



Industry and Regulators Committee

Corrected oral evidence: The energy grid and grid connections

Tuesday 4 February 2025

10.35 am

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Members present: Baroness Taylor of Bolton (The Chair); Lord Best; Viscount Chandos; Baroness Drake; Lord Gilbert of Panteg; Baroness Harding of Winscombe; Lord Teverson; Viscount Thurso; Viscount Trenchard; Lord Udny-Lister; Baroness Valentine.

Evidence Session No. 5

Heard in Public

Questions 40 – 50

Witnesses

I: Jim Cardwell, Head of Energy Systems Policy, Northern Powergrid; Mark Adolphus, Director of Connections, UK Power Networks.

Examination of witnesses

Jim Cardwell and Mark Adolphus.

Q40 **The Chair:** Good morning. This is the Industry and Regulators Committee of the House of Lords and we are conducting an inquiry into the energy grid and grid connections. Today we have evidence from Jim Cardwell, who is head of energy systems policy at Northern Powergrid, and Mark Adolphus, who is director of connections at UK Power Networks. Welcome to you both.

Can we start by talking about the connection system and some problems that we have heard about? NESO is changing connection priorities and the way the system is going to be considered in the future. We have heard that it is now not just going to go by date of application but will take other factors into consideration. Can you give us your basic approach as to whether you welcome that, and what you think some difficulties might be?

Mark Adolphus: The whole industry has understood for some time that the way the queue for connections is growing is unsustainable. I am sure that our colleagues who have given evidence previously have given you the numbers, but there are some 753 gigawatts in the queue nationally across transmission and distribution. That number may not mean a great deal, so let me tell you that, for example, the UK today uses about 57 gigawatts typically, on the coldest day. Even under the most aggressive or ambitious forecast for 2050, that is more than twice what the UK needs. All of us who work in the industry have recognised that that is not a sustainable position. Therefore, reform is appropriate to ensure that as a country we facilitate the connection of those technologies that are most needed to facilitate our path of decarbonisation and to achieve the state policy objective of Clean Power 2030.

Certainly, in UK Power Networks, we are a supporter of connections market reform; it is important and it is necessary. We are determined to play our role in shaping that reform to ensure that the outcomes are as fair, proportionate and consistent as they can possibly be for all those customers we serve who are looking to connect to the distribution network. In a nutshell, yes, we are supportive, and it is necessary and needed.

Jim Cardwell: It is a radical change. We are also supportive, in common with UK Power Networks. It is in the right direction. It is not going to be universally popular because it is going to have a big impact. There will be people promoted in the queue and people who will be demoted; clearly, some will not be happy about that. The overall design of what is proposed is right in terms of a readiness assessment: are your projects ready to proceed? Typically, that is about land rights and planning. Also, as Mark said, the *Clean Power 2030 Action Plan* that the Government published just before Christmas, is about, "are you needed?", looking particularly at the volumes of solar batteries and onshore wind, it asks what the country

needs from those renewables. As Mark said, it is oversubscribed currently. That is really important.

I represent Northern Powergrid. We are the local distribution company; we serve 4 million connected people in the north-east of England and Yorkshire. Our view is that, according to our current queue, it is particularly how much is needed of those solar batteries and wind that is going to have the biggest impact upon our customer base. It could mean that we need only 11% of the number of batteries that are currently in our connected queue to service that threshold. About 75% of the current queue might be what is needed for the solar targets—this is for 2030; there will be more for 2035. The third element in that is onshore wind, which is different because we have insufficient in our queue today to fill the allocations that NESO is looking at and Government have supported. The idea is that we are saying to our customers, in essence, “please bring your onshore wind projects; we have more space for you”. We are saying that there is going to be quite a shake-up of the queue with those connecting batteries and solar.

The Chair: If people brought those projects forward, would you expect them to get some level of priority in the queue?

Jim Cardwell: Yes. The way it will work under these new arrangements is that NESO will make the decisions according to the framework it has set out. What we are saying to customers is that, on the basis of those capacity allocations for onshore wind, they are likely to get a successful result, whereas if they bring forward new battery and new solar projects, they are likely going to have more of a challenge.

The Chair: The Government’s target is clearly very challenging. Do you think this will make a significant difference in terms of ability to achieve that target?

Jim Cardwell: Yes, we do. Going back to what this is about, I talked about how NESO’s proposals talk about the readiness of customers to proceed and then what is needed. Where it is going to have the biggest impact is on where it is needed—I gave you those ideas and our best view at the moment of how it is going to affect our customer base as we roll through this.

At the distribution level, distribution projects connected to our networks are quite different from some bigger transmission projects. At the distribution level, we have a larger number of smaller projects than we do at transmission. As a system, transmission is a smaller network, rather counterintuitively; there are fewer nodes and strands to that network. When you get down to the distribution level—if you imagine, distribution networks get right down to street level and street corners and things—it is a much more nested and diverse network.

It is going to be quite different in the way this works. On those readiness criteria, because the planning decisions and land rights are more straightforward for a customer to establish, they are going to have

greater ease in satisfying the requirements for the readiness criteria than they will have at transmission. By necessity, the planning and consenting process for a big transmission-related job is much bigger and there are many more stakeholders involved. It just takes longer.

The Chair: As far as the queue is concerned, have you detected any concern about those who are going to slip down the queue, and the possibility of legal challenge and that causing disruption?

Mark Adolphus: Let me give you a sense of scale: in the queue nationally, there are about 260 gigawatts today. Even if we look out to 2050, the most optimistic forecast is that, as a country, we will need 83 gigawatts of battery storage. There are significant levels of oversubscription in the storage market. In recent weeks, NESO has taken decisions that will lessen the chance of legal challenge. What has been clarified is if you are a project that has met certain criteria—for example, you have received planning consent; that is, so-called “grandfathering”—you will be able to go ahead and connect. There will be no prohibition on you connecting going forward. What that means for UK Power Networks, and I suspect for the system nationally, is we will be a little oversubscribed for storage compared to what NESO believes we need. However, it will mitigate that risk of legal challenge, because those projects that are most mature and have, frankly, committed the most capital in developing their schemes will be able to come forward and connect.

Q41 **Lord Udny-Lister:** Can we talk about the infrastructure barriers that are imposed by the planning system and the consenting system that follows it? What are your views of the Government’s proposals to unblock that?

Jim Cardwell: Yes, I will have a go at that. A theme of some of my evidence is that distribution is sometimes different from transmission. At the distribution level that we work, the planning system is more about creating capacity in the system rather than settling controversies. I said earlier that we tend to have a greater number of smaller projects to upgrade our networks in the distribution system, whereas in the transmission system the opposite is true: it is a smaller number of highly significant projects. The planning barriers that we see at the distribution level, which are at the root of your question, are more to do with the capacity of local government with planning officers and some complexity of the processes; we are looking for reform to assist us with that. It is probably different from some of the challenges for planning at a national level, where you may be talking about transmission pylons going across a visual amenity, for example.

From our perspective, we have two main asks that we are going in with. One is about permitted development. At that local level, when we have to upgrade our assets, quite often we are expanding the capacity of our local assets, whether it be a substation or an overhead line—I am talking here about a wood pole with a crossarm on it, and some wires supported in the air. Let us say that we have an overhead line that we want to increase—it has two conductors in the air and we want to increase it to

three. At the moment, we would have to start a consenting process from scratch. That level of business can take four and a half years. In that example, we are looking for more permitted development. If we think that the impact on stakeholders is limited, in visual amenity or anything else, we want the powers not to seek to restart a consenting process.

Mark Adolphus: I would echo Jim's comments. At distribution, we are not installing major new routes across the countryside. We are not building 75-metre tower lines. It is typically about reinforcement and development of the existing network. There are changes to the planning frameworks that would be advantageous. Jim has given a good, straightforward example: where there is no real visual impact of moving an overhead line—in my view at least, biased though I am—from two conductors to three conductors. At the moment, we have to go through a planning process, but we think that should come within the scope of permitted development.

There are some marginal specific examples where there is opportunity for reform that will help and make the process simpler, not only for us but for our customers, but that strategic asset that we hear so much about in the press is not a feature of the way distribution networks are being developed.

Lord Udney-Lister: For the more complicated ones, or the more difficult ones, what community incentives or obligations might enable the expansion and how can we make it easier?

Mark Adolphus: We are always keen to work with the communities in which we are working. It is less about consent and more about helping them understand what our plans are, what the purpose of the work we are doing is, and why we are doing it. If we are installing new circuits to connect to a new wind farm, or a solar farm, or a battery, it tends to be via a cable underground. We are not seeing that visual impact; we are not seeing the loss of amenity that you hear about in the transmission system. Therefore, when we are doing works, we will work with the local community to see how we can do those works at a practical level: street works, digging up the road to install new cables in a way that minimises the impact on the local community. It is less about mitigating or compensating the impact of the works, because there is no visual impact. Once we are done, you would not know we had been there if we did our jobs well.

Jim Cardwell: Just to add to that, we keep talking about the classic case of the transmission line, which has a visual amenity aspect and creates a lot of stakeholder views; a lot of people are against that loss of visual amenity in their community. We can see how it might be about returning some value to them, to compensate them if you like, but as Mark says, that is just not the case at distribution, for two reasons. As he was saying, the loss of visual amenity is not as significant. For example, we will often have a substation there and we will be looking to put some greater capacity into it. Often, we will be replacing some 1950s, 1960s or 1970s equipment with a modern equivalent and typically the modern

equivalent is smaller, so we can get on the same footprint of the substation and get in some modern equipment that can give more capacity. Of course, where there is construction disturbance, we try to minimise that wherever possible, but once we have finished and once we have cleaned up and left, the visual amenity is the same.

The other issue at distribution, and where the idea really struggles, is that because the cost of the scheme is so much less than the tens of millions of pounds, or hundreds of millions of pounds, for a new transmission line, the economies are not there and there is just not such a big pot to return. There is a need and then a question of how it is going to be recompensed. Clearly, we do not want to add cost to a scheme in order to return some value to the local stakeholders and at the cost of the wider generality of bill payers.

Mark Adolphus: I suspect that we have 1,000 substations within a mile of where we are sitting. Central London may not be typical of the country as a whole, but I am sure there are. You do not know they are there because they are integrated into the built environment; they are not causing a visual impact. Distribution is a very different business from transmission.

Q42 **Baroness Valentine:** My question is about planning conditions. To what extent are planning conditions a barrier to the delivery of network infrastructure? Do the requirements of these conditions need to be made more consistent and proportionate?

Mark Adolphus: In my experience, the majority of the work we do in terms of installing cables and reinforcing substations is done under our permitted development rights and therefore that is not a consideration. Where we interact with the planning system is where we are building new main substations. These are strategic assets. For example, there is one being built for distribution right now in Canada Water, just down the road. That is an investment of £10 million to £20 million typically, just to give you a sense of scale.

Like all bodies, we will go through the planning process, and local authorities will have their perspective on the planning conditions we need to meet in order to build the installation we need. I do not recall those presenting material obstacles to the progression of the project. They are typically reasonable, proportionate and consistent with what we are trying to do, and we see it as our role to meet those planning conditions and fit into the local environment as the local planner wants. In my experience, it has not tended to be an issue at distribution.

Jim Cardwell: I would concur.

Baroness Valentine: What reforms are needed to the system of land rights and consents for network infrastructure? To what extent should these issues be resolved by voluntary means, such as codes of practice and alternative dispute resolution, or through making statutory processes clearer and more consistent, such as CPOs?

Jim Cardwell: I do not pretend to be an expert on this, and there are a lot of very detailed points to your question. We definitely need some reform to that area. I mentioned before in the conversation about consents and planning how some of the complexity and delays in those processes impact upon the work we need to do. Clearly, the environment we are working in is about a sense of urgency to upgrade the grid, to deliver the extra power that people need—the people using more power because of decarbonisation or generating more locally as well. Some processes to acquire land rights and permissions are too long, and where there is an inability to reach an agreement with all the landowners involved—of course, there can be many in any of these developments—it is typically adding probably two to three years to go through a process of working through those issues. Mark, do you have anything else on that?

Mark Adolphus: I will refer to what we were saying earlier: there are some niche cases where planning reform will be useful, and that needs to be through the necessary statutory processes. There is a strange historical quirk, for example, where gas, telecoms and water utilities have rights to install their assets on a private road, for whatever historical reason—I do not know. That was not granted to the electricity industry. That causes inconvenience, typically to customers, when we are unable to install assets and they are looking for new supplies from us. There are a number of niche cases, but generally we do not see planning as a major obstacle. There is opportunity for tweaks, but it is not fundamental in our view.

The Chair: Do you get involved in the consultation process and do you feel able to feed in concerns such as those that you have just been mentioning?

Mark Adolphus: Through our industry body—the ENA—we are working with regulators and other bodies to ensure our voice is heard. Yes, absolutely.

Q43 Lord Gilbert of Panteg: There are lots of strategies, plans and frameworks in this area. I just wanted to focus on a few of the many. First, looking at the Strategic Spatial Energy Plan and the Centralised Strategic Network Plan, could you tell me a little about how they work together, and what they need to do to provide for success for you and for the project generally? Addressing Baroness Valentine's question about planning, are there any specific planning obstacles in the way of delivery of the projects required to deliver these strategies?

Jim Cardwell: At transmission, that alphabet soup of planning frameworks and strategic planning frameworks continue to deliver quite a lot of value. They introduce clarity and enable more certainty such that transmission parties in particular can understand the direction. When we think about the challenge, we think about investability, deliverability and customer acceptance of what needs to happen, and engagement and involvement in that, I suppose.

On those three checks that we tend to carry around in our heads, all those things contribute in a good way. For the investors, it provides more certainty of direction, and we can see these projects going through. On the deliverability, it helps with the supply chain, whether that is the bits of kit or the skills, importantly, needed to do that. On customer acceptance, it provides a vehicle and bridges that gap between government policy and network development. It enables people to understand and engage with what needs to happen and it gets more stakeholders involved. All those things are good.

To go back to the distribution context—I sit here as a distribution network operator—the value the strategies give us is a common planning scenario. There are six distribution network operators around GB, and the series of price controls and the regulatory framework, if they deliver that common planning scenario, enable us to make sure that we can price up our work in the future. Ofgem can then sit in judgment on that and do what it does, and its duty is to make sure that we are being efficient with it, but it has a common touchstone rather than just asking six of us for a plan and seeing what we come forward with. Of course, one of the biggest tools that Ofgem has in its toolbox is comparative benchmarking and that ability to compare between us, form judgments as to where the best ideas are, where the least cost is, and set that cost benchmark for the roles we provide around the country. That is at the core of it.

When we think about it at distribution, we see that the principles are good, but some detail is not transferable. I go back to the point that as a distribution business we are fundamentally a different business at our core. We have a lot of individual, smaller projects—many more projects that are of smaller value—compared to transmission, which is a smaller number of high-cost projects. What that means for us in terms of the decisions we make is that there are various things that we can see that we are promoting and doing to take forward decarbonisation.

A really important feature for us at a local level is to make sure that we do not view the capacity of the system in isolation from the condition of the system. We want to make decisions that are right for holistic, synergistic decision-making at the local level, where we look at the needs of the asset in terms of its health, safety and reliability alongside its size and capacity to accommodate more load flowing through it in terms of more people electric vehicle-charging, heat pumps, solar panels, whatever it is. Those things mean that having a strategic plan and a centrally driven strategic plan is of less relevance to some of our distribution decisions. The common planning scenario is the key one, and the biggest relevance for us is distribution.

Lord Gilbert of Panteg: So where they are relevant to you, they are making a difference and they are in the swing. They are happening so leave them alone.

Jim Cardwell: They are a force for good, absolutely. They are having an impact; we are encouraging them to move forward and we are certainly

engaged with them. The point is that the principles are transferable to distribution, but not the detail.

Mark Adolphus: It is a theme this morning: I support what Jim says. That is all very reasonable. To an extent, it is early days for things like the SSEP. NESO just agreed the methodology at the back end of last year and it will publish the first SSEP in the early part of 2026. That will certainly have a role, as Jim says, in providing clarity as to how the Government's Clean Power plan will be physically enacted across the transmission network.

What we say to NESO on a regular basis is that it is vital that the DNOs (distribution network operators) are properly consulted in that process. We work hand in glove between transmission and distribution, and we would like to think that we have an important and material contribution to make. We look forward to the initial publication of the first SSEP. As Jim says, it will be an important tool in ensuring that we, as DNOs across the country, plan for the next regulatory period on a consistent basis and a much more transparent basis, which is of course important to the market.

Finally, to give a sense of the difference between transmission and distribution—we have talked about that a number of times already this morning—UK Power Networks serves the south-east corner of the UK, in effect. We have 8.3 million connected customers. We have just short of 50 node points with National Grid, known as grid supply points. For example, London is fed by 14 grid supply points, I think, around the perimeter. Compare and contrast that to our network, where we have 120,000 substations that UK Power Networks owns and operates. It is a very different network with very different characteristics, but again, we work hand in glove in the development through tried and tested industry processes to make sure the lights come on when we need them to and, importantly, stay on.

Lord Gilbert of Panteg: Well, I have one more strategy for you: the Regional Energy Strategic Plans. How do they interact with the Strategic Spatial Energy Plan and the Centralised Strategic Network Plan? Are they delivering and do we need to do more to help them to deliver?

Mark Adolphus: That is going to be an output of a new body known as the Regional Energy Strategic Planner, the RESP. Again, it is early days, but in principle we are very supportive of what the RESPs are there to do. They look across the energy landscape, across gas and electricity. They provide common frameworks against which DNOs will be able to plan on a consistent basis. Those inputs to the planning process: the rate at which we decarbonise, how the amount of electricity we all use going forward will evolve—I am stating the obvious, maybe—are absolutely key in how we plan the development of the distribution network.

What I will say, though, is it is a period of great change across the industry. I have worked in this industry for nearly 35 years; the rate of change we are seeing now is unprecedented. We have RESPs, which are

new bodies; we have NESO, which has now been enacted as a public body, as well as the traditional parties of Ofgem and behind it, DESNZ. It is very important, as we go forward into this new future, that there are lines of demarcation and clarity over which body is absolutely accountable for which aspect of that planning framework such that it is coherent and we can plan on a consistent basis for the coming years.

Lord Gilbert of Panteg: You are describing Mission Control.

Mark Adolphus: Well, Mission Control is another body to add to that mix. I was going to mention Mission Control. It is a very much a specific mission around Clean Power 2030, but yes, absolutely. They all have a role to play. We are supportive of the evolution of the industry. It is just important that we have that clarity on the lines of demarcation, as we norm and storm the new processes that will take us through to 2050.

Jim Cardwell: I was going to add exactly that point, that this is very much in development. The regional energy plans have not yet been produced, so we are looking to the future here. I agree that we can see value in the plans, but we also need to make sure that this new department of NESO—we are engaging with it; we are absolutely leaning in on this—fits in and is complementary to what we are doing. From our perspective, the big value is having a centrally driven framework for a common lens to apply to the different regions of GB.

What I mean by that is that this is not about having regional cheerleaders; we have enough of those in terms of the mix. It is about making sure we have some analysis that looks at the needs of London, which, as Mark was saying, can be a bit different to the other bits. I represent the north of England, and we have some bits that look the same and some bits which look very different. Having a framework that is applied in a consistent manner to draw out those points, look at the transition and do it in a manner that reaches out to other bits of the energy system outside electricity networks is really powerful, while also making sure that NESO and the RESP function within it that produces these plans understand that we as DNOs will still do our own regional engagement—we are still going to speak to all of our stakeholders.

Of course, what is important to us are the legal duties to own, operate, maintain and do all those good things as a network operator that Mark was describing, and none of that diminishes. These regional energy plans do not diminish our role; they just introduce a framework over that which will be really useful to Ofgem—I come back to the setting of price controls—when it runs the rule over our operations to stand up for customers and make sure that we are doing the things that matter and are doing them efficiently. It is a useful thing for Ofgem to have as a technical adviser, if you like, on some of our work that leads into some of our planning work and then sits alongside it. Again, it is Ofgem that will make those decisions, just like we make the decisions on what we do with our network; we have the statutory duties and legal obligations to do that. Ofgem also has that as the economic regulator, but these

regional energy plans are going to assist us both to carry out our duties and be a force for good in that mix.

- Q44 **Viscount Thurso:** One of the themes that has been emerging out of our inquiry is the general desirability of collocation of supply and demand. That means obviously moving demand to where supply is, and equally obviously, that is more around industrial rather than domestic consumption. What incentives do you think need to be introduced to try to encourage that to happen? Do you think that either locational or zonal charging have a place in that?

Jim Cardwell: Locational charging could have a place in that, but certainly not in distribution network charges. What I mean by that is the review of electricity market arrangements—the REMA programme that is ongoing at the moment—is looking at those different options for how some cost signals can be incorporated into the energy system. Of course, there are other cost signals at the distribution level, and probably our biggest cost signal is the cost to connect to the system. Ofgem made a decision a couple of years ago to socialise more of that cost, because it was perceived that the cost of connection was quite a barrier to the delivery of low-carbon goals due to the cost to the connectee. Some of that cost has been socialised.

Moving forward, what needs to happen is, as the options for electricity market arrangements are considered, they need to be considered in the round, in a more holistic fashion, with all those other cost drivers on the system. In the wholesale markets, going right down to the discrete detail of either nodal or fully locational, even further down the system, we have a preference for the zonal method. You can have various reasonable people come to speak to you and they can come from very different aspects to this, but ours is those three key themes of investability, deliverability, and customer acceptance.

In terms of our role as a network operator and what we are seeking to deliver, investability requires more certainty for investors to bring forward the network upgrades that need to happen. Deliverability is that confidence and certainty, which then help us with the supply chain for the materials and the skills to build that in. On the customer acceptance side, the key thing here is about the cost for a lot of this transition. If we went fully locational, the concern would be that the complexity and the time taken to do that would get in the way of the importance of getting on with the network build. It could work to the detriment of investor certainty, because it is an example of where we are trying to come up with a pragmatic solution and get the most bang for our buck. At the end of the day, that is the customer's money. This is the customer paying for their electricity bills.

Viscount Thurso: Can I give you a concrete example of what I am driving at, which might make it easier for you to answer? I come from the far north of Scotland. In two years' time, West of Orkney is going to deliver two gigawatts of power from that offshore wind farm. Amazon and Alphabet both need to build huge data centres. If those data centres were

next to where the energy is coming in, it would be quite a win for jobs in the area, and we are already net exporters of onshore wind. If the market remains the way it is, it is just as easy to build the data centre in the middle of London, frankly—apart from the cost of the ground—as it is to build it where it might do some economic benefit as well.

What I am interested in is that relationship, with the supply being created in one area, with all the disadvantages that that has to local residents, but the benefit of the economic impact of the use being somewhere else. The argument the big transmission boys will give is, “well, yes, that’s a very good idea, but don’t disrupt anything because it’ll scare off the investors”. But if the market does not change now, or at least look like it is going to change, then everything gets built and nobody is going to pick it up and move it. My question is: do we not need to be more urgent about this, in order to achieve what I think everybody agrees is a highly desirable objective?

Jim Cardwell: Yes, absolutely. The reason why we are supportive of the zonal charging proposal is that it should allow us to move at the greatest speed to get it in. These things take a long time. Maybe some of your frustration is because, as you well know, the whole review of electricity market arrangements has been a long time in its gestation period. When we look at the complexity and the difficulties in rolling these things out, an international comparator of where countries have changed suggests that it might take about five years even for a zonal charging one. You could quite easily, in your estimates, go to 10 years for a more detailed, fully locational charging.

I get your point on urgency. That is why I am not sitting here saying, “don’t change anything; it’s fine”. I am saying that moving in the right direction is important and it is important, as you say, to signal the direction of travel to the markets. I might have used the “P” word earlier: pragmatism. The zonal proposal is a more pragmatic solution; it is moving in the right direction and it is taking more incremental steps rather than absolute radical change. You also have to view the wholesale market as different from the connection charge, because of course those are the two things that the customer might look at when they are thinking about what the costs are of establishing that data centre in that part of the world, and what the ongoing costs are. That is why there is a need to look at both those things but not merge the two. We think zonal for wholesale, and that Ofgem should keep under review and look at the locational signals for connection charging.

Viscount Thurso: I am conscious of time, and I do not want to hog this, but please tell me if I have this right. As distributors, you are perfectly happy with the principle, but you want the direction of travel to be clearly signalled and done in a methodical way which does not deter investors.

Jim Cardwell: That is a reasonable takeaway.

Mark Adolphus: As a director of connections, I am reasonably agnostic. It is my job to connect whatever happens to come through my front door.

There seems to be a common-sense economic argument around the collocation of supply and demand. As we manage that transition, that signalling is absolutely key to avoid surprise in the marketplace. As always, when one considers significant or strategic reform, one has to consider the counterfactual and the unintended consequence. But in principle it seems to make sense to me.

- Q45 **Viscount Chandos:** Could we talk a little more about the investment needed to fund the capital expenditure, the improvement in the distribution network you already talked about? Do you think that Ofgem's price controls and overall regulatory regime promote sufficient network investment ahead of the need for distribution networks? Would you like to see a similar approach to the Accelerated Strategic Transmission Investment (ASTI) framework used for distribution networks?

Mark Adolphus: At UK Power Networks, we are great enthusiasts for the RIIO model¹ that has been in place through the two electricity distribution periods, ED1 and ED2. It has delivered for customers in the sense that we now have more than 99.99% reliability across our distribution networks. We are delivering a customer service, as measured by Ofgem, in excess of 94%. We have also been able to continue to develop and evolve the distribution networks in a way that has met the needs of our customers but mitigated the impact on customers' bills, which of course is absolutely key.

Looking forward, clearly, we all can see the way we use energy is changing and is going to continue to change. With the decarbonisation of transport and then—no doubt—heat to follow on, it is entirely foreseeable that as a country we are going to be using a lot more power than we do today. Our perspective is very much that the fundamentals of RIIO, being an output-based model, are fit for purpose and can be adapted and evolved to meet the needs of the distribution network coming forward. There may be a case for certain low-volume but strategic investments in the distribution network where an ASTI-type model may have value and where that long-term and early clarity of regulatory approval of these schemes enables the DNOs to engage with the supply chain, which is tightening globally, and to build the skills that we increasingly need to build the networks that our customers need. It could enable us to do what we have always done, which is to provide an electricity network that is fit for purpose and that enables society as a whole to function as we want it to.

There may be a role for an ASTI-type mechanism at the margins for those high-value, low-volume investments. However, fundamentally, we do not think that the RIIO model is broken, and we would like to see that

¹Because network companies operate as monopolies, with network costs comprising a part of consumer energy bills, they are subject to price controls operated by Ofgem. These price controls are called 'RIIO' (Revenue = Incentives + Innovation + Outputs) and apply over a particular period of time, currently five years. The controls cap the maximum revenue that can be collected from customers, with incentives based on a number of areas of performance.

focus on the outputs, which has driven performance improvement across the industry, continue.

Jim Cardwell: I would say something similar in the sense that the RIIO model of regulation has delivered well for customers, and we think it is a good framework to have. Of course, your question comes at a time when we have just responded—it was only earlier last month, in January—to Ofgem’s opening consultation on the next price control for electricity distribution, which is called ED3. That is for setting the five-year period that is likely to start in 2028, and we have started thinking about what business plans we have for that period and what needs to happen there. It is a very timely question.

The clear policy imperative at this time is to look for efficient synergistic increases in capacity in the system. What I mean by synergistic is making sure that, as network operators, we bring together the capacity increases that we need alongside the health needs of the network so we maintain the reliability and safety of our operation. That is becoming increasingly urgent. It is the key growth area for the next 25 years as we go through that.

One of the discrete mechanisms we are recommending to Ofgem is a capacity-based output measure, which does not exist today, to drive our revenues, the idea being that some of our revenues are linked. Again, this is using the fundamentals of the RIIO framework, but we have come forward with some specific measures that would improve things, to tilt the emphasis on those incentives in the direction of making sure we bring forward that investment. We talk about creating that capacity. That will help us with investability, because the way the price control is set at the moment is to start on the lowest pathway for decarbonisation and say, “we’ll scale up. We’ll wait and see, and if you need it, we will scale up”. There are mechanisms to scale up our revenues to account for extra delivery, but there is a need to rethink that. There is a need to set a path and to fund that, because fundamentally at distribution it is quite difficult to install infrastructure that is not going to be useful. The worst case is if it is not useful today or now, it is going to be useful in five years’ time because we know what is coming. It is about setting that path. That allows us then with the deliverability point, with the supply chain, to make sure that we can go and compete in the global competition for resources in terms of the materials that we need. We can also make sure that we keep that throughput of skills—as an industry we might have taken on 500 apprentices last year, so we need to keep that throughput going there.

The other aspect of that is to make sure that Ofgem thinks about who is paying the bill, which generation pays for this, because this is a big cost coming through the system. We think that an unfair proportion is being placed on to future generations and not enough in the bill today.

Just to give you an idea of scale between those decarbonised pathways, if you like, we as a company currently spend about £500 million to £600 million a year. That is about £1.5 million a day that we are spending,

investing in the network here. That is on a low take-up decarbonisation pathway. If we go to the highest decarbonisation pathway, that is about another 20%, so it is about another £100 million a year that we are talking. The way that equates to the bill is about £4 on a £90 bill. Our bill to the average customer—domestic customers are the vast majority of that—is a £4 increase if you increase our spend by £100 million a year. We also very much have an eye on the total bill and on who can afford to pay for this, and we are thinking about that intergenerational fairness about who pays. They are the key things that we want to see out of this framework.

The framework is there, and of course that RIIO framework is adaptable and it can be used, but it is then how you use it, how you calibrate it, how you set that. There needs to be more focus on creating capacity as we move forward than there is today. As a regulator, we need Ofgem to take the bold, long-term decisions, and it is really important that DESNZ—the Government—values having an independent regulator that could be outside the political cycle and could be thinking about what that long-term pathway needs to be to make sure that the customers get what they need in terms of meeting the government strategy on decarbonisation and how that is split between the generations as we go forward. We are talking about a campaign that goes on for decades, and not for years or months.

Viscount Chandos: What the customer has to pay is significantly influenced by the cost of capital that you guys have to pay to invest. It sounds like your reading is that the financial markets regard the system as reasonably stable and attractive. You have talked about the consultation process about the next price control regime. Even within the existing one, do the uncertainty mechanisms offer sufficient flexibility to adapt to changes in supply and demand within price control periods?

Jim Cardwell: Yes, I got a bit ahead of myself, because I started answering that question, really. What we would say about those uncertainty mechanisms is that we want to use that RIIO framework to have, in essence, fewer uncertainty mechanisms. What we are seeking from the regulatory framework is to be given those outputs and incentives—it is part of the RIIO alphabet soup, if you like—to make sure that we are set those targets. We are left to then get on and perform, and then we can decide on what investments need to be taken at what time. That is why the synergistic benefits from our investments, so we can deliver more bang for the buck for the customers, are really important. What is really important there is to have that regulatory framework. The regulator should be regulating the outcomes for customers and the outputs, and not micromanaging the inputs and the specific investment decisions we are making. It should be looking at what we deliver. That is our belief on that.

On your point about investability and uncertainty mechanisms and where they come in, it is really important that we get that certainty. We are thinking about and speaking with Ofgem about looking forward. I talked

about that intergenerational fairness point because we can see that in terms of which customers pay, which generation pays, we are on a 45-year depreciation for our assets—regulatory depreciation. If we put new assets in, at the moment the costs are spread over 45 years. They are spread a long way into the distance. In the past, they have been at 20 years. As we look forward, we can see our regulatory asset value growing and growing. We can also see that more of that cost is being placed on future customers. We are a long-term business, so we are looking forward rather than looking just within the 2020s. We can see how investment grade credit ratings can take a hit as we look forward, as that comes under tension. It is really important to make sure we think about investability as a long-term mission, and it is really important that Ofgem looks at that as well.

Q46 Lord Best: My question is about sticks and carrots for getting on with the job and making those connections for your customers. How do you feel about incentives being introduced through Ofgem's price controls, correspondingly with penalties and compensation required if you fail to meet targets that are set by that system?

Mark Adolphus: I want to first say a little about the context of our conversation today. Last year, UK Power Networks had 72,000 applications for connection to our distribution network. The majority of the connections that have been the subject, quite rightly, of our conversation today probably represent 3% or 4% at the top end. It is a broad basis serving many different sectors and industries. When you look at the current performance of UK Power Networks, we like to think we do well in terms of customer service, but it is not massively dissimilar across the UK. For the minor connections today, as measured by Ofgem, customers report a level of satisfaction of 94%. For the major connections, which is everything that is not a minor connection, it is 90% for UK Power Networks. That is not an in-house UK Power Networks measure, it is a regulatory return that is measured independently by Ofgem. So we are enthusiastic about placing the right incentives on DNOs to provide the right level of service to the customers we serve.

There is one measure that trumps all others when it comes to the business of connections and that is customer satisfaction, which I feel quite strongly about. You may procure a connection and want us to be on-site in three weeks' time; if we are on-site in three weeks' time and we deliver your connection, you will, I hope, be delighted. Equally, you may procure that connection but not need it until next July; as long as we arrive when we said we would, next July, and deliver your connection, once again I hope you will be delighted. There are very different experiences in terms of the average time to connect, but what is important to me is how I leave you, my customer, feeling at the end of that transaction.

So, for me, customer service trumps everything in connections. We are effectively a service business, and therefore I would like to see a strengthening of incentives across the connections framework. For those major connections the framework that exists today is a downside-only

incentive, which is not what I understand the word “incentive” to mean. But if the level of service we deliver to our customers drops below a certain level then Ofgem will penalise us for our revenue in future regulatory periods.

Lord Best: Where is that level? Is 90% already at that level?

Mark Adolphus: No, it is considerably above. I think the penalty kicks in at about 76%.

Jim Cardwell: It is 74% for us.

Mark Adolphus: Yes, 74%, 76%, that kind of ballpark. We are comfortably above that. What I would like to see going forward is being entirely comfortable with a strengthening of the incentive framework, but in a way that is symmetrical so it rewards excellent performance while equally continuing to penalise poor performance. That approach has been shown to work very successfully in a range of areas over the last eight years and I see no reason why it cannot work here.

Jim Cardwell: The context is massively important, and I agree that the customers have seen real benefits from that regulatory framework, the incentives in place and us as companies in our approach to those incentives: the carrots and sticks as you say. That is what we like about incentive regulation, which is exactly the point I was making earlier. We want to set those incentives and let us perform and seek to do those. Our view is on the minor connections, on the small end, which is the majority of the connections and not the ones we are talking about here. There is a need to review that and refresh the system of incentives, carrots and sticks, and see what needs to change; there is always something to change and something we can improve on, and we expect Ofgem to do that.

Some principles can come across into major connections, but I agree with Mark’s point that customer satisfaction is paramount. The design of those carrots and sticks is where you have to avoid the perverse incentives that avoid a situation where, as Mark said in his example, he is trying to encourage customers to get the connection done quicker because otherwise there are going to be penalties on the incentive mechanism. So it is really important that we get that design right.

Lord Best: I have a rather more detailed question on this: am I right in thinking that the connection charge is constant whether you are connecting someone who is next door or some new development that is quite close to a substation, or whether this is a wind farm at the top of a hill some distance away? The connection fee is going to be pretty well constant between those. That would distort—

Mark Adolphus: In electricity, every application receives a bespoke connection offer which will reflect the work that we need to do, either to reinforce the existing system in 10% to 14% of the connections we provide, or to extend the system to your premise, business or home.

Jim Cardwell: There is an exception to that—again, the context is all-important here—which is the smaller end. If it is a small domestic job, we tend to have some standard pricing, but that does not relate to any examples you just came up with because those were again on the larger end. You were talking about the wind farm on the hill rather than right next to the substation. So, I completely agree; they are bespoke prices.

Lord Best: So are you saying there are no perverse incentives there?

Mark Adolphus: It is cost reflective. In the event of a developer building a wind farm in a remote part of Norfolk, they will typically pay more for the connection than an industrial business connecting on an industrial site with existing infrastructure.

Q47 **Viscount Trenchard:** Going a little further down the same road, how do distribution networks ensure that they are utilising as much of their capacity as possible—for instance, by using technology to expand the capacity of existing lines? Would you object to being incentivised to use as much of your existing capacity as possible through price controls?

Jim Cardwell: We are already doing a number of things which we plan to keep doing to make sure we get the most value from the installed asset base because that, fundamentally and to the point of your question, is so key to our being. We have a big sunk cost that either has been paid off or is still being paid off by customers today, and we want to get the most value from that for our customers and repurpose it whenever we can. I will give you some examples in the things we do today. Data and digitalisation are massive in understanding more about the flows through our network: when we can access smart-meter data we can make use of it. We install additional monitoring and we are going through a whole cycle of that down on the local network because that is where the power flows are going to be. Wherever possible, if we can use that data to make use of the existing assets rather than build new ones, that is absolutely what we want to do.

Going a bit away from the domestic customers, the higher end and the higher voltage circuits have been a real programme over recent years of putting in more control technology and abilities to do remote switching and control on those circuits. Again, this allows us to configure things either by a person in a control room making decisions or indeed the control room systems themselves making decisions. There are various projects looking at the role of artificial intelligence and thinking about how reconfiguration networks can happen.

The third example in terms of using existing capacity is about the use of flexibility, which we do in two main ways. We have been talking a lot about connections today and quite often, and for many years now, we have been using flexible connections, which is where a customer will get a cheaper connection or a quicker connection in return for having the risk of being switched off or switched down under certain conditions. That has been really successful in getting people connected quicker or for a cheaper cost, and we have been using that principle in the last year to

work on helping our customers progress their projects if they are being impacted by transmission delays above us.

As an industry, we have generated a whole different form of flexible connection, and we are rolling that out at the moment. There are 30 projects in Northern Powergrid that were held up with all the congestion in the transmission system but are now proceeding to build. The second example of flexibility is where we are paying our existing customers who are already connected to change their use of power so that we can live within the existing constraints of the system, which stops us from having to invest money in and use the network. I suppose they are all good examples of where we are maximising the use of existing capacity on the network today.

Viscount Trenchard: Could you say a little about your experience of co-operating with transmission network operators? For example, in relation to connecting larger sources of generation at the distribution level, what changes could reduce the delays caused by the hand-offs between different companies?

Mark Adolphus: By its necessity, distribution and transmission work hand in glove and have done for many years. The UK has been well served by processes that have been in place for many years. What we have seen over the last four years is an explosion of these exceptionally large connections coming forward that has stressed these tried and tested processes that have been in place and have worked effectively for so long. To give you a sense of that, we hear a lot from the development community of their frustrations with DNOs or transmission operators, and there has been a lot of speculation in the marketplace. On occasion, in my dark moments, I have a degree of frustration with some behaviours I see from the marketplace. For example, there is a renewables developer that makes over 300 applications to my business; each one requires a bespoke design, has to be costed and go through a governance process before we make what is typically a significant connection offer to that customer. When I see that happening 300 times and only one of those schemes is accepted, I get a touch frustrated.

We are at the point where we have 753 gigawatts in the queue. What connections market reform will do is reform the processes that we as an industry use between the transmission network operators and the distribution operators in a way that will build a system capable of meeting the demands of our customers as they present today. Looking back, it has worked for the last 30 years or 40 years, but I have seen issues in the last three or four years. Connections market reform will go a long way, and I hope will deal with some frustrations that our customers have seen from the sheer volume of activity that has been happening in this marketplace going forward.

On the whole, an operational working level is a hand-in-glove relationship between us and the transmission operators; it has to be. That is partially what has delivered the level of reliability that we have seen in the UK over the last 20, 30, 40 or 50 years. Connections market reform will

make some important changes that reflect the changing demands on our system, but I do not want to leave you with the impression that it is in any way dysfunctional. It is not. It is a very close relationship.

- Q48 **Baroness Harding of Winscombe:** Like Viscount Thurso, I am interested in connecting data centres among other businesses. Is there sufficient focus on connecting sources of demand, such as those sorts of businesses, to energy networks, as well as connecting new sources of energy supply? How can the needs of potential consumers of energy be balanced with the needs to ensure adequate and reliable supply?

Jim Cardwell: The demand customers get a lot of our attention, which is back to the point that Mark made. A lot of our conversation today has been about the problems of generating storage and overcoming the difficulties we have nationally on the transmission system at the moment in accommodating that. But a lot of our engagement with our customers is with people wanting to use more power. As I have said, that is what is driving a lot of our work at a distribution level. We lead by saying, fundamentally, it is about creating capacity so people can use more power, be they industrial parties that are switching from gas and thinking about whether to go electric or hydrogen or whether it is domestic customers or small businesses thinking about starting to use electricity to power their cars or their heating.

On the industrial side, harking back to the comment about the new NESO function that is doing the RESP, we will keep doing that. Certainly, in our region, we have some really high-emitting carbon-intensive areas such as Teesside and the Humber region. Those combined authorities and local authorities have some very well-established groups of customers. We have a team that spends its time engaging with those customers to understand what their development plans are and what they need from us and how we can support them. A lot of that is about demand: how they use their power and when they do it.

For example, we are dealing with a number of high-energy users from glass-making—there is quite a lot of that in West Yorkshire—and they have been working through their trade association, British Glass, and thinking about how they are going to manufacture in the future. Other examples include steel-making and car plants. To demonstrate the value we are getting from that, for many years we have prioritised getting information out there to help people wanting to connect or who are thinking about connecting to our system to know where their capacity is on our system. They ask, “where can I connect most cheaply and where can I connect that might be the quicker connection?”.

One of the things we have done on the demand side working with the Office for Investment, which is the joint office between the Department for Business and Trade and the Cabinet Office, I think, is to look at the way that we could provide a view of where we have some big pockets of demand availability of capacity on our network of 50 megawatts or 100 megawatts. We gave it that information and it was able to use it to try to

attract inward investment into the country. It used it as a tool to fuel conversations it was having with external parties about investing.

In summary, it is an important part of what we are doing, and we certainly do not see it playing second fiddle to the people looking to export energy onto the system.

Mark Adolphus: I will build on that and answer the question in two parts. It is effectively BAU for the vast majority of customers who come to us for a connection to the network. The service that they have always received from us as a distributor continues. The vast majority of those connections can take place without any kind of reinforcement of the existing network. With that high-volume market, we are increasingly putting more and more data into the public domain. So customers, if they so wish, can self-serve and identify where there are areas of capacity on the network. For example, an EV charger operator may be reasonably agnostic as to where the EV charger goes—it just wants to connect to the network in the most efficient way—and appreciates that open data approach. We work with organisations such as local authorities or the blue-light services as they plot their path towards decarbonisation on an informal basis, to enable them to understand how they can plot this path in the most efficient way. So, for the majority of customers looking to connect a classic connection to the distribution network, there have never been more ways to access a distribution network and to do so efficiently.

We have seen some exceptionally large connections coming forward, and data centres are the prime example. Last year, we delivered the largest connection, I think, in the history of our company, which was 150 megawatts; that is pretty big. But the largest connection that we are working on is 700 megawatts. We all trot out these numbers, but nobody really knows what a megawatt looks like. Let me help you understand what it looks like: 700 megawatts would be 14 Olympic parks on the busiest day, or 100 football stadiums the size of the Emirates. It is a lot of energy. Inevitably, while we can connect them to the distribution network, there are impacts on transmission.

One of the consequences of connections market reform—we talked about this in the first question—is as a country we are massively oversubscribed for storage, which is batteries. As we know, batteries charge, import energy, demand, and export energy and generate effectively. For UK Power Networks, the *Clean Power 2030 Action Plan* says we need something like just over 2 to 2.5 gigawatts of storage. At the moment, I have 14 gigawatts in the queue across UK Power Networks. So, as connections market reform evolves and rolls out, it will enable us to allocate capacity to schemes that are needed and are ready to connect, not to schemes that are not needed. I am quite positive about the impacts of connections market reform on general distribution customers, who will effectively see a more efficient connection being enabled because we are not reserving an enormous amount of energy for these very large batteries that are simply not needed by the country.

Q49 **Lord Teverson:** I will declare an interest as chair of Aldustria Ltd, a

battery storage company, and a trustee of Regen South West. Coming back to Baroness Harding's question, there was a famous example given of a housing development that could not take place in the south-east because there were no connections. If that is a myth, it would be interesting to hear that.

I do not know how much the DNOs get involved or are concerned about the Government's strategy and policy statement, but it has three areas: clean energy and net zero, energy security and consumers, and "Fit for the Future", which is around future investment. Is there sufficient guidance about trade-offs or which ones should be a priority, or does it really lead to a muddle in terms of what priorities should be down the food chain of the energy industry?

Mark Adolphus: To address your first point, I am not aware of a housing development in the south-east of England that is unable to connect. I would always say to any customer that we can connect anything anywhere.

Lord Teverson: That is good to hear. Thank you.

Mark Adolphus: It is a function of the usual characteristics of time and money. In terms of the government framework, I do not think there is any confusion. We are very clear on the outputs that we have been asked to deliver by our regulator through ED2; they are crystal clear. Every day, me and my colleagues are focused on delivering the outputs we have committed to and the commitments we have made through the price control process, which is about reliability, customer service, reinforcing and replacing the network, asset health, and a whole range of other things that sit outside the kind of pure asset class as well. That is our focus. There is no confusion. We are crystal clear, and we intend to deliver what we commit to.

Jim Cardwell: I am looking forward to reading what the National Infrastructure Commission has to say, because it might have some views on this. I am not saying I know the answer to that, but it does. This month—I think it is 21 February—it will be publishing a review of electricity distribution explaining where it sees any opportunities or barriers in terms of what we need to do. It will be interesting to see what it has to say on your specific question, but I am aligned with Mark's view that those statements are not generating a fog of confusion or a lack of clarity in terms of what we need to deliver.

Lord Teverson: As you know, in December the Government called for a review of Ofgem, which ends this month. What will you be saying in terms of the Ofgem review or how it should change?

Mark Adolphus: You can take what I said earlier about the RIIO model and apply it to Ofgem. It works, but no model is perfect. I am sure there are opportunities to tweak and evolve, but in essence, the way regulations work for electricity consumers in the UK has delivered the right outputs that we need as a country: improved reliability, better

customer service, and doing so while managing the impact on bills. So, essentially, we do not think it is a broken model, we have confidence in our regulator and we look forward to continuing to work with them in the years to come.

Jim Cardwell: To add to that, the review was probably generated by concerns on the electricity supply side rather than a networks-driven trigger. I may be right or wrong about that, but I think that is what it was. From our perspective, we do not think that the regulator needs any more duties. It has sufficient duties, and at times it is quite challenging to balance them all. It is a long-term view on energy security, decarbonisation and how to protect customers and make sure that customers are paying the right amount, both now and intergenerationally in the future. There are a lot of competing, sometimes conflicting, priorities that the regulator needs to balance. Throwing more into the mix would not be helpful.

As I said, our view is that we need to make sure that the Government are setting policy and setting direction, and the regulator needs to be supporting that and making those quite often bold and long-term judgment calls—sometimes tough calls—on what needs to be done, when it needs to happen, and who is going to pay for it. Those are some things we think Ofgem needs to be focusing on. So, it is a sharpening of an existing system rather than a fundamental change.

Lord Teverson: Can I just ask a couple of things that relate to DNOs specifically? There is a proposal at the moment to increase the 1 megawatt ceiling when you have to deal with the transmission network to 5 megawatts. That seems to me to be important and a way of hastening approvals for grid connections. Is that a good idea? Are there any downsides? It seems to me that will help get grid connections quicker.

Mark Adolphus: I do not know how it will change behaviours in the marketplace going forward, but currently when I look at my portfolio of connections it has a marginal benefit. I agree that for the more modestly sized connections, it should enable a much swifter process of enabling them to get connected because we can be confident that all we have to manage is the engineering that may or may not be necessary to the distribution network. We do not also have to consider the impact on the transmission network. So, on the face of it, it would seem to be a positive move. But as always, one has to consider the unintended consequences, and that is what will happen through the code change process that is rolling through and focused on delivering by, I think, the start of May. But yes, in essence, they are supportive.

Jim Cardwell: On the rationale for the 1 megawatt, it is not that the 1 megawatt has been scientifically proven to be the right number, it was just a number that was taken to tighten up the freedom of movement or the decision-making that we could have at distribution to try to reduce that freedom of movement. While the process of the last few years has worked its way through, I concur with the earlier comments that Mark made that we have a good relationship with the transmission parties and

it is really important we work hand in glove—I think that was the phrase he used—and that that should continue. Having said that, there are too many decisions referred up the tree at the moment that do not need to be because what needs to happen is a technical point of view about what impact we are having, or ultimately our customers are having, technically on the transmission system. There is a good basis for saying that 5 megawatts is a more appropriate value. It might still not be the right value; it still cannot be scientifically proven in that sense, but it is probably a better value than the 1 megawatt.

Lord Teverson: I wanted to ask a question on curtailment, but I have run my time.

The Chair: Okay, thank you. You have both been very generous with your time.

Q50 **Baroness Drake:** I have two questions which are linked. Is there sufficient clarity in the roles of the various bodies driving energy policy and regulation, including bodies such as the Government, Ofgem, NESO and energy code bodies?

Jim Cardwell: It is interesting, as that relates a bit to the last question about the review of Ofgem's role and so on. Our perspective on this is that there needs to be a bit more clarity on these things. We have talked this morning about a number of the consultations and conversations that are being had around the industry and with the different players in it. The key one for us, as I said earlier, is that the Government need to recognise the value of having an independent economic regulator; having a bit more separation between the Government, who will lead on the direction and the politics of the situation, and the regulator, who is looking at those sometimes bold and unpopular but long-term, right decisions. Thinking about that intergenerational fairness point that I made earlier, those are some things that need to be considered more going forward.

Mark Adolphus: Historically it has been crystal clear. Today, we are in a period of flux with the creation of the RESP and NESO. I talked about it earlier: it is important that we work out the lines of demarcation between the respective organisations such that we maintain that clarity going forward, but I do not particularly see any reason why that should not be the case.

Baroness Drake: In addition to the concept of the independent economic regulator, what pinch points most concern you that could produce possible confusion if there is not that clarity?

Mark Adolphus: I talked about planning assumptions. Let me give you a practical example: if I take you back to the first electricity distribution RIIIO period, which was 2015 to 2023, each of the DNOs made their own forecasts as to how they thought energy uses and electricity uses would change over that eight-year period. It was quite a long period with quite a lot of volatility. UK Power Networks is consistent with the majority of

the industry. We are forecasting growth in energy, which seemed reasonable with the trajectory on transport and heat pumps, and we landed on a 7% figure over that eight-year period. So, we anticipated when we set our plan that electricity usage would grow. What actually happened is that it went down by 9%. I am sure Jim has a similar tale for Northern Powergrid.

Going forward, it is important that, as an industry, we have a consistent set of assumptions against which we can do the engineering and plan the development of our network. If we have that, then Ofgem can have confidence that the basis on which we are preparing our forecast, our investment plans and the developments that we wish to make to our distribution network have been prepared on a consistent basis. That is an absolutely key role, and I see the RESPs being central to that role, reflecting the needs of the communities they are serving.

Jim Cardwell: A lot of what you have heard from myself and Mark this morning is the importance of setting those parameters for price control reviews. We are regulated monopolies, which means that for a lot of our services, our customers have no choice. Therefore, the importance of economic regulation and setting a price control with those outputs and those incentives—the carrots and sticks—is massive for us, and it has been really effective. The RIIO model has delivered real value for customers. Mark was reeling off the valuable outcomes for customers.

Going back to your question in terms of the pinch points, the key one is about how the price control review is moving forward now. How is it being set for the next five years from 2028? The key one for us is that we will be submitting business plans next year, so we need to have some of those common pathways this year. We talked about regional energy plans in one of the earlier questions and the role of the RESP in forming that common planning scenario, so it is really important that we get something through on that this year, and that is difficult. We are in a state of flux but they are getting up to speed and they are progressing in getting people on board, et cetera. That is a really important pinch point.

The second one—of two, you will be pleased to know—is about how Ofgem sets its framework and how the focus of price control really needs to be on how we are going to grow the capacity for the next 25 years so that we are on a trajectory that gives the ability to invest, deliver, and get customer acceptance by coming up with a pathway that allows us to invest in the network at least cost. It needs to be done as efficiently as we can and build certainty into it. The key point is about Ofgem’s design of its price control review and how it is going to work with us as networks, incorporate the important input of the RESP and its common pathway and how it is going to progress through that price control to set something that will deliver for customers from 2028.

The Chair: You wanted to come back in, Lord Udny-Lister.

Lord Udny-Lister: Yes, I am sorry, it is an apology, actually; I should have declared an interest for the record when I asked my question. I am

a director of two property companies. I am a director of Stanhope Holdings Ltd. I am an adviser to Delancey, and I am also chairman of Ballymore's, a registered provider.

Baroness Valentine: Can I come in on that too? I am invested in many start-up green companies through my membership of Green Angel Ventures.

Baroness Drake: Have the reforms to the energy codes enabled them to be flexible enough to adapt to the fast-changing energy market? I think you called it an exponential rate of change. What will Ofgem need to do to make those reforms a success? Will it need to direct change through its role as an oversighting body in respect of the codes?

Mark Adolphus: I can talk about what I have observed over the last six months. The way the industry has come together through the code review process to work its way through some extremely complex, difficult and challenging proposed changes to long-established and reasonably stable industry codes gives me confidence that, as an industry, we are capable of moving at the pace that is necessary such that code change is not an obstacle. I have seen progress made in the last six months that historically would have taken a number of years. Where there is a will there is a way, and it does seem that when I look across the parties that are involved in the process of code change, that will is there. Inevitably, it has not always been smooth because we come at the discussion from different perspectives, but there has been a real determination to present Ofgem with a series of proposals to change codes in a way that is sensible and will achieve the Government's aims for Clean Power 2030.

Inevitably, this will be a process of iteration. It is unlikely that we have it spot-on the first time. But the signs and symptoms I can see across all the industry parties that have contributed to the work that we have done to change, for example, what is known as the CUSC—the Connection and Use of System Code—gives me confidence that the industry is capable of achieving what is necessary. As an industry, I hope we have presented Ofgem with a series of change proposals that meet the objectives and will achieve the change that we are all working towards in the industry. We are expecting a decision shortly.

Baroness Drake: To achieve what you hope to see, do you think Ofgem has to be more assertive and change its behaviour in oversighting these codes?

Mark Adolphus: Ofgem has been reasonably assertive over the last six months in communicating what is necessary from the industry to achieve the rate of change that is needed. I do not particularly see a case for statutory change, objectives or mandate to Ofgem. It has the tools that it needs to achieve the outcomes that are necessary.

Jim Cardwell: Consolidation and standardisation are the two themes going on with code reform at the moment. It is in flux; it is moving. The appointment of the code managers has not yet fully moved through. Two

asks, I suppose, of Ofgem would be that it needs to move through this state of flux and change as soon as possible because you go through that classic “storming, forming, norming, performing” kind of cycle that you see in anything whenever you go through changes; two steps forward, one step back. We just want to keep moving forward.

Secondly, once you get up to performing and once the system has been reconfigured, it is about understanding where those priority actions are, as Mark says, where Ofgem can make sure that it is engaging right from the very start and is not waiting there as the final judge of change and then at the 11th hour comes up with a fundamental issue with why this was never going to be successful all the way through. It is about the early engagement, is it not? Obviously, there is a capacity constraint in Ofgem as a function, so it has to understand and recognise in that framework where these really important decisions are and where it needs to make sure it has the very earliest engagement in those proposals, to give its steer right the way through rather than just at the 11th hour.

The Chair: Thank you very much—that was quite a marathon session for you. You have been very generous with your time and given us some food for thought. I will close this part of our proceedings.