

Energy Security and Net Zero Committee

Oral evidence: [The cost of energy](#), HC 736

Wednesday 21 January 2026

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[Watch the meeting](#)

Members present: Bill Esterson (Chair); Ms Polly Billington; Lizzi Collinge; Torcuil Crichton; Graeme Downie; Wera Hobhouse; Melanie Onn; Mike Reader; Claire Young.

Questions 486 - 602

Witnesses

I: Lawrence Slade, Chief Executive, Energy Networks Association; Katrina Young, Practice Manager for Heat Policy and Local Energy, Energy Systems Catapult; Dr Waqqas Bukhsh, Senior Lecturer, Department of Electronic and Electrical Engineering, University of Strathclyde.

II: Dr Alastair Martin, Chief Strategy Officer, Flexitricity; Professor Jacopo Torriti, Professor of Energy Economics and Policy, University of Reading; Sarah Honan, Head of ADE: Demand, Association for Decentralised Energy.

Written evidence from witnesses:

- [Energy Systems Catapult](#)
- [University of Strathclyde](#)
- [ADE: Demand](#)

Examination of witnesses

Witnesses: Lawrence Slade, Katrina Young and Dr Waqqas Bukhsh.

Q486 **Chair:** Welcome to this afternoon's session of the Energy Security and Net Zero Committee, the latest in our sessions on the cost of energy. I will ask our first panel to introduce themselves.

Dr Bukhsh: I am a senior lecturer in electricity system optimisation at the University of Strathclyde.

Lawrence Slade: I am chief executive of the Energy Networks Association, working with distribution networks and transmission networks.

Katrina Young: I am the heat and local energy policy lead at Energy Systems Catapult.

Q487 **Chair:** Thank you very much, and you are all very welcome; we look forward to your evidence. I will start with a question to you, Lawrence: do you think we need more gas storage and import capacity, and what role do storage and the level of storage play in our energy system?

Lawrence Slade: From our perspective as network operators representing electricity distribution networks and transmission systems, that will be the focus of our evidence today. It is really great that the Committee are looking at the issue of flexibility in particular because it is a good news story around the system. In terms of the work that we have seen, in the last year alone some 9 GW of flexibility have been procured from the distribution networks, which have grown some 287%. So the first part of the answer is that the story of flexibility is good, and we have proven there is a case for it across the whole system in small, large, and system-wide network storage.

In terms of your specific question on gas, it is not a case of whether we need more of one thing or the other; we look at it as a whole system approach. Yes, we must have gas on the system—the NESO's report to 2030 reflects that—but flexibility and future generation can work in concert. We need flexibility but we also need to be investing in the grid and the constituent parts around that, and the energy mix overall.

Q488 **Chair:** Do you think we should be investing in our gas infrastructure to help bring down electricity prices? As you alluded, we are talking about gas because most of the time it still sets the price for electricity.

Lawrence Slade: It is one of those things where, if we look into the future and see an increase in electrification and an increase in potential demand, we have to ensure that we are guaranteeing the level of generation that we need. From our perspective as network operators only, we cannot take a decision and we cannot influence the NESO in terms of the generation mix in the system. The caution I would exercise here is that when you are talking about infrastructure investment, you



are talking about a timeline of, say, 50 years. So we have to be very careful in terms of gas infrastructure investment, that we measure that against increasing electrification and the need to expand the electricity network.

Q489 **Chair:** What is your view on the potential to invest in overseas storage, which is a part of the Government consultation?

Lawrence Slade: From our perspective, again, that obviously draws into our work with interconnectors. As network operators, it is our role to look at how we can move electricity around the country in the most effective and efficient manner. In that respect, we will respond to where the generation comes from and where the storage is in terms of what we can connect.

Q490 **Chair:** The Committee has heard that Russia poses a very significant threat to LNG supplies or pipeline. In the event the war escalates, what should we do about that?

Lawrence Slade: In that respect, it really does support the need to drive forward the speed at which we are connecting as much clean renewable power as we possibly can. That underwrites the need to connect at the transmission level, which in turn not only brings more power on to the system but also has the benefit of reducing constraint costs, which obviously feed through to customer bills.

Likewise, increasing the amount of flexibility that is available at distribution level and the cases we have been proving with our open networks programme help to push down the amount of generation we need on the system. Effectively, by speeding up the levels of own power that we are connecting as per our Moving the Grid Forward campaign, we can actually reduce the UK's reliance on overseas imports. But the critical part—this is where it is so important that we all speak the same language and not talk about retrospective changes in regulation—is that we have to be absolutely clear around the scale of investment needed going forward. The changes in the planning Act are a big step forward in allowing us to speed up the delivery of that infrastructure. The faster we do that, and the faster we can maintain the confidence of international markets and deliver that investment, the faster we will be able to connect new generation and reduce our reliance on imported gas.

Q491 **Chair:** Some people say we should maximise the production of gas from the North sea and prioritise bringing it ashore. What credence do you give to that view?

Lawrence Slade: I will not give a direct answer because it is outside my purview. Our answer to the whole gas point, which is supported by current Government policy, is that if we move forward as fast as we can in connecting new forms of generation, be they wind power, onshore solar or wind, that will create a better long-term sustainable picture for the country.



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Q492 **Chair:** So you do not have a view on whether increased gas production from the North sea for use here could bring down the price of both gas and electricity?

Lawrence Slade: I am absolutely certain, Chair, that my colleagues from the Future Energy Networks representing the gas networks have a view on that.

Q493 **Chair:** We might write to them. Kat, the warm homes plan was announced an hour or two ago; the detail of the plan is very impressive. It leans on heat pump installations as a major component. In relation to bringing down the cost of heating homes, and given the move to solar, battery and heat pumps, what does that mean for the case for investing in gas infrastructure?

Katrina Young: The warm homes plan is definitely headed in the direction of the electrification of heat pumps as the keystone, followed by heat networks. We are not going to switch off the gas tomorrow; we cannot move away from it overnight. In terms of investing in the gas infrastructure, from a maintenance and safety perspective, yes, that is welcome. But I would not want to see over-investment in terms of locking in the grid for the future; as we move away from the gas grid there will be a declining number of customers so we will need an exit plan on who is paying for that decommissioning. The Government have been very clear about this in the warm homes plan this morning; any more investment in gas now would just be locking it in further.

Q494 **Chair:** What does that exit plan look like?

Katrina Young: That is a good question. We are pleased to see that the Government and Ofgem are starting to think about that in the next RIIO price controls, and looking at different ways of decommissioning the grid. But we need to ensure that the cost does not fall upon the people who have the least power to move away from the gas grid. That is something we are clear about.

Q495 **Chair:** How do you do that?

Katrina Young: I do not have a direct answer. If I did, that would be excellent and we could all go home.

Chair: You may not be the only person we have ever asked that question. If you come up with an answer, perhaps you could let us know.

Q496 **Wera Hobhouse:** The long-term plan is to move away from oil and gas and into renewables, but there is always the question of intermittency. We need flexibility, but at what cost? That is the big question.

There are all sorts of solutions—battery storage, hydrogen—but it has also been argued that methane has a very large energy potential compared with storing energy through pump storage, hydropower or lithium batteries. Methane is currently there to cover flexibility anyway. As soon as we do not have enough energy, we just turn on the gas and it



is produced to tide us over the intermittency. Hydrogen can also be stored and turned into electricity, which could then replace gas to cover the intermittency; but again, at what cost?

This question is really to you, Kat; will we ever have enough hydrogen—particularly at a comparative cost—to replace methane gas production in electricity?

Katrina Young: In short, I would be doubtful about that. I do not think hydrogen will ever be cheap enough, in sufficient supply and produced cleanly enough to be used as a base power with large scale flexibility. The amount of hydrogen we have will also need to be prioritised for other strategic uses to decarbonise industry and culture. It definitely has a part to play in the flexibility because it has the properties you mentioned that make it favourable, but only as part of that diversifying of flexibility rather than replacing methane on a large scale.

Q497 **Wera Hobhouse:** Yesterday, I was at a breakfast meeting about short, medium and long-term battery storage. I learned that this is not something that would, for example, tide us over two weeks or so of cold weather. We are really talking about only a few days here or there; therefore, these batteries are not the answer for a cold snap. Do you have any ideas for that flexibility beyond 2050, when the main energy generation will come from renewables?

Katrina Young: It comes back to the diversification of supply. It is going to be a mix; there are going to be interconnectors. There is some really innovative research ongoing in terms of hydrogen salt caverns, which can potentially provide long duration energy storage. We are working with an innovator on that, using high density hydropower. A fluid that is two and a half times as dense as water means that the elevation you need for hydropower is two and a half times less. Rather than needing mountains, suddenly you are looking at needing hills, of which the UK has a lot more. Over 6,000 potential sites have been identified for high density hydropower, which can last over the length of a day. Rather than putting all our eggs in one basket, we need multiple use cases.

Q498 **Wera Hobhouse:** Anybody else?

Lawrence Slade: It comes back to the speed at which we can expand the grid, particularly at that transmission level. The more we can connect new generation across the geographical spread, the better that will be. But as Kat says, there is also the need to have that mix of generation on the system, whether that is from CCUS linked gas-fired power stations, or some form of hydrogen, and so on. It is all about having that mix on the system. There is a race on at the moment to make sure we get ready for CP 2030, but in my mind, that is also about making sure that we get match fit for the next decade, the '30s and the '40s. It is about making sure the grid is there to connect up these new technologies as different generation sites appear around the country.



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So I do not think it is about reliance on any single element; it really is about that mix of generation on the system linked to the flexibility that we can provide.

Chair: I will briefly interrupt to say that we will be voting relatively soon, and we will need to suspend the session. We will get back to you as quickly as we can.

We have about three more minutes for this question, and then we will move on to the next person.

Q499 **Wera Hobhouse:** Fair enough, Chair. As I understand it, inertia is about the speed of the turbines in generating electricity; what will the main challenges be in maintaining inertia on the grid as we decarbonise, and can it be done without adding significantly to bills? As I said at the beginning, what does all this cost, and what would be the cheapest option? That is always a big thing on the minds of both industrial and private consumers.

Dr Bukhsh: Inertia is the key to ensuring the stability of the power system. It is the stored energy and rotating mass of large generators, and traditionally it is supplied by coal and gas; some from the demand side but some from large industrial motors.

As we are getting more renewable penetration in the system, at times, the solution delivered by the market does not satisfy the inertia requirements and the system operator has to pull back on renewable generation and bring on gas generators to meet that requirement. That costs money, in the order of millions or tens of millions of pounds; it peaked during the covid crisis when it was £350 million. Now it has come down to about £50 million a year because the NESO is taking initiatives in the inertia market, bringing products to what it calls stability pathfinder projects.

The requirement for inertia is going to remain in the near term and for the next 10 to 15 years. That is why the Government have put in a strategic investment of 35 GW of gas-fired generation. In the long term there might be an innovation breakthrough that could reduce the need for inertia. But for stability purposes in an electricity system, that need would still be there.

Q500 **Wera Hobhouse:** We were talking about the fact that the system should be abated gas—that is, it has to have a carbon capture attached to it. Does the cost calculation include the abatement?

Dr Bukhsh: Yes. Abated gas-fired power plants provide inertia.

Q501 **Claire Young:** I want to talk about Drax and biomethane or biogas. There has been a lot of criticism of the carbon negative claims made by Drax, and some analysts have predicted that the revamp of the site could be one of the most expensive energy projects in the world.



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If I can start with you, Dr Bukhsh, why do you think the Government awarded Drax a contract for difference to produce electricity at £109.90 per megawatt-hour rather than alternative biomass or biomethane technologies?

Dr Bukhsh: There are two points here. First, the sustainability impact of using biogas, as you have touched upon; I am not qualified enough to comment on that. I will comment on the second point, which is the value of biomass for the electricity system.

It is true that Drax is less flexible than a gas-fired power plant. Drax offers around 10 MW per minute to 20 MW per minute of ramp rate flexibility; CCGTs offer three or four times more flexibility. But for system operation, we do not need a single type of flexibility. As my colleagues have said, we need diversity.

Secondly, Drax is strategically very important. In the 1990s when we had the dash for gas, our power system transmission planning was very much focused on CCGTs, so we had to have something in North Yorkshire around the Drax location. In that context, it was right to award a contract. Drax is very stable. It can provide base load and it provides spinning reserve, which is a very useful feature of a generation power plant.

Q502 **Claire Young:** How economically competitive would BECCS be against abated methane gas in generating electricity?

Dr Bukhsh: It depends on the market conditions. It depends on the cost of gas, and the cost of carbon capture, transportation, and storage. So to answer your question, it really depends on the economies of how much biomass costs, and the carbon footprint of the two technologies.

The only evidence I have in this regard is the bid and offer price that CCGTs and biomass submit in the balancing mechanism. From that evidence, I would say that biomass is quite competitive compared with gas. But again, that changes depending on the cost of gas.

Q503 **Claire Young:** The sustainability of imported biomass is controversial. Is it more sustainable in the broader sense than abated methane gas?

Katrina Young: To answer that you would need to do the full life cycle calculation of both. They have quite long supply chains, particularly for the amount of biomass that we import currently for Drax. So one side of it would be to look at how much more domestic biomass we can produce for BECCS.

We did a short study with DESNZ on this issue, looking at a few different agroforestry and short rotation crops. Willow grows very fast, and we could provide up to 1 million tonnes of that domestically, which would avoid shipping and reduce emissions. But this is not just about greenhouse gas emissions. For anything to do with biomass, you need to look at everything—land use, water use, and so on—and the opportunity



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cost of whatever else you are displacing from the land. I would not be able to give you a figure for which is better than the other, but we would be looking at the supply chain and the energy system services they both provide. The potential of negative emissions from BECCS would also need to be taken into account when comparing it with abated gas.

Graeme Downie: I want to move on to talk about interconnectors and their role in supply-side flexibility, but I am not even going to start the question because the bell is about to go—*[Interruption.]*

Chair: We are going to suspend the session while we go and vote.

Sitting suspended for a Division in the House.

On resuming—

Chair: Welcome back to the Energy Security and Net Zero Committee, where Graeme Downie is about to ask his set of questions.

Q504 **Graeme Downie:** Thank you. I will keep it short and to the point; I am still out of breath. How can the Government balance flexibility through interconnectors and develop new sources of supply-side flexibility? I will give that to Kat.

Katrina Young: Interconnectors definitely have their part to play. National Grid came out with its analysis yesterday that, over the last two years, interconnectors have provided a net benefit to consumers of over £1.65 billion. They are therefore part of the diversification to allow flexibility, but I would not say interconnectors can be relied upon for resilience. We have interconnectors with neighbouring countries where the weather is not that different in terms of variables and the time zones are not that huge in terms of shifting peaks. Therefore, if we are under a real stress scenario, it is likely our neighbours will be as well, and we will be paying very high prices for that.

So it is definitely part of the whole system approach, but it needs to be balanced.

Q505 **Graeme Downie:** Is it something that is more useful in an emergency or an unexpected event, rather than something that would be considered part of a programme?

Katrina Young: If the event was unexpected and only affected the UK, we could definitely draw on neighbouring connectors. But if it was something that was more European-wide, other countries would also want the security of their own supply first.

Q506 **Graeme Downie:** You do not see a risk that, for that reason, increased use or reliance on interconnectors would dissuade from domestic energy production?

Katrina Young: No, I do not think so. We would need both for that.



Q507 Graeme Downie: Just to pick up on your point about cost, would there be any cost impact of building less offshore and importing more at peak need?

Katrina Young: Building offshore wind farms could lower bills in the long term, but it will increase the flexibility needs if we are just building more and more; interconnectors could help in that. It is that balanced mix that we are looking at, where importing at peak would be very expensive as well. But we have not done in-depth research on interconnectors.

Lawrence Slade: I can probably usefully add to that.

Q508 Graeme Downie: Kat has just outlined the role of interconnectors in supply-side flex. Do they have a role in keeping energy costs down, and do they have any role additional to that?

Lawrence Slade: First and foremost, I agree with what Kat is saying; they definitely have a role. On average, they are hitting about 15% of UK demand at the moment. In fact, when I left the office, it was around 16% for today. So they definitely have a proven role, but as part of our overall energy mix.

Q509 Graeme Downie: Would you see that changing in the future if we have more offshore wind farms, or do you think the target should be for the number of those to come down and the role of interconnectors to go up? Or is it roughly what you would expect?

Lawrence Slade: It is what we would expect. The interesting thing about interconnectors is that they tend to be entirely funded through private investment, and if you look at grids, they are able to survive without the level of public support of some other areas. So that is a key criterion.

A point to make also is that, I believe in 2024, National Grid's interconnectors helped us meet demand during 12 periods when the UK's demand outstripped supply. They have a proven part to play in what we are doing in the UK, but as demand grows in our country, that will be as part of the overall generation mix as opposed to a specific area in its own right.

Q510 Graeme Downie: Can we be confident that the savings from reducing the structural inefficiencies in how we trade electricity with the EU will actually pass through to British consumers? Kat, I would be happy if you could start off.

Katrina Young: I am not an expert on electricity trading so I would not be able to give you a hard answer, but it would depend on the wholesale and the market retail design. We would want that transparency, because without reform that efficiency gain is not guaranteed to be passed on to consumers.

Q511 Graeme Downie: Does that come back to your earlier point about the weather being the same, the conditions being the same, and you are



going to see similar conditions regardless?

Katrina Young: Yes. It helps that our neighbouring countries have a different mix of electricity; France has its nuclear base loads, and that is very beneficial as well. It is an extension of diversifying.

Q512 **Lizzi Collinge:** Very quickly, just to make sure I have understood this correctly, we are talking in this context about interconnectors only being used to import energy; but my understanding is that they can be used to export energy as well. Just to get back to your point about the energy mix, would strengthening our interconnector system and trying to get a varied energy mix across Europe make for a more flexible market and perhaps lower import costs? For example, we have loads of wind in Scotland; Spain has more sun. Would that play into it, and would it be worth collaborating with European colleagues to look at the energy mix across the whole of Europe? Or is that restrained by natural factors?

Katrina Young: That plays into it in terms of maximising each nation's weather conditions and geographical characteristics, but I could not comment on the politics post Brexit. As long as the electricity grid could cope, that would be the main thing. The wind may be very much flowing in Scotland, but how do we get that to Spain? We cannot even get it to the south of England when we need it in the first place. It is the investment in that requirement that is necessary. It is not an either/or; in terms of flexibility or grid reinforcement, we need both.

Dr Bukhsh: Just to add to that, interconnectors have an equalising impact on prices. GB is a net importer; our modelling and that of many others shows that we are going to be a net importer up to the 2030s, so consumers will benefit. But from the 2030s leading up to 2050, that role will reverse and we will start to export electricity. In that sense, interconnectors are strategic as a source of exporting energy.

Q513 **Ms Billington:** Can I just add a question about resilience? People have started to raise concerns about interconnectors being the target for attacks because we rely on them for all the reasons that you have explained about balancing and so forth. We have about 14 out there with our neighbouring countries. Does that sound about right?

Dr Bukhsh: It is less than that; it is 9.8 GW of capacity.

Q514 **Ms Billington:** Forgive me; I work in lines rather than gigawatts. I know we have one to and from Norway and we have a couple to France. The point is, how much concern is there about risks to interconnectors for energy resilience? Is national energy security a real problem?

Dr Bukhsh: Generally the way the electricity system is operated is under an N-1 criteria, with 1 being essentially the largest loss of infeed. The largest interconnector we have is 1.4 GW to Norway, so the loss of that interconnector is a credible contingency and we can secure against that.

Q515 **Ms Billington:** How do we secure against it?



Dr Bukhsh: We can do that through keeping the reserve within the country, spinning reserve, batteries, flexibility and all kinds of things. Increasing the number of interconnectors at the same magnitude is not necessarily going to increase the risk, but if we were to have more and bigger interconnectors, such as a 1.8 GW line link coming in, that would mean we would have to keep more reserve within the system, and that is going to be expensive.

Ms Billington: It is better to have lots of small interconnectors rather than a couple of big ones. Excellent; it is almost like sociology.

Q516 **Mike Reader:** I will ask the questions on large scale energy storage in a second. In terms of the cost to the consumer right now and in the next few years, and in terms of energy bills, is there more of an impact from the Government paying lots of curtailment costs or from investing in loads of 40 GW of storage? What is actually going to have an impact on people's energy bills? Could we delay putting storage into the grid and just pay curtailment costs? Is that cheaper for taxpayers? I just wanted to ask that knotty question.

Dr Bukhsh: Very briefly, there are three challenges that we need to sort out. First, just adding more renewable energy is not going to lower the consumer costs; we need to sort out transmission to move energy around. Secondly, there is the market mechanism. We had a long four-year review and we ended up with a—*[Interruption.]*

Chair: We will suspend the session again for another vote.

Sitting suspended for a Division in the House.

On resuming—

Chair: Welcome back to the Energy Security and Net Zero Committee.

Q517 **Mike Reader:** I will pick up on my point and ask if we could focus on the cost of energy to the consumer. What has a bigger impact on reducing bills? Should we just carry on paying curtailment costs, so we do not have to build loads of batteries, or should we be building batteries to have an impact now on the cost of energy?

Dr Bukhsh: My view is that we need to build more transmission. Simply building more batteries and more renewable assets is not going to lower consumer bills; it will actually increase consumer bills because the curtailment costs will grow.

Fundamentally, there are three main challenges that we need to address. First, on transmission, this Government recognise that there are critical strategic transmission investments that we need to make from north to south, and south to west as well. Secondly, on the market, we need to make sure that market mechanisms enable flexibility. Thirdly, on operational efficiency, until very recently the NESO's control room did not have the capability to instruct large numbers of batteries. For the last few



years, it has been doing a lot of innovation in this area and it has now started to instruct quite a large number of batteries.

Q518 **Mike Reader:** Lawrence, if our supply-side flexibility is provided through large scale energy storage, how much does that add to the cost of bills?

Lawrence Slade: I cannot give you an exact figure, but what I will say is that if we are talking curtailment costs or constraint costs, I completely agree with my colleague that the root solution, the fastest solution, to that is building the grid out. The faster we build the grid out, the lower you are going to bring those constraint costs—effectively overnight—which will have a direct impact on consumers' bills. But the important thing that we must stress time and again is that, whereas under ED2, the last distribution price control, we had a flex-first approach, we are now moving into a world where it is flex and build. The two must be working in concert to deliver the benefits that we all want to see and that will directly benefit customer bills.

Q519 **Mike Reader:** How do we avoid the potentially significant costs of the development of large scale energy storage under the capacity market cap and floor scheme and other schemes setting consumer bills for years to come?

Katrina Young: It is definitely a risk in terms of locking in long-term changes. The cap and floor reduces some investor risk, which is what the industry needed to see because we are talking about high costs up front to build something that has uncertain revenue. The cap provides some degree of consumer protection, but it also shifts investor risk on to the consumers without ensuring the assets are actually going to be operating when we need them to; it is about capacity rather than flexibility. I would want to see more system demonstrable benefits, lowering the balancing mechanism costs to have that outcome-based result, rather than just a blunt instrument.

Q520 **Mike Reader:** I was at the same breakfast as Wera yesterday; we heard that the cost of batteries is through the floor and lithium is very cheap at the moment, primarily driven by China's trade ambitions. If we start building lots of batteries and the price goes up, are we at risk of market extortion from China if we become reliant on battery technology for our storage? There will be a cost impact to consumers if the price of building the batteries goes back up.

Katrina Young: One of the things I would add to what my colleague said earlier is that we have a high skip rate so we are not currently making the most of the batteries we already have. Yes, there is investment in terms of operational capacities, but there is still a high skip rate—moving over batteries to more expensive gas for that flexibility. For more efficiency, I would want to see that addressed first.

In terms of the most cost-efficient number of batteries that we are aiming for, our innovative net zero modelling shows 27 GW of batteries by 2030. Much beyond that, you are looking at diminishing returns; it is



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more cost effective to look at the flexibility provided by the batteries in electric vehicles. It is not a batteries-at-all-cost scenario; you want to see what else you can be using as well.

Q521 Chair: When you talk about the better use of existing batteries, you are talking about large scale batteries—yes? Okay.

You just touched on electric vehicles; there are suggestions about the use of vehicle-to-grid and other smaller scale batteries that reduce the need to either scale up the grid or, to some extent, increase generation. Do you think there is merit in these ideas?

Katrina Young: In terms of vehicle-to-grid?

Chair: Yes, using localised storage to reduce the demand for either generation or grid expansion.

Katrina Young: Yes, definitely. On the one side, those assets are already being paid for by consumers, so they are not a direct cost to the energy system and the grid. They are a large source of demand-side flexibility on the supply side, which is the balance that you need, as I am sure you will hear about in the next panel. But we are now looking at post 2030 when the EV market will be larger than it is now, and there will be more standards around battery resilience in terms of what you can draw from vehicles to the grid, and regulation in terms of bidirectional charging for EV chargers.

Dr Bukhsh: Just to add to what Kat has said, our modelling work shows that we could soak up two thirds of curtailment in Scotland if we were to smart-charge our EVs. So there is much potential in using the flexibility from electrified transport. There are challenges and barriers to how you enable that because most of the tariffs at the moment do not allow consumers to smart-charge. Consumers have limited choice, but if you end up in a world where consumers can offer their flexibility at competitive rates and we are able to make use of that flexibility, that is going to be very valuable.

Q522 Chair: Are you talking about a combination of smart-charging and using storage?

Dr Bukhsh: It is bidirectional, yes.

Q523 Ms Billington: I wanted to talk a little about supply-side flexibility; are we at risk of paying too much for it?

Dr Bukhsh: There is a risk that we end up in a world where we have too much supply-side flexibility over-investment and stranded assets. My view is that such a risk is limited. There is a greater risk that we do not have enough supply-side flexibility; then there is a trade-off between supply-side and consumer flexibility.

Q524 Ms Billington: Just to differentiate, I am talking about paying too much for it. Now the risk, of course, is that you pay too much because you do



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not have enough of it. Are we at risk of paying too much for the supply-side flexibility because we are not going to have enough?

Dr Bukhsh: No, I do not think so.

Q525 **Ms Billington:** Okay; can you explain why?

Dr Bukhsh: If we end up in a world where we are building too much supply-side flexibility, consumer-side flexibility can complement that.

Q526 **Ms Billington:** What does that do for costs?

Dr Bukhsh: The risk of not building too much would be worse than building too little.

Q527 **Ms Billington:** So if we do not build enough, costs will go up?

Dr Bukhsh: Yes.

Q528 **Ms Billington:** I am just trying to keep it simple; is that all right? I just want to make sure I understand. Do you agree with the premise that we have stagnant electricity demand and that it is likely to continue, or are you sceptical about it?

Dr Bukhsh: I am sceptical.

Q529 **Ms Billington:** Can you explain why?

Dr Bukhsh: We are already seeing that demand patterns are changing, and my view is that demand patterns will continue to change.

Q530 **Ms Billington:** Upwards or downwards?

Dr Bukhsh: Both ways. Within Europe—

Ms Billington: Upwards and downwards does not really help with planning, does it?

Dr Bukhsh: It means there is a greater need for flexibility.

Q531 **Ms Billington:** I was talking about the aggregate amount of electricity demand. Obviously, over a period of time, it will go up and down, but over time, is electricity demand going up, is it going down, or is it staying stagnant?

Dr Bukhsh: Thanks for the clarification.

Ms Billington: Sorry, I am just trying to make sure I understand.

Dr Bukhsh: My view is that the aggregate demand would go up but intraday demand variations would be more volatile. Aggregate demand would go up simply because we would electrify transport and heat, and that demand would come on to electricity.

Q532 **Ms Billington:** Therefore, if we do not do enough supply-side flexibility and electricity demand is going up, we are going to end up with higher



costs. What about expanding demand-side services? How would that impact on cost and the resilience of the system?

Dr Bukhsh: Both demand-side flexibility and supply-side flexibility solve similar problems, but they also pose different challenges. As we electrify our transport and heat there would be a need for investment in our distribution networks, which are currently now operating closer to their headroom. So consumer-led flexibility has a huge role to play in keeping our distribution networks going.

Q533 **Ms Billington:** Are we really going to rely on people putting their washing machine on in the middle of the night?

Dr Bukhsh: Correct.

Q534 **Ms Billington:** Seriously, do we think that is a way for us to balance our energy system?

Dr Bukhsh: If there is enough economic incentive, yes.

Q535 **Ms Billington:** Are you in charge of your washing machine at home?

Dr Bukhsh: No, I am not.

Q536 **Ms Billington:** This is a serious point. If we leave it to consumers' behavioural change, when people have a lot of other things to worry about, the only thing that drives that level of behavioural change is really serious anxiety about cost. Much as we may talk about the cost of living crisis, I am not really interested in designing an energy system that forces people to get up in the middle of the night to put their washing machine on. I exaggerate deliberately for effect. Is there an alternative?

Dr Bukhsh: Automation is an alternative. I am in charge of charging my EV, and I charge it at 7p. I do not have to do anything; I schedule it a week ahead. It is ten times less expensive than charging at the peak rate.

Q537 **Ms Billington:** Lawrence, do you think that policymakers get it when it comes to creating the right policy framework for this all to work?

Lawrence Slade: I would just very quickly come back on that last point; it is worth noting that the local flexibility markets have grown in the last year by 287%, from a factor of zero back in 2015 when the open networks programme began. That has delivered 9 GW of contracted flexibility, and 80% of that 9 GW came from renewable sources, such as wind, biofuels, stored energy, solar, demand reduction, and so on. It is always going to be about having a mix of different devices available on the system to help us get to this point. For example, by using local flexibility services, UK Power Networks were able to unlock capacity for 500 MW of demand without having to upgrade a number of substations. So if we get the right mix of technologies—including automation at the consumer level and distribution system operators being able to call on batteries and various other devices—then we are going to be making a positive and direct impact on customer bills.



Q538 Ms Billington: Do you think the current policy framework is sufficient for that to go up at the scale that is required, bearing in mind that we are going to increasingly put pressure on the system?

Lawrence Slade: There are a couple of fundamental points here. First and foremost, yes, we are heading in the right direction, but it has to be a combination of having the right regulatory regime in place as well as certainty around the policy direction. The two have to work together. Why do I say that? Because as we look forward into the next transmission price control, T3, and the next distribution price control, we are looking at needing tens of billions of pounds of investment. That will come from international investors. Now, I touched on this earlier, but it is absolutely critical that I make the Committee aware of the risk that, if there is any suggestion of retrospective action around regulatory regimes—such as was referred to in your interim report—then as Ofgem itself quoted, that will have the potential for a direct increase in consumer costs.

We can deliver all this at the current 99.9% reliability that networks are giving you. We can hit and we can grow flexibility markets, but it is absolutely critical that the regulatory regime and the policy are very clear, very stable, and very forward-looking.

Q539 Ms Billington: Would you elucidate the retrospective policies?

Chair: I would rather he did not; we have had that conversation, but we would like you to write to us about it.

Lawrence Slade: I have written to you about it already, but I am quite happy to do so again.

Q540 Ms Billington: Okay, that is fine. It feels like this involves a lot of moving parts. Government are not used to managing an energy system that is this complicated; they normally need to leave it to the market, to the regulatory bodies and so forth. Are you confident that the Government have policies in place for us to be able to make sure that supply-side flexibility is there to bring down bills in a newly electrified energy system?

Lawrence Slade: Overall, yes, I am. You mentioned leaving it to the markets. We were asked to look at flexibility and how we could build that market. From scratch, we built a 9 GW market last year; it is forecast to save consumers £3 billion in the next few years alone. The Carbon Trust is looking at something out to £17 billion by 2050 in terms of system savings. That is now moving to an independent market facilitator, Elexon.

It is moving in the right direction, but the big ask is to give us clarity over the different roles of the market participants. What is the role of the NESO? What is the role of DESNZ? What is the role of Ofgem? What is the role of the DNOs? And what is the role of the market facilitator? If your report can line those up, that is going to be a huge step forward.



Wera Hobhouse: We have slightly moved on but ultimately this is a debate about the distribution and transmission networks. What is the cost of upgrading the transmission network versus the cost of upgrading the distribution network? We are always looking at the cost of energy to consumers, and since it is so difficult to calculate the cost of millions of micro-installations in our homes, the solar on homes and all the rest of it, it is very difficult, is it not, to calculate the supply flexibility for the NESO, for example? Can you put any cost on what it would mean to upgrade the distribution network versus the transmission network?

Dr Bukhsh: We have some numbers for the upgrade of the transmission network—the big infrastructure projects going from north to south and so on. But I agree that one of the challenges is that the impact of flexibility is felt across the energy sector on transmission, on distribution, on generation, on reliability balancing and so on, so it is very difficult. It is important to have a holistic view. In terms of comparative costs on transmission and distribution, I do not have those numbers, but my feeling is that we need investment on both the transmission side and on distribution.

Q541 **Lizzi Collinge:** I just wanted to get back to Polly's point about demand-side flexibility at a consumer level; I am interested in automation because I agree with her that it is too much to ask people to do it themselves in a meaningful way. Do we currently have systems where, if people have an EV solar battery and a tariff, those can talk to each other and they do not have to think about it? They just say, "Charge my car when it's cheapest. Use the battery when it's most expensive." If that does exist, is it actually available to an ordinary person and usable by them? Or will it just be used by nerds like my dad who enjoy looking at what is going in and what is coming out?

Dr Bukhsh: My experience is that they are available, but they are not as streamlined as they should be. I would not say that they are accessible to a normal person at the moment.

Q542 **Lizzi Collinge:** If that was to be developed in a way where a consumer did not have to do anything—the tariff is there, the technology is there, and they all talk to each other and all people have to do is give their preferences—who do you think would be best placed to deliver that? Is it the network operators? Is it the Government making one app, similar to the national parking platform? Who do you think is best placed to deliver that integration to allow for automation?

Dr Bukhsh: I would say that it is up to the private sector retailers. I am with Octopus and it is the market leader in this space.

Q543 **Lizzi Collinge:** Kat, do you have any other comments on that issue?

Katrina Young: That interoperability between technologies is really important and something on which we would want to see a clear steer. There is no clean technology where you have your EV battery, heat pumps, or solar. There is no normal person market-wide app you can get



and plug in because the standards are all different and they do not talk the same technological language.

Q544 **Lizzi Collinge:** There is no interoperability standard for energy?

Katrina Young: No, not one that will cover the whole of the technology that we want to put in people's homes according to the warm homes plan this morning.

Q545 **Lizzi Collinge:** That is notable, Chair; there is no interoperability standard for energy software.

Ms Billington: There is not even interoperability for EV charging points.

Q546 **Lizzi Collinge:** That is notable and something that we could do.

Lawrence Slade: That is very interesting. A very quick additional point is that we see all the time the huge benefits of the digitalisation of the energy system; it would be amazing if this session or the next one did not mention digitalisation in the home and the availability of smart-metering. How quickly we can complete the roll-out of smart-metering and then form the digitalisation of metering and data flows is going to be fundamental to bringing in full flexibility across the system.

Q547 **Lizzi Collinge:** Does smart-metering affect consumer behaviour?

Lawrence Slade: I am not going to go that far; having been involved in the roll-out, that was a bit of a misnomer. But it does act as the foundation that opens the door to all the things that you are hearing about now and later on in terms of consumer flex and the automation of the same.

Q548 **Lizzi Collinge:** Would you indulge me, Chair? My rural constituents have real problems with smart meter; they just do not work. So how can we make sure that smart meters actually work for the whole population, not just in urban centres?

Lawrence Slade: With all respect, that will need to be answered by those who are responsible for the actual roll-out; maybe the DCC, the data communications company, should look at that. But it is certainly understood that the level of comms availability is, and has been, one of the challenges with the roll-out.

Chair: Melanie, you had some questions that came out of the written evidence.

Q549 **Melanie Onn:** Lawrence, I am interested in the written evidence submitted by the Energy Networks Association. In the subheadings, it says, "How flexibility has helped deliver savings, including reduced customer bills". It refers to consumers saving £500 million between 2023 and 2024 by using energy more flexibly. We also had some evidence from your friends at Future Energy Networks that you mentioned earlier. It submitted the fact that bills have increased from just over £1,560 to £1,758 over the last 18 months.



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I just wondered, who is right? You are saying flexibility has already helped to deliver savings and a lot of money has been saved. They are saying that in reality bills have gone up. When we are considering this, which is correct?

Lawrence Slade: Probably both.

Q550 **Melanie Onn:** That is because these are not real savings; they are projected savings of what could have been if it had been worse and we did not have the flexibility.

Lawrence Slade: If we did not have that flexibility on the system, that 9 GW—which is the equivalent of three Hinkley Points—would have had to come from somewhere. It would have to be paid for by extra generation, wherever that may have come from on the system. By having that flexibility available, you are driving down those costs.

The projected savings of £3 billion and the potential £17 billion by 2050 that I mentioned come about through making sure that we are maximising the efficiency of our network. As I said earlier, the flexibility must work in concert with the need to build out the grid.

Q551 **Melanie Onn:** Ultimately the Government have said, “We are going to bring down consumer bills.” But when we are discussing this with consumers, we have to say, “Oh well, it could have been an awful lot worse.”

Lawrence Slade: It is all about how you say it, I grant you. I do not disagree with that, Melanie. But the critical point is—

Q552 **Melanie Onn:** Citizens Advice submitted evidence that energy networks have made excess profits of £3.9 billion since 2021. Is there any element of that figure that could go into reducing bills for individuals? Or do you dispute the figure?

Lawrence Slade: We absolutely dispute that figure. Indeed, I would point the Committee in the direction of Ofgem, which found that—and this is my point—any hint of retrospective action against a regulatory settlement has an immediate impact in unnerving investors, which follows through to a potential impact on the cost of capital and, therefore, a potential increase on customers’ bills.

The issue here is that Citizens Advice is looking at a finite period of time, not looking at returns over the long term, which you need to do with infrastructure investment. That is why Ofgem concentrates on using the—

Q553 **Melanie Onn:** Do you think that those profits will go down over the next five or six years?

Lawrence Slade: Yes, and that is what Ofgem is looking at. If you look at this over the long term, sometimes we will be below expectations. We did not ask for extra money to make up for that. Sometimes we will be above. The critical thing from a regulatory point of view is to maintain



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stability over the duration of the investments that are being made, which can be up to 50 years, so that our investor community say, "Actually, the UK is a great place to invest. This is where we need to put our money."

When we are about to ask for £50 billion for network investment, or much, much more, having that certainty of seeing stability as we go forward, not retrospective action, is absolutely critical. I would also point to the work that we are doing on sector growth, which underlines just what an enabler the electricity networks are for economic growth.

Q554 Melanie Onn: Are you doing enough to explain this to the likes of Citizens Advice which, when it comes to consumer-facing support and messaging, probably has a better route to the general public than the ENA?

Lawrence Slade: We certainly can do better, as I have written already, and I am quite happy to come and talk to the Committee in more detail around this. But as I say, I would also point the Committee to Ofgem's findings on this; it also refutes the manner in which Citizens Advice has undertaken its analysis, specifically because of the style of infrastructure investment and the long-term nature of it.

Q555 Chair: If the figure is not £3.9 billion, what is it?

Lawrence Slade: Well, it will be the profit figures that are in the annual reports, but it will also be the return on equity figure that Ofgem quotes in all its reports and its target figure, which is around a 6% regulated return on equity.

Q556 Chair: So that is not £3.9 billion?

Lawrence Slade: No.

Q557 Chair: What is it then?

Lawrence Slade: I do not have that figure to hand, Chair, but we can make sure that we follow through with the detailed figures for you.

Q558 Chair: I am tempted to say that if you do not know what it is, how do you know it is not £3.9 billion? But do not worry about answering that. Can I ask you about connections queues? The reforms are widely welcomed; tell us how they are going.

Lawrence Slade: As you know, the queue had reached something in the region of 700 GW to 800 GW before the reforms started coming into place. The connections reforms led by the NESO, but with the support of all the networks, are now coming through. It has been a very complex process but ultimately we should start seeing a faster connections process coming through, effectively moving from a first-come, first-served system to a first-ready, first-finance-in-place, first-connected process. That is going to help greatly in terms of delivery out to 2030 and beyond.

Q559 Chair: Right. I will try it a different way then: are the promised



connections being made as planned now?

Lawrence Slade: I am not quite sure what you are driving at there, Chair, but in terms of the networks, where they are able to and where the developer has financing and planning permission in place and where, if network strengthening is required, we have planning in place, then the answer would be yes.

Q560 **Chair:** You are not picking up any sign of delays?

Lawrence Slade: Not above those that are already in play due to planning constraints and the issues we have in terms of having to strengthen substations, and so on.

Chair: Okay. That brings us to the end of the session for panel one; thank you very much for your evidence. We will suspend while we change witnesses.

Examination of witnesses

Witnesses: Dr Alastair Martin, Professor Jacopo Torriti and Sarah Honan.

Q561 **Chair:** Welcome back to the Energy Security and Net Zero Committee hearing on the cost of energy, and welcome to our second panel. Can you introduce yourselves, please?

Sarah Honan: Hello, I am head of ADE: Demand.

Dr Martin: I am the chief strategy officer of Flexitricity.

Professor Torriti: I am professor of energy economics and policy at the University of Reading.

Chair: Thank you all; you are very welcome. The first set of questions comes from Polly Billington.

Q562 **Ms Billington:** You were all witness to the exchanges in the last session, so you will understand my questions around demand-side flexibility. Do you think the Government have more to gain by focusing on demand-side over supply-side flexibility?

Sarah Honan: There is a place for both, although the numbers for Clean Power 2030 and beyond are quite telling. By 2030, the estimates are that we will need up to six times more demand-side, or consumer-led, flex than we will hydrogen and carbon capture. That is 10 GW to 12 GW versus 2 GW to 7 GW. Even when we go out to 2050, we need about 75 GW of consumer-led flex, which is over twice today's entire installed gas capacity. That is in comparison with combined long duration electricity storage and carbon capture and hydrogen of 68 GW. So the potential and the need to make economic flexibility the route is anchored by consumer-led flex. It is interesting that it does not necessarily get the same headlines, funding or resources as the flashier, newer technologies.



Dr Martin: I agree with that. The reason consumer-led flexibility stands out in the clean power action plan is because of the analysis done ahead of it by the NESO as to what size things can get to in the given timescale. But there is another side to that: in consumer-led flexibility, you are not just looking at knocking off a peak; it is also about consumer response to the availability of green energy and therefore putting green energy to work in their locality. When you do that, you make best use of our nation's economic resource, which clearly has an overall economic benefit. Rather than discard energy, we use it. Rather than import it, we get it for free from the sky. Consumers can be flexible. When there is sufficient consistency and laying down of track record, there is also incentive for consumers to become more involved.

This is all about consumers choosing to be involved. I do not believe in the idea of pushing consumers off the bars; I think it is about choice. But when people know it is worth it, they come in, and you get a reinforcing cycle and an awful lot more than you initially thought. So, yes, the Government have a lot to gain by pushing demand-side flexibility.

Professor Torriti: Let me add to what Alastair just said, particularly around the demand turn-up, which is basically avoiding curtailment of renewables. A recent paper by Professor Newbery from the University of Cambridge shows that the curtailment costs of renewables in marginal terms are three times more than the average, which means, because dispatching happens at a marginal cost, every new renewable energy source in the system would be curtailed, and we would pay three times more than we should. So demand turn-up is a valuable and very cost-effective alternative to curtailment. Matching green energy when it is available on the system and avoiding curtailment of renewables is an asset that supply-side flexibility does not have.

Q563 **Ms Billington:** I have some formal questions here, but I will just ask the straightforward ones. Alastair, we have known each other for some time. You are all three deeply enthusiastic about energy. So am I, but I barely spend any time thinking about energy in my own home because, comparatively, I do not have to worry about the cost.

I genuinely believe that, for a progressive world, we do not want people worrying about their energy. One of the most liberating things the Industrial Revolution did for people who could afford fuel was to stop them engaging with the energy market. The poor had to go and collect wood before we had coal, oil and gas. I would like a clean, home-grown energy system so that people do not have to worry about where their energy comes from because it is cheap enough for them not to have to engage with the energy market.

When it comes to consumers, my great concern about demand management is we are asking them to worry about energy—when and where it comes from and how much is available—when they have enough on their plate. As energy experts, can you understand where I am coming from? Can you come up with proposals to ensure that I do not have to



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worry about my constituents saying, "Apparently, I can get free or cheap energy, but I don't understand it. It's happening somewhere else, and all I'm getting is a bill I don't understand"? Frankly, having had the conversations with the energy companies, this is the situation they are already in. We do not want it to get any worse.

Dr Martin: I really enjoyed the way you put that, and I fully support it. I would like to have a transcript of that if there is one going because it is important to say inside the energy industry that we cannot tell ourselves that we will continue to fund the clever and fancy things that we do by dipping our hands into the emptiest pockets. When you use the word "worry", that is exactly the opposite of what we want people to do. There are those who want to engage in energy because, frankly, they are energy geeks like us, and that is great. They are useful as early adopters. But the vast majority of people are probably geeks about something else, not energy.

There are three stages. First, you have to think about energy waste overall. The coming warm homes plan is very interesting. Secondly, there are routinely expensive and cheap times to have electricity. When it comes to heat and transport, where the big variable loads are, tariffs are very good as a means to automatically encourage people to hunt those cheaper prices, but it is not the end of the story. In a relatively small way with our domestic consumers but already with industrials, we are now looking for events. So something happens: today is, or is not, a windy day, or you might get big name events, such as when a couple of ships dragged their anchors in the English channel, pulled the French link, and we lost 1 GW of supply. But we also get hundreds of events a week, most of which are low level.

An efficient system will send signals that consumers have opted in to receive to their devices, which will pause for potentially a few minutes while a matter is dealt with and then come back on. It should have no impact on the warmth of the consumer's home and their ability to get to work in the morning. It should be to their benefit, and it should be their choice and nothing to do with people sitting around candles and cooking on camp stoves because they have heard on the news that it is a good thing to do.

Sarah Honan: To frame it a slightly different way, consumers are already the victims, or have been passive observers, to the whims of large generation and networks for decades. This revolution is about pushing them to the heartbeat of the system but recognising that they have day jobs, cars that need to be charged, and homes, buildings and industrial processes that need heating. That means the energy system working around them and their needs because of their centrality in making clean power a reality. Customers do not know what is going on behind the curtain and the horrible complexities and sludge that we deal with on a daily basis. It is a bit of a swan analogy: their assets float along the water, and everything underneath happens automatically.



Q564 Ms Billington: I have been talking to people about this for a long time. We keep saying this will be possible, but is there more optimism than practical pathways to seeing this demand management significantly reduce the costs that we currently have on the system?

Sarah Honan: It is already happening, as in most EV chargers, around 75% to 90%, are programmed to not consume at peak time. That happens automatically. We now are bringing in regulations that say all new heat appliances come out of the box smart as standard, ready to be automated. What we have not had in the past is the technology roll-out to use those very energy-intensive assets in a smarter way. Also, we have not had the access to markets. If you cannot earn anything, why would you invest in making things smart?

Q565 Ms Billington: What would you like to see change to enable the unleashing of this demand-side revolution?

Sarah Honan: In essence, for a long time it has been about market access, so barriers that we can talk about. We are getting the right messages from a lot of senior leadership in DESNZ, Ofgem and the NESO, but that needs to trickle down into a cultural transformation to the level of people whose lives and working days will change in dealing with millions of assets instead of a handful of fossil fuel giants. Change may be difficult and uncomfortable for a little while, but that does not make it any less necessary.

Dr Martin: That is very important; we meet people in the control centre of the NESO who talk to us about what we are trying to bring to them, and that helps us develop the things that work for them in controlling a national electricity system. As of now, we have a number in the low thousands of electric vehicle charge points in the NESO's balancing mechanism. That capacity is herded into the night time for charging. When we see a good time to adjust charging, we will issue events and send an instruction. That is happening but only relatively recently.

Since 2008, we have been instructing industrial commercial flexibility in similar reserve-and-response markets that the NESO, or its predecessor, National Grid, established. Industrial cold storage could be the first category where we can turn off power for an hour, two hours, or potentially four hours, and see very little detectable temperature change in extremely cold chambers. That is exactly the right amount of time for control engineers in the NESO to stabilise the system and get other capacity in place. It has been happening for a long time, but the limited growth we have managed to achieve in that period is frustrating for a large number of reasons.

Q566 Ms Billington: What are the barriers? What are the reasons?

Dr Martin: There are probably three categories. First is the silly details that we constantly trip up on. An example with cold storage is greenhouse lighting and grow lights for tomatoes. In 2012, there was a fire at Tilbury power station; some of you may remember. It was about 8



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am. We would instruct those grow lights and cold storage to turn off for a while during the fast ramp of demand where things were quite difficult for National Grid at the time. We would turn them off, and then normal service would resume shortly afterwards. At the time, National Grid made a change to its rules of procurement that seemed like a good idea but it did not check with us. As a result, some previous capacity could no longer participate. The greenhouse lights have not been involved since then. Cold storage is still just about there, but the greenhouse lights are paused, and that is really frustrating to me. There are so many details like that.

Next is the electricity industry's failure to understand consumers' mentality. Here, I am talking more about industrial and commercial. Energy managers work in organisations that understand their core market. They make widgets and will take commercial risks in the widget market but will not do that in electricity. They are very conservative beasts, and that plays into the third category, which is the lack of a consistent track record of savings and revenue from being flexible in the way that you consume electricity.

Ms Billington: You do not get any benefit from being savvy.

Dr Martin: It is not consistent. I can go to an energy manager and say, "Look, this is something that we know is coming. It's going to be great." They will ask, "How long will it last?" I will say, "Well, the NESO promised another 12 months of it." They know it is going to take three months to get the first conversation, another three months to get approval, three months to do it, and then they are timed out. So they just say, "No", because they know what life is like in an organisation.

Chair: We will need to move on. Thank you very much.

Q567 **Claire Young:** Can I start with Alastair for this one? What scope is left to remove market access barriers to flexibility?

Dr Martin: If we can lay down a track record of procurement of flexibility when it is available, we will see a wave coming through, and we will see that growing. The action plan, which looks for 10 GW to 12 GW of flexibility from the consumption side, is achievable in the timescale that we have. We are presently looking on the industrial side at a small number of hundreds of megawatts participating. The NESO has upgraded its systems and done amazing work over the past couple of years to improve the way it buys things in real time. The open balancing platform, which you may know about, is right at the wire and coming on in stages. It allows it to lay down that track record, but it is not there yet. It is still buying these things in chunks. It buys batteries on one desk and big power stations on another. It plans four hours ahead, and when it does so, it thinks about the big stuff because that takes time to warm up, and then it has locked out the little stuff. So it is reviewing those practices. As it does that, we will see improvements, and you will see 10 GW to 12 GW coming forward.



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Q568 **Claire Young:** Can you put a figure on how much that would reduce consumer bills?

Dr Martin: On the participating customer side, you are talking about north of £300. If somebody does not participate actively, they still make a saving. I think you have better numbers, Sarah.

Sarah Honan: The 2023 figures, which are a bit outdated given it was pre-change of Government, show that even non-flexible customers would save over £100 per year on bills by 2040. That is primarily made up of £14 billion per year in whole-system savings, savings across lower wholesale costs, lower balancing costs and less generation and network build-out.

Q569 **Claire Young:** How significantly could bills be lowered if the NESO reduced skip rates?

Professor Torriti: First, I should say the direct benefits of flexibility can be derived only if we understand whether we are focusing on consumers with flexibility assets or those without. Benefits passed on to consumers will be directly felt by those with, for instance, vehicle-to-grid chargers for electric vehicles; whereas many of the benefits that Sarah just mentioned are system benefits that would indirectly affect those who do not have flexibility assets. It is critical to understand how flexibility benefits in terms of reducing balancing costs are passed on to consumers.

Sarah Honan: The NESO only started publishing data for how often consumer-led flex assets are skipped in December, but the figures show it is between 45% to 85% of the time. To Alastair's point about attrition, members have brought EVs into the balancing mechanism on a trial basis but were never chosen or were skipped every single time, and therefore they left. If you lose consumer trust, it is very hard to win people back. We have been waiting a long time for the NESO to publish the cost of skips. I am told this is imminent, as is the setting of targets for reducing skip rates, at the behest of Ofgem.

Q570 **Claire Young:** Coming back to Alastair, to what extent can Elexon, as a market facilitator, drive efficiencies that have a significant impact on the cost of electricity? In particular, DESNZ, Ofgem, the NESO and the Flexibility Commission all have a role in delivering the commitments set out in the clean flexibility road map. Does Elexon need new powers to ensure they work together?

Dr Martin: Elexon is the market facilitator. It has taken a while to establish that role, but it is trying to be thorough. Its focus on distribution network flexibility, where you deal with low voltage system constraints, is a good thing because that has not been well served over time, barring forward-looking companies such as UK Power Networks that we heard of previously, that have pushed hard, as have one or two others.



The market facilitator—I am really quite positive about this—will establish rules of engagement between the NESO’s control room, which looks at the whole network and the total energy balance, and the control rooms of the distribution system operators as they are set up. It will establish rules of engagement so that a dispatch of flexibility helps both sides and there is agreement as to who pays for it. When it helps one but hinders the other, they have the choice whether something goes ahead and how information is shared between them. That is the big one. It is sometimes referred to as primacy. The problem has been sitting there for eight years. It was first acknowledged in 2017. It has taken us that time, which we really do not have, to get here. I really want to, and I think I will, see Elexon tearing into that one; that will be very beneficial.

Sarah Honan: Equally, they need markets to facilitate. Ofgem’s recent decisions have thrown uncertainty on the next round of price controls for the DNOs, which you heard about in the last panel. There is no doubt that we need anticipatory investment in networks, but writing a blank cheque at the expense of demand flexibility is not the way to go about it. Injecting a level of uncertainty into the sector in parallel to moments of great achievement, like the clean flexibility road map, creates the swings and roundabouts that get us nowhere fast.

Q571 **Wera Hobhouse:** Demand-led flexibility obviously depends on consumers engaging with thinking about electricity, and we have already discussed whether that is a good or a bad thing. Consumers have not engaged very much with flexibility, and uptake has not been very widespread. Has that surprised you, Sarah?

Sarah Honan: No, because there are two things here: opportunity and cost. We talked a bit about opportunity. If you cannot earn, why would you engage? That is all set to change quite soon and hopefully much more quickly than it has to date. It is ironic because customers have been locked out of the markets they pay to fund. On cost, the effect is twofold: it is the cost of investing in the technologies, such as the heat pumps, the heat batteries and the EVs, but it is also the cost of electricity, especially for heat.

We heard of the warm homes plan today, but it did not go very far in tackling operational expenditure of electrified heat. If you look at heat batteries and networks in particular, they are comparatively far less supported by Government than heat pumps but may be the only solution to electrify heat for about 20% of homes. As long as we have an electricity price that is five times higher than gas—I know the Chair discussed this in the House today—we will not be able to operationalise flexibility for heat.

Q572 **Wera Hobhouse:** Will consumers be attracted to tariffs where large smart appliances could be switched off by the grid operator remotely at peak times? Ultimately, we are talking about, “We don’t really want to think about it. I am happy if somebody else does it for me.”



Sarah Honan: Absolutely. That is automated flexibility. Last year, a poll showed that 84% of customers would do flex if it meant lower bills. The great thing about the smart secure electricity systems programme in Government is it will mandate that appliances come out of the box smart and ready to flex. The flip side of that is regulation needs to be proportionate to market access and revenue streams because of course it adds costs to manufacturers that will be passed to consumers. If they do not have a way to earn back that extra cost in markets, it will be even less appealing to adopt low carbon technologies.

I want to correct something that was said in the last panel. It is fair to say that interoperability is not a part of the system today, but the smart secure electricity systems programme is consulting on and will mandate interoperability from all smart devices in the future.

Q573 **Ms Billington:** What is the timeframe on that?

Sarah Honan: Phase 1 of the regulations will be enforced in 2027 with phase 2, I believe, at the end of 2028, but I may need to come back and correct that.

Q574 **Wera Hobhouse:** Very quickly to Alastair, if the savings on balancing costs are so significant, do we need to raise the sums on offer to consumers for being flexible?

Dr Martin: First, may I also correct something that was said on the previous panel? I do not think it is about washing machines. They are not the point; heat pumps, electric vehicles and domestic batteries are, and you do them first.

Melanie Onn: Because they are large.

Dr Martin: Because they are large. When it comes to heat pumps, if you are in a cold snap, they run almost continuously. The key in that circumstance is to have sufficient pre-heating before the kids come home, say, so that you can be off for the peak. If you have a heat battery, that might be easier to do; they do not have to be huge. With electric vehicles, you can do so much more across the whole time because they are used more consistently but not every hour of the day. Sorry, I have moved on from the actual question.

Q575 **Chair:** No, that was very interesting, but the answer is that the tariffs are not really there to make the most of it. Then it goes back to what Polly said earlier about relying on consumers to get their head around complexity and into the right place with their tariffs.

Dr Martin: The way I see it, efficiency comes first, tariffs second and events third. Tariffs are moving; efficiency is probably a bit behind but should be ahead. You can have a smart tariff that gives you a lower price at night. That is what they do, but they are not that smart. They are not available to everybody because of the smart meter problem that we heard about, which is a very significant issue.



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Q576 **Wera Hobhouse:** Do we need to raise incentives for consumers to do that if the cost savings are so significant?

Sarah Honan: Do you mean on demand turn-up?

Wera Hobhouse: Yes.

Sarah Honan: It is not about raising the incentives on offer to consumers; it is about giving them a seat at the table to begin with. To Jacopo's point, this is why demand turn-up is the golden ticket in terms of messaging. With constrained costs set to rise to £8 billion in 2030—for the record, that is almost a 50-fold increase in 20 years—why on earth do we not pay customers to soak up those green electrons and put them to work?

There are a couple of reasons. First, 40% of domestic bills come from non-commodity costs, so are due to network build-out and policy. That means even if the wholesale price goes very low or drops below zero, I still pay 40p on every £1. The wholesale price has gone negative for almost 700 hours in the last five years, but for only 11 of those hours did it go negative enough to offset the non-commodity costs on bills. This needs to be sorted because it is causing and exacerbating a scandal. Secondly, balancing markets were not made to embrace flexibility at the domestic level. Especially in the light of the REMA decision, the NESO needs to be afforded more opportunity to look for innovative ways of lowering balancing costs.

Wera Hobhouse: In a previous inquiry, we heard that the network costs are the most expensive but also that companies' profits are hidden in the network costs—at least that is what we thought we found out. It is important to get to the bottom of the transparency of network costs in terms of what is included and what is not.

Q577 **Melanie Onn:** If the 40p that you just mentioned is not on consumer bills, is the immediate alternative in general taxation?

Sarah Honan: It could be in taxation; it could be rebalanced with gas. There are lots of options on the table, and Ofgem is investigating this. The investigations do not necessarily delve into what REMA was supposed to answer, which is how to lower those costs fundamentally wherever they sit, because they are going to have to be paid for. Network costs are expected to rise by about 60% by 2030, so it is only getting harder.

Q578 **Lizzi Collinge:** There are a couple of things I want to raise from a consumer point of view. Sarah, you mentioned the percentage of network costs. Have we lost the link between usage and costs almost entirely? Does that make it more difficult to incentivise?

Sarah Honan: When you say usage and costs—

Lizzi Collinge: I mean the consumer use of energy. Is it because so much of the percentage is not about the wholesale cost? Have we



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essentially broken that link between, "Use this much and it will cost that much"?

Sarah Honan: We almost have. When surveyed by Ofgem, over half of consumers said they would like either reduced or removed standing charges, even if that meant incorporating them into the wholesale cost because at the most basic level, customers want to feel like they have some control over what they are paying for.

Q579 Lizzi Collinge: Following on about control and giving customers a seat at the table, in the last panel I followed up on Polly's point that people do not want to think about their electric. We certainly do not want them to be in a position where they have to, as a lot of people currently do. What likelihood, or ability, does the consumer have of saying, "Yes, I am in, whether that's with my EV, or my heat pump, or my electricity, whether it is switching something big off, or switching something on when it is cheaper"? How close are we to a consumer saying, "Yes"?

Professor Torriti: So far, the most credible evidence in the UK for non-electric vehicle users comes from CrowdFlex, which is a strategic innovation fund project. It says that consumers without electric vehicles can flex up to 7%. This is just by running the dishwasher and washing machine, as was talked about earlier. For electric vehicle users, the figures are less certain. We can look at the example of Norway, which has a very high penetration of electric vehicles in its fleet at the moment. The combination of electric vehicle-to-grid chargers with the spot pricing regime in place in Norway means that consumers can reduce residential peak demand by 14%. That is probably enough, but over time it has combined with high levels of automation, which was discussed before. The automation particularly of heat pumps and electric heating has reduced balancing costs in Norway because the difference between troughs and peaks in demand has reduced over time. That is the effect of the high electrification of transport and heating, along with the measures that I just discussed.

Q580 Lizzi Collinge: From the ordinary British householder's point of view, when they sign up for their tariff or plug in a heat pump, are we anywhere near them saying, "Count me in" because that is all they have to think about? If we are still relying on people being energy nerds, I do not think we are going to get there. In practical terms, when I change electricity suppliers or plug in some solar, at what point do I tick a box that says, "I want to be part of this flexible system. I want to charge my car when it is cheap, and I am happy for my washing machine to be turned off for three minutes when there is an event"?

Professor Torriti: We heard it before, but at the moment so much is down to the retailer. Some provide an offering to those with flexibility assets, so the smart heat pumps, electric vehicle smart-charging and so on. We tend to underestimate the willingness to participate of those who do not have those assets. Research done by the Energy Demand Research Centre along with NESTA shows that prepayment meter



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consumers are willing to save just 10s of pence per demand flexibility service event by switching everything off.

Q581 **Lizzi Collinge:** That is because if you are on a prepayment meter, you do not have any money by definition, but you are paying more.

Professor Torriti: You are desperate to get those savings. Of course, it is not the only way to save money, and probably not the most recommendable. The clear message should be that flexibility is not necessarily a win-win for everyone. We need to be clear about those flexibility and equity implications for consumers.

Q582 **Graeme Downing:** Just to go back to the commercial and industrial issues you mentioned earlier, Alastair; a few weeks ago, a business in my constituency got in touch, very concerned about transparency in their bills. Frankly, they felt that someone else was making all the profit and said, "I don't see where this is going to." You touched on this from a systematic sense earlier on, but what is the most effective method to support businesses to become more engaged in using electricity more flexibly?

Dr Martin: A lot is to do with heat. I will give you an example. There is a distillery called Annandale, which has invested in a heat store fuelled by electricity. It is independent, but it has Government support. It can either buy gas on the day or it can buy electricity when it is cheap. It can use either source of heat to make the whisky. Right now, if it simply works through tariffs, it will never be worthwhile for it to make whisky using electricity; it will always be cheaper to do it using heat, for exactly the reason Sarah said around the different costs of levies and where they sit. It is one of those businesses that falls in the gap between strategic industries that received support and domestics where, in the modest rebalancing that happened in the Budget, £150 was saved. The majority of businesses fall in the gap. That is where the win is, when we look at that gap and think about how we can make it worthwhile for people to electrify and be flexible as they do so.

Q583 **Graeme Downie:** How do we do that? Perhaps a better question is: what is the role of Government in doing that? Do we need to find a way for businesses to organise and ask Government? As you say, that is the largest group we need to get to. How do we get them? They want to do this, if they see a benefit. Is it Government support? Where does that come from? Is it market support?

Sarah Honan: This is exactly what happened in the summer, as in the industrial strategy came out at the same time they essentially ended the industrial energy transformation fund, which helped Annandale get its thermal storage. We had hoped in the autumn statement that there would be a targeted electrification discount for dispersed sites, which represent about 1 million jobs across the country. A coalition of trade bodies, including ours, came together to call for this support. We did not get it, and now it looks like the next opportunity to try again will be 2027.



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Without that electrification support, businesses have no incentivisation to decarbonise. As Alastair said, between the renewables obligation going off domestics, and the British industrial strategy and supercharger helping only some businesses, there is a massive lacuna in rural industry—the backbone of industrial jobs in this country—that is completely forgotten about.

Q584 Graeme Downie: What argument came from Treasury? I am assuming it was Treasury.

Sarah Honan: It was just fiscal concerns—fiscal pressure.

Q585 Graeme Downie: So it was not high enough up its list of priorities. Was there not enough pressure from businesses to say they wanted it?

Sarah Honan: There has been a lot of pressure from businesses to say they wanted it, but that is the ironic thing—although we support the industrial strategy—we can grow the IS-8 all we want, but if we lose 1.2 million jobs of traditional industry in the process, what is the trade-off?

Q586 Graeme Downie: You have alluded to my next question, which is, what is the risk of not doing this, beyond the jobs? How does that impact on businesses? What is the cost of not taking this kind of action and not making that available?

Sarah Honan: Industrial electricity prices are crippling; we all know this. Ours are the highest in Europe. You can also think about it in these terms: if businesses can electrify, get involved in flexibility and lower their electricity costs, those costs are passed down.

Q587 Graeme Downie: By what percentage would costs be reduced? Is it in the order of single digits, double digits—where are we?

Sarah Honan: Alastair may be able to answer that better.

Graeme Downie: Having asked you to not generalise massively, generalise massively, please.

Dr Martin: I will do my best. By the way, on the Annandale distillery, because it is north of a constrained boundary, we think there is value in it for it if we can just get the dispatch with the NESO correct. That is something we have been working on. Its view is, when electricity prices go to minus £70 per MWh, it beats gas. That is quite low, and it generally does not go there.

When you look at the cost of throwing away wind, which is substantial, that value should be there more often than people realise. Our view is that we can get a business like that through without any operational subsidy. In the flexibility industry, we have never asked for an operational subsidy for flexibility, but the distillery would not be in the position to consider that had it not had capital support, which could not have come on the basis of the investability that is in the market today.



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We need to get to the stage where people put their own cash in, which means consistent purchase.

Q588 **Graeme Downie:** There needs to be some incentive. Finally, given our costs are much higher than most of our trading partners, are other countries doing something better than us in this regard? Are there any lessons we can learn particularly?

Dr Martin: Flexitricity only works in Great Britain. We do not even work in Northern Ireland.

Q589 **Graeme Downie:** Do you know of any other examples where particularly commercial and industrial businesses have managed to keep their electricity costs down in this way?

Dr Martin: It is very hard to find a comparator because every Government and nation have their own opinion about what constitutes public good infrastructure and what constitutes a bill.

Q590 **Graeme Downie:** Again, it is the Treasury's measurement of what constitutes public good versus business investment: "This should be a business cost, therefore you are on your own," or, "This is a public good, and you should"—

Dr Martin: Public good, we pay for the roads, but people buy their own petrol.

Graeme Downie: That is the balance.

Q591 **Claire Young:** It was said earlier that we need to focus on the big contributors to flexibility, with EVs being one of them. At the moment, is there a noticeable impact of EVs on demand flexibility and reducing peak demand and system costs?

Dr Martin: If I could grab the beginning of that one, electric vehicles that follow tariffs do not charge on peak; they charge at night. For about 1,000 electric vehicle charge points, each of which is about 7 kW, you end up with a reasonably consistent megawatt of flexibility available during the charging periods. In the old days of big power, when the NESO was balancing the system, having at its hands 1,000 MW of reserve was good money. It liked that; it was a good number. With maybe 1,600, it thought it was absolutely peachy. When we talk about 20 GW to 30 GW of wind and maybe 15 GW of solar swinging with the changes in the weather and cloud cover and so forth, it needs more. But if you look at electric vehicle charge points, if every home that has a driveway or access to a garage had a 7 kW charge point, and they all charged at once, that is twice as much electricity as the grid has ever transmitted at peak. So the numbers are enormous. If you treat them as a balancing problem, the cost of handling it is ruinous. If you treat that as a balancing resource, the cost of balancing the system becomes routine and affordable.

Q592 **Claire Young:** Alastair talked about it in terms of being a resource and a



problem. Are there drawbacks to having more electric vehicles with bi-directional charging plugged into the grid? If so, what are those drawbacks?

Professor Torriti: First, let me follow up on what Alastair said. For the first time in future energy scenarios—up to 2030—this quantifies between 0.1 GW to 0.3 GW of peak demand reduction because of the effect of electric vehicle charging flattening residential peak demand. Coming to your question on the drawbacks of V2G, it depends on the kind of investment. There are locational constraints in areas where low carbon technologies are increasing at a fast pace, particularly in southern England. Over-investing in those technologies, including V2G, in areas that are already congested can bring about an increase in costs. There are also equity considerations to be made. How much public investment should there be? One might say, “You need to hold that back until we have a higher penetration of electric vehicles.” It depends on the kind of investment and the location. There can be drawbacks.

Q593 **Claire Young:** In terms of equity, are you saying only a small proportion of the population have it, so it is unreasonable to spend public money because it only benefits what are likely to be disproportionately affluent parts of the population? Is that the point you are making?

Professor Torriti: Yes, and we are familiar with the business model of one buys one’s own charger and can afford it because one can afford an electric vehicle. But I am speaking primarily about public roads and public investment in V2G in other locations. That is what I wanted to clarify.

Q594 **Claire Young:** Given we have the new mileage charge coming, but we also have grants to encourage electric vehicles, do you think the Government are sending mixed signals on EV adoption? Does that have consequences for flexibility?

Professor Torriti: I do not think it is a mixed signal. I understand that the message can be filtered through an interpretation of the charge as primarily for road use and congestion. It is completely consistent with our view of cars and vehicles and how roads are paid for in this country. So I do not think that is a mixed signal.

Dr Martin: I agree with that. I am also definitely not the person to answer whether or not the Government are sending mixed signals on EVs. Forgive me—I am flanked by two people who are more enthusiastic about vehicle-to-grid than I am—but I am not bothered about people discharging their car in order to support the grid as a choice. There is a bit more cost in doing that, and frankly, it is going to be a niche sport. Most of it is smart-charging.

The equity point that Jacopo brought in is fundamental because if we find ourselves in a position where we subsidise people with £50,000 or £60,000 cars to do something smart with their charging, while at the same time there are families whose children go to sleep in their coats because they cannot afford to heat any part of their house, we have



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made a terrible mistake. As I say, when we look at efficiency first, tariffs second and flexibility third, we need to make sure that what we do is equitable.

I would not say, though, that electric vehicles will always be a niche sport. Vehicles of one sort or another are in the hands of very large numbers because people need them for their lives. They will be electric in the future, so that part needs to be affordable.

Q595 Claire Young: You say you are quite relaxed about EVs. Do you see heat pumps and the heat storage that you were talking about earlier as far more important?

Dr Martin: No, electric vehicles are massively important, but I am talking about smart-charging them as the priority—more than vehicle-to-grid, more than discharging into the grid. Everybody needs heat. If we burn gas in leaky homes for ever, obviously we are fools and we are making a national mistake. The question of how we deal with that is something that I know Government are interested in, which is why the warm homes plan is there. As you remedy that, you create flexibility because a well-insulated home with thermal storage is flexible.

Sarah Honan: There is a slightly different tack. Recently, there has been inconsistency in Government policy not just towards EVs but also flexibility in the proposals with regard to the capacity market. As Alastair said, consumer-led flexibility has never been about asking for bespoke technology-specific subsidies. We ask that long-standing markets that have been tech-neutral remain that way. The exact opposite came out of recent proposals to the capacity market which said, "Let us give a rarefied higher price to new build gas and let everything else have the dregs." That is not a message we should send, but it also means that, when as a sector we do not ask for an investment of money but rather for time, co-ordination, leadership and accountability, we are in a situation where we undermine the advancements made with the clean flex road map on evidence with rushed and regressive policies in another area.

Q596 Chair: Alastair, I want to confirm what you have just said. Are retailers wrong to suggest we can use vehicle-to-grid in a very large way to avoid having to increase investment in the grid more widely and in generation capacity?

Dr Martin: I am not basing our business plan on that. We do not need that to succeed, particularly given that we can do an awful lot with smart-charging. It is more expensive to have vehicle-to-grid in your home. People may prove me wrong; they have plenty of times. That might happen again in this context, but we can do a lot with smart-charging.

Sarah Honan: It comes back to the start of this conversation. We like vehicle-to-grid, but it speaks to this over-emphasis on only things that



can export—you only matter if you are exporting to the grid—whereas the whole point of this conversation is that when, how and how much you import is equally as important, and it is not often given equal airtime in policymaking.

Q597 Lizzi Collinge: This is a behind-the-curtain and niche question because I want to talk about the role of electrolysis in demand-side flexibility and hydrogen production through electrolysis specifically. I will come to Jacopo first. Will hydrogen produced through electrolysis have a significant role in demand-side flexibility in Great Britain anytime soon?

Professor Torriti: We are speaking about a very capital-intensive technology, which economically does not quite match other flexibility solutions, so it is niche in its applications and where it makes economic sense. At the moment, it does not beat electrification in terms of cost. It would make sense in very energy-intensive industrial areas where it can be matched with heavy-duty transport, but not transport in general, as in lighter vehicles.

Q598 Lizzi Collinge: Just to be clear, so that I understand, you say it might work where there is heavy industry using hydrogen through electrolysis, or where Arctic wagons are powered by hydrogen, but otherwise, economically, it does not quite make sense yet.

Professor Torriti: I would say so, yes.

Dr Martin: We work with a hydrogen electrolyser company called Protium, which is below the central belt of Scotland but above that constrained boundary. In the markets it serves, there are plenty of uses for hydrogen that do not get into the question of whether or not we should heat our homes with it. Personally, I do not think it is widespread in its applicability. But there is heavy haulage, as Jacopo says, and you can make ammonia, a fertiliser, with it. Hydrogen has a role in high-temperature industrial processes where electricity does not do the job, for example, potentially in cement. There is a case for making hydrogen. If we are going to do it, let us do so in a windy place using electrolysis and not tell ourselves that we can reform methane, bury the CO₂ and keep that going when in fact we have all this wind energy that we are throwing away. Let us make a useful fuel. If you make hydrogen with electrolysis, the fuel that makes the hydrogen is time-shifted electricity from wind farms. What more could you ask? That is perfect.

Q599 Lizzi Collinge: That is great. If we accept that is the right thing to do, do we have the policies in place? Is there a business case for that to work? If not, what needs to happen?

Sarah Honan: It comes back to the REMA point. As Alastair said, the value of electrolysis is most acute when it is locationally based and soaking up wind. We still do not have the reformed national pricing delivery plan, and as long as we do not, there is uncertainty. Things are happening in a black box and, because of this, we already see silos emerging. The strategic spatial energy plan, which is supposed to be the



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centrepiece of reformed national pricing, continually tells stakeholders that it is not interested in distributed connected demand, which I have to laugh at because why does the transmission system exist if not to serve distribution?

Equally, the next level down of spatial planning, the regional energy strategic plans—RESPs—are not mentioned once in the July REMA decision, despite its emphasis on flexibility. In a 250-page methodology consultation on RESPs that just closed, reformed national pricing is mentioned once. If we are serious that spatial planning is supposed to help drive market reform, the fact that none of these policies talks to each other gets us nowhere fast. We play an incredibly risky game the longer we keep demand flexibility out of the reformed national pricing tent.

Q600 Lizzi Collinge: Thank you, that is very helpful. Are there any further comments on that?

Dr Martin: We brought Protium into the capacity market, which means it is willing to come off if there is a supply crisis for the duration of that event. That was a nightmare, but we got it through. Sometimes these hurdles are unnecessary and are buried in the details. There are ways of doing things, but they are often very hard, so reform would help to make it a little easier.

Lizzi Collinge: That feels like the story of our lives.

Q601 Ms Billington: Chair, could I ask one follow-up question? Sarah, what do you put this politely described lacuna down to when it comes to demand management in the price mechanisms?

Sarah Honan: Do you mean in terms of price mechanisms and reformed national pricing?

Ms Billington: Yes.

Sarah Honan: It has been the story of our lives for a long time. When you revert into silos of policymaking, you tend towards what you know: big wires, big generation, big spending. Flexibility is diverse, different and fascinating, but it is also difficult to get your head around, and sometimes you just do not try.

Q602 Ms Billington: It is a problem of big kit versus small kit and a national policy versus a much more locally focused one.

Sarah Honan: Exactly, and always thinking about the system from the top down as opposed to the bottom up.

Chair: That brings us to the end of the session. Can I thank the second panellists for your evidence? We will end there.