

# Energy Security and Net Zero Committee

Oral evidence: [A flexible grid for the future](#), HC 113

Wednesday 20 March 2024

Ordered by the House of Commons to be published on 20 March 2024.

[Watch the meeting](#)

Members present: Angus Brendan MacNeil (Chair); Vicky Ford; Barry Gardiner; Mark Garnier; Mark Pawsey.

Questions 400 - 524

## Witnesses

I: Alice Delahunty, President, National Grid Electricity Transmission; Christianna Logan, Director of Customers and Stakeholders, SSEN Transmission; Phil Jones, Chair, Energy Networks Association.

II: Eleanor Warburton, Director of Energy Systems Management and Security, Ofgem; Claire Dykta, Strategy and Policy Director, Electricity System Operator; Dr Graham Pannell, Energy Systems Specialist, Independent Renewable Energy Generators Group.

Written evidence from witnesses:

- [National Grid Electricity Transmission](#)
- [Energy Networks Association](#)
- [Ofgem](#)
- [Electricity System Operator](#)
- [Independent Renewable Energy Generators Group](#)



## Examination of witnesses

Witnesses: Alice Delahunty, Christianna Logan and Phil Jones.

Q400 **Chair:** Welcome to the Energy Security and Net Zero Committee. It is our fifth or sixth session on infrastructure, markets and institutional governance. We have two panels today, both of three people. Without further ado, I will ask the first panel to introduce themselves and give their name, rank and serial number.

**Alice Delahunty:** I am Alice Delahunty. I am president of National Grid's electricity transmission business and representing National Grid as a whole here today, which is distribution, transmission and our unregulated interconnector business.

**Phil Jones:** Good afternoon, everyone. My name is Phil Jones. I am the chief executive of Northern Power Grid, which is one of the distribution companies. I also chair the ENA, so I am here today representing the distribution companies.

**Christianna Logan:** I am Christianna Logan, director of customers and stakeholders at SSEN Transmission. We are the transmission network owner and operator in the north of Scotland, and part of the SSE group.

**Chair:** I was at the Loch Carnan power station in South Uist just a few weeks ago, which was very interesting. What is your assessment of the progress to date on connections reform?

**Phil Jones:** It is an industry-wide question, as I am sure you are aware. There is a D and a T side of it, but most of what I say will apply to both. In a nutshell, I would say that, having been around the sector a long time, there has been a remarkable amount of progress in a relatively short amount of time. Equally, it is also obvious that more will be needed in terms of reform.

The reforms that we have really seen bite started about a year ago. It is difficult to be precise about exactly how that will play out, because we are dealing with potential connectees, but the serious assessment that has been made by the energy networks companies suggests that, inside that year, about 140 GW have been advanced in one way, shape or form, either by the amnesties that have been had or by changing the way that we are assessing connections and giving distribution companies more latitude to operate. We call it technical limits, but it basically means giving the distribution companies the latitude to manage the boundary at the T and D interface.

If you had told me at any time in the 20 or 30 years I have been doing this that you will see all that change in a year, I would say, "That is going some", so that is impressive. The reality, though, is that almost the same amount of new capacity has entered the queue, mostly in transmission, in the last six months. We have made progress in 12 months and seen almost the same amount advance at the back. In other words, it is clear



## HOUSE OF COMMONS

that there is so much more in that queue than we are ever going to need. It is about 600 GW. Alice will be better than me on the numbers on this, but there are multiples of what we will need in 2050 in the queue today.

The idea that we have to connect the whole queue is a misconception, but the idea that we have to do something serious about it is very real. It has moved very quickly, with Government, Ofgem and industry support, but a lot more is needed.

Q401 **Chair:** Alice, can you tell us what these numbers are? Where are we?

**Alice Delahunty:** In terms of pure numbers, we operate a system today that is about 60 GW. We have a queue that will probably approach 600 GW towards the end of the year. We are seeing, on average, a gigawatt a day joining the queue, so it is really extraordinary.

It might be worth asking, "What is the root of that?" There are three interacting issues. One is really low barriers to entry. That is a change, because, when you were talking about building nuclear power stations, coal or offshore wind, you had this natural high barrier to entry associated with the capital and the technology. Now, with solar and batteries, et cetera, it is a much lower barrier to entry, so anybody can take a place in the queue for relatively little cost. Once they are in, there is very little to manage them out again. If their project stalls, or they do not get planning permission or financial investment, they still hold that place in the queue.

Q402 **Chair:** Without asking you to name names, if you and a colleague are sitting at your work, can you roughly guess who are zombies in the queue?

**Alice Delahunty:** We know that the attrition rate—those who leave or fall out—is very high. It is approaching well over half of the queue. We know that it is very high, and we can make assessments on where we think there is land where planning is likely to happen. As the networks company, our obligation is to connect anyone who wants to connect, when they are ready to connect, and we need to stay agnostic on the technology. It is not right that we should be making that assessment.

Q403 **Chair:** Would you have a feel for people who are not going to go anywhere and who is going to be in the attrition queue?

**Alice Delahunty:** We can certainly make a judgment, but we tend to do that at a much more macro level. You can see that a whole area is massively oversubscribed, for example.

Q404 **Chair:** There are roughly 600 GW in the queue. For the record and just to be clear, how many gigawatts do we require? We know that there is going to be increased electrification. That is agreed. With 60 GW now, what are you going to need to build?

**Alice Delahunty:** I know that you have the system operator afterwards that owns the future energy scenarios, and they will be very clear on



## HOUSE OF COMMONS

their numbers, which they iterate each year as they republish. We expect demand to about double and, therefore, to be five or six times what is needed. It is many multitudes of what is needed.

Q405 **Chair:** Christianna Logan, do you have a view on queues, the reforms and connections? You must do.

**Christianna Logan:** Yes, absolutely. I would very much agree with what Phil said about good progress being made over the last 12 months or so with the focus and the concerted effort through a collaborative approach from industry and the regulator and with the action plan from Government, which was very welcome.

We have made huge progress on things that I know have been raised at this Committee before around issues such as projects in the queue that are not removed if they are not hitting milestones to progress. Those milestones are now being brought into place. There is also the issue about more conservative assumptions being made in assessing how much can connect to the existing system. There is good progress being made and, at the end of the summer and towards the autumn, we should start to see updates to connection offers off the back of that work, which is excellent. I would still agree, though, that further action is required, because of the scale of this oversubscription.

Q406 **Chair:** What would you advise for the further action?

**Christianna Logan:** We would recommend that Government take bold action in increasing the thresholds for allocation of capacity within that connections queue.

Q407 **Chair:** That means, going back to Alice's point, that you would want some form of higher financial bar.

**Christianna Logan:** It could be financial. It could also be requirements, as mentioned, in terms of having confirmation of access to land and future milestones around getting planning consents, because those are things that increase the certainty of the developments that are going to proceed. With that, we would be able to make a much more strategic investment decision. Just as we have been able to do through the development of strategic network plans at the top level of the system, we could start to apply that at a more local level if we have that better confidence in what is progressing.

Q408 **Barry Gardiner:** One of the things that is most likely to kibosh all of our plans is constraints in the supply chain and looking at the stuff that you need to roll out transmission. What I am seeking to get from you this afternoon are perhaps the sorts of recommendations that we might be making to Government about how we could develop more strategic co-ordination over those supply chains. Other countries have done that, as I am sure you are aware. I have waited a long time to say this. Madam President, can I start with you?



**Alice Delahunty:** Of course. You are absolutely right. We are not the only country with very ambitious decarbonisation plans. It is true that there is a crunch in the supply chain. When we speak to the supply chain, they are really clear with us that what they need is certainty and commitment. With certainty and commitment, they will build up the capacity. They will open new factories. They will train new people.

What you saw last year with the introduction of the accelerated strategic transmission infrastructure—ASTI—regime with the regulator is that, for those projects, it has really allowed us to give the supply chain that certainty and that commitment over the long term. We have let high voltage, direct current equipment tenders. We have created strategic enterprises with multiple supply-chain parties. They have that long-term commitment and are coming in with us to deliver that.

What will be key in the next stage is expanding that to the challenge more holistically. We have talked about the connection queue and the need to be more strategic on that. A strategic spatial energy plan will give the certainty of what is needed to the supply chain, and the right regulatory decisions that allow us to give commitments earlier and for much longer periods will give that commitment piece to the supply chain.

There is a lot to do, but, put simply, the market and the supply chain will respond if they have that certainty and direction and can see the strategic picture, and they are getting the commitments, although commitments mean money.

**Barry Gardiner:** I want to take you briefly down a rabbit hole.

**Chair:** Beware of Barry's rabbit holes, by the way.

Q409 **Barry Gardiner:** It is perhaps an unfair question, because we do not know either. Who is going to be responsible for delivering this strategic spatial plan?

**Alice Delahunty:** We believe that that is a key role for NESO, or the national energy system operator.

Q410 **Barry Gardiner:** Will it be NESO that is responsible for delivering it? I thought that NESO was only going to be giving guidance and advice. Who is going to be responsible?

**Phil Jones:** I listened carefully to your question, Barry. When you say "deliver", I do not think that you mean putting the plan on the table and saying, "There it is". I think you mean getting it done. That will not be them.

**Alice Delahunty:** No.

Q411 **Barry Gardiner:** Who will it be? I do not know, and I do not think that the Committee knows, but I would be interested to know who you feel it ought to be. Should it be a Minister? Should it be some sort of arm's-length body?



**Chair:** In other words, have Government or Ofgem said it clearly to you guys?

**Barry Gardiner:** Have you any ideas about who you think it ought to be or who you think anybody thinks it ought to be?

**Chair:** Has anybody told you who?

**Barry Gardiner:** I did say it was a rabbit hole.

**Chair:** I am in the rabbit hole with you.

**Phil Jones:** Your question, as it is formulated, presupposes that there will be one body, in which case, if you are going to say that there is only one body, you would have to find your way all the way back to Government. That does not mean that I think that is the answer in the end. Would they deliver it, or how would they deliver it? They have a set of operators such as us who own duties to develop our networks efficiently and in a co-ordinated fashion and to keep the lights on and do all of those things.

**Barry Gardiner:** It is a good, democratic answer which I favour too, so let us leave it there. I am on an upward trajectory with that one, so I will leave it.

**Chair:** It is always good when progress is made.

Q412 **Barry Gardiner:** Let me go back to this idea of recommendations that we might make about the way in which the Government can cope more strategically with potential supply chain constraints. Looking at what Germany did in getting its transmission operators to work collectively to buy up this huge chunk of the market that they managed for 10 years out, is that a model that we should be looking at? Is that something that we should be highlighting and recommending to Government?

**Phil Jones:** I will stick my neck out and say no, as framed. In terms of encouraging the environment to do all of the things that it needs to do, which I do not think are very many, so that the companies collaborate in that way, we have been collectively going to procurement markets for donkey's years. There is nothing stopping companies saying, "We will aggregate our procurement requirements and this is a syndicated buying exercise". That does not need any Government involvement. It does not need any regulatory involvement.

The certainty that Alice talked about is what you would need to know. We, collectively—whoever the "we" would be, and it might be these two transmission companies—know what we have to get done. They could get their heads together and say, "We are going to go and make a tender event in the market". It does not need the Government to tell them to do that, but it does need Government and regulation to give them the certainty that says, "You can get into contract for all this work for the next 10 years, and you can ink those contracts and make those commitments within the framework that you are used to operating". At the moment, that certainty is not there, but were it to be, there is



## HOUSE OF COMMONS

nothing stopping the companies aggregating their procurement requirement as far as their certainty takes them.

Q413 **Barry Gardiner:** Before I bring in Ms Logan, we have heard evidence from Professor Keith Bell, who said that competition militates against the agreement of long-term supply chain contracts. Similarly, the Electricity Networks Commissioner advised that it is difficult to see how a contestable model can support the establishment of long-term relationships with suppliers. The Committee has received very clear evidence that a more co-operative model, rather than a competitive one, might be the way ahead for sourcing the supply chain to that far out.

**Christianna Logan:** I am nodding, because you have asked a question that I was going to raise as a recommendation. To build on the point that Phil and Alice touched on, we have been hugely successful over the last 12 to 18 months in securing the supply chain that we need for our projects. We have been able to do that because we were given certainty of the need for the projects; the investment in early expenditure for pre-construction and early construction funding; the certainty of the delivery party, being ourselves; and the confidence in the regulatory framework for delivery of that.

That allowed us to contract with the supply chain on a portfolio basis for those projects. With frameworks and contracts in place—previously, we have been limited to a project-by-project basis, which does not give the supply chain that long-term confidence—that is what would then, if applied to future investments such as the central strategic network plan that was recently published, give the supply chain confidence to invest here, potentially in the UK, in things like manufacturing facilities and in additional training, and to then secure that contract in a global market that is highly competitive.

Q414 **Barry Gardiner:** You said that certainty of knowing who was going to be doing it is important. Again, particularly in relation to onshore transmission and the onshore transmission infrastructure, the commissioner said that it “sits uncomfortably” with global supply chain constraints because “you delay knowing who is going to develop the scheme”. Do you have any comments on that?

**Phil Jones:** I will quickly comment. I am the D guy, remember, not the T guy, but I think Nick is talking about contestable networks. All of his comments that you are referring to—I would have to check—are predicated on a proposition that these two, for example, would sit there wondering whether they would be awarded that piece of transmission to build. In that situation, of course, they are not going to go to the market and make a 10-year commitment, because they do not know whether they are even going to get the concession, if you will, to build the network.

What Nick is advocating against is fragmenting the delivery accountabilities in the way you talked about earlier. That is a distraction.



## HOUSE OF COMMONS

In theory, you can see how it might bring efficiencies, but, if what you are worried about is a global supply chain, you need a small number of players mandated for a lengthy period of time to go out with confidence. If you start breaking that apart and saying, “We might not even give you that work. We will ask someone else and we will tender for that. You may not build that particular stretch of line, but you might build that one”, no one is going to go to market and do anything. That is what that evidence is referring to.

**Barry Gardiner:** I am always suspicious when I see three heads nodding in unison, but there we have it. Thank you very much. It was very helpful.

**Chair:** Bring on agreement and unanimity.

**Barry Gardiner:** Always.

Q415 **Chair:** We have heard a lot about skills and encouraging people—and particularly young people—to work in the sector. We heard evidence in January from Statkraft that there is “a war for talent across Europe” to get people and to do things. How can we best encourage that? When I was at Loch Carnan, some local apprentices were mentioned. The last time I was on the plane leaving Glasgow Airport, one of them was on after doing the first six weeks, so you were following through, SSE, on that. Is that a problem for you? Locally at home, it should not be that difficult to get young people if you want them in numbers.

**Christianna Logan:** We are working very hard to bring young people through, and we have excellent programmes in place with things like smart STEM programmes with schools, and increased numbers of apprentices coming through across the whole industry. The big challenge that we have is in having experienced as well as qualified people, especially engineers, particularly system engineers or electrical engineers, and also on the planning side of things, both for ourselves and for planning authorities, as in local authority planning. It is a real challenge for them to get qualified planners at the moment.

Our recommendation on that, because I know that you have the skills plan to pull together as well, would be to look at how long-term certainty can encourage more investment in things like training, but also the development of new higher and further education courses, of which there probably are not enough at the moment focused on these specialist areas that are going to be so important for delivering on our targets.

Q416 **Chair:** Are Government strategic enough? Christianna, I can detect your Scottish accent, and I can detect an Irish accent from Alice Delahunty. Could Government in those two jurisdictions, as well as in the UK, be more strategic in developing a skills pipeline that is needed to meet these challenges that we are having going forward? Alice, give us an Irish perspective, if you can, although I know that you are working in the UK now.





**Alice Delahunty:** The talent challenge is very real, because we are seeing this demand and growth at a time when people are retiring and leaving, and there is competition across sectors. It is very real and, as Christianna said, some of these roles really take a long time to train for—five-year degrees, or long apprenticeships. They are very specialist skills. You need that lead time into it.

We would really welcome a net zero skills report that talked about where the skills gaps are and the progress that we are making against it. We need to go further back and look at career guidance at all ages, at a curriculum review, and at more flexibility in the apprenticeship levy.

You have asked me for my personal Irish experience. One of the differences really is that we do not specialise until much later in Ireland.

Q417 **Chair:** Is that good or bad?

**Alice Delahunty:** This is where the careers advice piece comes in. What it means is that you are generally much older when you have to make the choice that precludes you from engineering or from STEM subjects. In the UK, that choice is made earlier, and that is why we need to advise people earlier.

Q418 **Chair:** Roughly, what ages are you talking about?

**Alice Delahunty:** My understanding is that, in the UK, by the time you choose your GCSE subjects, you are already choosing your pathway—arts, science, et cetera.

Q419 **Chair:** That might be the English education system, with fewer A-levels. In Scotland, you have the highers, which are wider. They do fewer A-levels.

**Alice Delahunty:** The point here is that it is a very long lead time to getting people to choose these engineering careers, so you need to get in really early.

Q420 **Chair:** Do you think that some people have closed the door too early in their lives?

**Alice Delahunty:** Yes.

Q421 **Chair:** Christianna, what is your perspective on that area and being strategic about it?

**Christianna Logan:** Across all regions and all Governments—

**Chair:** Probably across Europe.

**Christianna Logan:** Here in the UK, to address our challenge particularly, all Governments should be focused on how to make sure that these skills are being planned strategically against the expectations and the requirements of the net zero transition.

Q422 **Chair:** When Kevin O'Donovan at Statkraft said that there is "a war for



## HOUSE OF COMMONS

talent across Europe”, would SSEN look for people in Europe, or are you looking solely in the highlands and islands of Scotland? I am quite pleased if you are looking in the highlands and islands of Scotland, incidentally.

**Christianna Logan:** It is absolutely both. The truth is that, at the moment, there are not the number of qualified and experienced individuals that we would need to deliver this programme within the north of Scotland, so we are also looking further afield. That is why we are so focused on these plans for apprenticeships. We have 500 jobs being created in the business this year. One hundred of those will be in early careers roles, and that will be largely north of Scotland people coming into those jobs, which we see as a real positive for the longer term.

Q423 **Chair:** Phil Jones, on that, and also building on the Government’s green jobs plan, what might you want to see on that, as well as wider comments on that specific point?

**Phil Jones:** I would largely echo what has been said and perhaps try to add one angle that links back to the previous conversation. The dynamics of the skills challenge are very relevant in distribution, and I will say why, but I do not see it as being that different from the conversation we just had about supply chain.

A big part of that is the certainty that can be given, and I will say why I mean that. In distribution, for example, I always like to remind people in this sort of conversation that we are labour and capital-intensive compared with what is sitting either side of me. If you told me that you are going to spend £1 million or £10 million on a distribution scheme, I would probably say that 50% or 60% of that will be labour costs on a distribution activity, because it is closer to the action and there is more human time involved per pound spent.

A lot of that is lower-tech activity, although not all of it. The same kinds of skills are required—planning, engineers and so on—but, equally, we also have to be able to give that certainty that we talk about, which we might have, to our supply chain to train their own relatively straightforward skills such as digging up the street, putting cables in trenches, doing it safely and filling it back in again. There is a huge army of people needed to do that, so the more certainty we can have about sending those signals to the market, the better.

As you hinted at in your question, this is fundamentally a thing for the whole of Government, in one way or another, but certainly other parts of Government. I would hate to see the energy industry self-appoint itself as an educational proxy. It is a very complicated set of choices that need to be made.

Q424 **Chair:** Given what all three of you are saying, should Government subsidise engineering qualifications to address these shortages? Could



## HOUSE OF COMMONS

Government be more proactive in some way?

**Phil Jones:** I like the idea of incentivising them, and maybe that is through subsidy, but other people would have a view that I would defer to about the best way to encourage young people to go down a certain pathway, if that is the thing that we are trying to consider.

The fundamental thing that we can do is much the same as the supply chain, which is to give a very clear signal that there is a long-term investment programme here. Our contractors can see the value in setting up a training school and hiring more people who are going to be unproductive for quite a period of time. Those are the fundamentals. If the market signals are there, the market will respond. It is no different for materials than it is for labour, if the signals are there.

Q425 **Chair:** Christianna, there is free higher education in Scotland. Does that make a difference in this area?

**Christianna Logan:** It is less to do with how the education is funded and more the availability of the right courses. In Scotland, at the moment, there is only one course that trains town planners to be able to do that role.

Q426 **Chair:** I think that that is in Dundee. Is that right?

**Christianna Logan:** It might be, but I would have to check and come back to you on that. That is a challenge. If there is only one higher education institution that is training these people, that is not going to output enough people.

**Chair:** We had four at one stage about 20 to 40 years ago.

**Christianna Logan:** I did not know that.

**Chair:** When I was at Strathclyde, I remember friends doing town planning at the time.

**Christianna Logan:** We definitely need to bring that back into focus and make sure that that is a real area that these institutions are looking to invest in. As Phil says, given the confidence that these roles will be there when these graduates come out, that is what is going to encourage those institutions to do that.

**Alice Delahunty:** One thing that would help would be reform of the apprenticeship levy. It is very attractive, but it could be more flexible in diverting it to business needs. We have created three new apprentice frameworks in the last couple of years—one on cyber, one on digital and one on HVDC equipment. They are real emerging needs for us as a business, and we need the apprenticeships to reflect that. There is scope to reform the apprenticeship levy.

Q427 **Chair:** On materials and the area that our colleague Barry Gardiner was talking—supply chains and manufacturing—it has been put to me that energy companies that are waiting for cabling and whatever should



## HOUSE OF COMMONS

maybe think of spin-off arms, because they know that there is a pipeline of work coming, and start doing some of that themselves, rather than waiting on third parties in other places. Has there been any thought that you know of to do anything like that?

**Alice Delahunty:** Speaking for National Grid, we are a regulated business and we have a big challenge ahead of us. We want to stay really focused on our core skills of delivering the network and infrastructure that we need and of keeping the lights on, in all the core job that we do.

Q428 **Chair:** I am guessing that it has not made the manufacturing of cables particularly attractive.

**Alice Delahunty:** What we discussed in terms of certainty and commitment to those for whom it is their core skill is the place to focus our effort.

**Phil Jones:** I would remind colleagues that the early years of privatisation are littered with tombstones of companies in our sector that thought that they could do things that they had not done before and that they were better than the market, which, as history will tell you, is generally a good way of getting into trouble. Stick to what you are good at.

**Christianna Logan:** We already have sight of established original equipment manufacturers of things like cable, which are interested in setting up facilities here in the UK, if we can give them that confidence of the long-term programme and the specific contracts to underpin those investments.

I do not see a need for us as network companies, as Alice said, where our expertise sits within developing and delivering the networks, as long as we can attract these experts to deliver the cable and try to get that inward investment here in the UK.

Q429 **Vicky Ford:** Alice, could you be more specific about what you have just said about reform of the apprenticeship levy? That is a recommendation that this Committee could pick up on in our report. If we just say, "We want the apprenticeship levy to be reformed", and it is not clear exactly what we mean, there is a concern that some people, when they ask to reform the apprenticeship levy, want to spread the money and dumb down the qualifications. I do not think that that is what you suggested, but rather using the apprenticeship levy for more tailored and bespoke courses. Could you just give us a bit more clarity, so that we could be very specific in the wording of any recommendation?

**Alice Delahunty:** Yes, and I would be more than happy to follow up specifically afterwards.

Q430 **Vicky Ford:** Maybe you could put something in writing, but just say now a bit more about what you mean.



## HOUSE OF COMMONS

**Alice Delahunty:** There is scope for some more flexibility around using the levy to address business needs more directly. It is simply that. The restrictions around it at present might be lagging slightly behind how quickly the industry is moving.

**Vicky Ford:** Without dumbing down the quality of the courses.

**Alice Delahunty:** It is certainly not in our interest to dumb down courses, but the complete opposite.

Q431 **Mark Garnier:** Phil, I will address my questions to you in particular. One of the things that we are looking at is the ability for green energy companies to get access to the grid. I have been looking through the plethora of three, four and five-letter acronyms. You have DNOs, ESOs, NESOs, DSOs and RESPs. It is quite complicated if you want to try to get access to the grid. The first level and the profile of my question really is whether there is enough data available for green energy producers to be able to know which bit of the grid they can get into and how they are going to do it.

**Phil Jones:** It would be impossible for me to say that that has long since been solved, because there has been so much positive movement in the last 12 months to two years. It is a movable feast, and it is going in the right direction. I checked today, and we have 40 datasets on a portal that we put in place about 18 months to two years ago. For example, the latest price control period that we are in, which started in 2023, for companies like mine required a very visible and overt strategy for what data would be available in the public domain, which is a much more visible thing. Five years ago, it was barely talked about.

Is there enough information? I am at an event tomorrow where we will be listening to exactly these people telling us what they need to know, but there is so much more than there was, such as maps of the network showing them where the access points are and where access is tough. That has all happened in the last couple of years, generally speaking.

Q432 **Mark Garnier:** But there is more that could be done.

**Phil Jones:** Of course, yes.

Q433 **Mark Garnier:** The other criticism that we have heard is that DNOs, or distribution network operators, act as judge, jury and executioner—that is not my quote but somebody else's—in granting connections to renewable energy. What would you say to that?

**Phil Jones:** I am not surprised to hear that somebody said it to you, but I would also say that it is not true.

Q434 **Mark Garnier:** Why are you not surprised?

**Phil Jones:** There are always going to be people who would like things for free and would like theirs to be done first, before everybody else's. That is the exact opposite of the very strict requirements that are on us.



Q435 **Mark Garnier:** One of the interesting things about this is that, if you come along and you get access to the grid, you now have an asset without doing anything at all. Somebody else will buy that access off you, and now there is an incentive to go round and just put in applications, thereby creating an asset out of nothing. How do you make sure that you are not allowing somebody to game the system?

**Phil Jones:** Until recently, it was a lot more difficult to stop that, but those are exactly the kinds of things that Alice and I were talking about at the outset, when we talked about the connections reforms in the last 12 months, so we need to be a bit more detailed about it.

Initially—and I am talking about a period of over 20 years—it was possible to get into the queue just by filing an application. As you say, exactly the scenario that you described would then kick in. As we move closer to the sort of world that we are in now, we are requiring that people, for example, demonstrate that they have exclusive rights over the land.

Q436 **Mark Garnier:** Does that include planning permission?

**Phil Jones:** No, not yet. I am coming to planning permission. You could then move that bar to, “I have applied for planning permission”, or you could move it to, “I have secured it”, but regardless of whether the application is contingent on having it, what will be clear—Christianna said as much—is that, when you have the connection offer, it will be predicated on you hitting certain milestones, which would include securing planning permission.

If, say, three, four or five years have passed and you still do not have planning permission, we are now in a situation of having had the backing to move people out of the queue, because they are not ready to move. It might have been mentioned, but people talk about it a bit unkindly as zombie projects—projects that are just not going anywhere.

Q437 **Chair:** Who would say such a thing?

**Phil Jones:** I think someone might have said that earlier.

Q438 **Mark Garnier:** Even that does not necessarily completely do it. For example, if I am a property developer, I can go along to a farmer who has agricultural land for £10,000 an acre. I can do a deal where I get a right over that, or I can buy it off him. I can get planning permission on that land, which is now worth more than £300,000 an acre. I have now delivered shareholder value without building a single house. What you have described is how a renewables company can deliver shareholder value, which can then be sold on as a yet to be started project.

**Phil Jones:** That is true, but that is the property world.

**Mark Garnier:** We are not talking about property. We are talking about energy.



**Alice Delahunty:** It is worth clarifying that there are some differences between transmission and distribution. Certainly, on the transmission side, that contract is not with us but with the system operator. It is really important that we, as a network, are agnostic on the technology and not jury and executioner and all the other roles.

It is really important that we work with the ESO, the regulator and the Government to get this set of reforms in, so that that market is functioning effectively and in the interests of consumers and the journey to net zero, and not simply, as you are describing, for that booked gain.

Q439 **Mark Garnier:** It is interesting that you make that point about the visibility of who is coming on to the grid, which is quite important. If you are in charge of selling this stuff and distributing it around an area, you need to be confident that you are getting the right type of energy. If you suddenly find yourself with 100% of renewables and you have a nice cloudy, still day, you are in trouble.

**Alice Delahunty:** These proposals that have been laid out are now about focus and effort on delivering those, as well as a strategic spatial energy plan that makes some judgment on where technologies, types and locations allows us to plan a network around that, such that that hangs together with connections reform.

There have been very good proposals set out by the ESO that are due to go live in 2025, which put in gated processes that align to technology types. The proposals that address this are there. We have to get and keep the momentum behind delivery into this next phase.

Q440 **Mark Garnier:** You all sound reasonably relaxed that the process is moving forward at a pace that you are happy with.

**Alice Delahunty:** I would not want to give the impression of being relaxed, because we know that these long lead times are extraordinarily difficult for customers and for the viable projects. It is really unacceptable that they sit on the back of this queue that may not be viable. There is no sense of being relaxed about it, but huge progress has been made in the last year. The right governance bodies, boards and committees have been put in place. There are some really strong proposals on the table, and we want to emphasise the need to keep the momentum and focus on this.

Q441 **Mark Garnier:** Just out of interest, as a final point on this, you said that there has been huge progress in the last year. We have been looking at net zero for a long time. We chaired COP 26 three or four years ago. Are you worried that it is taking us so long to get to this point? The reason I ask that question is that there is an awful lot of stuff that we have to do before we get to net zero in 2050. If something as fundamentally basic as this is only being done in the last year, what else is not being done in terms of all of this that we should be concentrating on?



## HOUSE OF COMMONS

**Phil Jones:** If I look at it from a distribution perspective, that is probably relevant on two accounts, because there has been a lot of focus on transmission, for obvious reasons, given that that is where the congestion that has been referred to manifests itself. It is almost all on the transmission network, and the information that was announced yesterday, for example, is all about transmission investment.

The National Infrastructure Commission is starting to study electricity distribution. To your question of what has not been done yet, we have not asked ourselves how those principles of strategic investment, planning or skills apply to distribution. We have looked much more closely over the last couple of years as to what that meant for transmission, because that is where the big congestion was.

I am pretty optimistic that that study will shine some light on some good questions around exactly how fast we should go at the distribution level in terms of investing into those local grids that are really close to where people live. If people's consumption is going to double over that time, we already know what will have to happen to those networks. We will need fatter cables into people's houses. It is not complicated and there is not a lot of debate about it. We will need bigger transformers in small substations near their properties. That work should have started.

**Mark Garnier:** That is really helpful.

Q442 **Vicky Ford:** I want to talk about community benefits. A recurring theme in this inquiry is the need to make sure that individuals and communities who live near the electricity network and generation infrastructure feel the benefits, but, on the other hand, that you are not seen as trying to bribe local people.

We have heard arguments that the Government should legislate to make community benefits a material planning consideration, because, at the moment, planners cannot take into account what the benefits are. Could that reform be implemented with enough nuance that you could get this balance right and that communities get benefits without being seen or feeling that they are being bribed?

**Alice Delahunty:** We really believe that new infrastructure is key to an affordable, secure, green energy system, and that communities will end up playing a really important role in that. That very important role that they will play in housing the infrastructure should be recognised, and they should benefit from it. We really welcomed the Government's consultation, because what is really key is consistency and transparency, and consistency of application. That allows more transparent, upfront conversations earlier about how we move forward.

I do not think that we particularly feel that it has to be legislated through the planning system, because it is more about the transparency and the consistency, and finding the right balance. Through the consultation process and the proposals that are being made, we should be able to find that balance.





Q443 **Vicky Ford:** If you had two identical communities with two identical offers, and one of them has community benefits that feel great but the other does not, the planners cannot, by law, take that into consideration in making an either/or decision. That seems to be an issue.

**Christianna Logan:** That is why we particularly welcomed what has come through from Government in the recommendations and the consultation that they are undertaking on community benefit. What is proposed is to establish a consistent framework for community benefit that is linked to the scale of the infrastructure, and that associates to the impact. There would not be this challenge of, for example, some communities feeling like they are getting a better deal because they are getting higher benefit. The benefit will be linked to the nature of the infrastructure.

We have a couple of specific recommendations. One is that, at the moment, the current proposals are to have a fixed amount for substations, but substations can vary massively in size. We have examples where they are just half a hectare, and others that are up to 49 hectares, where you have things like converter stations. Those values should take account of the scale of that infrastructure.

The second point is really around where existing infrastructure is being upgraded to a larger scale. Where that is the case, that impact to communities is increasing, so that should qualify for community benefit funding through these programmes.

Q444 **Vicky Ford:** Christianna, it is terribly nice to hear somebody saying that the Government are doing something good. We never think about the good, so it is really helpful to have that. I am guessing that you are saying that you welcome that ambitious proposal, but that there is devil in the detail that could go even further.

**Christianna Logan:** That is absolutely right.

Q445 **Vicky Ford:** Does the current policy need to give more consideration to economic as well as other benefits? We have heard about people saying, "We will give you a benefit by upgrading your village hall" as opposed to, "We will give you a benefit through a discount to your energy" or maybe having an alternative source of energy. Does it need to be more specific about different types of benefits?

**Christianna Logan:** We believe that the best route for this community benefit funding is to fund socioeconomic benefits within communities, because they have the biggest collective impact across communities in comparison with individual direct benefits from things like money off bills. At a community level, they would be more impactful and have more of an escalation effect from the investments.

Alongside the community benefit funds, the very projects themselves bring significant benefits to these communities. We are going to be bringing a huge number of jobs. Our north of Scotland investment



## HOUSE OF COMMONS

programme to 2030 is going to create 20,000 jobs, with 9,000 of those in Scotland across us and our supply chain, which is a huge benefit.

We have also committed to providing a 10% net gain in biodiversity, which, again, will have a benefit locally. We have committed to investment in 200 properties in the network, which, at the end of the construction, can be adopted for use within local communities.

That is the sort of benefit that has a huge impact, particularly in areas like ours, where we have issues around rural depopulation and deprivation. We can make genuine impacts through the delivery of the projects as well.

**Alice Delahunty:** We are in agreement. There is scope to go further on the socioeconomic holistic approaches for these communities, whether that is investing in skills, in decarbonisation of their area, in their buildings to bring down their energy bills more holistically, or in green and wildlife. That wider socioeconomic benefit is where you create the multiplier effect, and there is scope to be more holistic and deeper about that.

Q446 **Vicky Ford:** I am going to push a little further before I bring you in, Phil. I hear you about socioeconomic benefits, which could be a benefit in some areas. We have also spoken in this Committee about off-gas grid areas, where rural communities are using oil, which is far from being secure, clean or affordable energy. I could see that providing them with locally produced secure, clean and affordable electricity could be a huge benefit. Christianna, I am pushing you a bit on what you said about not necessarily giving them a discount on their energy bills, but giving them a different form of energy.

**Christianna Logan:** We are definitely exploring those sorts of opportunities to provide that broader community benefit that has a legacy benefit in those communities. Money off a bill is a very short-term effect, but, if there are routes for these community benefit funds to provide that longer-term benefit, aligned with net zero, that is definitely something that we would explore.

Q447 **Vicky Ford:** Community heat projects, for example, in local areas could give that security, as well as affordability and carbon saving.

**Phil Jones:** I am surprised that I have come this far into this session without pointing this out, but the rule of thumb always to have in mind, with no disrespect to my colleagues here, is that transmission is large and lumpy, and distribution is little and often. Once you apply that in the context of community benefits, it dilutes heavily in distribution, and so, for us, it is less likely to be an issue. The planning issues are not as controversial, because they are smaller and they are everywhere. We are not into big things such as, "Why us? Why not them?" That generally does not apply.



Just to pick up on Christianna's point, I am in the same boat. If there is anything that is going to move the dial, it will be spin-off and socioeconomic benefits. When we say money off bills, we are imagining money off the bill that we are charging the customers, not off a different bill for their oil. It is what we charge. For us, for example, £100 a year is the entirety of the bill on average for its distribution element. You have to imagine how elastic that could really be once you share it out. The impact is too small.

**Q448 Vicky Ford:** Do the Government's proposed reforms have the right balance between clear expectations and getting that flexibility for local needs?

**Christianna Logan:** Largely, they do. Your words there in terms of flexibility to meet local needs are absolutely right. If the guidance is too prescriptive on what could be funded, it removes the ability for those communities to help define what will be most impactful for them, which is the route that we would like to go down, consulting with those communities to create the right criteria to bring the most benefit for them.

**Q449 Mark Garnier:** Can I turn to planning and planning reform? Christianna, Scotland is slightly complicated, because there are some parts that are devolved and some that are reserved. The Electricity Act 1989 is reserved legislation, so it makes it quite difficult for Scotland to take control of its own planning reform. If you were to pick one piece of planning reform for Scotland, what would it be?

**Christianna Logan:** Could I have one thing in two parts?

**Mark Garnier:** You can have a twin.

**Christianna Logan:** I like that. In the Electricity Act 1989, what we would like to see is the removal of the automatic trigger of public local inquiries if there is an objection from the authority. We would rather have that decision about whether to trigger a public inquiry made by Scottish Ministers.

Additionally, we would like the Act to be amended to make sure that we get decisions within 12 months on section 37 applications—so from the submission of the application to the decision being made. That is vital because the programme of these projects to hit 2030 targets is dependent on that 12-month timeframe for consent. Historically, we have had examples of projects similar to the Beaully-Denny project at 400 kV, which took over four years from application to outcome of a public local inquiry. That type of delay would mean that we cannot hit the targets and cannot secure that supply chain any more. They could go elsewhere in Europe, and we will lose those benefits that are coming to these communities, as well as the jobs that are associated. It would be a real problem if we ended up in a situation with those kinds of delays. If we cannot get those amendments to the 1989 Electricity Act, we would request that the Scottish Government time and scope-limit public



## HOUSE OF COMMONS

inquiries, so that, again, we could focus on achieving that 12-month timeline.

Q450 **Mark Garnier:** It is quite politically difficult. Phil and Alice, turning to you for a similar response for the rest of the UK, or certainly for the rest of GB, what would you be going for in terms of a change in planning regulations?

**Alice Delahunty:** There are probably two answers—large and lumpy, and little and often. When it comes to the big new infrastructure projects, it typically takes us about 10 years to deliver, and about two thirds of that will be planning and consenting—so six or seven years in planning and consenting, and about three years in construction. Therefore, there is clearly something to go after.

There is no one silver bullet, but, to come back to the theme that we have talked about, a strategic plan that can have some status and standing in planning law would be really beneficial. A strategic energy plan and a resulting network plan that is referenced in national policy planning statements and frameworks, and which has a clear policy position of a starting presumption of support for net zero infrastructure, would be a very material change and quite an important step.

A theme that we have come back to but which should not be underplayed is that it is really important that the planning authorities, Government bodies and statutory consultees are sufficiently resourced and have the capability to get through the workload.

Q451 **Mark Garnier:** There is one other thing that I wanted to ask. The National Infrastructure Commission made a recommendation to review energy national policy statements every five years. Is that often enough?

**Alice Delahunty:** You could probably argue it lots of ways, but, if you have the basis of a strategic energy plan and network plan reflected in it, it is unlikely that you would need to be continuously reviewing it. You would not want to, because you need that certainty and continuity, so it probably works, but there is a big prerequisite of having enough established up front.

Q452 **Mark Garnier:** You have all the stuff that goes behind it to work better. Finally, is there a need to review the legislation governing land rights and planning consent for network infrastructure in England and Wales? Is that piece of legislation fit for purpose, as far as you are concerned?

**Alice Delahunty:** That might be one that I need to check afterwards. It is not high on my priority list. We have the ability to acquire land for critical infrastructure.

Q453 **Mark Garnier:** So it is not a big issue for you.

**Alice Delahunty:** No.



## HOUSE OF COMMONS

**Phil Jones:** It is a classic example of the large and lumpy, little and often distinction. For distribution, we are very rarely involved in settling large, controversial planning disputes. It is a volume issue for us, and it will come very much into focus with the work that the NIC is going to do this year on distribution.

There are some very practical examples where, in our early work in that area in the last few months, we thought, "This looks like it needs some consideration". If you think of the concept of permitted development that is allowed, there is a lot of mileage in applying that, for example, to upgrading a single-phase line to a three-phase line. All we are going to do is put an additional conductor down the middle of the same line. At the moment, that would require us to work through the planning system.

If that were permitted development, lots of the upgrades to the kinds of villages that Vicky talked about, where they need to be put on the grid or upgraded, would be straightforward. If we have to upgrade the size of a cable on an LV overhead line down a village, again that is planning. If that were permitted development, we could do that straight away.

There are ways to reduce the burden on the planning process, which is, itself, struggling in terms of the volume. There are some little and often principles there that we think are applied. There are some issues around land rights for us in terms of getting on to look after the assets, but it is down in the detail, not the fundamentals.

Q454 **Mark Garnier:** Alice, coming back to the example that you gave where it took 10 years to deliver a project, seven of which were planning, when I see planning going through in my local constituency, you can see people objecting to stuff and all the rest of it.

Weirdly, it sounds quite depressing, but, more often than not, if you put in a planning application, you know that the law is on your side. You do not want to put one in where you are not going to get it through. That will take six months, and then the other six and a half years are about bouncing backwards and forwards between planning departments, regional planning departments, the investigating challenges, judicial reviews and all the rest of it. There seems to be an awful lot of time-wasting going on, and a huge amount of expense as well, by the way, yet you still come to the same result. Is that a fair or cynical comment?

**Alice Delahunty:** The phases probably chunk up slightly differently from how you described. We do non-statutory consultation. We consult throughout, which builds up time and is part of the process. Then there are 12 months of consideration and you may end up with a judicial review. It probably chunks out a bit differently, but it is largely this iterative, drawn-out process. That is why the Government tasked Nick Winser with, "How do we halve this?"

The proposals that are being put forward are really important to move forward for that reason, because, as you say, if we know that this



## HOUSE OF COMMONS

infrastructure is needed, is part of Government targets and is part of securing an affordable, clean energy future, we should not be endlessly debating the need, but rather finding the solutions that work for the communities.

**Q455 Mark Pawsey:** Can I just follow up on Phil's point about permitted development? That seems to me almost a no-brainer in terms of upgrading. Has the sector made representations? The issue is that it will need to go through two Departments, because DLUHC controls planning, but where have you got to? Has an ask been put to Government?

**Phil Jones:** I would have to check exactly who has said what to whom. I will be honest: my focus on it has been in the context of the NIC piece of work that is starting this year. Planning is clearly a big issue for transmission. To what extent will it apply to distribution?

It is a discussion that we are ready for now. I would say to you, a bit like the connections issue, that it has not been getting in the way of a march towards rolling out large investments yet, but, were we to accelerate at the pace that is being contemplated, it would.

**Q456 Mark Pawsey:** When every home has heat pumps and EV chargers, there will need to be three-phase lines to the majority of those.

**Phil Jones:** Quite possibly, yes.

**Q457 Mark Pawsey:** But you are saying that the upgrade of an existing cable from single-phase to three-phase requires a planning application.

**Phil Jones:** My understanding is that you have to go through the planning process. I would have to check exactly what process you have to jump through.

**Q458 Mark Pawsey:** That does not seem to make sense.

**Phil Jones:** I am delighted to be agreeing with you.

**Mark Pawsey:** If you could give us evidence on that, I am sure that we can include it in our report.

**Q459 Chair:** The final question is on the infrastructure—cabling, ploughing and undergrounding. There is a lot of controversy, with people looking for a referee. What is your view on whether somebody independent should be looking at that? I always hear that undergrounding is a lot more expensive than building iron pylons.

**Alice Delahunty:** The first thing that I want to make clear is that all of our solutions are a mix of offshore and onshore, overhead and underground. We are always looking to find the right balance between cost, which flows to consumers, and environmental and community impact. We do follow the national policy statements, and they have a starting presumption of overhead line. That is because they have done that assessment of balance, impact and cost, and thought about it. That might be reviewed over time, but that is the guidance that we follow.



## HOUSE OF COMMONS

We do apply a mixture and we do underground in particularly sensitive sites or where it is appropriate, or where it has come out through the consultation, but it would drive enormous additional cost to consumers to do it wholesale as the starting position, and it has other downsides.

Q460 **Mark Pawsey:** Can you give us the average uplift? We hear all sorts of figures, such as five times the price or 10 times the price. Is there a ballpark figure?

**Chair:** What would it mean on bills, basically?

**Alice Delahunty:** You could use 10 times as a rule of thumb. High voltage cables have huge amounts of heat associated with them, so different ground conditions require different backfill. You are precluding the planting of trees. There are all sorts of other implications when it gets simplified, which you lose in that discussion.

**Chair:** That is a useful answer. Can I thank you all very much? We would have finished just about on time, had I not asked that last question. Thanks to Alice Delahunty, to Phil Jones and to Christianna Logan for coming along. Thank you, all. It was good to see you.

### Examination of witnesses

Witnesses: Claire Dykta, Dr Graham Pannell and Eleanor Warburton.

Q461 **Chair:** We now have our second panel arranged in front of us this afternoon. Can I ask you all to introduce yourselves, on your own terms, rank, name and serial number?

**Claire Dykta:** I am Claire Dykta, director of strategy and policy at the Electricity System Operator.

**Dr Pannell:** I am Dr Graham Pannell. I am head of grid and electricity regulation for BayWa r.e., a renewable energy company, but I am here speaking on behalf of the Independent Renewable Energy Generators Group.

**Chair:** You have changed a little from your photograph. It took me a while to identify you.

**Eleanor Warburton:** Good afternoon. I am Eleanor Warburton. I am a director over at Ofgem, covering energy systems and markets.

Q462 **Chair:** Thank you all for coming. As you will know, the Government recently published their second consultation on REMA, the review of the electricity market arrangements. What are your views on the benefits of zonal pricing compared with alternatives under consideration?

**Dr Pannell:** First, I will say thank you for inviting me. I am very grateful to be here to speak on behalf of the IREG group.



**Chair:** You are very welcome. Thanks for coming.

**Dr Pannell:** We really want to get clean, affordable energy into people's homes, and we will get to how best to do that. In terms of zonal pricing, I really wish it was a silver bullet.

Q463 **Chair:** Is it a shinier bullet than the current bullet, then?

**Dr Pannell:** No. There are better ways to get there; we will come to that. It will drive up bills overall. There will be overall system cost increases and, as a result, bills will go up. That is what the DESNZ-procured study attached to REMA says. There is a combination of slight over-optimism on the benefits, but also mostly cost of capital problems. It also increases emissions, as say international studies and a study done on a forecast for the UK. As a result, the UK will have more gas power and be on gas for longer, so there are problems with exposure there.

Q464 **Chair:** In evidence we have heard prior to this, we have been told, from Surrey to Sutherland, to use my favourite bits of alliteration, the prices will get lower, because of fewer constraint payments.

**Dr Pannell:** Constraints are a really important point we will come to. The thing to note with constraint payments is that the single biggest driver of the huge volume of constraint costs is the cost of turning up gas at the last minute. Quite a small percentage of it, as a net impact, is the cost of turning down wind turbines because you cannot get wind power where you need it. That means that having a reliance on gas for longer is more problematic for constraints and there are better ways to tackle it.

The big point I was going to make on zonal pricing was, of course, the six years' implementation, which is the best case put forward currently. That is very difficult to square with the 2035 decarbonisation goals. It is an investment hiatus. It does not help us get where we need to. It makes net zero harder and more expensive to get to.

**Claire Dykta:** In terms of the Government's REMA consultation and their proposals, we really welcomed the consultation last week, because the worst thing that can hamper achieving net zero is uncertainty in the arrangements at the minute. If there is uncertainty about the direction we are travelling in, that is the kind of thing that leads to a hiatus in investment and rising cost of capital. We welcome the consultation and moving forward.

There are numerous independent studies that have noted that forms of locational pricing deliver benefits to consumers nationally. They all vary, but they reference anywhere between £20 billion and £40 billion-worth of benefits. That is because moving away from the system we have now, where you have one price that applies across the whole country, to one that is more granular—and there are lots of options about how granular you go—allows a signal to be sent to both the people who are producing power and the people who are using power on where they can most





## HOUSE OF COMMONS

efficiently locate, for those that are movable. Not everyone can choose their location, but some can.

It also sends a signal on when is best to either produce or use power. At the minute, those signals just do not exist. What happens in today's arrangements is we, the system operator, once the market has closed and everyone has balanced their position to make sure they have bought or sold enough electricity, then have to go in and make sure that the physical system will actually operate and the lights will stay on. Some days, we are unpicking and redoing over 50% of the market.

Q465 **Chair:** You are talking about signals. Are they the sort of signals that I am hearing will be sent to interconnectors, and there is a lack of correct signals at the moment? Some will argue that the lack of efficient locational signals in the GB wholesale market means that interconnectors can exaggerate transmission constraints.

**Claire Dykta:** The lack of signals to all users, which includes interconnectors, means that they do not understand from the market signals they are getting the impact they are having on systems. An interconnector that is connected in the north-east will be getting the same signal as an interconnector that is located in the south-east.

Q466 **Chair:** You are arguing that they should be giving very different signals.

**Claire Dykta:** Yes, because it may well be that the most efficient way to operate the system—the way that means less cost is incurred by consumers—might be that that interconnector in the north-east should be importing and the one in the south-east should be exporting. At the minute, there is no signal to do that.

Q467 **Chair:** I do like panels when I am getting different signals from the panel as well. Dr Pannell, this is different from what you were saying. This is an argument for zonal pricing, I am generally hearing, and you have an argument against zonal pricing. Eleanor, I am going to take your view in a second.

**Dr Pannell:** We are actually agreeing on a really important point, though: in terms of the ability of the ESO to send the right signals for redispatch and counter-trading to cost-effectively have market participants participating, flexibility is absolutely crucial. My argument is that there are ways to get at that flexibility faster than in six years, without ripping up the whole market, going to zonal pricing and adding the uncertainty and enormous cost of capital.

Q468 **Chair:** You think there is an alternative to locational pricing that could prevent interconnectors exacerbating transmission constraints.

**Dr Pannell:** Yes and, indeed, the LCP Grant Thornton study done for DESNZ for REMA points out that in the plus ledger, in their best case for not changing cost of capital, there was £15 billion of benefits and £10 billion of that is redispatch. That is a huge prize that could be got at.



Q469 **Chair:** As Claire Dykta has pointed out, you are still having to go in there and sort it out afterwards. These are not coming as automatically, granularly and organically as they perhaps should come.

**Dr Pannell:** They might not happen necessarily organically even under a zonal pricing system. There is an ability, over various timeframes, to flag up issues and have interconnectors more efficiently involved in the balancing mechanism, involved in local flexibility markets, making more advanced agreements with the alternative TSO where it lands to get that £10 billion benefit much earlier. There has already work been done by ESO on redispatching and counter-trading that we should pick up and build on.

**Claire Dykta:** I would just say that there are always multiple options for getting to an outcome that everyone agrees on. As we have heard in your first session, there are many elements of the existing frameworks that just are not fit for the world we are in today, never mind the high renewable system that we are moving to.

Increasing the complexity of the regime does not help anyone. A system such as locational pricing is difficult to implement, but most changes to market arrangements are difficult to implement, because it is so complex. Something that sends a very clear, easy-to-understand signal that is simple in its end application has to be taken at face value.

Q470 **Chair:** Eleanor, I am looking to you as a referee, almost, between the two, but also was the Government correct to rule out nodal pricing? There is an extra element for you. Graham Pannell would say that they were.

**Eleanor Warburton:** He would definitely say that they were, I would assume. Really quickly on the points just covered, I would echo the points from both about certainty. This is a big, open question. Everybody across the industry would agree it is important to drive it forward to a conclusion, so that it is clear how the sector will progress. It is addressing a real, very significant set of issues with the system, when you look at how it is going to evolve. To solve that, you absolutely need network build, but you also need to really look at signals.

The point of debate here—and this is exactly where the next stage of REMA work is going to go and focus on—is whether zonal is the only credible way you can send those signals. Are there any other ways you can build that back up? I do not want to pre-judge that. My view on what I have seen so far is you can find other ways to send investment signals. Those are relatively static, long-run signals you can do through things like charging. Most of the industry would agree there are different options there.

To put it mildly, there is no consensus whether you can find a different approach to send operational signals. We need to do real, thorough, deep work on that to check it, but I would also say you are very unlikely to get



## HOUSE OF COMMONS

the benefits without some of the downsides. Fundamentally, this is about the fact that, at the moment, essentially the risk sits on the consumer if energy cannot be delivered through the network. That ultimately flows through to them and part of the question here is whether you should transfer some of that risk in real time to the generation side.

Any solution that drives really material benefits is also likely to demand some kind of risk transfer and that is going to be challenging.

Q471 **Chair:** Claire, could you make a brief comment on nodal? Are they right to rule it out or not?

**Claire Dykta:** The studies that I mentioned have shown that there is significant benefit to nodal pricing. Given the scale of transition and challenge that the industry is—

Q472 **Chair:** In other words, start with zonal.

**Claire Dykta:** Zonal is a really sensible place to start, and you can take stock.

Q473 **Mark Garnier:** Claire, you have probably answered all my questions, which were about the advantages of locational prices and how they are going to resolve a whole lot of problems. Listening to that discourse, Graham, I saw you listening when I was talking about people gaming the system and you were nodding your head quite enthusiastically. It strikes me that there are going to be a number of problems that are going to come up with this.

The first is that, if you are a power generator on the edge of a zone, you can chase the spot price, depending on which is going to be the best. Of this there was a criticism a little bit earlier about the interconnectors. One of the problems with interconnectors is, if you have a higher price in France than you have in the UK, you would sell electricity to France, and therefore you are effectively increasing the price in the UK, because you are now getting a reduction shift. You are importing a higher price.

Claire, perhaps I could start with you. Are you going to get lots of problems like that, with people trying to game the system in terms of selling for the highest price? I can see why you want that to happen, but what are the unforeseen problems that are going to come out of this?

**Claire Dykta:** To some extent, the price moving around to affect the market dynamics and the relationships between markets does, ultimately, overall lead to a better outcome across everyone that is picking up those prices. You talked a bit in your first session about the amount of new generational capacity that is coming on to the network. Generally, most of the time, we will be oversupplied. Exporting excess to the continent most of the time will be fine.

One of the benefits of zonal markets, which is often talked about, is that it does not introduce the risk of liquidity issues, because you have a bigger market with more players in than you would if you had lots of



## HOUSE OF COMMONS

individual zones. That significantly reduces the opportunity for gaming, because it is much more transparent than the market we have now and there are more players within it.

I would say as well that, in the GB market, the licensing regime that we have here is very strict. We do not see market gaming happening here, as you do in other jurisdictions, because the regulatory frameworks have evolved over time. Our regulatory framework has generally been in front of a lot of the other markets.

Q474 **Mark Garnier:** You talked about five years to implement this. Do you think that is a reasonable amount of time for zonal pricing?

**Claire Dykta:** I cannot remember who said it or where I saw it. With all of these things, there are different ways of implementation. I heard someone refer to doing things on a war footing. You can do things quicker if you decide that that is an absolute priority and you devote more resources to it.

Five years is probably a sensible time because, to the earlier points about certainty, being able to give an indication of what the arrangements will be, when they will come into place, how they will impact people who are already connected to the system and those who are newly connected, is the best way of managing any uncertainty, rather than moving to a regime too quickly and, in doing that, diluting some of the longer-term certainty that you can provide.

Q475 **Mark Garnier:** Eleanor, there have been suggestions that some people could potentially lose out, because they find themselves in an area of very high energy prices. Therefore, you can shield consumers from that by giving them subsidies, but is that slightly undermining the case for zonal pricing?

**Eleanor Warburton:** You have heard different views on this. The fundamental point is, as you say, about whether you will overall get cost savings so that, on average, across the country, everybody's bill goes down. You are absolutely right. You can design this in such a way that you shield end demand to some degree and there is a whole range of choice there. Yes, you will lose a small amount of the benefits. I fully accept modelling is open to enormous amounts of argument but, certainly when we looked at this, the proportion of the benefits you lost by shielding primarily domestic demand was not huge. You still got significant volumes of benefits.

Q476 **Mark Garnier:** Presumably it is the big consumers, the big industries, that you potentially want to—for example, a data farm. You would not want to put that in the midlands' industrial heartlands. You would want to put them up in Shetland.

**Eleanor Warburton:** Yes, and it is also the behaviour of two-way assets. People have mentioned interconnectors. They have mentioned batteries. Those can flow either way. From a business model point of view, for



them, it does not matter, as long as they have clear arbitrage opportunities, which way they flow. Therefore, exposing them to the right signal is potentially quite a material source of benefit in this.

**Q477 Mark Garnier:** On the interconnector point, Claire, you were talking a bit earlier about the fact that, at the moment, interconnectors do not mind where they land in the UK but, after this, they will mind. If you have something coming to the north of England from Norway or somewhere, compared with something coming to the south of England from Belgium, presumably that will have an effect on the interconnectors and how much we are importing or exporting at any given time.

**Claire Dykta:** In terms of a change in the wholesale market, at the minute, anyone who is trying to connect into the system receives lots of different signals. They receive signals through the local planning regime, through the charging network, through the market arrangements, and they are all slightly different. Generally, people will locate wherever it is easiest for them. Reforming the strategic planning system, the market system, is what gets the clean, reliable, cheaper power generators connected to the system quicker. We transform to a greener system quicker, which then delivers the benefits.

It is not that the market signals on their own start to specifically change behaviours. It is making sure that they are aligned with all of the strategic plans so that there is a coherent overall plan, if you like, of where things should broadly be located.

**Q478 Chair:** I will just make a final point on zonal pricing before I turn to Vicky Ford. Is there a country that you would tell us to look to, where you think zonal pricing is working particularly well or a place where zonal pricing is establishing and things are working badly?

**Dr Pannell:** There is not a single ideal comparator. If we zoom out a bit on what we are all doing here—and what we all probably agree on—it is a clean energy transition, getting energy security up, getting affordable energy into people's homes. What we are looking at—Carbon Budget 6—is around 200 GW of new renewables in the next 10 to 15 years, which is a colossal amount.

**Q479 Chair:** There is nowhere that we can compare at all.

**Dr Pannell:** Nowhere that has moved to nodal or zonal pricing has tried to have that level of investment at the same time, and that is the key thing in my opening comments. You are looking at £500 billion of new investment in the electricity sector—

**Q480 Chair:** How might this impact investment?

**Dr Pannell:** If there is any uncertainty or volatility in price, that risk has to be priced somewhere. If you were to move to zonal, you would price it into generation and that would flow through to customer bills, ultimately.



## HOUSE OF COMMONS

To go to your point about the comparators, Texas is a really interesting one. When Texas did its locational pricing, they pre-empted the locational pricing by building around 20 GW of transmission in socialising the cost and saying to everyone, "There is the windy panhandle, where the resource is, and these are the demand centres, where the cities are. We will put in 20 GW of capacity". The University of Alberta has independently reviewed this and found that the predominant driver of location of that wind was where it is windy and where they could get land.

Q481 **Chair:** Claire, do you have any views?

**Claire Dykta:** There is nothing with which I particularly disagree.

Q482 **Chair:** Would you not disagree with the investment point?

**Claire Dykta:** I agree with the point that uncertainty drives up the cost of capital. The Government moving forward with the REMA consultation, to the timelines that have been indicated and being very clear on what the future arrangements are and when they come in, is what creates the stable investment climate. The UK has historically been a really attractive energy market to invest in. The capital that is available at the minute is much more mobile than it has been in the past, so we need to stay attractive as an investment destination. REMA can do that by giving certainty as to the arrangements we are going to move to, at this date—

**Chair:** As happened in the panhandle.

**Claire Dykta:** This is how we will protect consumers. This is how we will protect generators that are already connected on to the system. If you can set that out, it takes the uncertainty away.

Q483 **Vicky Ford:** Before I get to my question, I am very confused. Let us all assume that we want affordable, clean, secure energy. Graham has just said that doing localised pricing will make our energy dirtier and more expensive. Claire has just said it will make it cheaper and cleaner. One of you has got to be right and one of you has got to be wrong. Claire, why does Graham think it is more expensive and dirtier? Graham, why does Claire think it is cheaper and cleaner? Let us look at the other side of the argument here.

**Claire Dykta:** The key thing that we are both saying is that uncertainty in arrangements will drive up cost. That is what we are both saying. Moving to a system where we can send clearer signals to people as to how and when they should use or generate power means a more efficient system overall.

Q484 **Vicky Ford:** How and where? We are talking about localised pricing, which I understand is about where you use power and generate power, not how and when. I get the how and when, but where?

**Claire Dykta:** It is where, but it is also the time of day. It is both. They are both important and we cannot send these signals at the minute. In



## HOUSE OF COMMONS

terms of the “so what”, the one thing that everyone agrees on is that today’s arrangements do not work and they will not work in the mid-2030s, and that is when you do end up with a more expensive, dirtier—

**Q485 Vicky Ford:** If we are to recommend localised pricing, then we are talking about the where, not the how or the when.

**Dr Pannell:** Again, there is a tension with the colossal investment that is needed. Anything that gives uncertainty to that is going to be priced. I am saying that it drowns out the benefits. Some of these studies and the good work that has been done have flagged up that there is an operational redispatch benefit. I am saying it can be achieved in other ways and that is backed up by the LCP Delta work, the LCP Grant Thornton work—

**Q486 Vicky Ford:** Getting on to my initial question, Claire, I know you are an amazing person. You have done amazing things in your other role. People have spoken to us about the number of responsibilities the National Energy System Operator will have. Are you concerned that it could become overloaded, with so many responsibilities?

**Claire Dykta:** It is important that we recognise that the electricity system operator was chosen to be the core or the base that NESO was built on because of our expertise in strategic planning, market reform and our ability to build on that capability. We have been building that capability since well into last year and we are well prepared for the roles that we will take on as we transition.

We have some amazing people already in the organisation. We have recruited lots of new ones as well. We are finding that particularly younger generations coming into the workforce appreciate what we offer, which is a purpose-driven organisation that is at the centre of net zero. The biggest thing for us is making sure that we have the capacity and the capability in the organisation to do those roles, and we are quite confident in that.

**Q487 Vicky Ford:** We are expecting you to do a huge amount. It is incredibly critical. It is critical for our future and we are also expecting you to do this on a really tight timescale. If there is anything that you need Government to be doing that they are not currently doing, now is the time for you to say it because we can, as a Committee, put that in our report and ask for it. Is there anything you need Government to be doing that they are not currently doing?

**Chair:** That is a good opportunity you have been given there.

**Claire Dykta:** I am going to disappoint you and say no. There are live conversations about roles and responsibilities, particularly between NESO, the regulator, Ofgem and Government, particularly DESNZ. It is important that that is clear and clarified for everyone in the industry. That is a live conversation.



## HOUSE OF COMMONS

The other thing is that it is really important that NESO carries out roles where it can add value and does not do roles just because it is an easy answer. I know that, across all three parties, we have been very focused on the fact that it is not a Christmas tree on which you should be putting every single bauble that comes along. We need to only take on the roles where we can actually add some value.

**Chair:** That is a good metaphor.

Q488 **Vicky Ford:** Is the upgrade of the IT systems good enough? Is it going to make sure that you can fully use small-scale distributed export assets in the right way?

**Claire Dykta:** The running theme of this afternoon is things that were designed when the system was privatised, which just do not work in the world we are moving into. We have a huge IT programme running, which implements a new system particularly into our control room. There are lots of other things as well. We had a big release into the control room before Christmas, which has seen the use of small assets—particularly battery assets—increase very significantly since then. We are really pleased with that.

Q489 **Vicky Ford:** I am going to let the other two answer another question, but I am going to go back again. We do not want you to come back in a year or two years' time, when there has been some failure or flaw and the IT system has not been good enough, and you are coming back in front of a Select Committee and having to explain something that went wrong, and we say, "We gave you all the chance to shout in advance". Just please take a few minutes while they are answering to really think whether there is anything you should be asking for now.

To the others, as a public body, should NESO be subject to higher standards of transparency and accountability when they are commissioning flexibility, or do you think that that balance of transparency and accountability, versus the bureaucracy that inevitably goes with that, is about right?

**Eleanor Warburton:** I would say, regardless of whether or not it is a public body, ESO is already expected to be transparent and accountable. It has obligations to balance the system in the most economic way. It has a very active and engaged industry that challenges it regularly and heavily on whether it is doing that and raises the sort of issues you are flagging. From a regulatory side, I recognise the update Claire was just talking about and we have seen a lot of engagement with industry around that. We fully expect that will continue over the coming year, but it is promising to hear that battery uptake is being better enabled, now that the IT systems are being rolled out to back it up.

**Dr Pannell:** Power systems users have been crying out for a proper systems architect for years, so it would be backward of me to throw problems at this. This is what we have been asking for: a proper, independent body to look after the whole system—full power there. NESO





is growing from roughly 400 and adding another 800 or so this year, which is a huge growth and, if anybody thinks there will not be teething problems, that would be a surprise. I am kind about that.

What I would say on the IT is that the current balancing mechanism itself was written on the same programme you could get in a free pull-out from *Computer Weekly* back in the mid-90s, and it absolutely is worth putting in the right IT support. We need to move from the world where balancing was done by a person with a telephone ringing a person with a telephone at a known power station. We need to move to huge portfolios of small users done on an automated decision basis in as close to real time as possible. That is the way we will get value.

Q490 **Vicky Ford:** Claire, is there anything you want to add?

**Claire Dykta:** To your question, on IT specifically, no. In terms of ask and what needs to be done, the biggest thing that would be an enabler in this context is making sure, first, that the roles and responsibilities are clear and everyone is clear on those and, secondly, thinking about some of the points that were raised in the first session, particularly around ensuring that the spatial energy plan is recognised and endorsed by Government. That gives a formal standing to that plan, which can feed straight into the planning process and speeds up everything. If that does not happen, it is really difficult to move forward.

Q491 **Vicky Ford:** When are you expecting that roles and responsibilities bit to be clarified?

**Claire Dykta:** It is a live discussion now. It is a really crucial part of the discussions. We are expecting to transfer into Government ownership in the summer—that is a Government summer—and we are all very aligned. It is not a difficult conversation.

**Vicky Ford:** It is about making make sure that happens before—did the Chancellor say October?

**Chair:** Yes.

Q492 **Mark Pawsey:** This is just a quick one for Graham. You spoke earlier about £500 billion needing to be invested in the system. What period of time do you mean?

**Dr Pannell:** That is over 10 years.

Q493 **Mark Pawsey:** We need to have spent that within 10 years from now.

**Dr Pannell:** Yes. The REMA 2 puts it at £175 billion of power station capacity investment. Of course, you need to add batteries to that. That is a lot of power station capacity. The ESO's transitional centralised strategic network plan, as launched yesterday, is another £58 billion of transmission investment, on top of the £54 billion of the HND, which is on top of distribution. You put all that together and you are over £500 billion in the next 10 years. That takes us to 2035.



## HOUSE OF COMMONS

Q494 **Mark Pawsey:** That gives us some maths. I want to ask Claire something, if I may. I do not know if you heard the Minister's evidence this morning, but I asked him about the strategic spatial energy plan, which, if I remember what he said correctly, you are going to be asked to start next year. You know that task is coming. The challenge he seemed to be talking about was how you create that plan when, in his words, many of the technologies are not yet proven. We are talking about SMRs, carbon capture and tidal hydrogen. They are not yet proven as technologies. How are you going to do a plan when so much of that is uncertain?

**Claire Dykta:** The spatial plan is primarily around where those technologies should be located—

Q495 **Mark Pawsey:** If we do not know whether they are viable, it does not matter where they are located, does it?

**Claire Dykta:** It will work off the basis of the generation mix that we think is the most viable option for a zero-carbon power system.

Q496 **Mark Pawsey:** You will make loads of assumptions.

**Claire Dykta:** In all these things, there are always assumptions. The key is that the assumptions are clear and transparent, so people can see those. The spatial plan is really about showing where the big technology groupings and the infrastructure should be ideally located, taking account of cost, environmental benefit, social and community impacts, et cetera.

Q497 **Mark Pawsey:** You are going to start that work next year. How long is that work going to take you to complete?

**Claire Dykta:** It will be published next year. The work is already under way.

Q498 **Mark Pawsey:** Okay, because Graham has already told us we have to spend this £10 billion and, without the work you have done, it is not going to be very clear where that investment should go. Will that direct investment and provide the certainty that we were told this morning investors need?

**Claire Dykta:** The electricity network that is needed primarily this decade to connect the existing particularly wind targets for England, Wales and Scotland is already public and much further through the process. There are clearer plans for that and Ms Delahunty, who was on the panel before, talked about the ASTI framework. I can never remember what it stands for, but that is the model that has been agreed with the regulator to fund that network. The critical network that is needed soonest to decarbonise the power system is already under way and much further through the process.

Q499 **Mark Pawsey:** Once that plan is developed, whose job is it to implement it? Eleanor, is that a role for Ofgem or does it sit with the ESO?



## HOUSE OF COMMONS

**Eleanor Warburton:** I am conscious that we have a lot of plans. I assume you are asking about the strategic spatial plan, not the network plan.

**Mark Pawsey:** Yes, sure. It is all very well to have a plan but, if nobody has responsibility for implementing it, it will probably sit there as a very nice document.

**Eleanor Warburton:** It will be a beautiful portrait on the wall, yes. We probably should all say it is Government that are commissioning that plan and the commission is still to come, so we do need to give them space to send that. My assumption, in the absence of that commission having come out, is that, ultimately, ensuring the commission will produce a plan that is deliverable is a matter for Government. How it will become real and be delivered is going to require a number of different things to come into place coherently, because what you are really talking about is how generation gets built.

Some of it is built under Government-run and designed frameworks, like contracts for difference, the capacity market, a lot of their bespoke models for things like nuclear and CCUS you were talking about. Government control the design of those. My assumption is it will therefore be their responsibility to ensure the plan they have commissioned and the market interventions they run line up.

**Mark Pawsey:** It will be the Government's role.

**Eleanor Warburton:** Some stuff, however, builds purely on market signals, and that is where you very much get into the REMA discussion. You need to make sure the signals you are sending the market to build are consistent with the planning and drive the outcomes you want and things like the planning system. Then the final output from this is the network. That sits with us and it is our responsibility on the funding side and the TO's responsibility to actually build it.

Q500 **Mark Pawsey:** You have introduced this issue of the planning system and getting the developments that we identify in this strategic plan built. Where does the role of local residents sit in this? One of the challenges in getting stuff done is local objections, and you heard quite a lengthy discussion in the previous session. How do we make sure that the public are onside? People know that we are decarbonising our energy system. They are very happy for that to happen but, in most cases, they do not want it near them. Graham, what are your thoughts on dealing with that conundrum?

**Dr Pannell:** I will flag up another good thing the Government have done in accepting all of the electricity network commissioner's report findings and publishing and pushing on with the transmission acceleration action plan, as published last November. That is an absolutely super document, and I am delighted on behalf of the whole country that we are getting on with that and there are appropriate pressures on it. I raise that because



## HOUSE OF COMMONS

there is a specific set of actions in that plan that talk about public engagement around understanding the need to grid, to go alongside a clean energy transition.

**Q501 Mark Pawsey:** On grid, I do not know whether you heard Prime Minister's questions today, but a local MP stood up and said, "I understand there is going to be a whole load of pylons running through my constituency. Why can't they be underground?" We heard the answer to that from Alice, who told us it costs 10 times as much to underground it. How do we get communities onside to accept this investment in the broader interests of the country as a whole?

**Dr Pannell:** You are looking at somebody who loves pylons, so this is possibly not fair. There is also an understanding of what the alternatives mean. One thing is that underground cables at transmission level cost 10 times more—maybe more, depending on the voltage and the terrain—but also there is a construction impact on transmission cabling that is akin to building a motorway. Pylons are far less invasive—

**Q502 Mark Pawsey:** You think the public perception that undergrounding is always the best thing to do, if we can find the funding for it, is wrong.

**Dr Pannell:** It uses a lot more materials. It is a lot more invasive, as well as being hugely more expensive and slower, yes.

**Q503 Mark Pawsey:** Do either of you have any thoughts as to how we get the public onside with this huge investment that we need to make?

**Claire Dykta:** It is very important that, right at the start of the process, we talk to the public on a peer-to-peer basis and explain all of the options and all of the pros and cons of each, so that all of the different aspects that are being taken into account are completely transparent—

**Q504 Mark Pawsey:** Should Government be playing a role there or is it down to individual developers?

**Claire Dykta:** If you are talking about the transmission-level network, the system operator has a role in that. We have been doing some work very recently where we have been talking to specific areas of the country about options for infrastructure and been very transparent about pros and cons. Once you get into detailed routing and the delivery, I would refer back to the comments that the previous panel gave about standard and meaningful community benefits and engagement.

**Q505 Mark Pawsey:** Are you as attracted to pylons as Graham is?

**Claire Dykta:** Unfortunately, yes.

**Chair:** That reminds me of the *Economist* headline, "Hug a pylon".

**Q506 Mark Garnier:** I will just ask an incredibly quick question on that overground pylon versus underground thing. There are a whole load of pylons very close to where I live, within a mile. They are being rewired. They are taking all the old wiring down and putting up new wire.



## HOUSE OF COMMONS

Presumably that is to upgrade it to carry power. Presumably underground you cannot do that very easily, or as easily as you can do with overground.

**Claire Dykta:** Generally, underground cables carry a lot less power than overhead cables as well. Yes, it is more difficult to repair them or completely upgrade them and they have a much lower limit, so you are more often looking at running another cable alongside.

Q507 **Mark Garnier:** If you want to upgrade, you have to go through the same palaver that you went through the first time.

**Claire Dykta:** Yes.

Q508 **Chair:** Some people have said they are 10 times the cost. How does that manifest itself when it goes through to the bill? It would not be 10 times the cost of the bill. What would the cost of the bill roughly be, so that consumers know? I do not know.

**Dr Pannell:** What we are talking about are main interconnected transmission systems, typically. This will come out in transmission network user system charges, so the transmission fixed bit of the bill. It is currently recovered on a socialised basis through the transmission demand residual—

Q509 **Chair:** It will be on the standing charge.

**Dr Pannell:** It will be on the standing charge, yes.

**Eleanor Warburton:** The majority of it will go straight on—

Q510 **Chair:** Ofgem—the very people. We have heard all the very valid technical issues. If we do undergrounding and, let us say, it is 10 times the cost, what does that mean on the bills for the consumer? Do we know? I know it is a very difficult question so, if we do not know, I will accept a written answer and we can include that in the report.

**Eleanor Warburton:** If Graham has already worked out the numbers, that would be great. Essentially, it will feed through to the consumer bill, and the standing charge element of the bill will rise. Graham may be able to put a more concrete figure on how much.

**Dr Pannell:** Yes. Fortunately, I was with the ESO yesterday and Dr Paul Wakeley, doing his great work on the strategic network plan; £58 billion of transmission investment comes out at roughly £30.

Q511 **Chair:** Is that annually on the bills?

**Dr Pannell:** That is annual. Logically, therefore, if you were doing £58 billion and you had to do 10 times that, that is going to be £300. Each transmission project is not £58 billion and a lot of that £58 billion is already undergrounded, but it gives you an idea of the ratio so you can do it yourself.



## HOUSE OF COMMONS

Q512 **Chair:** It is 10 times the extra cost, but it would not be 10 times the bill.

**Dr Pannell:** It is 10 times that bit—that little element.

**Chair:** It is £270 on the average, you think.

**Claire Dykta:** I would just say that the report that Graham has mentioned, which was published yesterday, is the second in a series on infrastructure that needs to be delivered to deliver the offshore wind targets, primarily. That gets up to 86 GW in total of wind connected around the shores of GB. In terms of that £58 billion, once you look at the electricity infrastructure in GB, there will be around three times the amount of cabling offshore as there will be in onshore infrastructure. That £58 billion already includes both some undergrounding and some offshore cabling.

**Mark Garnier:** That is wiring turbines into the grid.

**Claire Dykta:** It is also running transmission lines. You can always run lines, say, from Scotland down into England, but you can also run them offshore and connect them from Scotland into Wales, for example.

Q513 **Chair:** Eleanor Warburton, how will the reforms to the licence conditions sufficiently address conflicts of interest within the DNOs, the district network operators?

**Eleanor Warburton:** I assume you are interested in the areas of market creation and strategic planning.

**Chair:** Yes—RESPs and NESO and all the rest of it.

**Eleanor Warburton:** We love a good acronym. To echo the previous panel, the distribution level is different from the transmission level. Essentially, the question that was raised a while back is, “We are pulling NESO out into this separate independent body. Do you need to replicate something of that sort at the distribution level?” The reality is, as was said, that distribution is much smaller, more localised interventions, and they do not market balance the system to anything like the same degree.

We took a long, careful look at it and, in the end, what we are doing is pulling out two elements. We are pulling out the strategic planning element, so it is not simply the distribution network writing their own plan for their area. It is asking an independent body—in fact, NESO in due course—to set out a plan for that region that looks across different fuel types to set out the most efficient trajectory for the region overall.

It is also pulling out this function we are calling market facilitator. That essentially recognises that, as we move towards a more flexible system, all of the distribution networks are running little localised markets to help balance constraints on their system. You also have the ESO creating flexibility markets. It is very difficult for providers to potentially work across multiples of these at once, all set up in marginally different ways, with slightly different information requirements. Therefore, you need a



## HOUSE OF COMMONS

single body or function responsible for essentially making them consistent, accessible and ensuring that you can stack value across them within reason.

Those are the two functions that, when we looked at it and did a lot of industry and engagement and so forth, people expressed genuine concern that simply leaving the DNO to get on with would not be effective. I should say, in justice to the DNO, that was not necessarily because they thought they were inherently conflicted all the time. It was more that they needed a wider view upwards into the national and across to different fuels than you could reasonably expect an electricity distribution company to take.

Q514 **Chair:** There is a need for regulatory reform to satisfy calls for the DNO to be transparent in relation to connection decisions. One of the transparencies that has come my way is people have got a connection at some point, but they do not know who else is around them. I was thinking of a distillery in the highlands of Scotland that came to me. Basically, if they knew who was around them, they might be able to make some sort of deal, but they did not know who was around them. They might be able to find some solution.

**Eleanor Warburton:** Generally, we are pushing the DNOs to be much more transparent with connection information, and you heard Alice and others talk earlier about things like heat maps for areas. You can look at it and say, "Okay. I will not go there, but over here looks promising". I have heard that challenge and it is something we are discussing with DNOs. There is sometimes some sensitivity from companies on that list, perhaps not wanting it known exactly what their business stage and connection intention is. There is a question about commercial confidentiality there.

More generally, it is probably worth saying that the other thing we are doing at the moment is reviewing for distribution, for transmission and for the system operation level whether, essentially, the obligations and incentives on all of those are right. The connections landscape has just moved so much that obligations and rules that were written 10 or 15 years ago for a very static system are not going to cover the ground that they need to now in the way they would need to.

Q515 **Chair:** There is going to be a legally independent transmission system operator. Why is that not for distribution networks as well?

**Eleanor Warburton:** Essentially, because the control rooms' distribution level does not fulfil the same function. When you look at the number of people the ESO already has and the sheer impact it has on the system because it is responsible for total energy balancing and really material levels of market design system planning, they are doing something that is quite fundamentally different compared with the distribution level, which is more orientated towards network build and maintenance.



Q516 **Chair:** Would you agree with that, Graham?

**Dr Pannell:** I do not disagree. I wanted to talk about constraints—Mr Garnier’s question about whether interconnectors sometimes go to the wrong place and Mr Pawsey’s question about whether network infrastructure is on the right kind of timescale for investment.

We have missed something of the elephant in the room. Constraint payments are over £1 billion per year already and are set to rise to over £2 billion in the mid-2020s. The reason we are in that situation—the Electricity Networks Commissioner was in this room saying pretty much the same thing—is that the UK is starting off from a point where it is about a decade behind the economic balance point for transmission investment.

You can do that with quite round numbers on the Scottish boundary as an illustrative example. The current secure boundary flow, Scotland to England, is 7.2 GW. That is the power you can carry out of Scotland. There are already today 15 GW of renewables in Scotland, and one can reasonably presume in all forms of pricing that there will be more. That means you cannot utilise it. Eighty-five per cent of that £2 billion is the cost of gas turn-up, because you cannot make use of that wind when you want to.

I will just close on the alternative. The east coast HVDC Link, which would carry four GW out, on Ofgem’s approved final costings will cost about £300 million per year on an annuitised basis. If you have one and a half of them, that would eliminate 91% of that constraint. It is massive value for money and we are behind where we could be to reduce that constraints bill.

**Mark Garnier:** It is because of the interconnectors. Sorry; I do not mean the interconnectors.

**Dr Pannell:** I was coming to the interconnectors. It is because of the failure to upgrade the boundary on the right timeframe. It is because, as an industry, we did not do a sensitivity to high gas prices and there was nervousness around—

Q517 **Mark Garnier:** You are saying the boundary between Scotland and England has a finite capacity.

**Dr Pannell:** Correct.

Q518 **Mark Garnier:** You are saying that you have 15 GW of available wind power in Scotland, but you cannot transmit it south because you only have a 7.2 GW cable. Is that not going to be a problem for the whole of the UK? In a previous session, it was said that we are looking at huge amounts of generation. I cannot remember what it was, but we are looking at 40 GW of nuclear power. You have 35 GW of gas and it is going to drop to 20, I think. Then we are going to be potentially having 80 GW of offshore North Sea stuff. Compare that with the demand.





## HOUSE OF COMMONS

When I look at it on my little app, it tells me that in a busy day in the winter, when you have a lot of lights on, we are only using 43 GW of power. You have a massive amount of capacity compared with the demand at the moment. This is across the whole of the UK. This is not a Scotland problem. It is a whole of the UK problem, in terms of that.

**Dr Pannell:** There are many constrained boundaries and they all need to be looked at. There is an economic balance point for each of those boundaries.

**Mark Garnier:** I am not even thinking of the boundaries. I am thinking of the whole market. You have the United Kingdom market. You have a massive amount of capacity before you get to the boundaries.

**Chair:** You cannot transmit it within the UK.

Q519 **Mark Garnier:** Even if you could, you still have that problem.

**Dr Pannell:** I see what you are saying. That is a different question in terms of energy balancing. Do you have more energy coming in than you can use? That is different from questioning whether you can squeeze it through the guttering that we have. Our gutters are frequently blocked; we need more gutters. That is probably the best analogy. I am talking about instantaneously having enough power, so that you pay less money in turning up gas turbines to balance.

Q520 **Mark Garnier:** I will go right to the other end of the market now and look at flexibility of consumers, in particular the domestic. This is really for Claire and Eleanor. Overall, what are the roles of Government, Ofgem and NESO in supporting domestic demand-side response? Claire, perhaps I can start with you. How should the Demand Flexibility Service inform future Government efforts to increase consumer participation in demand flexibility?

**Claire Dykta:** The Demand Flexibility Service, which was introduced at the start of winter 2022-23—not the one we are just coming out of, but the one before—was primarily introduced, in the first instance, as a security of supply tool, to help protect against security of supply issues if there was a shortage of gas because of the global events happening at the time. It has been in operation over two winters now. What it has proven is that, as a person at home using power, there is a real appetite and a responsiveness to flex your usage.

In the first winter it was in place, there were 1.6 million households taking part. This winter, we have had enough households registered that they have actually replaced the equivalent of a gas-fired generation unit. What has been a really powerful driver of that is that, when that service was developed and introduced, Government, Ofgem, the ESO and industry all stood together behind it and talked with one voice about what that was trying to achieve and how people could participate simply, not with techy language and not with lots of complicated systems.



## HOUSE OF COMMONS

It was basically, “You need to get in touch with your supplier. They will let you know how you do it”. For most of them, it is really simple. It is just a button that you press when you get sent an email. All parties standing together behind one clear message and simplicity are the two things to learn. We need to build on those to take that forward because, as you were just saying, in the mid-2030s, yes, we will have lots of capacity and lots of clean generation connected to the system.

It is primarily going to be powered by renewables—the wind and the sun—which are variable. Enabling consumers and people in their houses to vary their usage, as well as factories and others, will enable us to maximise the efficiency of the overall system, because you can better move your demand around where you can. I am not suggesting that people sit with their lights off at teatime or anything like that. The stuff that you can move, you move it to offset when the wind is not blowing as much or it is not as sunny.

**Q521 Mark Garnier:** Eleanor, on one particular part of all this stuff, things like smart products and services tend to be consumed by people who are wealthier and perhaps have even more time to think about it. Do you agree that there is a need to develop accessibility to those people who would not necessarily have the time or indeed the money to be able to get on with this? Half of that answer is actually yours, which is simplicity.

**Eleanor Warburton:** The short answer is yes. That is enormously important. When you think of things like tower blocks, which often cannot have gas heating, you also have some potentially not very wealthy people who are consuming quite a lot of electricity. You have a lot of potential and these are the people for whom the amount of money you save really matters, whereas, bluntly, some of the people who signed up for the ESO service probably did it more for the purpose than potentially the money.

The other thing that becomes increasingly important is that we can make these services very efficient and very automated, so that they are easy and therefore cheap. Therefore, the people who are getting paid for them are genuinely only getting paid for the value they bring to the system. System costs are therefore lowered across the board.

**Q522 Mark Pawsey:** Claire told us that consumers were being better engaged but, in order for consumers to benefit from this flexibility, everybody needs to have a smart meter. Eleanor, we have not done that particularly well, have we? Can you give us some good news about getting as close as possible to 100% smart meter usage? Where are we today?

**Eleanor Warburton:** I cannot guarantee it is correct as of 4 pm or whatever it is, but I believe we are almost at 60%. I do not know whether this counts as good news or not, but there are very robust obligations on suppliers and we have taken some quite robust action around some of those where necessary. I would rather that was not the action we had to take, but we will take it as necessary.



## HOUSE OF COMMONS

Q523 **Mark Pawsey:** What is a reasonable objective? It was 100%. It was going to be mandated. Government have relaxed that. What is a reasonable proportion and when would we expect to achieve that by?

**Eleanor Warburton:** With apologies, there are specific targets set out for the next five years. Can I send those in writing, rather than reading out a list?

Q524 **Mark Pawsey:** Would you remind us of the date by which this entire project was supposed to have been completed?

**Eleanor Warburton:** Where are the targets running to? I believe that the targets are supposed to be hit by 2025. Is there a perfect figure? The DFS is a good example. You need enough to fulfil the service the system needs and, bluntly—not that it ever came close to this—that was a security service, and everybody benefits from the system not running out of power. You do not always have to access 100% to get the benefit you are trying to achieve.

**Mark Pawsey:** Thank you. We will wait to hear.

**Chair:** Thank you very much. Time has beaten us but, Eleanor and Claire, we will send you another question by letter. Thank you. I hope you enjoyed your afternoon as much as we did. Claire Dykta, Dr Graham Pannell and Eleanor Warburton, thank you for your presence, your time and your expertise this afternoon. That brings this happy afternoon to an end.