacting with existing structures within—I don't know how to pronounce your short title!

Ashley Ibbett: The Department for Energy Security. We are working really closely with the current electricity system operator to put in place the plans to separate that business from National Grid and establish it as an independent system operator. It will take some additional responsibilities that the electricity system operator doesn't have, in relation to the gas network. We are still working through those, and our intention is to use the strategy and policy statement—which is the piece of advice, guidance, we provide to Ofgem—to set out what we see as some of the roles for these respective organisations in the system as it evolves.

Q97 **Chair:** You are still working through this. We are at the end of March 2023, so I'm assuming it is not going to start on 1 January 2024 at this rate.

Ashley Ibbett: I don't have a start date I can tell you today, but it is worth bearing in mind that initially we are lifting the electricity system operator and transferring it to a new, stand-alone organisation. In terms of its functions, it's doing a really important job on the network now—

Q98 **Chair:** Basically, it's a bit like taking an arm's length body and moving it from one Department to another or putting an arm's length body into a Department. You are not talking about a major structural change for that first stage of it?

Ashley Ibbett: Not initially. It's a separation from National Grid, which is a private sector company, and into a public sector organisation.

Jeremy Pocklington: It is an evolution—a very important evolution. We already took the decision several years ago to, within the national grid structure, require a functional separation of the system operator. That is to avoid any perception of a conflict of interest, because ultimately the system operators will be taking decisions that affect which transmission lines get billed. We are now completing that separation and it will be set up in statute, at arm's length—

Q99 **Chair:** Will you be looking at our previous work on arm's length bodies? Sometimes these good intentions can go awry.

Jeremy Pocklington: Indeed. We also need to define more clearly its roles and responsibilities, which will also grow over time.

Q100 **Chair:** Basically it's going to be in two phases. What we are talking about for next year is a body that exists in the private sector—I am putting this in simple terms—but lands into the Department family, into your new empire, Mr Pocklington! So it will be there. It will be the same people coming over?

Ashley Ibbett: That is what we are working through with National Grid right now.

Q101 **Chair:** Will you be appointing senior people on the board? Will it have a board structure now that it's going to be outside National Grid? How will that work?

Ashley Ibbett: We are looking right now at the governance and processes we would need. We would expect, I think, to see some of the existing electricity system operator staff move across.

Chair: I am slightly heartened that it is not all starting from scratch.

Ashley Ibbett: No, not all starting from scratch.

Q102 **Chair:** But I am still quite worried that, this far out, there is not real clarity on how it will be. Look at our work on arm's length bodies. If you get it wrong, sometimes they can become animals that you do not want them to become, and it is obviously critical that it works. You are smiling, Mr Ibbett, as though this is a great thing; you seem very positive.

Ashley Ibbett: I do feel positive about it. We are working through in great detail, with National Grid and the electricity system operator, how to establish the new structure and ensure continuity. Obviously, separating it from National Grid brings with it some separation issues. It was obviously

run as a standalone unit, but you always run into some issues that you need to work through to do that separation formally. My team is working very intensely with National Grid on that right now.

Q103 **Chair:** Will the people coming over be civil servants? Will they transfer over?

Jonathan Mills: I believe it is constituted as a public corporation.

Jeremy Pocklington: It is a public corporation.

Chair: So their existing pay and conditions and stuff will transfer with them, so you are not off the hook on salaries.

Ashley Ibbett: That is exactly the sort of detail we are working through with them.

Q104 **Chair:** And you are still working through it at this point. I will leave that; we look forward to hearing more about it. One of the big issues that has come across from every Department we talk to on this issue, and of course from a lot of the evidence we have had, is the skills necessary to deliver the net zero agenda, including the issue around the power sector. What are you doing? What role does this new Department have—you talked earlier about nuclear being challenging, Mr Pocklington—and what levers can you pull to ensure that the right skilled people are being trained? If necessary, are you talking to the Migration Advisory Committee about getting people in if we do not have time to train in the next few years?

Ashley Ibbett: I mentioned earlier the work we are doing with our offshore wind industry champion, Tim Pick. We have a networks champion in Nick Winser; he used to run National Grid. We have a hydrogen champion, Jane Toogood, who has just produced her report, and we have a nuclear champion. With those champions, we are looking at exactly these issues around skills and the potential bottlenecks to the industry's moving forward. We are working with them on what recommendations they would want us to take forward as Government and with other parts of Government.

Q105 **Chair:** Do you have money to put into, say, the FE sector? There are skills at many levels, but we know across the economy that we also need skills at the basic level, where FE colleges could play a role. Do you have any money to put into those? Where is that money coming from? Are you making a strategy with the Department for Education?

Jonathan Mills: It is worth saying, to state the obvious, that there are skills demands here at all levels—you have PhD-level nuclear scientists but also a wide range of jobs. We were talking about home insulation earlier. Installation of those sorts of technologies is open to a much wider range of qualification levels. DFE's T-levels and apprenticeship programme are incredibly aligned to the labour demand, to try to ensure that those programmes are meeting actual demand for jobs that people can go into. So our focus is working with DFE to make sure that it is aligning its resources and approach with where that demand is—and indeed with DWP as well.

Q106 **Chair:** This is one of the huge challenges across Whitehall, isn't it? You have your fantastic champions doing their work, and they all produce their reports saying what skills we need. It might be that companies need to get people up to a PhD level, and I would expect that presumably they would pay for that themselves. There might be some through the apprenticeship levy for the mid-range, but if you are trying to get people at the entry level, you are relying on DFE.

Going back to one of my initial questions, Mr Pocklington, in this new Department, what clout do you have across Whitehall when you are talking to your opposite number at the Department for Education? She has a lot of other issues on her plate. Why is she going to take this seriously? I am not saying that she is a person who would not take it seriously, but with all those competing ambitions, what cut-through do you have to make sure that there is money going into skills in this sector?

Jeremy Pocklington: This is an absolute top priority for Government, and it is absolutely something that all members of Cabinet are behind. The best answer to give you is that it has not been my experience so far in the first six weeks or so, coming back into this area. I have found colleagues across Whitehall very keen to support us in delivering this mission.

Q107 **Chair:** Will your champions, or whoever takes over their work, be watching to see that these are actually coming through in the pipeline?

Jeremy Pocklington: Of course we will. We will also want to continue to monitor it ourselves. Some of this is for Government; some of it is for industry as well.

Q108 **Chair:** But you are holding the ring, aren't you?

Jeremy Pocklington: Indeed, but very large companies like EDF are very focused on this and on how we grow the skills we need, as well as Government, but yes, we have an important role.

Q109 **Anne Marie Morris:** Right at the start, my colleague Sarah Olney raised the issue of pulling this all together in one big plan, but there is part of this great big complex scene that we have not really talked about, and that is the plan writ large. You had a review of the electricity market arrangements, and it is incredibly complex. We effectively have the producers, the suppliers/retailers, the grid, the sub-grid and the whole mechanics as to how we price all this. In evidence in previous hearings in

this area, there has certainly been concern that the supplier market currently—the retail piece—is fundamentally broken.

You have talked a lot today about how we decarbonise power, but we cannot do that in isolation. We have to look at dealing with the technology and the interplay, alongside how we deal with the challenge— you are effectively talking at the producer end—with a supplier/retailer end and with the work that needs to be done to sort out the grid, the sub-grid and the challenges I have mentioned before about the fact that, in future,

energy will be generated locally to go into the grid, as well as through a national project. I have not yet heard how all those pieces are being pulled together because there is a lot of complexity. I do not know whether Mr Pocklington, Mr Ibbett or, indeed, Mr Mills might be able to—

Jeremy Pocklington: Mr Mills is leading our work on REMA, so I will hand over to him.

Jonathan Mills: To start with the big point there, which is a really important and well-made one, we have huge programmes of work under way on particular technologies, such as renewables, CCUS and so on. We then have a range of cross-cutting issues. We talked about the grid earlier. There are also really important cross-cutting issues around market design and how we use some scarce resources, such as our seabed being used for different purposes.

We, as a Department, and the NAO Report helpfully talks about this, are trying to improve our capability to identify and manage those portfolio interdependencies. But, as we said at the beginning of the meeting, what we want to do is to show not just the parts, but how it all comes together and how we are managing that. That is what we are intending to do later this year.

On the specific questions about the market and how we are looking at that in the round, the consultation document that we produced on the review of electricity market arrangements last year was very comprehensive. It was deliberately intended to capture pretty much every issue that people thought we might need to address. We had really good engagement with that from the industry and a much wider audience as well. We produced our summary of the consultation responses a few weeks back, which enabled us to narrow down the issues that we are going to focus on. We are now going into a mode of evaluation, analysis and modelling around specific issues. We have narrowed it down enough that we can do more of that, but then we want to be able to come back later in the year with the next iteration that narrows that down further and really sets out our direction further.

One of the things that I found gave me increased confidence from that consultation process was that people actually did not have a range of further issues that they thought we had not spotted. We think we have our arms round the range of issues, and we are now in the process of boiling that down. I should say REMA is the big comprehensive programme, but a lot of reform is going on already. We recently published proposals on reform of the capacity market to ensure it is taking account of decarbonisation. We talked about the latest allocation round for CfDs. That involves some changes to how that process is working. We are absolutely not on pause until we complete that REMA process, but I think that has given us a comprehensive view of the issue that we need to tackle.

Q110 **Anne Marie Morris:** Okay, but I am still concerned about the timing, because we do not have as much time as I think it will take to sort this all

out. I have a particular concern at the supplier/retailer end. It has been clear, particularly following the crisis, that that market simply doesn't work. While the Treasury has put in place a number of interventions to try to shore up a system that doesn't work, it is bust. What are we doing now to look at fixing that part of this complicated jigsaw? I don't think we can sit here and wait until '27, which, I think, is currently looked at as the date for resolution.

Jonathan Mills: On the retail market specifically, as you say, the last time we were here in this Committee we were talking about some very large interventions that the Government had made in the retail market, which we know are time-limited. We have said that by April 2024 we need to have some successor arrangements to deal with the impact of energy prices on people who have most difficulty there, so we have talked about options around social tariffs and so on. We will have proposals in that space. But we will also be saying more about how the retail market needs to develop.

If you had a group of energy suppliers here, I think they would acknowledge that the retail market in the last year or two has been essentially on ice. We need to break out of that, and we need to get something that is working for consumers. That will need to be on a timescale that is consistent with the work on REMA, but won't necessarily be exactly the same as it. We need to make sure we manage the interdependencies, but I think you are absolutely right: some of the rubber hits the road on that much sooner than for the big investment decisions that we are talking about in REMA.

Q111 **Anne Marie Morris:** Indeed, because when you talk about '24 and further financial help, that is not a long-term solution. It is only a quick fix, and it is very expensive for Government. Can you assure me that there is some work looking at a complete reworking of that retail market that will actually solve the problem, so we are not continually having to debate that?

Jonathan Mills: I think we will say more very shortly about our intention to reform the retail market to ensure that it works much better for consumers.

Q112 **Chair:** Clearly that has to happen—we all acknowledge that. I want to thank you for your time. I will just finish off by asking about how you are going to report to Parliament. You are reporting annually from autumn this year to the Climate Change Committee, but are you planning to report differently to Parliament on what is actually a series of major projects? Any one of those projects would be quite big in any one Department and—lucky you, Mr Pocklington—you are in the hot seat dealing with all of them. How are you going to report to Parliament on the progress on that?

Jeremy Pocklington: There are a very large number of very significant projects here, as we have discussed in this hearing. Of course, the annual update—the annual report to the Climate Change Committee—will of course be a public document and will in effect be a report to Parliament as well. And—

Q113 **Chair:** Is that what you see as the report?

Jeremy Pocklington: Yes. My desire is to try to avoid multiple separate reports—

Chair: And we would agree with that.

Jeremy Pocklington: Let's not have separate plans and updates.

Q114 **Chair:** Could we perhaps have a discussion offline about what you include in that? Today, we have identified some things we already knew about but got clarity on certain other things, such as the timeframes on the future system operator, which may or may not be in the report to the Climate Change Committee. Perhaps we could discuss that, and whether interim reports at six months, when data is changing fast, would be quite helpful. Often a year is a very long time when we are all watching as different parliamentarians—different bits of Parliament will be looking at different aspects of this. Could we perhaps have a discussion with you privately?

Jeremy Pocklington: I am very happy to do that.

Chair: It is always helpful, I think, if you are reporting what Parliament wants to hear. It saves you a lot of grief, gives us what we need and—I was going to say, "and everyone's happy". Wouldn't that be nice? Let's finish on that note. I think it's going to be a long while before everyone is happy in this sector, but you are all smiling. We wish you well in what is a huge challenge, as you identify, Mr Pocklington: to deliver all of this by 2035 with a number of very challenging deadlines in between. We will be producing a report on this at some point after the Easter recess. Thank you to our colleagues at *Hansard*—the transcript will be available on the website, uncorrected, in the next couple of days. Thank you very much for your time.