



# Industry and Regulators Committee

## Corrected oral evidence: Ofgem and net zero

Tuesday 9 November 2021

11:40 am

Watch the meeting

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

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Questions 154 - 166

### Witnesses

I: David Gray, Vice Chair, the Regulatory Policy Institute; Laura Sandys, Non-Executive Director, Energy Systems Catapult.

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## Examination of witnesses

David Gray and Laura Sandys.

Q154 **The Chair:** I welcome you both to this session: Laura Sandys, former MP, appearing in a personal capacity although you have many links to the energy sector and we are looking forward to hearing from you; and David Gray, of the Regulatory Policy Institute and a recent chair of Ofgem. We are looking forward very much to your thoughts on this.

One of the striking points that has come out from several witnesses is that achieving net zero will require a move away from a centralised system to a more distributed system, to a system where customers, instead of being passive, play a much more active role. They are smart users of energy, we hope, and they are going to be selling energy backwards and forwards. They are going to have a far more complicated relationship with their supplier. That offers some companies an opportunity to create new business models. The concern is that the increase in the number of retailers recently has led to considerable pain in the market against the background of the surge in the price of gas and many people have reservations about a lot of new companies coming into the market and how they will be regulated. They may have a much deeper financial relationship with the consumers.

Laura, how do you see that market developing, how would you like it to develop and how do you think it can best offer a good service to the consumer? Can the consumer be properly protected when it gets into not just an energy supply relationship but a financial relationship?

**Laura Sandys:** Today we have to recognise that nobody likes to buy a kilowatt-hour anyway so there is no satisfaction in the market as it looks today. To be frank, what you are doing is choosing between different-coloured logos, because the business models are vanilla; they are the same and in many ways they are shaped around a licence condition. There is some flexibility in it but not much and everything is based on quantity not quality. You can make money only by the amount of commodity that you push through rather than the quality of outcome that you create for your consumer.

Look at other markets—for example, the mobile market, which delivers you a fab phone and you get your minutes embedded in it. We have to look at a very much more diversified group of retailers, not suppliers, who potentially, if we get to a very good place, will make energy a business-to-business product. So I will lease a car with 300 miles per week. I will not even know about how that energy is being optimised, how my demand is being profiled, how I am contributing a huge amount to the system, because the energy is kept away from me as a consumer. Looking at heat as a service is a mechanism by which I specify what I need and all the heavy lifting and the complexity is taken away from me. This happens in most markets and the opportunities are quite exciting.

The second thing that needs to happen concerns the value of consumer actions and assets. We are going from a system where we have 400

people, more or less, who run the energy sector and they all know each other's golf handicap—that is how close it all is—to 100 million actions and assets on the system. Every EV car does two things, as does every heat pump. This is a total change in how we look at the system. That offers a real opportunity. The value of those assets on the system, the ESO quoted to me last week, is the equivalent of three nuclear power stations. Everything has been oriented to supply and, "My generator is bigger than yours" and so on. We need to start to change Ofgem's perspective in some ways and the whole sector's perspective from a customer asset point of view. Yes, there needs to be consumer protection; yes, in many ways energy will no longer be an island. It has sat in its little island. We have mobility, financial services, leasing arrangements and complexity of switching if you have a three-year contract. There are challenges out there but the prize is really, really interesting and exciting.

**David Gray:** I do not think the current bunch of retail companies is a good starting point for thinking about what happens in the future. I agree with pretty well everything that Laura just said. The existing retailers essentially do the same job as the old big ones, only in principle they are smaller and more efficient. They have been caught out by the rise in gas prices.

What we need in the future is a rather different type of business that will provide a more complicated service to consumers because their demands will be more complicated with the advent of electric vehicles, battery storage, solar panels and so on. The underlying mechanics of the industry will be more complicated because, with a large content of renewable generation, intermittent generation, the industry is just more complicated. Renewable generation connects to the wrong bits of the system, so the system has to be redesigned from centrally situated power generators to peripheral ones.

Wind and solar are intermittent so you need new technologies to fill in the gaps when they are not operating. That can be flexible generation, although it has to be decarbonised, or it can be demand response, where people are incentivised to use less electricity at peak times, or it can be storage, although we need a lot of technological development in batteries for that to work. However, all these things will make the relationships in the industry, and the pricing relationships in the industry, more complicated. That is inevitable. The important thing is to make it simple for the consumer so that, as Laura said, they are buying a service that they can understand and the rest is made to work in the background.

**Q155 The Chair:** As you say, it is about making it simpler for the consumer, but the other side of that is making it far more complicated between the seller of energy to the public and the provider of energy. One of the points that was made was on marginal pricing, which is going to be potentially rather disruptive to the current arrangements between the energy manufacturers and the suppliers. What further investment needs to be made in the distribution infrastructure to be able to cope with this

highly flexible demand-supply situation?

**Laura Sandys:** What we have to do, and this is a task for Ofgem and for BEIS, is move from the commodity cost to the whole-system cost. That might be the cost of capital—a terabyte of data in 1990 was \$1 million and today it is five cents. I am not saying that commodity is going to go quite in that direction but we have in some ways a total mismatch.

Catherine Mitchell and Jeff Hardy and I wrote a thing called *ReCosting Energy*, because it is moving from the commodity to the capital and to the capacity of the networks and to the customers, and that is going to change it, but what we do not do is reward those bits within the sector for their value to the system. We reward only the commodity; we do not reward the consumers.

David very importantly raises the issue of storage. We do not have mechanisms that unlock the amount of storage that we need. I make the analogy of refrigeration in food. Before we had refrigeration we lost 60% of our food before it got to the plate. Think of all the different types of refrigeration that we have in food. We are going to need all the similar types of storage in energy. The end point—again, on investment in customer assets—is that if we did not have fridges, supermarkets would have to be three times the size they are today. If we can ensure that our distribution requirements include this storage refrigeration process, we will put pressure on reducing the whole-system cost but at the moment we are costing only a commodity, more or less, and all of it is a pass-through rather than an optimisation model.

**The Chair:** What is the incentive for the distributors to invest in storage?

**Laura Sandys:** At the moment the DNOs are not allowed to invest in storage. Storage needs to sit on top of their systems. We are not valuing storage. Storage has a very, very difficult route to market. In *ReCosting*, BEIS did the modelling for us and it shows that storage is a reduction in whole-system costs. The problem is that the market is interested in only the supply-commodity process. It is not looking at optimisation; it is looking at pass-through. To be frank, net zero is a different sort of model. It is an optimisation model, not a quantity model. We need to shift our market and policy approach.

Q156 **The Chair:** David, how does Ofgem bring about that considerable change in how system works, moving from distributing a commodity? How does Ofgem bring about the changes that you have both been describing that are necessary to operate the new, very much customer-centric market and a market where margin pricing and storage can benefit the consumer?

**David Gray:** It does it through a number of things. One is the price control system for the networks. Another is incentives for the networks to establish the sorts of services, such as storage, that are required.

I think it is easier with an example. In the south-west of England, we had a huge surge in development of solar farms—the big arrays of solar farms

that you see in fields—far more than were ever anticipated under the previous price control and far more than the network was capable of dealing with, so you have these big sources of power trying to connect to a distribution system designed for power to come down through the voltage levels rather than back up.

To accommodate that power, you have to do all sorts of things. You have to invest in the network so that it can flow where it needs to. You have to make it easy and incentivise for people to connect to places where the network can cope, and make it expensive for them to connect to places where it cannot. You need to make it profitable to site storage on the other side of constraint points. You need to make it profitable to site demand where it is needed because of constraints.

One of the more interesting concepts at the moment is the idea of siting hydrogen manufacturing at places where there is surplus renewable generation so that rather than simply having a surplus that you cannot do anything with, you put it into a useful form of energy that can be transported. There is a web of such things that have to be done. That involves turning what used to be a fairly dumb—no offence—distribution network into an intelligent network more akin to the national transmission system that is able to send pricing signals and react to events, and that does require a lot of investment.

You asked about what incentive the distribution operator has. I am not sure it is the DNO that should have that incentive. An alternative model is that the DNO just provides a platform and it advertises the services it requires to make the system work and other companies come in and provide it. You can do it either way but the incentives have to be put there to achieve that and that is a regulatory job. It is essentially to do with price signals, pricing mechanisms and investment through the price controls.

**Q157 Lord Allen of Kensington:** The polls show that the consumer is pretty supportive of tackling climate change until it comes to cost and who pays for it. Most of the things that we have heard about require consumer change. I am keen to pursue the issue in terms of whoever has not been able to persuade the consumer to move beyond, “I like pro-climate change but I do not like the idea of more costs”. The take-up of smart technology has been pretty poor. Consumers are anti others managing their demand or their consumption. They do not seem keen to give up a lot of their time. There will be some zealots who are, who give up the time to manage this process with their own spreadsheet. There has been, to date, limited behavioural change. What role should the Government, Ofgem and the companies play to move that forward? We are pretty dependent on the consumer and that is a massive, massive challenge.

What type of retail companies may replace the existing framework? The existing framework, as you say, is a commodity framework and that is not popular—that is not what consumers respond to, whether you are a retailer or whatever. I am keen to understand that.

**Laura Sandys:** I would say that the complexity in lots of other markets is handled by businesses not consumers and we can take a lot of that away from consumers. The Estonians have a great model where you have your own energy data and you auction your data out into the market. You put it out there and you get the best response from the customer. Estonia has some interesting digitalisation models. So you can do it.

Let us be frank. Citizens will have a veto on net zero, so if we do not get this right we can all forget it. We have to unlock the capital. It is fascinating. We give 15 years to Ørsted to put in an offshore wind farm. It is the same ask for me to invest £20,000 in my house as it is for Ørsted to put in its offshore wind farm but I have no mechanism to amortise the capital cost. There is a societal benefit here too. Climate change is a massive, massive issue.

I am interested in things such as miniaturised CfDs and we have new investors who are different sorts of investors who understand how to invest in distributed assets rather than big offshore wind farms. Sometimes we are talking to the wrong people. On the new business models, Tesco and Sainsbury's looked at the energy market a while back—they have some white-label products—and they said, "We cannot exercise any of our creativity, any of our supply chain pressures and any of our new propositions in this market because the regulation is too tight for us to exercise our skills". So let us open it up. Nissan could be doing my car. Some other company can be doing my home services. I do not want to know about energy and I certainly do not want to be, with my app, changing it every five minutes.

Q158 **Lord Allen of Kensington:** You gave examples of retailers such as Tesco. Would you see an Amazon-type player or mobile players coming into that where you have the information you need and it is a push to you in terms of what you do rather than me trying to find that and figure that out? To me it is all about simplicity—simplicity of messaging and simplicity of execution. If the regulation changed as you suggested, would that be a route forward?

**Laura Sandys:** Absolutely. There are lots of companies that do things very well and there are lots of companies that do things pretty badly. The ones that do it well are the ones that are going to win in the sector but I am not sure it is what is called a supplier as we have today.

**David Gray:** I agree with that. It will not be the sort of supplier that we have today.

One of the more interesting things that Ofgem did when I was there as chairman was opening a service called Innovation Link, which was essentially a doorway to people who did not know how to deal with the energy industry and with regulation, to encourage innovation. We discovered companies and businesses that we had never met and never heard of coming to see us because they needed the help. It was a really interesting process.

There are lots of bright start-up ideas out there to take in hand the business of managing your energy consumption, whether it is conventional domestic energy consumption or a combination of that and an electric vehicle and so on. The difficulty has been navigating a very complicated regulatory set-up and Innovation Link was meant to help them and all sorts of other things were done to try to make it easy. However, a lot more structural work needs to be done on the regulatory and commercial arrangements to make it easy for this sort of company to come in and that is one of the biggest challenges facing Ofgem and the Government.

I think that there will be a category of consumers who will not want to know and there will have to be a baseline regulated tariff, a regulated distribution tariff, feeding through into a regulated price for a group of vulnerable customers who simply cannot or will not take part. For the rest of the market, which should be the large majority of it, the task is to allow these very clever people access to the data that they need to be able to sell you a service that is clearly attractive and simple to use rather than complicated and off-putting. The technology exists; we simply have to get it packaged in the right way and directed at the right people.

**Lord Allen of Kensington:** Picking up on that, do you think short-term switching, which is about Ofgem's role in giving the consumer more choice so that they can switch annually, is a deterrent to long-term relationships, which is energy as a service, because you cannot make the recovery over a very short time? How does that play? If you were wearing your Ofgem hat, how can you possibly manage that dilemma between short and long term and the overall green agenda versus protecting the consumer? We have asked a number of people that question.

**David Gray:** The emphasis on switching was a feature of the time. It was designed as a mechanism to try to break up the power of the old big six and it has been relatively effective in doing that. Not only were there lots of new entrants, some of those new entrants are now quite large and the big six do not really exist as the sort of force they did five years ago.

But you are right that what we need in the future is something rather different from that. It is highly likely that that sort of world is going to need more durable relationships between suppliers, in the wider sense of the word, and consumers and I think the focus will move away from switching as an end in itself towards trying to match the right consumer to the right kind of service for the property and vehicle and all the rest of it that they own.

**Lord Allen of Kensington:** I am trying to understand a bit more of the detail about moving the regulation from the supplier model, as it is now, to maybe bring in another tier of interface with the consumer, which is the retailer. What practically would need to be changed to allow that to happen?

**David Gray:** I would think that it is quite likely to happen. The current supply business will split into a customer-facing, customer-relationship aspect with people who then sell the profile of power needed for the customer needs of that kind of business. So, yes, I would see that sort of shift happening.

**Laura Sandys:** There are a few barriers to this happening. That is what I am concerned about. Everyone talks about it, in BEIS, Ofgem and so on, but nothing really shifts. In some ways the framework does allow for some of this to happen but all the market norms are around switching, which is really a displacement activity because it is just a choice of different-coloured logos. There needs to be a lot more leadership and expectation by both BEIS and Ofgem of suppliers today, and recruiting new retail-type propositions.

The pathway to consumer satisfaction also needs to be very much assisted by giving the customers the value of their assets in the system. We worked out through this modelling that an EV van would deliver £500 of value to the energy system every year. In the current market design it never gets there. It is what is called the lost money and there is quite a lot of lost money in the sector. Mainly it is being pinched from the customer's actions. We need to unlock that but there need to be regulatory changes, there needs to be leadership and there needs to be the imperative that this is something that we want to happen. Let us hope things move quickly, because there is an imperative to get these heat pumps and EVs into the system.

**David Gray:** May I add something here, because it is important and does not necessarily get the coverage that it should? We need to make entry into and participation in the system much simpler for these new businesses. There are two sets of documents that underpin everything in the energy market and they both need to change completely. One is the licence that everybody has to have to operate in the market and the other is the set of industry codes that are, in effect, the contractual and legal arrangements that underpin the whole market.

They were all designed for the industry that we had after privatisation, which was a relatively steady-state industry, and they were not designed for an industry-facing transformation. Unfortunately, they were designed to be difficult to change, to avoid interference from the Government and the regulator, and so we have an inappropriate system that is designed to be difficult to change. Ofgem has been struggling with that for at least the last 10 years but it is not a job that it can do on its own. It would require a substantial legislative programme to take on this complexity of industry codes and licences and reduce them to the level of simplicity required for the new kind of market that Laura has been talking about and that I think we have to move to.

**Lord Allen of Kensington:** You have answered my last question, about how much legislative change is required; you have said that would be quite material. Is that correct? Would you require significant legislative change to enable Ofgem to make these changes?



**David Gray:** Yes, because you would be looking to replace or substantially modify the underlying legal and commercial framework of the industry, which is a big thing to do. Given the appeals processes and the change processes, which are unwieldy, it is hard for the regulator to do that simply using its own powers.

**Laura Sandys:** I wonder whether there is a way of sidestepping the current regime and putting in place a more flexible consumer/home services-type regime that allows it to work in parallel as one starts to get larger as the other one starts to get smaller. I am saying that we need to be as creative as possible to get this new dynamic.

Q159 **The Chair:** Has Ofgem developed its own thinking about the direction of future codes, about what is needed in the new market, and have those been made public? Are they being discussed with government? I know that you left Ofgem a while ago but it would be interesting to know what the dialogue is.

**David Gray:** There has been a lot of thinking about it and there has been a lot of conversation with government. Bear in mind that I have not been involved with Ofgem for three years so I am less au fait with where it is going currently but I understand that the Government are thinking about putting in place some sort of strategic codes body to try to take on this project of reforming the codes. So a lot of preparatory work and thinking has been done but it needs to be taken through to implementation.

This brings you to another background problem to achieving net zero, which is simply the bandwidth—the ability of the organisations concerned to handle it. Ofgem is faced not just with trying to change the industry codes, trying to continue doing price controls and trying to do reform of network charging to provide all the necessary incentives. The Government have a similar but even wider range of priorities. Bandwidth and prioritisation are important to making progress in this.

The reason I wanted to raise the question of licence simplification and reform of the industry codes is that those are basic enablers of all of the stuff that has to happen with net zero. Therefore, they have to be given some priority.

Q160 **Baroness Bowles of Berkhamsted:** This has been very interesting in the context of where we have got to in the previous questions, but I want to take us on to the issue of co-ordination within the public sector on net-zero policies broadly. Do you think that there is enough co-ordination or do things need to be done? Is there a need for some kind of overarching additional co-ordinating body—there already are some—on net-zero policies? If so, what form should that body take?

We have heard evidence, including in the earlier session today, and there are differences of opinion. Some people think that we are already in the too many cooks spoiling the broth type of situation. I am not sure if anybody used that phrase; that was my own. There are also issues of the shift in the direction and what previously was central now has to be done locally. Can that all be more co-ordinated before you even drill down to

the more individual needs of specific sectors?

**Laura Sandys:** On net-zero obligations I was always interested in why all the regulators needed to be told that they had net-zero obligations, because it was passed as legislation. So in some ways I do not know quite why there was ever a question around that. Of course they have to be instrumental in delivering legislation.

There is something that is inherent and might need what one might call the carbon policeperson within government bearing down on a lot of fossil-fuel bias, which is sometimes amazingly unconscious. A lot of the markets in the energy sector just defer to fossil fuels because, "I've seen it before and it always works, what a relief", rather than bearing down on old-fashioned behaviour.

There is a lot to do. I was talking to the NAO about doing a fossil-fuel bias audit of both policy and regulation. Really and truthfully, sometimes people do not realise that that is the outcome of that particular policy and regulation. I would do that economy-wide, because we have been living with the fossil fuels for 150 years or whatever and fundamentally it is very difficult. Government needs behaviour change, as well as consumers. Another body? I think we need action rather than institutions.

**David Gray:** Again, I have an example because I do not think co-ordination works well. Take an example of housing and energy use. We already have the technology for all new housing to be energy-neutral—in fact to be net exporters to the grid. That exists; it has been developed in demonstrators and so on. If we build a million new houses—say 100,000 a year over the next 10 years—to that standard, the energy saving compared with conventional housing would be, to use Laura's units, the equivalent of a nuclear power station and it would be achieved more quickly and more cheaply than building a nuclear power station. Yet there is no co-ordination between BEIS and the housing ministry—DCLG as it was in the time I was there—about organising this sort of thing.

In my final year as chairman at Ofgem I tried to get some traction with BEIS, the Treasury and DCLG to do something about this and it just did not work. People were interested but the structures somehow did not lead to anything happening. So there needs to be some sort of central government, cross-government co-ordination, which would conventionally fall within the Cabinet Office or something like that. There needs to be some sort of co-ordinating body to make sure that these things are delivered.

On your comment about too many cooks, one thing you can do is rationalise the cooks. There are a lot of bodies that could be combined or done without and would probably work better if there was an overall co-ordination system, body or something designed to make all of this work.

Q161 **Baroness Bowles of Berkhamsted:** If we now move specifically to co-ordination and planning in the energy sector, the Government have suggested there will be a future systems operator that takes over some

of the job of an existing body but adds in others. Is that in the right direction for the energy sector and how would such a body interact with Ofgem and the Government, or do you think that this still comes under the heading of not being joined up enough at government level yet?

**David Gray:** Using the system operator is a possible but not necessarily correct way to go. There are two separate questions here. One is where should the system operations sit and other is what is it. At its simplest, system operation is just the rather complicated job of keeping the lights on and balancing supply and demand every day. It is done very efficiently by an organisation within National Grid, that has been there since privatisation.

That tends to lead into system planning. Investment planning is done by the system operator. You could extend that further to give net-zero planning to the system operator. It would be a coherent way to do it. It is not necessarily the right idea, though, because the skills are rather different as you move away from the day-to-day operation and near-term investment to the co-ordinating and implementing role required to make a wide range of things work for net zero.

Government should also consider the creation of an implementing body for the things that need to be done in the energy sector. There are too many individual bodies doing individual things. The co-ordination is not just between different industries; it is between bodies in the sector. Going back to your cooks analogy, there is a lot of scope for rationalising what we have at the moment and putting it into a body given the responsibility of delivery. You could make that the system operator but that needs to be thought about because it is quite a different role from the conventional system operator role. They come together in the long-term network planning area but there are lots of other things involved.

**Laura Sandys:** I would agree a little bit with what Josh Buckland and Tim said earlier: that form must follow function. What we now have are a lot of muddled roles—overlap and underlap across all these organisations. In many ways what we need to do is to clarify exactly what these roles and responsibilities are and then allocate them to the most appropriate body. I am not against a future system operator at all. I do, though, think that there will be some of those roles and responsibilities that you might presume an FSO would run, which are, as Josh said quite clearly, political and they are trade-offs. It is incredibly important that you do not put technical and operational people in the role of having to make those trade-offs. We have to be quite separate.

However, there is an issue here around all the actions of these organisations. There does need to be a touch. It does not need to be an institution but BEIS needs to be a little bit more of a conductor of the orchestra. Otherwise you end up again with this multiplying of different roles and responsibilities and the overlap and underlap. Even if you look at BEIS's policy portfolio, which is really impressive over the last three or four months, who is knitting them together? Because they are still being looked at right across the sector in silos but one bumps on to another,

bumps on to another. Then you have, as David rightly points out, this issue around the consumer—the cost and inequalities that come through that. The FSO cannot make those judgments. That has to be something that sits as a conductor and, I would say, somehow in BEIS.

**Baroness Bowles of Berkhamsted:** We have a situation where we are moving from the old-style system to the new style. We know the beginning and we know the end but we are somewhere in the journey. Does that mean that you can have a fixed type of architecture or is that architecture going to have to keep perpetually changing until we get closer to the other end?

**Laura Sandys:** It is the nature of government and structures, which are not very good at agility. We probably all recognise this. The destination is very exciting. The net-zero decarbonised destination, at low cost, is interesting and important. The journey is going to be messy. What we need is the agility to be able to create the mechanisms to move the journey on fast enough, the humility to put our hands up and say, “Well, that didn’t go so well”, and the determination not to stop and not to spend our time looking backwards but starting to try to find solutions even if they are not very clear. I would prefer us to look at a messy journey rather than sitting waiting for perfection.

**Baroness Bowles of Berkhamsted:** What does that mean for the way in which we define the roles that regulators, for example, have? We are very careful in giving them specific tasks and duties, but if we are on this journey, how easy is it going to be for those definitions to be changed? It is much like if codes need to be changed: they were fixed for good reason but are we now in an era where you cannot deploy that as a tactic?

**Laura Sandys:** David is much more experienced on all this, but I was on the board of the Food Standards Agency and it went through a very big change programme and it was really exciting in terms of changing how it assessed the food system. Again, very similarly to the energy system, it went from a very small number of players to a multitude of different risks. We need a change in regulatory approach and structure—to be agile, to be anticipatory and to regulate for risk not process.

A code system is absolutely about what colour socks you wear on a Thursday and how you look on a Friday. It is very, very prescriptive, the energy sector. What we need is a risk regulator that looks at risk and in some ways creates the perimeter from which people can operate but then the freedom for them to design innovative solutions. That would help us a lot in this rather uncertain but exciting journey.

**David Gray:** I agree with all of that and it is easy to say and quite easy to recognise if you happen to meet it, but it is quite hard to do because the system works around rules and around plans. The difficult thing is to find this happy medium, accepting that you cannot do a 30-year plan through to 2050 because you do not know what will happen. All the long-term plans in the energy sector fail because the sector changes too

quickly. So you know you cannot sit here today and design the right route but you have to do something.

You have to have a broad direction. You put it as a context thing or something that everything works within. Then the regulatory system needs to be more permissive and allow implementation of things while, at the same time, cracking down on abuse, whether monopoly abuse or customer service abuse. That balance between being a policeman on abuse and being a body that allows and implements change within a broad general direction is very hard to achieve but it is exactly what Ofgem has to achieve. We did have that conversation about how to do it at the board table when I was chair; it is just not easy.

**Q162 Lord Curry of Kirkharle:** I would like to pick up on a comment that you made, Laura, about regulators being given the net-zero responsibility and Ofgem adding to the objectives of security of supply and affordability, and the tension between them. We have had previous evidence sessions where that tension has been explored and I would like to come back to that. Net zero is now dominating the agenda and potentially dominating over the affordability and security of supply, the other objectives of Ofgem. I am keen to hear how you think Ofgem should be responding in this new world.

**Laura Sandys:** Those are important points and the point about affordability is absolutely key. I hope that a lot of your people who have given evidence have said that the end game is much more affordable than the current game. I used to represent a constituency where the average wage was £16,500. I would say that the most frightening thing—of course, the cost of everything is frightening—is the volatility. What we should be looking to do is to take that volatility away, and decarbonisation does that.

I also totally agree with David that we need a social tariff. In many ways it comes back down, as Lord Grade will know, to the broadband-type model, where you end up with a very boring service but it is the essential service. You have to in some way take that out of the competitive market and then allow for a lot of exciting things to sit on top of it.

If I am in a flat in Margate and my next-door neighbour in a very nice house has an EV car, a heat pump and so on, they will be costing the whole system a lot more than I will be when I am taking the bus. We have to start to recognise that these inequalities will start to emerge. You can do it quite easily because it is exactly the same as that basic, boring service with, in many ways, the layering of the exciting—Netflix and such—on top.

The security of supply issue is interesting because, again, we might have a bit of a messy, bumpy journey at this moment, but when you have an EV or a local storage system, you have what I would call security of service. That is really what we want. We want to be able to turn the lights on. We want, as a small business, to be able to run our business. We do not care whether it comes from a local storage capacity or a big supplier.

The ESO is saying we will have a much more resilient system, going forward with the 100 million actions and assets, than we do today. That is exciting because, yes, there will be failures, but the failures will be mini, they will be containable and they will be retrievable. Today we are quite vulnerable to one or two catastrophic events, but we have to change the definition of security of supply because it is like a sword of Damocles over Ministers who are really concerned about it.

**Lord Curry of Kirkharle:** Did this change take place on your watch, David, to include net zero?

**David Gray:** For a long time Ofgem has had varieties of a duty to do with decarbonisation. It has never explicitly been made net zero. For tidiness it would probably make sense to change the words, but that is tidiness of drafting rather than material change. If what was suggested was a material change so that net zero became the defining objective of Ofgem, that would be a completely different matter and I think that would be a rather bad idea because the regulator's job is to hold the ring on all of this and address the tensions that you mentioned between progress on net zero versus security of supply versus affordability and quality of service to customers. Although Ofgem's duties as drafted are a very inelegant bit of legal drafting, they do the job quite well, because decarbonisation is up there in the primary duty but it is alongside other things that matter for the consumer.

I would personally advise against changing that emphasis. That is why I come back to the idea that there is something missing elsewhere in the system in this general area of government co-ordination and government implementation. Giving either Ofgem, or probably the system operator, that role would be too much for those organisations. The best thing is to keep them being good at what they actually do.

Q163 **Lord Curry of Kirkharle:** The possibility of a future systems operator has emerged. I am interested, in view of the earlier comments about there being so many cooks in the broth. Is this adding to that complexity and how would that relate to the role of Ofgem? Could the net-zero responsibility to some extent be taken up by a future systems operator? What are your views on that?

**David Gray:** You are not adding to complexity by creating a future system operator; it has always been there. Right back at privatisation the big debate was about where should it sit. It was not a stand-alone commercial body so it was put into National Grid with ring-fenced protections to deal with the conflicts. What has happened over the 30 years since then is that the ring-fence has become stronger because of the conflict issues, and eventually we have arrived at a stage where the general view seems to be that it should be taken out of National Grid. The role has always existed, though, and has always been carried out very effectively by National Grid so you are not increasing complexity by separating out the system operator; what you are doing is changing governance.

**Lord Curry of Kirkharle:** By separating out, it is becoming a more of an independent body than perhaps an operator.

**David Gray:** There are questions to ask about governance of the independent body and its objectives, which need to be very clearly stated. As I said, you could go a little way in the direction of it becoming a system planner or you could go a long way in the direction of it becoming a system planner and give it some real responsibility to do with net zero. Those are rather different models but they would both be, in a way, a fairly natural extension of the role that already exists and has been there within National Grid.

**Laura Sandys:** I absolutely agree with David. In some ways it is not complex. What will be complex, as we discussed, will be the issue of new roles coming forward. Who is going to own them and where is this overlap and underlap? The FSO, to be a proper system planner, is going to need to change the mentality of some people within the system because it is bumping up—or not bumping up; it is totally interrelated now with mobility. It is totally interrelated, as David rightly says, with housing, construction, buildings and how smart buildings are going to work. Currently its focus is electricity. Are we not going to be looking at how we look at the hydrogen supply, the gas networks and so on?

You can cut it in lots of different ways but somebody has to cut it, and cut it clearly, with the right governance that allows these organisations to complement each other, not overlap. But there does need to be somebody—I do not know whether it is one of the Ministers in the Lords or whatever—to be responsible for conducting the orchestra, making the trade-offs and pushing things forward.

David might disagree with this but there has been quite a lot of BEIS saying to Ofgem, “Why don’t you get on with this?” and Ofgem saying, “This is policy, this isn’t regulation” and then regulation saying, “Well, half of it is policy and half of it is regulation”. We could be here a long time. All it needs is for somebody to say, “I don’t really care whether it’s policy or regulation. You’re going to do it and I’d love to see it next week”.

**David Gray:** I am sorry; I was laughing there, because at the same time as all that was happening, Ministers were telling Ofgem very firmly that policy was for government, not for Ofgem—

**Laura Sandys:** Of course, of course.

**David Gray:** —and then in effect asking us to implement it. I think clarity is the thing.

I have one other specific suggestion, if I may. I think the Government need to do something they were meant to have done 10 years ago, which is produce a national strategic policy statement for the energy sector. If you go back to 2011, BIS produced a very good document about principles for economic regulation and the Government committed to two things: one was to produce a policy statement for each regulated sector,

and the other was to avoid making ad hoc changes between policy statements.

We have had the exact opposite in the energy sector: no policy statement and lots of ad hoc changes. We need a clear framework that would set out all these relationships and who is responsible for what. Again, I understand that yet another draft is being readied for consultation, but I would like to see that happen.

Q164 **Lord Eatwell:** Following on from the same discussion and to push you a little further on this particular issue, it does seem to me that the traditional separation between policy and regulation is absolutely fine when you are not doing a major transition. When you are doing a major transition, the interaction between the two is a necessary function of trying to get that major transition right. Therefore, we are talking in the wrong way. We have the wrong framework. We are talking about a rather stable and unchanging system and the characteristics of a rather stable and unchanging system, and we need to have a different structure to deal with this dramatic change, which is an all-encompassing change.

It is almost like the invention of the internal combustion engine, which not only changed transportation but changed the way cities were built. It changed a whole series of things; it changed life in general. This is even more dramatic, because obviously climate issues affect life itself. When we talk about the roles between government, Ofgem and the National Grid system operator, are we just talking about institutions, which are the institutions of yesterday, and do we need to rethink the institutional structure? That is a major governmental task. I have enormous respect for my colleagues, but I do not see that as a role for a Minister in the Lords, for example. This is major strategy which government has to address.

Often the climate issue has been likened to the challenge of warfare. One of the striking things about the War Cabinet during the Second World War, for example, was that Chancellor of the Exchequer was not a member. The reason was that finance was not an issue; you just had to get the stuff done and you worried about financing it afterwards. A structure where the Chancellor is always a key figure is not a structure for dealing with warfare, as was the case at that time.

Are we just playing around with institutions on our Monopoly board, when we should be changing the board? I am sorry to be so sort of apocalyptic, but listening to what you have been saying for the last 15 minutes has taken me to that.

**David Gray:** Something needs to change. Having observed this process from two spells at Ofgem and the years in between, I see the frustration of government in its difficulty in implementing policy to do with decarbonisation. Every time it introduces a new initiative, it needs somebody to take it forward and run with it, so those roles are either handled by creating a new body, such as the Low Carbon Contracts Company or the Data Communications Company for smart metering and so on—there are several of them—or they are dumped on to Ofgem or on



to the National Grid and the system operator, just because there has to be somewhere for it to be put.

Ten years ago, I did a review for the Government of Ofwat and the workings of the water sector. I was quite struck by the contrast there, where you have the Environment Agency, which is the driving force for a lot of the environmental work that has had to happen in water since privatisation. Everybody told me that it was too complicated and difficult having the Environment Agency, Ofwat and the Drinking Water Inspectorate, but I thought that system worked very well, because the responsibilities were clear for those bodies and I recommended it be left there.

I then came back to the energy sector and that government implementation body does not exist. Instead, you have the Climate Change Committee that says what needs to be done, you have lots of individual bodies that have been told to do something, one individual project, but you do not have a co-ordinating, "This is how we'll get it done" body. I think it is not so much that wide-scale institutional change is needed; there is just a missing piece somehow.

**Lord Eatwell:** It is more than co-ordination. It is also defining the path.

**David Gray:** Yes, it is both of those.

**Laura Sandys:** I would not disagree with David. The issue for me is timing. If anybody proposes setting up another organisation, we have another legislative process and then everyone will be unpicked and all the rest of it. Everything in this sector is about speed and it is very frustrating. Everybody has to consult 25 times; everybody then reiterates things and then it has to go out to consultation again. I think there would be a much greater acceptance within the sector, never mind outside, for us to move forward and fail fast and move and iterate on, because currently—this is where David might hit me, I suppose, or somebody might—we are run by engineers. This is a world not of engineers; this is a world of change managers and a world of iteration.

I chair the Government's Energy Digitalisation Taskforce, where you bring engineers together with digital people and they just cannot communicate at all. If we end up with a mentality that is looking at 25-year assets, long-term engineering projects, perfection before you have even put one step forward, we will never get anywhere. I would say dynamic, fail fast, iterative and agile, none of which people in the sector are super-hot on, I would say, so it might be who and how rather than what institutions need to drive it forward.

Q165 **Lord Burns:** I will begin with this issue of the water industry. I was chairman of Welsh Water for 10 years and I lived under this arrangement of the Environment Agency, the Drinking Water Inspectorate and the RAB method of pricing, and the demands that were made by the regulator as to the investment that should be made. The critical thing there is that the water industry has monopoly bodies in each of the areas. During this

conversation, I have tried to think about what one could learn from the water industry, which has had an enormous investment programme—maybe not enough, but it has been enormous.

I keep coming up against the problem that it is a monopoly provider, whereas what we try to do here is introduce and have competition; we want other ways of doing it. How do we move and retain some of the things that work in that area in a world where we do not want to have a monopoly? I assume that we do not want monopoly suppliers.

**David Gray:** There are a lot of people in the industry who would rather not be starting from here and would rather have essentially a single monolithic industry, because then you could write a plan for it and you could tell everybody what to do, but we do not have that. I am certainly not advocating going back to anything like that, but you are right: there is an important distinction between water and energy, which is to do with the nature of the businesses, both monopoly and competitive, and the sheer complexity of the arrangements that all that brings in.

I think the trick is to make sure that the monopoly bits do what they have to do. A distribution network is not something that you can double up and have competition for. It has to be run by an organisation and it has to be a monopoly, so it probably has to be price controlled. The big question is whether you give it a lot more to do in this more complicated world, or tell it to provide a platform for other people to do the more complicated things.

My personal preference is the latter: you keep the monopoly parts of the business doing exactly what they are doing, and you give them the duty to open up access to their systems and you enable them to get access to customer data, as Laura was describing earlier. Then I think that progress will happen, and it will happen more quickly and in a more innovative and cost-effective fashion that way than if we try to plan everything from the centre, but it makes it a messy world.

I do not disagree with Laura about the go fast and fail. I think we need to do that, but that has to be added on to a basic industry structure, which is a long-term monopoly business, and you have to find the ways of working between those approaches that allow it all to happen.

**Laura Sandys:** We need to start with the customer propositions. Currently the energy sector has six profiles for all the customers in the UK. Amazon, let us say, has 150,000 different profiles, so we need to open this up to start to understand that people will have very, very diverse needs. If you start to get that retail side unlocked in a much more effective way, it will start to put pressure into the supply chain and to demand new things from that supply chain.

I am not saying that it is quick movement. However, the regulator does have some important roles. The first is to allow the value to flow to those consumers, and that means looking not just at the levelised cost of electricity but at whole systems, putting the right incentives in for the distribution to deliver that value to consumers, and, in many ways, to

police the overall net zero delivery and decarbonisation. In 2019, about 60% of the contracted markets in energy were fossil fuel. The regulator can have a much more impactful role by looking at some of the markets that are being developed. They are being developed by the ESO, but it is for the regulator to say that we cannot allow more carbon to come on to the system unless totally necessary. Sometimes, of course, it is.

**Q166 Lord Burns:** That takes me on to the other issue that I wanted to raise, pricing and price signals, because I accept completely that we may be moving to a very different balance of demand and supply behaviour in this new world. I can also buy the idea that we will be moving to an intelligent model from what you described as sort of the dumb model of the past, but this will require different pricing signals and mechanisms if we are going to achieve it.

We have heard a great deal about how in the future we will need much more in the way of non-carbon electricity capacity, but what pricing system will deliver the incentive to invest? I am not talking about the particular direction of travel here but the broad direction. Should the regulator be allowing for more anticipatory investment? You both say that it needs to be profitable, but what is the pricing model going to be? Is it capacity auctions and contracts for difference? Will it be RAB-style pricing? How will one deliver the incentives in a competitive environment, which will end up with insufficient investment or people earning rates of return that are excessive?

**David Gray:** There is a lot of complexity sitting behind that question, and there are two or three different aspects of pricing in what you asked. At one level, it revolves around what major users are charged for access to and use of the transmission and distribution system. That form of pricing has to become much more granular. It needs to vary with location and with time so that the pricing system sends signals that it is not a good idea to try to attach a solar farm there but it is a good idea to try to attach it here; it is a not good idea to run an industrial plant, that doesn't have to run all the time, at this time of day but it is a good idea to run it at this other time of day. Pricing at that level has to become much more complex and much more granular, and a lot of thinking has been done about that. It is a major project for Ofgem, which was started when I was still there, so three years ago.

You then have the matter of the total cost of the distribution systems, and that is a price control matter. There it is still fairly conventional stuff. You have to make an assessment of just how much money you think the businesses need to do all the things they are required to, including these new things that we are talking about. I do not see a huge amount of need for change there in principle, as opposed to in the detail of how it has worked.

Then you get pricing for consumers, which has to do with the mixture of things we have been talking about. It has to allow a safe place for vulnerable consumers who do not want anything complicated and who want something cheap, but it also has to allow for much more

complicated demands from consumers who have solar panels and electric vehicles and all the rest of it.

Sorry, I am perhaps trying to cover too much ground in one answer, but down at the working level of the physical system, pricing has to become more complex and more granular, and then we have to find a way of smoothing that through to consumers so that they pay a simple price for a simple service or, if they are interested, potentially a much more complicated price for a more complicated service.

**Lord Burns:** Is this all for Ofgem to run?

**David Gray:** I think it is essentially Ofgem's territory, yes. On a lot of the stuff that we have been talking I worry about whether it is Ofgem's territory or not, but network charging and pricing through the system is economic regulator territory, definitely.

**Laura Sandys:** I would not disagree with what David was saying, but I do think that the complexity needs to sit away from the consumer. I think that digitalisation will unlock a lot of these different assets and drive optimisation of the whole system. The energy sector has been very much a supply whatever type model, and in some ways the business models are not really about making margin. They are all about quantity, and we need to move the business to understand that making margins, reducing costs, improving productivity, delivering efficiency—not just operational efficiency, but whole process efficiency—will deliver a better value system and bring on the storage component, which is quite important.

**Lord Burns:** The message I am getting from you is that the biggest worry is not whether we will get sufficient capacity in the electricity sector to meet our needs in a decarbonised world. It seems to me that you are approaching this from the point of view that it can be done, but it would just need to be a great deal cleverer and recognise that this is a much more distributed system that just requires a great deal of loosening up of many of the regimes that are in place. Is that a fair interpretation of what you have both been saying?

**David Gray:** Yes, I think so.

**Laura Sandys:** It has been quite a vanilla system. It is not wildly complicated. There are lots of complexities within it, but it is not that many components of the supply chain. It will become much more dispersed, complex and dynamic. What we will see in the next two years is probably not what we will see in the mid-2030s. That is exciting and probably a bit terrifying too for regulators.

**The Chair:** Thank you very much indeed. It has been a very, very fruitful session and a very stimulating one. Laura, you are on the Energy Systems Catapult, so through that lens you have sight of some of the new companies and new services that are emerging, which will be, as you have just explained, an important part of the signalling for pricing and services in this sector.

**Laura Sandys:** Absolutely.

**The Chair:** It would be very helpful if the catapult could supply us with the map of what it is doing and what it is seeing, where that activity will come from.

David, you have made some very important suggestions about legislative changes that clearly are needed. We have the Secretary of State coming to see us in a few weeks' time, so we can take that up, but it would be useful to hear from you where you think the principal direction of travel would be. We have talked about too many cooks in the kitchen and we have talked about co-ordination. It would be particularly helpful, from somebody who has sat in at the top of Ofgem, to just give us some clues about how we should navigate through that debate, so if I may I will burden you with a little bit more work. You have been very generous with your time and your insights today, so thank you very much indeed. That brings this meeting to an end.