



Economic Affairs Committee

Corrected oral evidence: UK energy supply and investment

Tuesday 24 May 2022

3 pm

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Members present: Lord Bridges of Headley (The Chair); Viscount Chandos; Lord Fox; Lord Griffiths of Fforestfach; Lord King of Lothbury; Baroness Kramer; Lord Layard; Lord Livingston of Parkhead; Lord Rooker; Lord Skidelsky.

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Questions 248 - 269

Witnesses

I: Rt Hon Greg Hands MP, Minister for Energy, Clean Growth and Climate Change, Department for Business, Energy & Industrial Strategy; Akshay Kaul, Networks Director, Ofgem.

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Examination of witnesses

Greg Hands MP and Akshay Kaul.

Q248 **The Chair:** Good afternoon and welcome to this meeting of the Economic Affairs Committee. I am pleased to welcome to this meeting the right honourable Greg Hands, Minister for Energy, Clean Growth and Climate Change, who joins us via video link from Berlin. For the sake of good governance, I should declare an interest as an adviser to Banco Santander. I will kick off with the first question, as I know that the Minister is under time pressure. Thank you again for joining us today.

If we could turn to the next few winters, Minister, and focus on that to start with, what additional—I stress that word—steps might be taken to deliver reliable and affordable energy in that timeframe? I will start with a couple of simple questions. First, will Drax and EDF keep their coal-fired power stations running at normal capacity this winter and not run them down or shut them as planned?

Greg Hands MP: Thank you, Lord Bridges. First, thank you for giving me the opportunity to appear before the Economic Affairs Committee. I have appeared before a fair few Lords committees, but I do not think that I have appeared before this committee before, so thank you for the opportunity. I think that Mr Kaul from Ofgem has just joined us as well.

The Chair: I will just interrupt you to say welcome to Mr Kaul. It is very nice to see you. We have just started. Please continue, Minister.

Greg Hands MP: I think that there are three parts to your question: security, additional steps and the specific issue of coal-fired power stations. In terms of where we go from here in the short term into next winter, there are two parts to that: where are we on oil and gas at the moment and where are we on accelerating the deployment of renewables? The deployment of renewables is the optimal solution to any questions of energy security at the moment. As you all know, we are less dependent than almost any other European country on imported hydrocarbons, with the obvious exception of Norway. We do not have that same dependence on Russian gas, for example—last year, less than 4% of our gas came from Russia. But I am not in the market of wanting to increase our imports of hydrocarbons at this time of volatile and elevated prices.

My first priority is to maintain levels of investment in North Sea oil and gas at the moment, to make sure that we continue to produce. Not only does it make financial sense to do that, but typically our homegrown production has lower carbon emissions than imported hydrocarbons. That would be my first priority. What we are doing in addition is sending a clear signal that we want to see that investment in the North Sea continue, working closely with the sector. The Prime Minister hosted a round table with the sector back in March to get that message out there. It is also important for jobs going forward: 100,000 jobs, mostly concentrated in north-east Scotland, depend on that industry. That is an initial priority.

The second priority is bringing forward our deployment of renewables. That is what the Prime Minister's further round table with the wind sector last month was designed to do. We have launched the offshore wind acceleration taskforce, which I co-chair with our new wind champion, Tim Pick. It will look at how we can bring forward some of the wind projects that are scheduled further down the line to make sure that that deployment happens as early as possible.

You asked about coal-fired power plants. The UK remains committed to the phase-out of coal by the end of 2024. We brought that forward from 2025 and we remain absolutely committed to it. As to what we might do this coming winter, we are keeping our options open, but we remain committed to the phase-out of coal-fired power plants by 2024. That I hope gives an answer to the three parts.

The Chair: So they may keep going. Let me just look at demand reduction. A number of people have pointed to the policy of successive Governments on demand reduction, in particular insulation. Chris Stark, the head of the UK's Climate Change Committee, said that the Government's insulation policy is "very poor". On Sunday, you will have seen that the boss of E.ON said that energy efficiency is the "silver bullet". Are the Government planning to do more in the short term to promote energy efficiency in homes, mindful of the fact that if you raise a home from band E to band C you could save £800 a year on a fuel bill? Why are the Government not doing a lot more on this?

Greg Hands MP: If I might say so, we are. That was the whole purpose of the heat and building strategy, which sits under your colleague and my colleague Lord Callanan, our Lords Minister.

The Chair: Sorry, Minister, can I just interrupt? He told our House: "It would have been good to go further but, regrettably, that was not possible".

Greg Hands MP: To be honest, you will know, as a former government Minister yourself, that we always like to go as fast as possible in government, but sometimes that is not always possible, for different reasons. The heat and buildings strategy sets out a comprehensive vision on energy efficiency. We are spending £6.6 billion overall on energy efficiency measures in this Parliament. The boiler upgrade scheme has also just been formally kicked off this week. Applications for that have started. We are investing in heat pumps. Money in the order of £450 million in the boiler upgrade scheme fund is being deployed now. We are moving quite quickly on energy efficiency under this Government. I think that I am right in saying that 10% of homes were rated A to C in 2010, but the figure is now 43%.

The Chair: Do you not think that we should be doing a lot more? I will just read you one quote from the Energy & Climate Intelligence Unit, which said that "the impact of surging gas prices on household energy bills could have been roughly halved had energy efficiency improvements kept pace over the past decade". Because we have taken our foot off the

pedal, so to speak, we have not done as much as could have done on this agenda. Do you agree?

Greg Hands MP: No, I do not agree, because actually we have more than quadrupled the number of homes that are officially energy efficient—that is, rated between brackets A to C—from 10% of our housing stock to more than 43% since 2010. So I do not agree with that assessment.

Of course we want to go further. That is why the heat and buildings strategy is in place, and why we are deploying the £6.6 billion of funding over this Parliament: to accelerate and make sure that we go further. So I do not accept that we have a poor record; we have a very good record over the last 12 years.

The Chair: Thank you very much.

Q249 **Lord Skidelsky:** Minister, it is good to be able to speak to you. What level of financial support might be needed to help the most economically vulnerable with energy bills this winter? I am in a bit of trouble to know what the Government's attitude is. You are quoted as saying that "we take the view that the windfall tax would be likely to kill off investment and cost jobs". However, we read almost every day that the Chancellor is considering windfall taxes not only on oil and gas but on energy generators, so would I be right to conclude that you have made up your mind but the Chancellor is still considering his?

Greg Hands MP: No I do not think so. We have not made any announcements on a windfall tax. What we have announced is a £9.1 billion package—the Chancellor announced it on 3 February at the House of Commons Dispatch Box—comprising essentially three elements: first, a £200 discount on energy bills, coming in from this October; secondly, a £150 rebate on council tax for all homes in bands A to D; and, thirdly, a £144 million fund to support local authorities to give further assistance to vulnerable people who are not in bands A to D and who do not qualify for that council tax discount.

That is already a £9.1 billion package of help on any—[*Inaudible.*—]—energy as part of the 2022 financial year.

The Chair: You cut out for about five seconds. Could you rewind?

Greg Hands MP: It was just to say that there is a £22 billion package of support overall in this financial year, part of which—the £9.1 billion—is specific support for energy bills. On windfall taxes, you are right, Lord Skidelsky, that nothing has been ruled out, but nothing has been ruled in either. It is something that we are watching extremely closely as a Government. All taxation matters are obviously matters for HM Treasury, but we in BEIS obviously keep an eye on the sector and everything in it—the different priorities, the investment in the sector. It is worth pointing out, as the Chancellor himself pointed out at the Dispatch Box on 3 February, that these companies are paying corporation tax at twice the rate of non-oil and gas companies, have provided £375 billion worth of

taxation over the last 50, and are paying a lot more in tax this year as a result of higher prices than in the last two years when prices were relatively low. All these factors are being watched and assessed.

Lord Skidelsky: Thank you. Do you expect the price of oil and gas to go up in the long or even the medium term, or do you expect it to go down? On that hinges how much investment is required. The argument against a windfall tax is that it would discourage investment. What is your expectation about a shortage or a glut of oil and energy in, say, the next five years?

Greg Hands MP: There are two things going on there. One is supply and the other is price. Let us deal with supply first. The UK does not have energy supply issues. On gas, as I mentioned, 50% of our gas comes from the UK continental shelf, a further 30% comes from Norway, and 20% we essentially secure either through interconnectors or through the LNG market. We have very good sources of gas supply, and we have very good sources of oil supply. Also, we do not import a lot of Russian oil; we import a little more on diesel. So the supply picture on oil and gas is very good and robust, and a large part of it is home produced.

On the first part of your question on prices, I have worked in financial markets before on interest rates and foreign exchange, and I remember that commodity prices for oil and gas are far more volatile than anything you will get in interests rates or foreign exchange. As a government Minister, I am not in the business of speculating on energy prices going forward. The only thing I would say is that there is certainly no evidence or reason to believe that energy prices are coming down any time soon, and you would be hard pressed to find any analyst saying that. So we have to work on the basis of a reasonable assumption that prices will remain elevated. We are certainly planning around these kinds of scenarios, particularly in relation to where the price cap might be from October.

Q250 **Baroness Kramer:** Thank you, Minister. I want to explore with you more directly this argument that a windfall tax on super-profits by oil and gas companies would suppress needed investment in the future; I think you have made a statement rather to that effect. I noticed that, among the major companies, BP has said that it will make an additional \$8 billion in stock buy-backs this coming year, Shell \$6 billion, and hopes that the market will take more, which indicates that they are awash with cash that does not have investment as its intended final stop. Could you present to us your evidence that a windfall tax would suppress needed investment?

Greg Hands MP: Having looked at these questions before in different capacities at the Treasury and so on, I think there are connections between profitability and investment. In terms of where the profits are, if you look at the commitments that the different companies have made, BP, for example, has made a commitment of £18 billion in the UK energy system by 2030, Shell £25 billion over the same period, Eni €2.5 billion over the next four years, Harbour £6 billion for further North Sea upstream activity. These are considerable investment figures going in.

As with all these things, you need to be very careful in this sector to get the balance right between making sure that they pay tax when prices are high, which I think they have been doing and are doing, and making sure that they still have the ability to invest. As I mentioned earlier, what I would not want to have to be doing at the moment is importing more hydrocarbons from abroad at a time of high prices and volatile prices. So we need to make sure that not only do they invest in oil and gas in the North Sea but they invest even more in renewables. A lot of the companies I just mentioned are some of the biggest investors in offshore wind or in related technologies such as carbon capture, utilisation and storage, which as I say is related to oil and gas or hydrogen. We want to make sure that that investment continues to go in at the same time.

The tax question at the heart of your question is of course, a matter for the Treasury.

The Chair: I am sorry Minister, but I do not quite understand this, because you are the Energy Minister, so you must have rather a strong view on this. Let me put it to you what the director of regulation at Energy UK said just today to the *Financial Times*: “A windfall tax on generators could delay and increase the costs of these investments”—in renewables—“at a time in which the industry is rapidly expanding the UK’s low-carbon infrastructure to provide clean, cheap and domestically sourced electricity”. I take it that you agree with every syllable of that statement.

Greg Hands MP: I stick to what I have said before: that ideas of a windfall tax would inevitably have some kind of impact on investment. You have to assess what kind of impact it might have based on the degree of the tax you would want to take. As I say, that is really a matter for the Treasury, not for me. As you know, taxation matters are always a matter for the Treasury. I was a former Treasury Minister, so I know about life on the other side of the department.

The Chair: Indeed.

Lord Fox: I was just interested to know who is doing what. Clearly the energy side of government would be the one having the conversation about investment, and it seems to me that the Treasury will be having the conversation about tax. Is there not a dialogue that puts these two together, and are you not party to that dialogue?

Greg Hands MP: Yes, of course we are: myself, Kwasi Kwarteng, the Secretary of State for Business, Energy and Industrial Strategy, the Chancellor of the Exchequer, the Exchequer Secretary, the Member for Faversham and Mid Kent, and the Chief Secretary to the Treasury. There are discussions that take place between Ministers and between the two departments, but ultimately the final call on taxation lies with the Treasury. Obviously we have our views and we give them internally to the Treasury and to No. 10, the Prime Minister, on these matters, as you would entirely expect.

Lord Fox: But you were asked for evidence rather than views, and that is what we are asking: where is the evidence rather than a point of view?

Greg Hands MP: I know that the Secretary of State and the Chancellor have had discussions on this. I have discussed with the Exchequer Secretary all these matters relating to the well-being of the sector and the health of the investment taxation sector. These are all subject to ongoing discussions between the two departments, and between Ministers and the two departments. I do not think anything in that regard is different today from what it has been over the last 40 years.

Lord King of Lothbury: Minister, would you have the same concerns about not a windfall tax as such but a temporary additional tax on dividends and share buybacks, where companies would then not be handing over large tax payments if they invested the money that they currently have?

Greg Hands MP: The specifics of that are outside of my purview in BEIS. That sounds very much like a core matter for the Treasury.

Lord King of Lothbury: It is a way that might help you to encourage more investment.

Greg Hands MP: We are always keen to encourage more investment, but the specifics of how that would work are a matter for the Treasury.

Viscount Chandos: I understand the pre-eminence of the Treasury but your responsibility includes energy security, so surely in the dialogue with the Treasury you have to represent a view about whether a proposed approach to tax—a windfall tax or the sort of tax that Lord King has just described—would threaten or diminish energy security. What is frustrating for us is that as soon as we get onto this topic, you say, “Oh, that’s a matter for the Treasury”, but ensuring energy security is your responsibility and therefore the impact on that of any given tax seems to me to be both your personal and departmental responsibility.

Greg Hands MP: I think you are right, in the sense that we have an ongoing dialogue with the Treasury. We are one Government, rather than a series of competing silos, making the right decisions for the country overall. That would be part of the conversation right the way across government, as would all these different factors. What is the right balance to that approach? It should not surprise anyone that we have discussions with the Treasury about investment in the sector and what the best fiscal position is for the sector. All these discussions get held on a regular and ongoing basis with the Treasury, the Prime Minister, No. 10, the Cabinet Office and so on. There should not be anything surprising in that.

The Chair: Does it bother you that the shares in the biggest power companies are falling sharply, almost as we speak, on the back of all this uncertainty?

Greg Hands MP: I have not been able to follow day-to-day market moves in share prices. If you are telling me that that is due to uncertainty, I think the UK is known for a very good, strong and stable regime and that is something we have had for some time. I am not aware of any falls. If you are telling me that has been going on today, that is not something that I have been aware of.

The Chair: Okay, well, shares are down considerably, but we will move on. We will not comment on the market right now.

Q251 **Lord Fox:** This question is for Mr Kaul. What effect might a decision to update the price cap more frequently—we have heard today's announcement, which in itself is huge—have on bills? Will they go up faster or slower? In a sense, what modelling have you done around this in terms of how you are going to keep track of pricing and how you are going to pass that pricing on to consumers?

Akshay Kaul: The short answer to your question about the frequency of the price cap updates is that its main effect will be to compress the time between prices in the market changing and them being reflected in the price cap itself. That increases the accuracy of the price cap in reflecting the prices that suppliers are paying to buy energy in the market. Therefore across the year it should have little to no effect overall on the level of energy bills, but because it increases the accuracy of the price cap it reduces the risk, and therefore the cost of the risk, that is baked into the economics of the supplier community, which should mean that consumers overall see a net benefit.

We have done some modelling with the current figures based on the forward curves as we see them at the moment, and it looks as if, when we get to October and we move from the six-month price cap to the three-month cap, the latter cap will drive a lower figure for the price cap than it would have been had we stuck with the six-month window. That is simply because of the way that the price curve is shaped at the moment.

Lord Fox: Will that help the suppliers to buy forward more accurately?

Akshay Kaul: Yes, it will.

Lord Fox: So are they pushing for that?

Akshay Kaul: Yes. The issue with the six-month window is that they need to buy the energy six months ahead of time, and if prices move significantly against them in that six-month period then consumers tend to move away from the default price cap towards different, lower tariffs. That makes it very difficult for suppliers to predict the volume of the forward contracts that they need to place.

Lord Fox: I have seen reports that some suppliers have bought very high in the six-month period up to October, and maybe have bought ahead of what the price cap will be. Are you aware of that? Do you model that when you are looking at the price cap, or are you simply looking at the market rather than at the forward-buying characteristics of the

suppliers?

Akshay Kaul: We are looking at the hedging strategies because we are now subjecting all the suppliers to resilience tests in a range of different price scenarios to see how resilient they would be as businesses, both if prices rise from where they are right now and if they fall, so we are keeping an eye on that.

The key thing that we are trying to do at this stage is to make sure that there is no repeat of what happened last year when a string of companies did not sufficiently purchase the energy ahead of time, even though they were offering fixed tariffs to their customers. We want to make sure at this stage that the suppliers that are in the market are taking a much more responsible position in terms of those forward purchases.

Lord Griffiths of Fforestfach: What is the case against getting rid of the price cap? Presumably all you are doing over time is changing the time profile of how prices move. If there is a lack of competition in the industry, that is an issue for the competition authority. It is not clear to me what the real case for this is.

Akshay Kaul: Is your question “What is the case for keeping the price cap”?

Lord Griffiths of Fforestfach: Yes.

Akshay Kaul: In the main, I will defer to the Minister, who is in charge of the policy on the price cap, but I shall quickly summarise the history of the main case for it. It used to be that if you as a consumer were not engaging with the energy market—that is, you were not switching suppliers or tariffs regularly—then the suppliers in the market were in a sense exploiting you by charging you above the odds. The principal purpose of the price cap when it was introduced was to prevent such exploitation and make sure that consumers were paying only accurate, correct and fair prices for the energy they were being supplied with. You are right that there is a debate in the market about the future of the price cap, but I shall defer to the Minister who may have more to say on the policy aspects of that.

The Chair: Please keep it quick, Minister, as we have a lot more to get through. I do not know if you have anything to add on that point.

Greg Hands MP: Mr Kaul is quite right: it was a policy decision by us. The reason we introduced the policy, as Mr Kaul rightly pointed out, was that it was not supposed to be a blanket protection but was supposed to protect people from what are called non-switcher penalties. It was found in that market that people who did not switch would be effectively discriminated against, and the idea of the price cap was to protect them. Obviously over the past two cycles, due to rising prices, the price cap has become much more prevalent as the actual price that people pay for their energy. So it is important to be clear on the origins of the price cap. We have said that in the forthcoming energy security Bill we will be extending the ability to have the price cap beyond the current stated

limit, particularly in the current environment where people are suffering very high energy prices.

Q252 Lord King of Lothbury: Minister, could I ask you about the transition to net zero? Both in September, when you launched the consultation on the climate compatibility checkpoint, and in your remarks today, you envisage some further investment in oil and gas. That is a transition that is somewhat different from that proposed a little while ago by the IEA. We have heard evidence about two aspects of that in our hearings so far. One is that recent events—that is, the rise in energy prices—mean that the IEA transition is no longer strictly relevant and some adjustment would need to be made to it. The other is that people feel they would like more guidance from the Government as to what the transition path is likely to be, in order to make their own business investment decisions. Could you say something about how you see the role of government in setting out a transition path against which people can make their commercial decisions?

Greg Hands MP: That is a good question. To be frank, having been involved in government for some time, I became energy and climate change Minister last September and I have found that it is an unusual area of government where you are effectively planning forward 30 years or more on creating Britain's new net-zero energy system. That is quite a long perspective. That means we have to build in a certain amount of flexibility in how we get there. We cannot be overly prescriptive. If you had set out in 1990 how the energy system would look in 2020, you would find now that the facts had changed considerably in that time. So we have to build in a large degree of flexibility.

The Climate Change Committee itself has said that there will be a role for oil and gas even beyond 2050—that we can and will get to net zero while still having a role in our energy mix for oil and gas. So, it is not a question, even after that, of it being an extinct sector; it is a question of making the transition. The Secretary of State and I are clear that it is a transition, not an extinction.

The net-zero strategy builds on the continuum of government policy over some time, particularly in the last couple of years—taking in the Prime Minister's 10-point plan, the energy White Paper, the net-zero strategy, the British energy security strategy and the forthcoming energy security Bill—by making sure that we have the means in place to manage and accelerate that transition, but to manage it in a way that is compatible and will keep the economy on a good path.

We have been pretty clear on the guidance on the transition. We are going with the grain of human nature as far as possible. For example, when we announce that we hope heat pumps will replace gas boilers, we do not say, "The Government are going to come round to take out your gas boiler and replace it with a heat pump"; instead we say that as your gas boiler comes towards the end of its natural life, we want to incentivise you to buy a heat pump instead. That is why the boiler upgrade scheme envisages that over a 15-year period gas boilers will be

phased out. That chimes with the amount of time for which a consumer will typically have a gas boiler.

What I am trying to say is that we are trying to do two things: we are trying to set the path while maintaining flexibility within that regarding how we get to net zero by 2050. We have laid out very particular goals such as a decarbonised electricity system by 2035, phasing out gas boilers by 2035 and zero-emission vehicles by 2030, so we have particular milestones in place and different carbon budgets in place. However, we need to leave ourselves a degree of flexibility in how we get to net zero by 2050.

The Government setting a path while maintaining that degree of flexibility is the right way to do this. The UK has always been a leader in this space since we were the first country to have a climate Act back in 2008 and one of the first countries to set the objective of net zero. We have always been a market leader in that space, while still recognising a need for a degree of flexibility.

Lord King of Lothbury: It is clearly sensible to have flexibility in designing any transition. What in your view are the biggest uncertainties that would lead to a transition path being adjusted between now and 2050?

Greg Hands MP: It depends how much time you have got.

The Chair: Not much.

Greg Hands MP: There are any number of uncertainties when it comes to energy provision; for example, recent events, three months ago today, added an amount of uncertainty to the transition. There is always a certain amount of uncertainty around supply sources as well as technology. Which technologies will work? How successful are technologies like hydrogen, carbon capture utilisation and storage and different renewable technologies? If you had told me when I was Chief Secretary to the Treasury in 2015 that we would reduce the price of offshore wind by two-thirds over the next five years, I would have found that extremely comforting. So sometimes you get surprised on the upside. I would say there are any number of uncertainties in having to set out—as you will know only too well from your previous experience, Lord King—in an uncertain world what you think is the most reasonable course, while giving yourself flexibility.

The Chair: Can I just bring you back to a point in Lord King's first question about the IEA scenarios? As you know, the IEA net-zero emissions scenario said there should be no further investment in gas exploration, nor, I think I am right in saying, in LNG plant. You said a couple of weeks ago that you very much welcome investment in gas at this time. Should the financial community be heeding your advice and exhortation or should they be sticking, as many in the community are, to the IEA net-zero emissions scenario and not investing in more gas?

Greg Hands MP: I think the Prime Minister has been absolutely clear that there is an important role to play for gas production in particular going forward.

The Chair: Is that a yes?

Greg Hands MP: Well, the last thing that we want to be doing at the moment is importing more expensive and volatily-priced hydrocarbons from abroad, so we should be making sure that we have security of supply while speeding up the transition, recognising that renewables are really the answer here. The answer here is not ultimately in more oil and gas; the answer is in more renewables and more nuclear, which is exactly why—

The Chair: I understand that—sorry to cut you off—but in the short to medium term you want to see more investment in oil and gas and you are saying, “Go ahead, invest and finance that, that is fine, so long as it’s on the right transition path”. Is that basically your position?

Greg Hands MP: I want to be in a position where we create confidence in the sector to invest and make sure that our energy security is maintained while still encouraging investment in renewables and nuclear in particular. That is why I piloted through the Nuclear Energy (Financing) Act, which got Royal Assent just last month—to be able to do that in nuclear. So we are making sure that our other energy options have good financing options attached to them.

The Chair: If you get more investment in North Sea gas, how long do you think it will take before those investments get gas out of the ground and one will see these projects bearing fruit? What is the timeframe?

Greg Hands MP: Oil and gas is a little different from, say, offshore wind. With offshore wind, it is a question of getting the infrastructure in place to start generating, whereas oil and gas are a little more flexible—although maybe not on the aspiration side—in that you can bring forward aspects of exploitation to make sure that the oil and gas you might have been exploiting later on gets exploited more quickly in the nearer term.

I would not want to put a specific time period on it and say that £1 invested in 2022 will yield a certain amount of oil or gas in a particular year, because the position is more complicated than that. It may be that a pound invested in existing fields, and in making sure that those existing fields yield a bit more in the short term, could be as well invested as in long-term exploration.

Lord Rooker: Before I come to my question on storage, I have a question about something you said to Lord King about boilers. Is it the intention to abandon the domestic gas supply network in the UK?

Greg Hands MP: No, it is not. We will need that gas network for some time. As I mentioned, the Climate Change Committee itself says there will be a role for UK oil and gas, so there are no plans to abandon that network.

On a slightly separate issue, there is of course the question of whether the gas network will be suitable—and I think it will—for hydrogen. That could be the future of that gas network, but it is a bit too early for us to be making those decisions. At the moment, though, we have a strong need for the gas network going forward right now.

Lord Rooker: You say “a bit too early”, but all the evidence shows that 20% hydrogen is perfectly safe in the network, yet from what you said to Lord King we are going to tell producers of boilers to stop making boilers. But they are making boilers that are hydrogen efficient now, aren't they? What is the policy here? I am not clear what the policy is regarding domestic boilers and the domestic network.

Greg Hands MP: My colleague who deals specifically with the policy aspects of domestic heat is Lord Callanan. I am happy to write to you on the interaction between current gas boilers and whether they will be made adaptable. I think some are already being made adaptable to take hydrogen. I am happy to write to you or get Lord Callanan to do so.

The Chair: That would be a good idea.

Greg Hands MP: I am clear that there is a good future for the gas pipeline network today. How that will look in future is a matter for future decisions. I would add that, although you can blend hydrogen into the gas network, we should not take it as given that that will be the most efficient and cost-effective use of hydrogen. That is another interesting question. It may be that we need our hydrogen not to be blended with gas but to be used for other purposes. That is really a question for the future.

Q253 **Lord Rooker:** We will leave it there and look forward to your letter, but there is no way that every dwelling in this country is going to be okay for a heat pump.

I would like to ask you about storage. Do we actually need more gas storage? If the answer is yes, why should we rely on Europe in effect supplying the storage for us? I understand that that is effectively what is happening at present. Why should we rely on that?

Greg Hands MP: Obviously, different countries in Europe will be in different situations, but generally their situation is a bit different. Their gas storage is to ensure security of supply. We do not have that same issue around security of supply, for the reasons that I outlined earlier—that is, the strength of our supply sources, with 50% from our own European continental shelf and 30% via Norway. We have good, strong sources of supply, so for us storage is not a gas supply source. The purpose of storage for us is a top-up supply when demand is high.

As it happens, it is quite possible that we will be exporting gas to Europe later this year in order to help them with their situation, which I think is the right thing for us to do. We co-operate and work well with both the Commission and individual EU member states on this issue and we have very good interconnectors, so is sensible for us to be working with them

to make sure that the UK can assist with the issues they have at the moment—up to a point that is reasonable, since there is a finite limit on what these gas interconnectors will take.

Essentially, our situation with supply is very different from that of most European countries, or at least most European countries in the north-eastern half of the European continent.

Lord Rooker: Are you satisfied that Norway, being part of the single market, will always be in a position to supply the gas that the UK needs?

Greg Hands MP: We have an excellent relationship with Norway, and we have never had an issue with them over the 50 years of strong bilateral North Sea co-operation. Obviously as a key NATO ally it is also very aligned with helping friends and NATO allies when it comes to the gas security situation caused by the Russian invasion of Ukraine.

A lot of the Norwegian gas pipeline network goes only to the UK, so a lot of that gas supply could not be diverted. Norway could choose to stop selling it to us, which I do not think it would, but that is a rather different question from being able to divert it to somewhere else. So I am confident about the robustness and strength of the Norwegian supply source and our excellent relations with Norway.

At the same time Norway also supplies a lot of gas to continental Europe and, as far as I understand it, there has never been an issue between Norway and its continental neighbours either. I think Norway is a good, strong and reliable source of gas for both the UK and the EU.

Q254 **Lord Livingston of Parkhead:** I re-declare my interest as a non-executive director of National Grid. I would like to turn to building a renewable future. Clearly, we have had supply chain issues with hydrocarbons but arguably we are swapping one supply chain issue for another in relation to critical minerals from China, particularly in terms of the Chinese processing of them. I am aware that the Government are producing a critical mineral strategy later this year, but in the meantime perhaps you could share with the Committee a bit about what the UK is doing to safeguard the supply of critical minerals for the renewable energy industry.

Greg Hands MP: I do not want to sound as if I am trying to cop out but critical minerals sit in a different part of BEIS with the Industry Minister, Lee Rowley. However, I shall try to answer your question. You are right that the critical minerals strategy is due to be published later this year and will set out steps to improve the security of supply of critical minerals, boosting domestic capabilities and showing leadership internationally. It is not just a question of finding domestic sources; it is as much a question of finding other international sources.

One critical mineral that I deal with quite closely is uranium. Yes, Russia is a source, as is central Asia, but equally so are Canada, Niger and Australia. There are other sources of uranium out there. I am sure that you will appreciate and understand that it is a question of diversifying our

sources or making sure that diverse sources are available for that critical mineral.

We have established a critical minerals expert committee, which has been convened to advise the whole BEIS department on this topic. We will also be launching the critical minerals intelligence centre to track stocks and flows of critical minerals and better understand the supply and demand projections.

It is a very active part of BEIS's strategy overall. Obviously, I keep a close eye on particular critical minerals such as uranium and others that are used in the production of offshore wind, for example—for blade turbines and so on—making sure that we have diverse and robust sources of supply. As I say, though, keep an eye out for the critical mineral strategy due to be published later this year.

Lord Livingston of Parkhead: I appreciate that this issue is for a different Minister, but the supply of critical minerals, as you mentioned, for wind farms but also for batteries is going to be critical—this is probably why they are called that—to the future of our whole green energy strategy.

The UK and the EU have been getting together. A while ago I did a report for DCMS on the diversification of the supply chain for 5G, because we realised the issues with China. The report said clearly that this was an international effort and the UK could not have an answer on its own. What is the UK's co-ordination with other countries to try to deliver certainty in the supply chain? While it will not mean that we will have immediate power cuts if we do not, frankly, we cannot deliver net zero if we do not deal with this matter, so I would have thought it was core to the achievement of your objectives.

Greg Hands MP: I think I had better get either me or the Minister, Lee Rowley, to write to the Committee on international co-operation on critical minerals. I am 100% sure that it is taking place, but I could not tell you exactly in what forum and in what ways. If I might, Chair, I will write to the Committee—or, more likely, I will get the Minister, Lee Rowley, to do so.

The Chair: That would be appreciated, thank you.

Q255 **Lord Griffiths of Fforestfach:** I will ask a question in relation to energy supply and diplomacy. The EU has established the purchase platform for gas and hydrogen while Belgium, Denmark, Germany and the Netherlands have established a declaration for a green power plant for Europe in the North Sea. How do you think that will affect prices and supply for us?

Greg Hands MP: I do not know what the impact will be on prices and supply for us, but we talk closely with our European partners. As I mentioned—or, more accurately, as Lord Bridges mentioned—I am here in Berlin with the G7 Energy Ministers and I will be engaging bilaterally, particularly with my German opposite numbers, over the coming days.

We work very closely in energy diplomacy—I am glad you used that term because it is one of my favourite terms—because energy diplomacy at the moment is important. I speak extensively with Liz Truss and James Cleverly, the Europe Minister, on this issue. I was in Poland not so long ago talking to the Polish Ministers both for oil and gas and for renewables.

We have engaged recently with countries as diverse as Bulgaria and Serbia, making sure that our diplomatic network is engaging all the time and that the UK helps out where we can. We may not be in a position to deliver primary energy to a lot of the countries that are most important to us on the diplomatic front line in the Russian war with Ukraine, but we are able to deliver in areas of specialisation. For example, we have provided more than 500 generators to Ukraine since the start of the conflict.

We are also able to help to deliver longer-term solutions. For example, I work quite closely on Rolls-Royce small modular reactors. Obviously, those are not going to be a solution that will be provided in the next few years, but in the longer term they will help countries to get off Russian gas. We have to be able to be in the market for providing solutions for our friends and allies, as well as working diplomatically to make sure that other sources of energy can come into those crucial central and eastern European countries in particular—we are really talking about former Iron Curtain countries and Germany—so that they can become more energy independent. That is a key aspect of our diplomacy and our diplomatic efforts in central and eastern Europe.

On the specifics on North Sea co-operation, that is something the UK watches very closely but it is too early to say what impact, if any, that might have on UK prices and supply. We have good interconnectors. A new interconnector with Germany, the NeuConnect, will open soon, and we have just opened the longest subsea cable in the world, with an electricity interconnector between the UK and Norway.

These are important parts of our potential diversification of sources of energy supply, as well as the ability to export renewable energy—for example, at times when it is very windy in the UK and less windy on the continent. Those are good practical examples of co-operation and our ability to co-operate going forward. I am looking forward to having a lot of those discussions at the G7 in the next couple of days.

Lord Griffiths of Fforestfach: Despite Brexit, we are actually being very positive in establishing relations with continental European countries.

Greg Hands MP: Absolutely. I have always had positive relations with continental Europe; my wife is German, so I cannot do anything but have a positive relationship with continental Europe. That is strongly in our interest. We have very aligned interests on energy, on security and on our positions on the appalling Russian invasion of Ukraine. We have a lot of common interests in all these spaces and obviously, we work together closely with Ireland as well—

The Chair: Sorry to jump in, but I want to come back to Lord Griffiths' first question. How much does it bother you that, as far as I understand it, we are not going to be part of the EU energy purchase platform, given the intention of that platform to mobilise "the collective political and market weight of the EU"? How much does it bother you that we are not there with them?

Greg Hands MP: If I may, I am not sure that you are right on that. The Commission has made it clear that the partnership should also benefit EU partners in its close neighbourhood, potentially including the UK, so I am not sure you are right to say that the Commission has excluded the UK.

We will act in our national interest, but working with our friends and partners. I would say that that particular Commission proposal is not yet fully crystallised, to see what it might mean for us. So it is too early to say that we are not in it—I had rather had the opposite impression—or to say what it will practically bring or mean.

Q256 **Viscount Chandos:** The Climate Change Committee has estimated that investment in energy has to increase to £50 billion a year by 2030 to meet the net-zero targets. To put that into context, it is against a current level of about £5 billion, maybe rising over the next years to £10 billion. What can the Government do to help meet that target?

Greg Hands MP: I slightly dispute the figure of £5 billion that you have given. We are talking about private sector investment so we do not necessarily keep an official figure, but the most recent estimate I have seen from Bloomberg is that the £22 billion of new investment was committed to the UK in 2021 across low-carbon sectors, so I have a different figure from you.

However, your question remains valid: how are we going to get there? You are right that the Climate Change Committee has estimated that we will need in the region of £50 billion a year, but I think we are on a good track. We continue to attract a lot of investment through, for example, our contracts for difference option, where the UK really is a world leader. We supported about 16 gigawatts of new low-carbon electricity through our CfDs, and they remain a really strong place for domestic and foreign capital to invest. We also have the British Business Bank and the UK Infrastructure Bank, placed to crowd in public finance. The UK Infrastructure Bank has about £12 billion of equity and debt capital and is able to deploy around £10 billion of government guarantees. So there is a lot of ability. UK Export Finance is also playing an increasing role here.

So we have the ability to bring in more private sector finance, which, let us face it, will be key. There is no way the Government alone, or the taxpayer, will be the main source of finance for this. We provide support through CfDs and elsewhere, but we must bring in private sector finance, which, fortunately, is strong and robust at the moment. We need to get to a better point in 2030 but we are on the right path towards getting there and we have set out the right means to achieve it.

Viscount Chandos: The political editor of ITV has written in the last hour: "I've spoken to investors and owners of wind and nuclear, and they are incredulous—gobsmacked—that the Treasury is looking at a windfall tax on their current ... profits, given the PM's desire to bring in tens of billions of pounds of incremental investment in renewables and green energy ... One investor said 'the Treasury is making it up as it goes along. To call it chaotic is to be generous'". Investors might say that—as Mandy Rice-Davies might have said—but does it give you concern none the less that the current uncertainty is not helping that investment target to be reached?

Greg Hands MP: We have talked already about how taxation matters are matters for the Treasury. I see strong and robust investment coming into the sector. That is why we are able to make the accelerations that we will be making. The offshore wind acceleration taskforce, co-chaired by me and Tim Pick, is a good example of that. Some of the moves that we were making in the Nuclear Energy (Financing) Act, passed in both our Houses late in the last Session—putting in place the RAB model to attract more private sector finance, and moving away from state-owned operators and developers for our finance and into more private sector finance, whether it be UK pension funds, institutional investors in friendly countries such as Australia, Canada the US and so on—are the right moves in the right direction. We need to scale that up and we have the ability to do so. I do not think there is a lack of investor confidence in UK renewables or UK nuclear at the moment.

Viscount Chandos: We have heard from witnesses phrases such as, "There is no shortage of capital. The money and the appetite are there", but it is clear that the appetite is for relatively low-risk assets, maybe for long duration. To what extent do you think the appetite is there without government support for private projects, whether through increased CfDs, direct subsidies or whatever?

Greg Hands MP: I am not sure whether I fully understand the question. We are sufficiently confident of investor confidence in the renewables sector to move our CfD options from being essentially biannual to being annual. That will be a key change—probably the most important change that has been announced this year in the renewables sector. We will move to annual CfD options and being able to attract even more investment, based on the strong investor demand that we see at the moment. That will make a big difference to the rollout of our renewables.

Q257 **The Chair:** I would like to ask about the co-ordination across government, not just with the Treasury but with the Bank of England. The Bank is clearly playing an increasing role in financial regulation and disclosure in this whole area. Obviously it is independent, but what is the linkage and the relationship in terms of making sure that policies are aligned between your officials and Bank of England officials, and what is the process by which that happens?

Greg Hands MP: I might have to write to you on the link between BEIS and the Bank of England. I imagine that most of those conversations are conducted via the Treasury but I shall get back to you with more detail.

Q258 **Lord Fox:** Minister, you said in your answer to the last question that in no way will the taxpayer be the main source of finance, but in the next breath you mentioned RAB, where it is not the taxpayer but the energy user—who is often a taxpayer but not always—who is being asked to remove the risk for long-term finance from quite risky projects. Do you agree that it seems rather unfair that people should have to pay so far in advance for energy that may or may not arrive on time? Do you also agree that this is also a very regressive tax because the poorest people spend a higher proportion of their income on electricity than the most wealthy? How is this position justified overall?

Greg Hands MP: The answer to that lies in the overall impact that the RAB model will have on the financing of a nuclear power station. In our view, it is the case that the current financing models—let us park for a moment who pays for it—make the financing of a nuclear power station more expensive than it needs to be. The RAB model is designed to make cheaper the delivery of a nuclear power station because you get in more investors who are willing to invest. At the moment, as I am sure you know, for investors to come into a project for, let us say, a 10-year construction phase, they are not getting anything paid back until the nuclear power plant starts to generate—

Lord Fox: We understand the RAB model, but it is not free. This lack of or reduction of risk comes at a cost to every electricity purchaser across the country. Do you accept that?

Greg Hands MP: I accept that the overall cost will be cheaper to deliver the nuclear power plant.

Lord Fox: If you live long enough to get to the point where that power plant is completed.

Greg Hands MP: Okay, but you cannot say I am not having a long-term view—

Lord Fox: I did not say you were not.

Greg Hands MP: Okay, well, sometimes I get accused of not taking a long-term view. Here I am doing so, and I am saying that the overall cost of a nuclear power plant with the RAB model will be significantly cheaper to deliver than using a CfD or entirely public financing model. That is where I think the interest of the consumer is best served. It is not strictly speaking the taxpayer as such; it is the consumer, as you rightly point out, which is crucially different. We think that the impact on consumers' bills will not be huge compared to the savings overall by delivering this financing model, and we think it is overall in the consumers' best interests.

Lord Fox: Briefly, can you explain why the Government are aiming for

twice as much nuclear capacity as was recommended by the Climate Change Committee?

Greg Hands MP: It is my job to provide a resilient, robust and secure energy system. I have to make the right decisions overall. Bearing in mind what I said earlier about needing a degree of flexibility, we are projecting forward 28 years to 2050. We have said that it is a reasonable aim to provide 25% of our electricity mix by 2050 through nuclear. I think that is a reasonable aim. That allows us to have the ability to generate a lot of electricity, about 24 gigawatts, without relying on the wind or the sun. I think that is a reasonable projection as to where we might be, and indeed should be, by the year 2050.

Lord Fox: Is it a reasonable project that we can bring on one nuclear power station a year?

Greg Hands MP: One reactor a year.

Lord Fox: Yes.

Greg Hands MP: We will make the final investment decision between now and 2030. We have said in the British energy security strategy that we will have a final investment decision—

Lord Fox: We know you have put it in the strategy, but on what basis do you believe it is deliverable? We have never come close to anything like that, ever.

Greg Hands MP: Do not forget, this is just making the decisions. As I am sure you know, it is not delivering that reactor this decade but being able to commit to that reactor for each year for this decade. I think that is ambitious but reasonable. Frankly, it is where we would need to be to deliver 25% of our electricity mix through nuclear by 2050.

Lord Fox: So each time a new reactor is added, the bill to each consumer across the country is increased.

Greg Hands MP: That would depend. We do not have to use the RAB model on each of these—and, let us be frank, it is unlikely that all eight of those reactors are going to be gigawatt-style reactors in the same mould as Hinkley Point C. They will be small modular reactors. One of the ways in which we are approaching nuclear is to keep our options open. I have a £120 million future nuclear enabling fund, which is there to do precisely that—to keep options open for our future nuclear mix. So it would not be accurate to say that all eight of those reactors will be the same reactor.

Q259 **Baroness Kramer:** I want to follow up on this RAB issue, because I am extremely troubled by it as well. I mean, risk does not simply disappear—it is simply transferred from the developers to the financial community, which has essentially refused to take it, to the individual consumer. So Mrs Brown with her prepayment meter takes a share of the risk away from the developers. I am trying to understand just how much that will

cost Mrs Brown each year. Are we talking a minimum of £100 a year on her bill? Potentially, if there are cost overruns, it could run to over £300 on her bill, as we look at the overall target of nuclear. When will she see lower electricity costs, within her lifetime? It is supposed not only to compensate her for her £100 but, presumably, give her a proper return for the risk she has taken. I cannot see that she will ever get it.

Greg Hands MP: I will answer that question in two or three ways. We think that the RAB model will make the overall cost of delivering that nuclear power plant cheaper. That is the first thing to say. As for the impact on the bill, I think it would be considerably less than the one you described as £100 per annum. We published in the impact assessment for what is now the Nuclear Energy (Financing) Act what the likely impact would be.

Baroness Kramer: You estimated £8 a month, did you not, for a typical user?

Greg Hands MP: I am happy to get back to the committee—I do not have the impact assessment in front of me—and give you the figure as stated in the impact assessment. On your overall question, we have to face up to the fact that new nuclear, particular gigawatt-style power plants, is expensive. These things cost a lot to build but, once they deliver, they deliver low-cost, zero-carbon electricity, which is what they have been doing in this country for the last 60 years or more. In the UK, we were the very first country in the world to have a civil nuclear power plant. We have a fantastic civil nuclear industry.

Baroness Kramer: Sorry, could I just ask you about the RAB? I cannot see why you could not use a taxation model to deal with this, because in that case it could be progressive—whereas the model that you have described is very powerfully regressive.

Greg Hands MP: We think that, overall, it will make the cost to the country significantly less to use the RAB model. We have just had the passage of the Bill through Parliament. I appreciate that the Lib Dems were against it, which I think was unhelpful, but the Labour Party and the Conservatives supported it, because we see it as being the right way in which to deliver cost-effective nuclear power for the future.

The Chair: On a quick point of clarification, just to be clear, the energy security strategy, which I have in front of me, says, “our track record” is “to deliver the equivalent of 1 reactor a year, rather than 1 a decade”. What does that word “deliver” mean? Is it just to make the decision or does it mean at some future point to be delivering—that is, finishing, the project, if you see what I mean?

Greg Hands MP: The idea is to make a decision on eight further reactors before the end of this decade.

Q260 **Viscount Chandos:** I would like to ask you about onshore wind, which did not get a starring role in the strategy. You mentioned earlier that you see a positive development in moving the CfD auctions from semi-annual

to annual.

Greg Hands MP: It is biannual to annual—from every two years to every one year.

Viscount Chandos: Okay, sorry. Is this benign neglect? The cap on CfDs is about half the amount of wind energy that currently has planning permission. So it feels like the Government want to de-emphasise the form of renewable energy that could make the greatest difference in the short to medium term.

Greg Hands MP: I do not agree with that. We have fantastic onshore wind assets in this country; we have more onshore than offshore wind. We have Europe's largest installed offshore wind capacity at around 11.4 gigawatts and around 14 gigawatts of installed onshore wind. Certainly there has not been any de-emphasis on, or neglect of, onshore wind. What we have said is that we want more onshore wind in England where there is local community support for it. That is why we will consult later this year on creating local partnerships to see how, for local communities that want onshore wind, that can be facilitated for them with compensatory measures, if you like, and incentives for that community. That is what we will consult on later this year.

Q261 **Lord Livingston of Parkhead:** Long-duration storage is one of the biggest gaps in what should be an intermittent system, at least in part. It is also the most difficult to create an economic model for, because of the nature of its use. I have a couple of questions. First, Aurora Energy estimates that we need by 2035 24 gigawatts of long-duration energy storage. First, do you agree with that? Secondly, given the difficulty of the economic model for it, what is the department doing to try to encourage long-duration storage? Do you have in mind a particular economic model to support it?

Greg Hands MP: We are not prescriptive about an economic model at the moment. On whether I agree with Aurora Energy, I would have to look more specifically at its research. But you are right—we did say in the *British Energy Security Strategy* that we would support the deployment of sufficient long-duration electricity storage to balance the overall system by developing appropriate policy to de-risk investment. It is about making sure that we have a more robust approach to long-duration storage; that is exactly what is laid out in the strategy. We had a call for evidence last year, which was held before I joined the department, and we are due to publish it this summer, in the coming weeks. Overall, I will wait to see our response to that call for evidence.

On where I would see storage overall, we are looking at the ability to convert renewable energy into hydrogen—maybe you are coming on to that later in your inquiry, so I do not want to pre-empt that. The ability for hydrogen to be an element of our ability to store renewable energy will be a very important part of our energy mix going forward. As for pumped hydro and other things, we are looking at other projects. The UK

has some ability in this space, and there are definitely quite a few possibilities in the area of storage.

Lord Livingston of Parkhead: They all have the same economic issue. You may say that you have no view, but do you have any view at all about what economic model would support long-duration storage of differing types?

Greg Hands MP: I will see what kind of response we make to the call for evidence rather than pre-empting that response today. I will comment as soon as we have looked at publishing our response to that call for evidence.

Q262 **Lord Rooker:** Briefly, given the target of 10 gigawatts supplied by hydrogen by 2030, why are the Government waiting until 2025 before setting out the business model? Could you explain what actions will be taken before 2025 to prepare the ground for future hydrogen development? I am wrapping all this up together because of your time constraints. What action are you taking to reduce the cost of the electrolysis facilities, which I understand could be a sticking point in exploiting green hydrogen?

Greg Hands MP: Those are all very good questions. First, hydrogen is relatively nascent. Last week, I was at the global Green Hydrogen Summit, which sought to set standards for what is meant by "green" or "clean" hydrogen. In some areas, this is still about developing high-level policy.

However, the UK is one of the very first countries to lay out a hydrogen strategy, which we published last August. We have been very ambitious in hydrogen: we have doubled the ambition on hydrogen from 5 gigawatts to 10 gigawatts by 2030, the majority of which would come from green hydrogen, or electrolytic hydrogen, which you have referred to. So we are ambitious but not yet in a position to be too prescriptive on it.

On where we go from here, we have said that the forthcoming energy security Bill will contain the hydrogen investment plan, and the hydrogen business model will come after that, so we are moving forward in that space, but I am going to wait for the publication of the Bill, which should be in the coming weeks, to lay out exactly how that would work.

To answer your question, we are getting on with it and driving things forward on hydrogen. The UK can be a real leader in this space. Just recently I went to open a new facility just south of Glasgow by the Whitelee wind farm, which is Europe's second largest onshore wind farm, to go back to the earlier point from Lord Livingston. We have invested, I think, £9.4 million in a new facility to convert onshore wind power into hydrogen. That is the sort of thing where the UK Government are putting their money where their mouth is in making sure that we drive hydrogen forward. We have funds available for hydrogen to be able to move it

forward. We are moving in the right direction. Keep an eye out for the energy security Bill to be published imminently.

Q263 Lord King of Lothbury: In the context of renewables, one of the issues raised with us by many witnesses was the question of planning restrictions, the *bête noire* of many issues. Could you say something about whether you feel that at present planning restrictions are roughly in the right place? What changes would you like to see?

Could you tell something about two specific areas, one that you yourself mentioned, which is providing incentives to local residents to give them some reason to support local energy infrastructure investment? Secondly, in the context of nuclear, is there a case for trying to fast-track planning permission where nuclear plants, perhaps even small ones, are going to be built on the site of former nuclear power plants?

Greg Hands MP: An excellent set of questions. On planning generally, we are currently strengthening the renewable national policy statements to reflect the importance of both energy security and net zero. The idea is to make environmental considerations on a more strategic level, which means increasing the weight of considerations such as climate change and less on a site-by-site basis, so taking a more strategic approach in those national policy statements, which is going through a process at the moment.

We are also reviewing the way in which the habitats regulation assessments are carried out for all projects making applications from late 2023 in order to maintain valued protection for wildlife while simplifying that process. We are also looking at making sure that the industry makes a contribution here, with a wind environmental improvement package and an industry-funded marine recovery fund. These are all ways in which we are trying to speed things up and increase the strategic overview into our planning considerations given the overwhelming need to fight climate change, keep global warming below 1.5 degrees and so on.

On your question on local, we are open to this. I mentioned the local partnerships consultation on onshore wind going forward to see what kind of incentives there can be for local communities to take onshore wind. We will watch the consultation closely.

On the question of fast-tracking nuclear sites, the inference of your question seems to be that new nuclear power is particularly popular in areas that currently have a nuclear power station or have a nuclear tradition. That is extremely evident from the visits that I have made to Hinckley, Wylfa in Anglesey, Hartlepool and around Sellafield/Windscale in Cumbria: there is really strong local community support based on that tradition, which in some cases goes back 70 years or more. The same is true where a nuclear power plant either has recently closed—in the case of Wylfa, I think that was in 2018—or is scheduled to close in the course of this decade.

On your question of whether there can be something specifically on planning that would allow planning to go through faster in an area where they were previously nuclear power plants, that is something that I can look at to see whether it is necessary or possible, but my feeling is that planning is not the particularly the delay on those. The delay on nuclear has always been much more to do with financing. I am very happy and open-minded about seeing whether there is something we can do with the planning system to help drive those new nuclear plants forward, but essentially I think it is more a developer financing issue.

I hope that answers all three parts of the question.

The Chair: I am very conscious that you only have a couple of minutes. Mr Kaul, we have three further questions that are really for Ofgem. Minister, we would be delighted if you wanted to stay for those questions but I do not know how your diary is.

Greg Hands MP: Actually I have to make a speech in about 10 minutes, I think. I could cut it fine but I had probably better not.

The Chair: Then I have one quick final question for you.

Greg Hands MP: Fire away.

Q264 **The Chair:** Given everything that we have discussed and where we are now, when you look at the last five to 10 years of policy-making by the British Government regarding energy, do you think we have been focusing too much on the drive for renewables and not enough on making sure that energy is reliable and affordable?

Greg Hands MP: No, because essentially it will ultimately be the same answer. More renewables is cheaper, more reliable, more cost-effective, better for the climate and more secure. Essentially it means having more home-grown energy where you are not dependent on foreign players, volatile fossil fuels and big foreign state-owned nuclear developers. All these things mean that we have done the right thing by increasing the amount of power that comes from renewable sources from 7% in 2010 to, I think, 43% today.

That is absolutely the right decision to have made over the last decade. If I might add, other countries are looking at the UK and saying that our contracts for difference scheme is a model to copy. In general, those decisions to move into renewables have been right.

You asked me when I think the wrong decisions were made. A lot of wrong decisions were made in the previous decade. Tony Blair's decision, which was in his manifesto in 1997, that there was no economic case for new nuclear power stations in this country set back our nuclear industry by a decade or more. Over the last decade, more renewables and getting the ship back on track on nuclear have been the right decisions made by this Government to go for an energy transition, when it comes to oil and gas, not a closing down. All those decisions are the right ones for the UK energy mix. We are not immune to rises in prices, but our energy supply

is in a good, secure state today, in large part due to the decisions made over the last 12 years.

The Chair: Thank you, Minister. We are conscious that you have to go to speak. We are really grateful to you for joining us from Berlin. Thank you very much.

Greg Hands MP: My pleasure. Thank you

Q265 **Lord Layard:** I will ask about the grid, which we have not discussed much. How much investment will be needed in the electricity grid up to 2050? What percentage of the total investment in the transition will actually be in the grid? Perhaps you could say a bit about the internal grid—bringing stuff from the north of Scotland down here and that sort of thing—and something about the international aspects and the interconnectors. For example, I do not know whether we expect to import more from the sunny south. Could you tell us a bit about this in a descriptive way, but also tell us whether you think you will get the amount that you think is needed, when you have that? If not, what further support is needed to get us there?

Akshay Kaul: That is a good question that is vital in the transition to net zero, because the grid tends to be overlooked and taken for granted as a piece of vital infrastructure. It will come into increasing focus as we get into the next decade or so.

On your first question, I do not have a specific number for the overall quantum of investment needed in the grid until 2050 because a lot of that picture is developing as we speak. I do know that it will be a big step up from the annual rate of investment that we have seen over the last decade going into the next decade. We are predicting a rough doubling of the rate of investment in grid infrastructure. The course of its evolution from there onwards depends largely on the shape of the generation system and the location of the major centres of demand that we try to connect to the grid. It might end up being a very expensive grid infrastructure if we do not have a good demand response in terms of location decisions and we do not address the problem of congestion in different parts of the network from a generation perspective. If we do address that problem, the investment requirements could go down quite significantly after 2050.

On the second part of your question—what we are doing to try to get the investment—Britain is relatively fortunate in having a reliable, tried and tested regulatory regime for grid infrastructure. Once you know what has to be built, the network regulation price control regime is very successful at attracting the necessary investment at relatively low cost of capital.

The first thing we are doing is moving away from the old system where we used to wait until the generation was ready and then the grid would catch up with the generation, which is what is happening right now. That is why we are seeing constrained costs going up and long delays for people to connect to the grid. We are moving away from that system to

one based on a strategic long-term plan for grid infrastructure that is anticipating the requirements for 2030 and then out to 2050.

That means that, as we go through the decade, alongside a big step up in the investment, the timing of that investment is crucial. We should be getting much better synchronisation of grid transmission and grid infrastructure investment with the generation alongside it. Once we have that plan, which the system operator is developing for the first publication in June, we will then put in place the necessary regulatory approvals through the price controls to fund those projects as a programme out to 2030. We will be working with government and the industry to try to get them delivered as soon as possible.

Lord Layard: Can you say a bit more about interconnectors and the international aspect of it?

Akshay Kaul: Of course. You asked about interconnectors. The Government published in the energy White Paper a target of 18 gigawatts out to 2030 for interconnection. That was largely driven by the prediction that electricity demand will increase overall as the economy transfers from fossil fuels to electricity in many cases, and secondly because, as the Minister said, we are keen to diversify, as a matter of policy, the various energy sources coming into the UK.

At the moment we have about 10 gigawatts of interconnection, which is a big step up from the 4 gigawatts we historically had until about 2013. We introduced a new regulatory regime called the cap and floor investment model. That has successfully increased the rate of interconnector investment out to 10 gigawatts. We are just about to open a third window of interconnection later this year that will seek to hit that 18 gigawatt targets that the Government have set for the system.

The main change that will happen in the interconnector space is that the business models for interconnection used largely to be driven by the price differences between the connecting countries. If, for instance, prices in France were very low and prices in Britain were very high, it would make sense to put an interconnector between them and the interconnector would earn its revenues from arbitraging the price difference. We are increasingly seeing a degree of convergence as more economies across Europe and the UK converge in terms of decarbonised electricity grids, so more of the value of these interconnectors will come from the flexibility they bring to act as a source or a sink when you have a surplus or deficit of energy, as the Minister said, and to act as a way of diversifying the risk of supply away from purely domestic sources or overreliance on a particular fuel, so that you can diversify away from just offshore wind to German solar, French nuclear, Norwegian hydro and so on.

Q266 **Lord King of Lothbury:** I know that you did not want to put a number on how much investment will be needed in the grid, but could you say a little more, continuing on from Lord Layard's question, about whether the focus of investment should be more on the interconnectors, north versus south, or improving the supply network? I live in rural Kent and we have

lots of electricity shortages. The answer given by the National Grid is that we live at the end of the line. What exactly is it that has to be invested in that is so crucial to expanding the capacity of the system?

Akshay Kaul: The biggest thing is what the engineers call the boundary capability to transfer bulk power across regions. That will largely be from north to south, because a lot of the renewable power is up in Scotland but a lot of the demand for that power is in England. That is what drives the need for a lot of grid infrastructure. That is also why I referred to pricing reform being as vital as putting the hardware in the ground. If there is no demand response and we keep transferring power over such long distances it will lead to a build-up of a lot of infrastructure, but transferring power over long distances also incurs a pot of losses that have to be compensated, which increases costs overall for consumers. If we can get the price signals reform so that there is better co-ordination between centres of demand and the location of generation, then I am hopeful that we will be able to minimise the need for how much grid infrastructure needs to be built. The main thing is the bulk transfer capability across the region.

There is a second issue with the offshore sector. As you know, the Minister was talking about quintupling the target for offshore wind, particularly across the North Sea. Our focus is on moving away from the existing set-up, where each wind farm essentially builds its own transmission linked to the mainland grid; that was OK in a world where you had small amounts of offshore wind, but it is not a sensible way of organising a grid system when you are going to have 40 or 50 gigawatts in the waters. So we are trying to change the radial network that is in the sea at the moment to become more like the onshore meshed-grid network. The emphasis there is therefore on building more co-ordinated common assets that developers can share so that we start to get a more cost-effective grid structure out in the sea.

Lord King of Lothbury: How does the co-ordination come about?

Akshay Kaul: The first part of it is specifying what needs to be built. At the moment the developers just build their own links. We are taking the first step this summer with the publication of the holistic network design, as it is called, by the system operator, which is going to specify a co-ordinated design, both offshore as well as onshore, to meet the 2030 target. We will be asking the developers to collaborate with one another to build out the common infrastructure. Longer-term, we should start to see more and more of this co-ordination becoming intrinsic to the way in which the grid is planned and regulated. At the moment it is the exception, but I think it is going to become more and more the rule offshore.

Q267 **Lord Skidelsky:** How much change, if change at all, do you see needed in the energy market—short term, medium term and long term—to accommodate the transition to a more renewable economy? Is the energy market properly set up, in your view?

Akshay Kaul: That is a foundational question. In some ways I wish that the Minister were still here because a lot of your question touches on matters of energy policy. The short answer is no, I do not think the energy market is set up for the full renewable transition. It was not designed to be set up for a system that has 60% or 70% intermittent renewable generation. All the rules of the market were written for fairly reliable baseload fossil-fuel generators that are largely pretty close to their centres of demand. That is the world from which the existing market for energy emerged, and it still carries all the hallmarks of that old system.

The first thing we have to do is work out how to write the rules for the future in such a way that we can address this, balancing the problem of intermittency. More and more of our power is being generated from sources of energy that do not produce power all the time and are not easily dispatchable. Whenever the sun is not shining or the wind is not blowing, we need ways of balancing that power somewhere else. That to me is the foundational problem that we have to solve, and we have to write the rules of the system that will get us the most efficient and lowest-cost solution to that problem, whether that is hydrogen, battery storage or more interconnectors.

The second type of problem is something that I alluded to: the demand response. Again, the rules of the market were written for a world in which energy was largely passively transported through a centralised system of generation down the wires to relatively passive, relatively non-vocal demand. We are moving into a world where demand, by which I mean households and businesses that use energy, can make quite a big contribution to minimising the system costs across the board by deciding when and where they use the energy and the grid. For that, we are going to need to look at the rules and particularly the pricing of energy across the system so that we can get a much more intelligent demand-side response to this problem.

Lord Skidelsky: Yes, when the word "market" is mentioned, an economist immediately thinks of market imperfection, which is often to do with not enough competition. Do you think the market for energy is sufficiently competitive? There is of course not only competition but co-ordination and regulation. How do these things gel to create, say, an optimal pricing system for the various sectors?

Akshay Kaul: That is an excellent question. The market is strange at the moment because there is a combination of a strong amount of government intervention, directing investment through the CfD auctions that the Minister was talking about; a strong degree of regulated direction in the networks, which is what Ofgem as a regulator does; and then, at least so far, a fairly liberalised competitive retail market where consumers were being encouraged to make choices and switch around and so on, which is a model that I think has to be looked at again.

To take those three parts of the market, first, the generation market is not competitive in the conventional economic sense in that it is not a free

market, but it is competitive in the sense that the Government, through the capacity auctions and the CfD auctions, set the quantities but then they get the markets competitively to set the price, so it has that competitive dynamic in it.

Secondly, the networks by and large are not competitive. They are regulated monopolies, most of the time because they are natural monopolies so it would be inefficient to introduce competition, but at the margins we are doing our level best so that we can have physically separable network infrastructure to compete it out. We will be asking, for instance, once we have powers in the forthcoming energy Bill, for the system operator to exercise those powers to compete out more of the grid infrastructure to get a better deal for consumers than just giving it to the incumbent monopolies. As you rightly point out, there has to be a balance between a lot of competition and tendering out of that sort and the need to co-ordinate grid infrastructure so that it works properly as a system.

Lastly, the most difficult of all is the retail market, where we have had a lot of competition but it has not been particularly high-quality and it has led to a series of problems that are very evident in the market at the moment. We as a regulator have to think quite carefully about what the stance should be regarding competition and liberalisation in the market in future. We see a strong case for retaining a competitive market in retail so that, particularly in tariffs, your suppliers compete to offer you inventive and innovative tariffs that can help you to save money by putting technology in your home and helping you to use the energy system much more intelligently, but at the same time we have to balance that with having a degree of resilience in the suppliers so that they are resilient to shocks. That means more prudential regulation of that market, which of course will mean some degree of restraint in terms of entry. In other words, a different balance has to be struck between competition and resilience in the retail market.

Lord Skidelsky: There is a lot more that I could ask, but I will leave it.

Lord Rooker: You have described a change in the market. Obviously we are going to be more reliant on renewables than we were on baseload. Are the changes for the UK reflected in the EU's integrated market? In other words, will they be subject to the same pressures and changes that we will have here? If so, how will that affect the price difference? I presume that we are outside the EU integrated electricity market now, in the same way that I suppose Switzerland is. Will the EU make the same changes that we are going to make in the market because of renewables? Will that leave things as they are—that is, neutral between us and them as at present—or will there be an advantage one way or the other in future?

Akshay Kaul: Again, that is a good question but quite a difficult one to answer because it depends on the evolution of European energy policy. So far, at least, there has been a degree of convergence in the thinking on both sides. The markets were moving in favour of a big commitment

to decarbonisation and to using competition, and a pro-market regulatory stance in terms of making that transition happen.

I see no reason why that will not continue. For me, the biggest factor in the way that we look at trade across the interconnectors with European countries and our other partners is the mutual benefit that comes from diversifying the sources of energy across the patch. Just as Norway gets benefit from being able to export its hydropower when domestic demand is not there, we should get similar opportunities from British offshore wind. I am sure that Germany and France will look for similar benefits in their fleets of generation.

On the contrary side, when these markets are in deficit, having a greater amount of interconnection helps increase the resilience of the system. Over time, that should mean you start to see a convergence in pricing, at least over the long term, across these various countries. What would stop that is if there was a pause in interconnection. If the markets become islanded again, greater price differences will emerge over time.

Q268 Lord Griffiths of Fforestfach: Mr Kaul, I will ask you about the future systems operator. In this committee, we have an excellent secretariat, which provided excellent notes about this and discussions between BEIS and Ofgem. As I read it, what really hit me was that this operation has an extraordinarily broad remit. It is the whole system; it is about co-ordination; it is integrating gas and electricity; it is onshore and offshore; it is looking ahead at hydrogen and carbon capture and storage; it is responsible for day-to-day operations and long-term planning, developing the network and local provision and pricing.

First, what kind of institution will we create to manage this? Secondly—as I read on and on, I came to this—on the issue of its political, technical and professional leadership, the Industry and Regulators Committee, which reported on this, almost to my horror, frankly, suggested that the answer was a Cabinet committee chaired by the Prime Minister. I spent some time in No. 10 dealing with committees such as this. They are terribly difficult to manage because every Minister on the committee is interested in their own department. As I read on, there was a comment from someone in the private sector—the head of energy and natural resources at KPMG—who said, “I do worry about the bandwidth in government and the ability to follow through and implement the great strategy and ambitions being set out”. I hand over my concerns; what are your answers to these two questions?

Akshay Kaul: Is your concern about the capacity of this new entity to carry out the functions being asked of it?

Lord Griffiths of Fforestfach: Actually, that gentleman went on to say that he is really looking for a national energy agency—he thinks of it as the Bank of England for energy. That may not be the most appropriate reference to make at present, but I am not sure I understand how such an organisation with both day-to-day operations and such longer operations will effectively operate as a unit.

Akshay Kaul: I suppose the place to begin is that this future system operator is evolving out of the existing system operator that has been working within the National Grid Group for quite a long time now as a distinctly separate group of people with their own governance. They are experts in system operation. They have been running the electricity system for a while, they run the control centre and they are responsible for balancing minute by minute the demand and supply of electricity across the country—what I call the core systems operation roles.

They will carry on doing that, running that control room and playing that crucial balancing role for the system. The big change in their remit, as they become the future system operator, is that we also want them to become a kind of system architect—to plan for the development of the energy system in gas as well as electricity and identify the major strategic investments that need to be made across the piece. This was the main reason why we had to make them independent of the National Grid Group; there would be an impossible conflict of interest if they stayed within a network company that essentially had a very big interest in a particular type of investment programme.

That is the big change in their remit. I am glad to say that they have taken it up very enthusiastically. Fintan Slye, the director in charge of the system operator—if you have not already, I am sure you will speak to him at some point—is building up the capacity and capability of his team to play that system architect role and at the same time expanding beyond the core electricity expertise they have always had to incorporate expertise in gas system planning.

They will need an enabling policy and regulatory environment from government and the regulator—which we are in regular dialogue with government to provide them with—particularly through the development of the strategy and policy statement for the sector, in which the Government lay out their policy priorities, and through the regulator setting out what outcomes it is important for the system architect to achieve.

All that means, in answer to the second part of your question, that the emergence of this new entity should increase policymakers' bandwidth to make better policy. Suddenly we have a real ally and a system architect which can help translate high-level policy into actual infrastructure on the ground in a way we never used to have.

Q269 **Lord Griffiths of Fforestfach:** If there were one recommendation that you wanted us to make in order to make this an effective operating institution, both in day-to-day operations and architecturally, what would it be?

Akshay Kaul: To go back to your Bank of England allusion, it is really important for this entity to be guided by government policy but be operationally independent in the way it runs itself, so that it can give genuinely expert independent advice to the Government and Ofgem as a

regulator. If there is one thing I would stress in its development, that would be it.

The Chair: On implementation, Lord Griffiths mentioned day-to-day operations. How much of a role will this new body have in implementation, as opposed to what it does at the moment?

Akshay Kaul: If you mean system operations and the day-to-day running of the control room, balancing the energy flows across the system, that role will stay pretty much as it is at the moment. It will become harder as we go through the decade because the challenge of balancing the system is growing as it becomes a more complicated system to balance. However, the core of that role will stay essentially the same. Is that what you meant by implementation?

The Chair: Yes, I am interested in the implementation of overall policy. I think Lord Griffiths was referring to the suggestion that we need a conductor for the whole orchestra of energy. That may solve one problem while creating another—an overmighty organisation that tries to do everything. I am trying to understand where the balance lies here between operational implementation and setting strategy.

Akshay Kaul: It would be a mistake to put policy-making functions into this entity. That would put it in a very difficult position indeed. Where we are talking about policy targets, the great example of that is taking the 2030 target or the 2050 net-zero target and asking this entity to advise on what strategic upgrades would be needed to the grid infrastructure to hit them. It could carry out that function efficiently, technocratically, independently and very effectively. However, in trying to make political or policy trade-offs between various objectives, such as increasing stress on competition versus making the system more resilient, those sorts of decisions should probably continue to remain with Ministers or, for regulatory policy matters, with the regulator.

Lord Griffiths of Fforestfach: I have one final question. As, for example, more renewables come online and hydrogen finds a role and so on, this organisation could quite easily absorb that in terms of day-to-day operations. However, on direction, as the Chair mentioned, politicians would have to give some instructions in the way the Chancellor gives the Bank of England instructions at present—such as on the objective for inflation being 2%. You can see some sort of division of labour between the politicians and the technocrats.

Akshay Kaul: Yes, and that is the sense in which your Bank of England reference was a good one: a clear policy framework being communicated on what needs to be achieved on outcomes across the energy system, and then the technocrats in this new entity working out what hardware and software changes to the system are needed to achieve that set of outcomes. I completely agree.

The Chair: We are two minutes over time. Thank you very much, Mr Kaul, for answering all our questions and sitting so patiently while we

were directing so many questions at the Minister. We are very grateful for you sparing the time and for your participation.