HOUSE OF LORDS

Industry and Regulators Committee

Corrected oral evidence: Ofgem and net zero

Tuesday 26 October 2021

10.30 am

Watch the meeting

Members present: Lord Hollick (The Chair); Lord Allen of Kensington; Lord Blackwell; Baroness Bowles of Berkhamsted; Lord Burns; Lord Curry of Kirkharle; Lord Eatwell; Lord Grade of Yarmouth; Baroness Noakes; Lord Reay; Lord Sharkey.

Evidence Session No. 10 Heard in Public Questions 108 - 113

Witnesses

I: Chris O'Shea, CEO, Centrica; Paul Spence, Director of Strategy and Corporate Affairs, EDF Energy.

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Examination of witnesses

Chris O'Shea and Paul Spence.

Q108 **The Chair:** Good morning and welcome to the 14th meeting of the Industry and Regulators Committee's inquiry into Ofgem and the journey to net zero. It is a great pleasure to welcome Chris O'Shea, CEO of Centrica, and Paul Spence, who heads up strategy and public affairs at EDF.

We have had a fair amount of things to get through over the past week—300, 400, 500 pages from the Government—but has it clarified where we are going, and the pace at which we are going? We have taken quite a lot of evidence from people who have been concerned that there is a lack of clarity in the Government's plans, and that the Government need to be far more specific if they are to be implemented effectively.

A second point is that there needs to be some clarity around the financial incentives that will be available to companies such as yours as well as to the consumer to do their bit in this process.

I would be grateful if I can start with you, Chris, and your views on what has been said so far, in particular what was published last week, and we will then come to the question of financial incentives.

Chris O'Shea: First, it is really good to be here. It is a very important topic, which is why I wanted to give evidence in person.

What we saw last week is what I would class as a good start. Laying out the plan to net zero and talking about decarbonising heat in buildings, incentivising heat pumps—these are all good starts. Undoubtedly, it could go further, but we have to start somewhere.

On the overall policy framework, we have had the 10-point plan, the energy White Paper, the retail market strategy, the hydrogen strategy, then decarbonisation and the net zero strategy, which I think provides a good policy framework. At some point we will want to bring all these together and, hopefully, we will gain momentum as we move towards net zero, and at that point we will probably go further. I would say that at the moment this is a good start, but there is clearly more to do, and I think the Government would agree with that as well.

Paul Spence: I agree with Chris. The UK has made very good progress on decarbonising the power sector. The track record is very strong, but I think it is worth recognising that we are probably about a quarter of the way to where we need to get to if we are going to decarbonise the power sector and use more electricity in more of our economy.

Having the strategy last week was very helpful, but there are still detailed questions around, for example, what is going to happen with the nuclear component of the mix and the regulated asset base, about which we hope we are going to hear more. There are still a lot of other details, as Chris said, that we need to have in place if the investment is going to flow at the scale that is needed.

I know that in one of the committee's previous hearings you heard from Chris Stark about the fact that the country is investing at about £10 billion a year. That needs to get up towards £50 billion a year. That scale of acceleration needs very clear signals for industry if we are going to move ahead at the pace that we need to and grow the supply chain that we need to.

The Chair: EDF has an important part to play in nuclear. What further information do you need; what incentives do you need to start considerably to up your investment? At the moment, it is Hinkley C, but you have others planned. What do you need to know? What clarity and what financial help and assistance are you looking for before you can embark on that journey?

Paul Spence: As you say, we are very pleased to be working on the projects that we are working on. I should note that that includes investment in renewable projects at scale—offshore wind, onshore wind, solar. We have about 1 gigawatt of those technologies at the moment and a pipeline of about five times that that we would like to bring forward.

We would like to see the contract for difference mechanisms in terms of the repeatability of the auctions, and clarity about how much and how quickly that is going to come through. I think that there is still some work to do on that piece.

As I said, we hope we shall see the Government's view on how much nuclear they would like to see and the mechanism that is going to be used to support the financing of that nuclear project. There has been talk and the Government have been very clear about their ambition to take an investment decision within this Parliament on another project. We have the project at Sizewell, which is well set to be that project if the Government want to go ahead.

As you say, the question then is about how that is going to be financed. The regulated asset structure has been talked about as a mechanism to do that. We think that is uniquely possible for a project such as Sizewell, as a copy of Hinkley. Some of the risks have been taken on the project at Hinkley, and therefore we can go ahead with the next project confident that we know what the design is, confident that there is a team of people who can then take the lessons that they have learned in Somerset and apply those in Suffolk.

We need the detail of that mechanism, and we need that pretty quickly, so as to be able to do the industrial piece of taking the team from the project in Somerset and having it work on the next project. Over the next 18 months, we need to be in a position to take an investment decision on the project. That requires legislation on how it is going to be financed so that we can then go out and talk to potential investors and attract them to invest in the project as well.

Lord Eatwell: I want to ask about the relationship between incentives

and the investment decision. If you are trying to incentivise a corner shop, you have a pretty good idea if you change the local business rate, or whatever, what the shop is going to do. Here, we are talking not about business as usual but about transformational change, and it is not clear to me how one can define an incentive very clearly related to transformational change—how you can fix a number, so to speak, or a process. Will you talk a little more about the incentives structure that you feel would work in this transformational environment?

Paul Spence: Will you clarify the question a little more? Is that specifically on the next nuclear station, or are you talking more broadly?

Lord Eatwell: I am talking more broadly, but let us take the example of a nuclear station so that you can focus on it and make that concrete.

Paul Spence: We have a very clear contract with the Government to deliver the Hinkley project in Somerset, and as investors and as developers we will be paid when the station is completed and when it starts producing the low-carbon electricity that the country needs. All the incentives there are lined up for us to manage the costs carefully, to do the work safely and as efficiently and quickly as possible, and to deliver the power.

In return, we are taking a big risk on the cost of the construction and our ability to do that delivery through some very difficult times; it is a substantial element of the load on EDF's balance sheet as a result. It is a £22 billion project, two-thirds of which sits on EDF's balance sheet. For the next project, we cannot add another burden of that scale on to the company's balance sheet because the company cannot afford that.

The first thing is that we need a structure that will allow the risks to be treated differently so that the project can be delivered. We also need a structure that, perhaps viewed the other way around—from the point of view of consumers—does not involve paying companies such as ours to take risks that we are taking in this first project.

The regulated assets structure is a way of recognising some of the costs as the project goes along. We then have an incentive to keep delivering. We will sign a contract to deliver, and there will be an element of risk or incentive associated with successfully managing the project, but because it will be done through a regulated structure, which has worked very well for the build-out and operation of our grid system and projects such as Thames Tideway, we will be rewarded as we go along for the progress that we make. We will have an agreement with the Government on the risks that they will take and the risks that we will take, and we will be able to go out and talk to private capital—pension funds and their like—about their ability to fund some of that investment, and to receive a return as that investment is made, rather than waiting until the end of the construction phase.

The Chair: Chris, what incentives and financial arrangements is Centrica looking for before you can really ramp up your investment?

Chris O'Shea: First, it is important to have an incentives structure that recognises what we are trying to achieve. At Centrica, we are not looking for any incentives, but we could take, for example, an asset that we have been talking to the Government about converting back into a storage asset—the Rough field in the North Sea, which was a gas storage asset until 2017. We are now producing that because between 2015 and 2017 we realised that substantial investment would be required in that asset to maintain it as a storage asset, and the returns that we could see did not justify that investment.

We have been talking to the Government about how we ensure, as we move towards a hydrogen economy, that we have the right supply chain.

There are different models that you could apply. Hydrogen is a new technology in terms of production in the UK. We had it in the 1970s, but the way we are looking to produce it now is new. Therefore, it is unclear what the market is going to look like.

We said to the Government that they could have, as Paul mentioned, a regulatory asset-based model, which gives a small return, because it takes some of the risks away, and therefore the return for the company is not huge. That can work. You can have a CFD model such as we had for wind power, which has been successful. You can have a cap and floor model.

What is important is that any incentive should be designed to deliver the outcome that we are looking for, but it should also ensure that if the risk is reduced for companies such as Centrica, the return is also reduced.

In the large-scale industrialisation, there are some established models that we could use. Centrica is the UK's largest installer of heating systems. The incentive that we announced last week for heat pumps was positive because the solution to the heating issue and the decarbonisation of heat in buildings is a mix of technologies—heat pumps and hydrogen boilers.

It is more difficult when you look at incentives for consumers because what you rely on is consumer adoption—on 28 million homes in the UK making a decision. If we can get your incentives right on an industrial scale, as we did with wind, we can move far quicker towards decarbonisation in the UK. It is very important that we understand what we are trying to achieve before we discuss what incentives are required.

The Chair: Can we infer from your answers that with a possible lower risk profile for the next generation of nuclear, the strike price will be less than £92.50?

Paul Spence: Absolutely. I think that £92.50 was taken in the context of EDF and its partner taking the risk on the construction phase of the project for the first-in-a-generation new nuclear project. At the time that decision was taken, I think that the average cost for offshore wind projects was £115 for about the same scale of electricity contribution.

The cost of delivering offshore wind has come down fantastically, with repeat projects and with lower perceived risks. That would happen for nuclear as well.

The Chair: That is good news for consumers in 10 years' time.

Paul Spence: Exactly.

Q109 **Lord Blackwell:** I would like to talk a little about the governance structure to achieve all this. You have both said that it is essential to have a clear framework to enable investment to get to net zero, yet there are clearly lots of unanswered questions: the speed of transition from gas, the investment in uncertain new technologies—you mentioned hydrogen and heat pumps—development of the networks, the need for storage, security and the overriding question of who pays for this as between investors, government and consumers. Is there an appropriate structure at the moment between government, legislation and regulators to put that all in a framework? If not, what do you think might be required to enable us to move forward?

Chris O'Shea: There are a number of questions in there. As we move forward, we have Ofgem, whose primary purpose is to look after current and future consumers. We see in the current retail market that there is an awful lot to do.

Ofgem has an obligation to be mindful of net zero, but there is a question about whether the responsibility for driving net zero should be within Ofgem or somewhere else. I have learned through my career that the more you can focus, the better the results. I think that if we really want to deliver this at pace, we have to think about how we co-ordinate the efforts for net zero. I am not convinced at the moment that simply adding that on to Ofgem's current responsibilities is necessarily the right thing.

On how we prioritise this, we have to be mindful of a few things. It is interesting that the UK is now going to adopt heat pumps, but heat pumps are not a new technology. Heat pumps have been around for 30, 40 or 50 years. In some countries, they are used for air conditioning. In France, they install 400,000 to 500,000 heat pumps a year. Heat pumps have to be part of the solution in the UK.

In about 5 million homes in the UK the only real solution to decarbonising them is heat pumps. There are about 6 million homes for which heat pumps are not an option because they need to be well insulated and they need a water tank. A lot of homes do not have a water tank and do not have space for a water tank. There are another 17 million homes where it could be either heat pumps or it could be something different.

Some 85% of the UK's homes are connected to the gas grid. Our gas grid was a hydrogen grid: town gas was 55% hydrogen.

None of these is really new, but we are changing from an economy dependent on natural gas and other types of carbon-emitting technologies to adopting existing low-carbon technology.

I go back to the point about what we want to achieve and how best to achieve it. Having a co-ordinated, overarching plan with a regulator or something else focused purely on that can only be helpful to pull together the many different interested parties.

Lord Blackwell: Some people have suggested some kind of energy transformation commission or regulator that would sit above Ofgem and some of the other regulators and provide that overall co-ordination plan. Is that the kind of thing that you imagine?

Chris O'Shea: There are many different models that could work. We have to understand what we want each of the bodies to do. I would not necessarily say that something has to sit above Ofgem. Today, Ofgem has a responsibility to focus on the consumer, but what we are seeing with the current retail issues is that at a lot of our energy suppliers—certainly at Centrica and EDF and other companies—a lot of what we do is akin to financial services. We need financial services-type regulation as well as the consumer regulation.

At the moment, Ofgem has two quite different remits, and to add something else may well be a step too far. I would see it as sitting alongside Ofgem rather than necessarily above. Whether that is a regulator or a commission, I am not familiar enough with the workings of government to say, but having something that focuses on this is incredibly important and will help us to achieve better results.

Lord Blackwell: That is an interesting parallel with financial services, where you have both the PRA and the FCA. Paul, do you have a view?

Paul Spence: I would add a few thoughts on what Chris has said.

As you said, Lord Blackwell, the net-zero transition touches all parts of society and all parts of government as a result of that, whether it is LUHC and housing standards, whether it is Defra and the role of the environment, whether it is BEIS and the role of energy. The Government have a role as policy setter across all the different dimensions, and a role as a buyer of energy and a deployer of some of the solutions to reduce carbon emissions in the country.

There is a first bit that says that government in its role has a big part to play and Ofgem will sit within that as a piece in the jigsaw. It is not for me to work out the perfect design of that jigsaw, but what I do know is that it works best when the pieces fit together and thought has been given to how those pieces fit together, and, as Chris says, there is clarity over what the objectives are.

At the moment, that could be done better. We could be clearer about the different roles and objectives and how the pieces can work together. If we have that, it will help to increase the pace of the transition that we

need to go through and deliver some of the acceleration that I talked about earlier.

Lord Blackwell: Would you favour keeping Ofgem relatively focused on consumer and economic regulation, or would you add net zero to its objectives?

Paul Spence: Having a net-zero objective could be helpful for some of Ofgem's prioritisation. I would advocate for Ofgem that it has an enormous amount on its plate, and it needs guidance from government on how to prioritise. It would be good if a net-zero duty could be used to help with some of that prioritisation.

Lord Blackwell: As Lord Hollick said, we have had several hundred pages of government policy announcements in the last week. In your dealings with government, do you think there is now a level of co-ordination at the interdepartmental level to give you that framework, or do we still have a distance to go?

Paul Spence: I would say that we saw a big step forward last week, but it is only a step forward or a good start, as Chris said, and there is more to do to get that co-ordination and collaboration working as well as I think it needs to through the next decade. It is the decade to deliver a lot of what will set the path for decarbonising. We need to deliver some very big projects. We need to set the path for the mixed system that Chris talked about as regards the future heating system. We need to scale up the infrastructure to support transport and electric vehicles. All that needs to happen at pace over the next decade if we are going to be successful in meeting the objective of getting to net zero. That is, shall we say, an even bigger-scale challenge than I think the Government have laid out so far in the strategies.

Lord Blackwell: Would you agree with that, Chris?

Chris O'Shea: I would, and I would make the point that the level of engagement, in particular from BEIS at ministerial level, is as much as we could ask for. It is very engaged and very open, and it listens up to the Secretary of State level. There is lots of feedback. I see that coming from Downing Street as well.

There are always things that we wish could be done better or quicker. There is also the question about how you pay for it. This is not being worked up in a vacuum by the Government and then presented. The consultation is actually very encouraging. There is always more that we could do, but so far, so good.

Q110 **Baroness Noakes:** I would like to focus on the costs, which you mentioned a few seconds ago. You have both welcomed the various announcements that were made last week, but what those announcements, if you put them all together, did not really address is the issue of how much it is going to cost, and who is going to pay for it, although there were statements made that there were not going to be

any taxes or borrowing to deal with it, which implies that it will all end up being met by consumers one way or another. I would be interested in your views on how you see the balance of who should pay for the transition to net zero. What is the role of your companies in helping consumers to bear those costs, because, as we know, pricing can be very regressive, and there are big questions about the ability of large segments of your customers to bear further energy costs?

Chris O'Shea: Whether it is the consumer or taxpayer, ultimately, they are the same people, and there is a question from a policy point of view about how we want to fund this. At the moment, 15% to 20% of the average energy bill in the UK is policy costs, which is highly regressive. We believe that these costs should be met from general taxation and that it should be progressive.

If you permit me to digress slightly—I am sure that we will come to the current retail market—the current retail market failures will put £100 on the bill of every single home in the UK. Whether it is a house in Belgravia or a studio flat in a deprived area of Glasgow, it will be the same amount. That is the same way the policy costs go at the moment.

My personal view and our view at Centrica is that if we put these costs on bills at a flat rate, that will not achieve what we want to achieve. That will not achieve a just transition and will result in people being left behind. I do not think that we can afford to do that.

That is not to say that it is easy simply to decide to fund some of these things from general taxation. The Treasury has to balance the books. We have to have that difficult conversation. I do not think that we should put this, and I do not think we can put this, on bills because it hits the poorest in society hardest. That concerns me greatly. We have 1.2 million customers on pre-pay meters because they will not pass the credit check. We have 4 million customers on our priority services register whom we class as vulnerable customers. We see the impact of this every day on people's ability to pay.

The cost of net zero is not small. Once we ascertain exactly how much that is going to cost, we have to meet that between general taxation and from companies. To put that on to consumers will simply exacerbate what appears to be at the moment a potential cost of living crisis, and I worry about that greatly.

Baroness Noakes: You say you have good conversations with BEIS. Do you cover these points in your conversations?

Chris O'Shea: Yes.

Baroness Noakes: Do you have similar conversations with the Treasury?

Chris O'Shea: Fewer conversations. I would say that our interaction with the Treasury is less frequent than with BEIS. I suppose that the Treasury

has far more things to look at. We have had some conversations, but far more conversations with BEIS.

Paul Spence: I have some points to add to what Chris has said. As we have thought about the transition, it is clear that a big national investment is needed in new infrastructure. It might be worth thinking about distinguishing between the cost of the investment and the operating costs of the new system. I am thinking about who bears and how they bear those a bit differently between the two classes.

In general, we have three principles that we have argued for and will continue to argue for. First, we would like to see something aimed at achieving the lowest cost for the future system. The second is that we would like arrangements that reward the right behaviour, so they reward consumers of all types, whether industrial or domestic, for making the right choices about energy efficiency and about the sort of energy they are using, et cetera. We would like to ensure that the arrangements are fair and protect the vulnerable. As you say, that is a growing group.

What is the role of companies? Our job is to deliver, to innovate and to be efficient. We need to ensure that we are doing what the Government and our customers want, and that we are doing it as effectively as we possibly can. We are absolutely convinced that part of that is about developing a system in future that involves the right mix of technologies—the right mix of wind, solar and nuclear. Our modelling and the Government's modelling say that that is part of what helps create the lowest-cost system.

Then, there is the right behaviour. One big thought within that is the choice of electricity rather than fossil fuels for transport, and for some heating choices where that is possible. We need arrangements that ensure that the signals are right for that as well.

Where that balance sits as regards how much will be the taxpayer and how much will be the bill payer, the answer will be different in different places, for different solutions, but it will be a mix of both. I absolutely agree with Chris. I would emphasise the taxpayer for more of the costs to ensure that they are not regressive and that they are not hitting the vulnerable as hard as possible.

Baroness Noakes: Most of the costs will be incurred by the private sector companies building infrastructure and building the new sources of energy. Are you expecting subsidies to go to companies to build their infrastructure?

Paul Spence: Whether it is subsidies to build infrastructure or it is incentives, we think much more about whether there is a visible return that we can make from investing in that infrastructure. If we can be confident that that return is at a sustainable, fair level, we will invest, and we will be able to persuade others to invest with us in those projects, whether that is installing heat pumps or building nuclear power stations

or wind farms. It is about ensuring that we have arrangements that are robust and fair.

Chris O'Shea: From Centrica's point of view, we look for and expect no subsidies whatsoever. I go back to saying that any incentive scheme has to be designed to drive the behaviour of the community, whether it is the adoption of heat pumps by consumers or the investment in new infrastructure, but no subsidies should be required.

Baroness Noakes: How do you get the taxpayer to bear a part of the costs, in that case?

Chris O'Shea: If you look, for example, at the announcement last week on heat pumps, some people will argue that it has to be 100% heat pumps. My argument is that it has to be a mix of heat pumps and hydrogen. If it is 100% heat pumps we will need a new electricity grid, which will cost a lot of money. We have an existing gas grid. We need at least 5 million heat pumps. Today, they cost four times as much as a boiler and they cost more to operate. Again, some people will say the way to equalise that cost is to take policy costs off the electricity bill and put them on the gas bill. The reality is that 75% of the policy costs today relate specifically to electricity, so to move them to the gas bill would be merely to distort that.

If we want material adoption of heat pumps, how do we persuade consumers if they are four times as expensive as the next best option? The way the Government have decided to do that is to subsidise that for around 90,000 heat pumps. Some people will argue that they will get the costs down because it is new technology, but, as I said, this is not new technology; it is existing technology, and I am not sure why an additional 500,000 heat pumps in the UK will drive the price down—and that is what France is doing already today.

If we want consumers to adopt that, it needs to be incentivised, and perhaps even subsidised, but as a company we do not need subsidy. We do not seek subsidy. We have to be realistic: it is probably not reasonable to expect individuals to bear that cost. Some who can afford to will, but there are many who cannot afford to, and the question is, how do we equalise that for those consumers?

Lord Grade of Yarmouth: Just a quick point of clarification, at the risk of displaying my ignorance. You talk about 15% to 20% of the costs of consumer bills being policy costs. Will you explain what that means?

Chris O'Shea: The average bill in 2020 was about £1,000 for a dual-fuel gas and electricity household. Of that, £176 was government policy costs, so specific costs added on to the bill. Some £71 is for renewable obligations, where there are certificates required to show that you have a renewable green energy supply. There are feed-in tariffs for solar of £16. The contracts for difference that we spoke about, which facilitated wind power, account for £28. The capacity market, which is to ensure that we

have enough capacity, is £14. Those are all linked to electricity, so 75% of that is electricity.

There is then another £47, which is really to do with energy efficiency. We have what is called the energy company obligation. This year, Centrica, our British Gas subsidiary, is required to invest £200 million to insulate homes. That is part of being an energy supplier and has to be paid for, and amounts to £22. A warm home discount helps vulnerable customers. That is £12 on every bill. There is the cost of smart metering, which is required if we want to get electricity to bill ultimately in half-hourly increments, and that is £13. That comes to £176.

That is on your bill, on my bill, on the bill of the studio flat or one-bedroom flat in the poorest area. It has been a question for a long time: should that be on a bill or should that be in general taxation? I think that it is relatively unusual that you find things such as this in bills to drive specific policy objectives. There is a very strong argument that that should be in general taxation. I understand that it is not easy to raise general taxation and it is also not popular, but it would be more progressive and less regressive.

Q111 **Lord Eatwell:** I was intrigued by your comparison with financial regulation, and I would like to talk about the systemic risks both within the energy supply industry at the moment and in the transition to net zero.

At the moment, we see two significant systemic risks: market disruption, as we have seen in the gas market recently, so perhaps there is a risk in the structure of that market; and interconnector risk—at least, folks living in Jersey think there is, in the sense that there was a threat to turn off their electricity.

Then we have this transition risk, the movement towards net zero, and whether there will be satisfactory security of supply with renewables, and what the role of natural gas and nuclear might be in sustaining security of supply. Could you reflect on the systemic risk in the system as it is now and as it is likely to progress through the transition to net zero?

Chris O'Shea: The one thing that I would not be able to comment on is the risk to Jersey of the interconnector to France. When I talk about financial services such as regulation—the systemic risk—in the last six weeks 25% of energy retailers in the UK have gone out of business.

There are three things that happen when an energy supplier goes out of business. First, the customers are on a tariff where they have probably seen an increase in price because they were on a tariff that led to a company going out of business and being unsustainable. Some 2.5 million customers have been affected and their prices have gone up as they have transferred to a new supplier. We have taken some of these customers on in British Gas.

The second thing is the companies tend to have spent all the customer deposits. About £400 million has gone with the companies that have gone

out of business this year. These are not like banking deposits. If you pay by direct debit, you pay more in the summer than you use, and you pay less in the winter, so at the end of September there is a peak amount. That money has disappeared and has to be made good. That is socialised across every energy user on a flat basis.

The third thing is that at the moment, because the maximum price you can put these customers on is the price cap, the difference between a new customer coming in and the price cap in buying the gas and electricity in the market is between £700 and £1,000 for this winter alone, for a six-month period.

When you add these up, so far that is about £2.5 billion of socialised costs, in addition to the price increases. That will be reclaimed and go on every customer's bill over 2022 and 2023 at £100 per customer. It is not unreasonable to expect that to double in the next few weeks. Ofgem has been quite clear that it expects many more suppliers to go out of business.

There is a systemic risk as regards participation in the energy retail market, which is why I call for financial services-style regulation. When we make a commitment to a customer, we ensure that we can deliver that by having adequate capital and adequate risk management policies. We have a fit-and-proper-person test and we ring-fence customer deposits. We have the privilege at Centrica of having an insurance business, so we have these things anyway. Our in-home servicing business is an insurance business, and I had to pass a fit-and-proper-person test to be involved in the management of that. I have seen this working, and it can work in energy.

There is then a second question about security of supply. That is quite unrelated to the retail market issue. We live in a global gas market and we do not produce all our own gas. Increasingly, through liquefied natural gas the price is set across Asia and across the UK, and when you find more demand than you expected, you see the price going up. That is what has pulled the price up in the UK. That tends to pull power prices up as well.

You could mitigate that by having perhaps a more robust supply chain. Perhaps if we had had some more storage it would have helped, but I am not sure it would have made a massive difference to the current price issue.

As we go forward, the more that we are self-sufficient in energy, the more insulated we are from these price shocks. There is a role for natural gas in the future. I think that nuclear is an essential part of electricity generation. We need nuclear, we need wind, we need hydro and we also need gas-fired power generation, which comes on incredibly quickly and is very responsive. If the wind does not blow, you need batteries to back up what we call intermittency, and we need gas-fired power generation.

However, I do not think that it has to be natural gas. It can be zero-carbon hydrogen. We have to get going now to understand the mix that we want. Paul will know this better than me, but the lead time for sanctioning and building a nuclear power plant is a long time. It is the same for hydrogen production facilities. It is going to be the same for wind farms. We need to understand where we want to go to get there.

Lord Eatwell: Paul, do you want to comment both on the interconnector problem, which you may be more intimately involved with, and the issue of transition?

Paul Spence: To take head on that question of the power supplies to Jersey, to the UK and the interconnectors, I should say that EDF is very proud to be the low-carbon supplier to the UK, to Jersey and to France, and my hope and expectation is that we will carry on doing that. I cannot comment on some of the reports in the media, but our objective is to keep the power flowing.

I think that Chris said it very powerfully. Our customers and the countries that we operate in expect the lights to stay on and the gas to flow when they need it, and they expect us to ensure that that is in place. I agree with Chris that the best way to do that for the longer term is to ensure that we have the indigenous supply, the in-country supply that we need, and I absolutely agree that that needs to be the mix that Chris talks about.

Interconnection can play a role both for gas flow and to help us tune what we are doing in the UK with our electricity production. When we have too much production from our wind farms and from our solar farms, there is an opportunity to export, and when we do not have enough, there is an opportunity to import, but it relies on there being something at the other end of those interconnections that is able to work the other way round. We have to think very carefully about whether the weather in the UK is going to be that different from the weather in Scandinavia or in northern Europe at the time when we either have too much or too little.

Lord Eatwell: To be absolutely clear, both of you seem to be proposing a movement towards national self-sufficiency. Is that right?

Paul Spence: Towards more balance. I would argue the UK was self-sufficient. When I joined the electricity supply industry in the early 2000s, we had the North Sea producing a lot of our gas. We had a very strong and well-supplied electricity system here in the UK as well, with a lot of that capacity coming from existing nuclear stations and from coal and natural gas-fired stations. Many of those stations have either closed or are starting to prepare to close. We are going to see the closure of most of the nuclear stations over the course of the next decade, and in that world we need to get on and build what comes next.

The same is true with gas. We have built import capacity through the LNG terminals to replace some of what the North Sea gave us. We need

to think as a nation carefully about that, but we need to think about ensuring that, even in the extremes, there is sufficient.

Chris O'Shea: Rather than advocacy for self-sufficiency, net zero is a huge opportunity. The interconnectors for gas and electricity can flow both ways. If we get ahead of this, we could be exporting to Europe. I have spent a lot of my life in the oil and gas industry and travelled the world and you always meet Scots and Geordies. The reason is that we led the offshore oil and gas industry. We can lead the renewables industry. We can export through the interconnectors rather than import. Today, we import 10% to 12% of our electricity. If we get hydrogen right we could export hydrogen, but we have to get the policy framework right, and we have to understand what we want to do; and we have to move quickly.

Q112 **Lord Burns:** May I go back to some of the comments that you were making on the retail market and the suggestion that recent events are going to add £100 to bills? To what extent has the heavy promotion of competition and switching led to this situation? You have called for financial services-type regulation, but what are the lessons of this about the role of competition in the future of retail and energy regulation? Presumably, competition remains an important ambition. We had the drive to competition because of the feeling that there was quite a lot of monopoly power within the system, and you both may be seen as playing in that market. What is the balance here between competition? What has gone wrong with the kind of competition that has been introduced?

Chris O'Shea: I think that some of the competition that has come into our market has been excellent. It has made us better. It has brought innovation and it has been good for the customer. We have to ensure we do not lose that. However, we also have to recognise that it is very basic. We have allowed companies to come into this market with few or no checks. At one point you needed £400 and never to have been made bankrupt, and that was it.

Lord Burns: Sorry?

Chris O'Shea: You needed £400 for a supplier licence, and never to have been made bankrupt, and you did not have to provide any capital.

Some of the competition has been such that it has not been innovative; it has not made us better; it has simply given this cost that has to be picked up by the consumer. We have to ensure we do not have that. To me, that was an illusion of competition.

It is interesting that, in the UK energy retail market, one of Ofgem's key pushes has been the switching RIG, which effectively means that Ofgem's assessment of success in the market was customers being dissatisfied with their supplier, which I find a very strange concept, if your primary responsibility is to promote the customer. Even as recently as a couple of months ago we had a retail market strategy that called for more competition. I would be happy to have more competition, as long as every entrant could satisfy their commitment. That is why my call is for a

fit-and-proper-person test and capital adequacy. Ofgem or someone else should review risk management. The FCA comes in and reviews my risk management plan for my insurance business. It is a lot less risky than the energy business. There is no similar review by Ofgem of how we hedge.

We could return the customer deposits that we had at the end of September on 1 October. Every company has to be able to do that, because it is merely a pre-payment for the winter gas and electricity. This almost blind promotion of what we believed was competition without proper checks has largely caused this issue, because there was no satisfaction that these companies actually were managing themselves properly.

Paul Spence: I will not repeat Chris's points, but there is one extra thing that I would add to his list of requirements for the companies, which is that each of us operating in the market is expected to deliver a number of schemes that are part of our obligations as an industry: ensuring we have paid our share of the renewables obligation; ensuring that we have installed the number of smart meters that we are expected to install; ensuring that we have implemented the number of energy efficiency measures that we are expected to implement; supporting the warm home discount scheme for vulnerable customers. Those are things that some of the companies that have gone bust had not done; therefore, we are all expected to pick up the bill for what they have not done.

Another one on that list is that you have to keep up with your obligations if you are operating in this market. You cannot put it off for three years because that is the point at which it gets checked next time. There is something about ensuring that you are staying up to date.

In the past, the key metric of whether this is a good market was how much switching is happening. We saw the level of switching go up to nearly 25%. Given that there were some customers who did not change around all the time, that meant that some customers were pretty much not just once a year but serially switching within the year. That for me cannot be the definition of a good market through a period where one of the things that energy companies are going to be asked to do in future is to help their customers on their journey to net zero: perhaps changing out their heating system and making their homes smarter and more energy efficient; perhaps choosing the right vehicle for themselves and then the right tariff for that vehicle; perhaps putting some energy generation hardware kits in their houses—solar panels on the roof, batteries, et cetera. All those are things that suggest a longer-term relationship, and, in that world, it cannot be right to be pushing in the same way.

Lord Burns: May I take it a bit deeper? Where does the responsibility for this problem lie? Is it in the remit that Ofgem has been given? Is it in the ministerial guidance it has been given on how to engage, or has it simply not been carrying out the diligence and financial monitoring that you would have expected it to do? This problem has been emerging over

quite some time. These events have suddenly brought it into very sharp focus. What I am trying to get at is, what has been deficient in the way that this has been set up and managed?

Paul Spence: Perhaps as a starter on that, you are right: we and others in the industry have been warning for a good six or seven years about some of these issues and have been advocating some change. In defence of both the Government and the regulator, there have been quite a lot of other things going on over the same period. We have had a competition review. We have had Brexit.

Lord Burns: I should have added: is it the competition authorities that have contributed to this?

Paul Spence: There have been a lot of events that have taken some of the focus away.

I would say that the leadership of both BEIS and Ofgem know and agree what is required today, and some of the things that we have talked about are being consulted on and are going through the process at the moment, but perhaps not as quickly as I would like and as quickly as needs to happen. There is an element whereby collectively we need to prioritise and accelerate putting in place these different arrangements.

Chris O'Shea: I would add that what we see today was entirely foreseeable. Undoubtedly, there are lessons to be learned, and I am sure Ofgem would say the same.

I think that the fundamental question has to be: what are we trying to achieve? If you are worried about there not being enough competition and that coming through in pricing, with a price cap you can be comfortable that you have taken that issue away. With the price cap at its peak, there were 85 suppliers in the market, none of whom had a fit-and-proper-person test or a capital adequacy test, and you have to expect the fact that some of those people may have been acting malevolently, and some would just have been unlucky. This is a very risky market. When we enter into a contract to sell you gas or electricity, we ensure that we buy that in the market, or if we do not we ensure that we have enough money so that if the market spikes, as it has just now, we can meet that, because we make a commitment to customers.

I think that the very base question of the regulator should be to ensure that everybody who makes a commitment can fulfil that commitment. This was foreseeable. It goes back to the primary objective. Should it be switching? To have senior staff at the regulator actively come out and encourage customers to switch to a tariff that they know is below the cost of purchase is something we should question.

We should also look and say that our industry collectively, the retail energy industry, has lost money for the past five years. Last year, I think that British Gas was the only company that made money. We made £10 per customer. That is off a bill on average of £1,000 per customer, so in

£7 billion of revenue we made £10 per customer. There is a lot of activity that goes on in there and a lot of risk management.

I think that is where the focus should be, because we have to ensure that this never happens again. It is incredibly distressing for the customers of the companies that have failed and it will be distressing for the customers of other companies such as ours that have to pick up the costs.

Lord Burns: As regards the people who have been running the businesses that have gone bust, who have been spending customers' money ahead of time, is there something illegal about what they have been doing?

Chris O'Shea: As I say, I suspect that some have simply been unlucky. I have seen the press reports, as I am sure everyone else has, that there might have been some who were behaving malevolently. We have written to the Insolvency Service to suggest that it investigate all these things. Ultimately, I am a director of Centrica and if Centrica does something it should not do, I am accountable and should be held accountable. The directors of all these companies should be held accountable. Only with proper investigation will we determine whether they were unlucky or they were acting malevolently. I cannot comment on individual cases, but I know that Ofgem has also asked the Insolvency Service, and we at Centrica have written to the Insolvency Service to suggest that it investigate every failed company to determine what happened, so we can learn from it and ensure it never happens again.

Paul Spence: We have very much focused on the role of and the issues for the energy supply companies. I would also note that there have been others that have grown up around this industry. We have seen auto-switching services and price comparison websites and third-party intermediaries. I would not absolve those related and unregulated sectors from some of the responsibility for what we have seen over the past while.

As we are looking at what needs to be in place in future, it needs to look at those pieces of the jigsaw as well and be much more challenging. It is back to Chris's final point, which is that, when a promise is made to a customer, they should know what that promise is and that the company that has made it is able to deliver on it.

Q113 **Lord Sharkey:** Some witnesses, including Centrica, have called for a framework that enables innovative energy-as-a-service propositions that would lower up-front costs and respond to varying consumer needs. Citizens Advice research found that consumers have very limited awareness of emerging technologies and associated services or tariffs, and Ofgem itself has reported that few customers are comfortable with the idea of an external company controlling when their appliances might run.

In the light of this, what role should energy suppliers and Ofcom play in preparing and helping consumers through the transition? Are suppliers

themselves prepared for new energy-as-a-service models, and is Ofgem?

Chris O'Shea: We have called for this. I think that some things have to be in place first. We have to have full penetration of smart meters to have proper energy as a service. We also have to recognise that everything we do at Centrica is driven by ensuring that we give the customer what they want and at the cheapest possible price. With increased electrification, we need to make the grid smarter. If we do not, we will need a new grid, and that will cost a lot of money, and the consumer will pay for it.

Everything we do is driven by ensuring that we give the consumer the best possible price. We have had problems sometimes in getting consumers to take a smart meter. Those consumers who are reluctant to take a smart meter probably will not want a company, as you say, being involved in how their appliances are working.

Ultimately, our view at Centrica is that the home of the future will have one of three phases. You will have an electric vehicle, ideally, and you will either be buying electricity from the grid, or you will be discharging your battery and selling your electricity to the grid. Then, there is an active market in the business space, and we are an active player in this. You sell what is called demand-side response. You run a virtual power plant and say that at peak times, we will not draw from the grid; we will shut off from the grid and grid operators will pay for that. We do that for businesses just now.

For individual homes it does not make any difference. We have over 7 million customers in Centrica. If we can get this working properly with the right technology—we do not yet have all the right technology—we can enable a far smarter grid, and we can keep the costs low for consumers.

We have to interact with our consumers and talk to our customers and tell them what the benefits are. It should reduce their costs. If we can demonstrate that, hopefully, they will be receptive. There is a way to go, but that has to be the direction of travel. It is the best thing for customers because it keeps costs low.

Paul Spence: To follow Chris's theme, I completely agree with the point about the objective of a smarter system that allows customers to participate in different ways, and to take the option of energy or other heat-as-a-service or miles-as-a-service models, and all the other innovative models, but we do not know what customers want yet.

I have the good fortune to be part of a company that has about 2,000 people who work worldwide in research and development. We have a team here in the UK, and we are actively working on trials with groups of customers, looking at how these technologies interact and then helping to work out what propositions work better or less well for customers; what technology needs to be in place; are there groups of customers who just want simplicity; are there others who want to be actively involved in the management of the energy mix for their homes?

We are very actively preparing for all that at the moment because we know that, once we have the infrastructure in place, we will see some entrants try to compete in those new markets. We are determined to be ready and to do as Chris says, which is help some of our customers to be the ones who can benefit from those new opportunities.

Exactly what it will look like, I do not know yet, but what I do know is that in the same way that the regulator needs to be on top of the market as it is operating today, we will need to ensure that there are consumer protections, and a proper understanding of the implications of some of these future models as well, with the right protections in place for that.

Lord Sharkey: What role is Ofgem playing?

Paul Spence: It has a process called the sandbox that allows us to try out new models and to agree them with smaller groups of customers. That works, but I would say it probably needs to work faster. We have one project in Brixton in a community block of flats with some solar panels on the roof and batteries installed. Different residents of the flats are allowed to point their energy at their consumption or give it or sell it to their neighbours in the block of flats. I think it took us nearly two years to agree the regulatory set-up for that project before we were then able to go and out and talk to real customers and start to deploy those technologies. We need to get faster at that process of operating the sandbox and trying things for real with real people.

Lord Sharkey: May I ask very briefly whether there is a consensus about why the uptake of smart meters has been unsatisfactory?

Paul Spence: Is there a consensus? I think the industry has some views about whether the programme of explaining the benefits to customers was done right. There is probably also some debate about whether the rollout was done right. I would say that it is relatively clear now that we know that smart meters are a fundamental basis for the future energy system and for the net-zero system that we want. We are all working very hard to persuade customers of that, but it gets into a similar debate to the debate you have about vaccinations. People are not always keen to hear from companies such as us about why it might be good for them and good for the wider system.

Chris O'Shea: With hindsight, leaving it to individual energy suppliers was probably a mistake, rather than having it provided by the network companies. However, what we can do now is learn and either mandate it by law—I do not think that there is any appetite for that—or we can take a lesson from the switchover from analogue to digital TV, which is a real information campaign with a deadline and letting people know. It is not too late for us to do that, but if we have to ask the same customers, "Do you want a smart meter?" and they say, "I told you last year the answer was no", you end up upsetting and annoying your customers, and we do not like to do that, so I think we need to look at it differently.

Lord Sharkey: You also have to explain as clearly as you possibly can

what the consumer benefit is. In my own experience of looking at the advertisements, it is sometimes very difficult to detect the consumer benefit.

Lord Grade of Yarmouth: I think that the sector and the Government have the most enormous job to get over the fact that net zero equals higher bills for consumers. You will get huge consumer resistance, which will slow the impetus of take-up and stop the thing moving organically at the speed it needs to in order to hit the target date. Do you agree with that? Whose responsibility can it be really to start trying to persuade consumers, which will take some years, that this is a long-term advantage and not just a short-term cost?

Paul Spence: I think that you have heard evidence from a number of people who have talked about the potential cost of the net-zero programme. The Committee on Climate Change talked about the 1% net figure. It is clear that a lot of investment is needed in the infrastructure, in our homes, in replacing our vehicles, in replacing our boilers. A lot of investment is needed, and we need to make that case for customers.

Lord Grade of Yarmouth: It is a hearts and minds job.

Paul Spence: It has to be an emotional campaign as well as a rational campaign. It is all well and good my saying that I know that in the longer term, the system will be less costly and that this is a good choice. I have to persuade each consumer that it is in their interests to take the steps they need to take at the moment. I would like that to be a combined effort with the Government, with our regulator, and for the industry as well, and for each company to make that case. We all need to make that case, and we need to make it quickly.

Chris O'Shea: We can draw comparisons between the smart meter issue and wind power. The smart meter requires us to talk to every customer and persuade them that smart meters are a good idea. With wind power, effectively, we industrialised an issue, and it is now no longer an issue.

I mentioned earlier that we need 5 million heat pumps in homes. That is the only option to decarbonise these homes, but there are 23 million boilers in the UK. A boiler lasts for eight to 12 years. Although we operate as British Gas, we sell a lot of electricity, so we have no real vested interest in this. If we can get the calls right on hydrogen for heating in homes, by the time there is enough hydrogen in the system—today we install hydrogen-ready boilers, but they cannot take 100% hydrogen—you can start to blend hydrogen into the existing infrastructure. If you incentivise the production of hydrogen at scale, it is like the wind farm adoption: you industrialise the issue and the consumer does not see any issues. You take the methane boiler off the wall and you put the hydrogen boiler on the wall. It is a normal evolution. You would be replacing your boiler anyway. You try to redirect investment in fossil fuels into investment in clean hydrogen: initially, blue hydrogen, which requires methane, and, ultimately, green hydrogen, which you use with water and wind power.

If you do that, the costs stay low, the consumer disruption stays low and the impact will be bigger and quicker. We need to be wary if somebody says it is all about heat pumps. You have to persuade 28 million people to take a heat pump and the reality is that it is not suitable for at least 6 million. We have to have a multitude of technologies. If you industrialise the issue and incentivise it properly, it is easier, and we saw that with wind versus smart meters.

Lord Blackwell: I want to go back briefly to the discussion you had on the policy framework and specifically the scenario you just talked about concerning the role of hydrogen. As you point out, you have a network that has carried hydrogen and can carry hydrogen. Without understanding all the economics, one dream scenario is using off-peak renewable electricity from wind farms to create green hydrogen that you can then pipe down to consumers. Is there a form of policy framework? Is there some place where the economics and incentives required to get the electricity generators and the transmission networks that you as a gas supplier need can make that happen?

Chris O'Shea: There is engagement. There is the Hydrogen Task Force. The issue at the moment is that green hydrogen, using renewable electricity and water, is prohibitively expensive. Last week the Government jointly with the Gates Foundation announced investment, and one thing that they are investing in is to try to bring down the cost of green hydrogen production. You can have blue hydrogen in the interim, whereby you take methane and strip out the carbon.

Norway and the UK are the only two countries that I know of that are long, thin countries surrounded by depleted oil and gas reservoirs, which can store hydrogen. We have a competitive advantage in this space. We can go after blue hydrogen and then come to green hydrogen when the cost comes down. Ultimately, that has to be in the interests of consumers because it uses the UK's existing infrastructure. If we get it right, we will reverse the flow on the interconnector and we will sell hydrogen to Europe because, other than Norway, nobody else has the geographic geological advantage that we have in the UK.

The Chair: I have a yes or no question. When Rough was closed, were there any voices saying that we need to replace this to retain our resilience?

Chris O'Shea: Yes.

The Chair: Why were they ignored?

Chris O'Shea: I think at the time it was easy to say that. There was a lot of gas coming into the UK and we did not have this price spike. It was a reasonable position to say, "We don't need that". My view is—and I have spent time outside the energy industry—whatever industry you are in, you want a robust supply chain. You want resilience in your supply chain. Rough would give you resilience, but it was not unreasonable to say at that point, "We've got gas coming from Norway. We've got good

domestic UK continental shelf gas. We've got LNG. It will all be fine". I would argue still for the resilience. I do not think, however, that if Rough had been opened we would have a price—the price is north of £2 today—under £2. You may not have seen these inter-day spikes but, ultimately, we must have this resilience. We must have more resilience in the supply chain.

The Chair: Paul, yes or no?

Paul Spence: Chris has said it all. I do not think I have anything to add.

The Chair: Gentlemen, thank you very much. Thank you for your time and for your very informative, interesting and detailed answers to the questions. Thank you for joining us.