HOUSE OF COMMONS

Business, Energy and Industrial Strategy Committee

Oral evidence: Energy National Policy Statements, HC 847

Tuesday 7 December 2021

Ordered by the House of Commons to be published on 7 December 2021.

Watch the meeting

Members present: Darren Jones (Chair); Alan Brown; Ms Nusrat Ghani; Paul Howell; Mark Jenkinson; Mark Pawsey; Alexander Stafford.

Questions 1 - 84

Witnesses

I: Danielle Lane, Chair, Offshore Wind Industry Council; Emma Pinchbeck, Chief Executive Officer, Energy UK; Aled Rowlands, Head of Corporate Affairs, Electricity, National Grid; Paul McGimpsey, Director of Regulation, Energy Networks Association.

II: Chris Richards, Director of Policy, Institution of Civil Engineers; James Richardson, Chief Economist, National Infrastructure Commission.

III: Tania Davey, Marine Planning Manager, The Wildlife Trusts; Dr Nick Hughes, Senior Research Fellow, Institute for Sustainable Resources, University College London.

Written evidence from witnesses:

- Institution of Civil Engineers [NPS0002]
- Energy UK [NPS0007]
- Dr Nick Hughes, UCL Institute for Sustainable Resources [NPS0013]
- The Wildlife Trusts [NPS0015]

Examination of witnesses

Witnesses: Danielle Lane, Emma Pinchbeck, Aled Rowlands and Paul McGimpsey.

Q1 **Chair:** Welcome to this morning's session of the Business, Energy and Industrial Strategy Select Committee. It is our first hearing scrutinising the Government's amendments to the energy national policy statements, which seek to translate the Government's energy White Paper into its infrastructure and planning policies. For the first of three panels this morning, I am delighted to welcome Aled Rowlands from National Grid, Emma Pinchbeck from Energy UK, Danielle Lane from the Offshore Wind Industry Council and Paul McGimpsey from the Energy Networks Association.

Before I turn to the NPS, I want to open with a question to our network colleagues, Aled Rowlands and Paul McGimpsey, about the ongoing issues following Storm Arwen. Understandably, it has been an extreme weather event, but we have had them in the past. In 2013, we were told it was the stormiest winter in 40 years. We were told at that time that lessons would be learnt and a survey would be done of vulnerabilities in network operators' infrastructure. I am keen to understand, certainly in the context that extreme weather is something we are told to get more used to, what happened to that survey of network vulnerabilities. What happened as a consequence of that? Aled Rowlands from National Grid, could I come to you first?

Aled Rowlands: We have all seen the resilience that has been shown by those people who have lost their power supply recently. That is acknowledged and looked upon positively. From a National Grid electricity perspective, there was no loss of supply during this storm from us. To use an analogy for our role in the energy network system, if we were the road system, we are the motorways and the dual carriageways of the system, while the local distributors are the local A-roads and B-roads. On this occasion our supply was there and continues to be there, so it is perhaps one for my colleague from the ENA to pick up on this particular incident.

Paul McGimpsey: There will be further lessons to be learned from this storm event. We welcome Ofgem's review that will be taking place. Certainly, those distribution companies that were most affected will be carrying out their own reviews. With regard to the 2013 review, we put in place a number of initiatives following that, including the dedicated phone line, which has been used significantly over the course of this, at some points up to 16,000 customers phoning at any one time during peak occasions. We appreciate that our communications with customers have perhaps not been what they could have been during this event. That is certainly going to be a key part of the review that takes place in coming weeks.

Q2 **Chair:** My question, from my perspective, was just the infrastructure resilience point. Understandably, we cannot just keep saying, every time

this happens, that lessons will be learnt and we will do a review. We need to do something so that it does not fall down when we have extreme weather. Please say if you do not know and you can write to us afterwards, but my question specifically was that, after the last time we had a significant event like this, we were promised there was going to be a review of vulnerabilities in the network infrastructure. I am keen to understand what that review concluded and what action was taken. That was now many years ago.

Paul McGimpsey: Yes, indeed. Since that review—I am sure you have heard it quoted a number of times recently—over the last five years we have spent £730 million on resilience across our networks, focusing on flood defences, cutting down trees, etc. One of the particular issues that we have faced with this storm, which has been different from what we have faced in the past, was the wind direction coming from the north-east. It is not the prevailing winds that you would expect from the south. As such, on many occasions trees would fall differently on to the lines.

Q3 **Chair:** I am sorry to interrupt. Can I check I am hearing this right? We planned for resilience work on the basis that the wind would only come in a certain direction.

Paul McGimpsey: No, I am not saying that. I am just saying that this storm has caused particular issues and the wind direction was one of those. Considerable work has been done on the network to reinforce and upgrade, but there were particulars of this storm that caused issues that are causing the problems that we can only too well see.

Chair: We will probably come back to some of these questions later in the NPS. It seems to me that we ought to be prepared for wind coming in multiple directions. £730 million over that number of years does not sound like a lot of investment from my perspective. I have a quick supplementary from Paul Howell before we come to the national policy statement.

Q4 **Paul Howell:** In terms of any reviews that go on, I know it is superficial knowledge at this stage but it seems as though the different operators from different parts of the country have had radically different levels of quality of response in this situation and the way that they have dealt with it, the way it has been done. I want to make sure that any subsequent reviews are looking at the differences. In terms of the ability of Northern Powergrid in the north, it seems as though it has been atrocious. Some of the others have been not quite so bad. We need to make sure we get a breadth of understanding and it is not just a global review of where we are.

Chair: There was a concern in the past that the different distribution network operators perhaps did not collaborate effectively in these types of situations. I know there have been some concerns raised in the House that it took a number of days for the local resilience forums to be fully up and running in response to the information that was held by the

distribution network companies. Do you share that concern? Is that a key point that needs to be improved in the future?

Paul McGimpsey: This storm has shown that the levels of co-operation between network companies has worked efficiently. We have had the likes of the UK power networks in the south of the country, which were not impacted by the storm, being very quick to provide extra resource in terms of manpower, helicopters and drones, etc., to help with the restoration effort in the north of the country.

Q5 **Alan Brown:** Aled, does the revised NPS provide a step change in infrastructure planning that is required to achieve the net zero target of 2050 for the UK Government? If not, what improvements are required?

Aled Rowlands: While we welcome the context of the NPS as a set-up to do with climate change and the Government's net zero ambitions, in its current drafting it does not provide that step change we will need to deliver the scale of nationally significant infrastructure projects that is required to meet those Government ambitions. It clearly articulates the issues of climate change and net zero, but it does not, in a practical way, give weight to those within the NPSs themselves.

One of the biggest challenges to delivering this infrastructure will be planning and consents. For example, in the Government's 10-point plan it talks of 40 GW of offshore wind by 2030. That will require a significant amount of onshore electricity network in order to be able to facilitate that. To give an idea of the scale, National Grid electricity transmission will need to deliver three or four times the amount of new network in eight years that we previously built in 32 years, since the creation of National Grid. I do not think that scale is taken account of enough in the policy statements.

I have mentioned the weight and scale. There is also an issue around certainty, where the NPSs can have a role in providing certainty for developers like us, but also for communities that are going to be hosting this infrastructure. For example, BEIS and the system operator are currently working on what is called the holistic network design, which is going to outline all the onshore electricity networks that will be required to facilitate that 40 GW of wind by 2030.

We think there is a role to hardwire the result of that report, or a similar report, into the national policy statements in order to give us the certainty so we can have a different conversation with our supply chain, for example, so that we can have a different conversation with local authorities, where the need is understood, and we move on to look at the impacts we are having in a local area. Importantly, one thing that we often get asked for by communities is certainty about the projects that are there at the moment and the projects that might come forward in the future. Hardwiring that holistic network design into the policy statements would be very welcome.

Finally, I will mention flexibility as well. Mention of newer technologies, such as hydrogen, carbon capture utilisation and storage and multi-purpose interconnectors is welcome in the national policy statements, but we do not believe that there is enough flexibility there in order for those to be able to deliver all that they can as we move towards a net zero future as well, so not just to think of those in their silos but how they could work together in order to give better benefits to get us to net zero quicker and in a better way for society and the rest.

I have one more point, which is around communities. We are very keen to take communities along with us on this journey, as we go towards net zero. As I say, there are going to be significant amounts of developments around what is needed to deliver net zero. We talk about a fair transition as we have these projects and how we deliver these projects for communities as well. The NPSs are silent on what that is and we think it is the right place for the NPSs to discuss what would be a fair transition. What is fair for these communities that are going to be hosting ours and other infrastructure for now, as well as into the future?

Q6 **Alan Brown:** You are saying that if there is not a step change in the silo approach and if Government do not understand the scale of infrastructure development that is required in the next few years to even hit the 2030 targets, let alone 2050, unless there is a step change in Government policy and joined-up thinking, we are not going to meet the targets that are set.

Aled Rowlands: We certainly need to see a response from Government in order to be able to achieve those targets. As I say, the scale needs to be taken into account, as does the weighting of what that means in the NPSs. To give you an example, the NPSs very clearly talk about the environmental impacts of individual schemes, so the negative impacts they are going to have in the local area, but it does not give a context for what these projects are going to deliver on a large scale.

National Grid Ventures, the non-regulated part of the National Grid, has just delivered a project called the North Sea Link, a connection between the UK and Norway, which is bringing in pretty much 100% renewable energy. That project will mean an advantage of CO_2 not being released into the atmosphere and is thought to be about the equivalent of 2.4 million trees being planted. That is the type of change that that CO_2 will bring.

That is not in the NPSs. At the moment, the NPSs just look at the local negative impacts and do not weight the national gain that we will see from what these projects are going to deliver. The ask is for the weighting of how Government see that larger environmental benefit to be taken into account and to give a place for newer technologies as they develop. Who knows where they will be in five years or 10 years? It should give a place for them to springboard forward, rather than constraining them in the way that we currently see them in society.

Q7 **Alan Brown:** Is there enough of a vision and understanding of not just what the grid would look like in 2030 but of what the grid would look like in 2050 to be able to deliver net zero? Therefore, looking forwards, or working backwards from there, what does the grid need to look like? What upgrades are required? What complementary policies are required, such as grid charging, support for technologies such as pumped-storage hydro? What has been done to pull all that together? Is that where the Government need to do more?

Aled Rowlands: Those are very important points. BEIS is currently leading on work that the system operator is delivering on its behalf, which is called the offshore transmission network review, as well as the holistic network design, which will do exactly as you have just described. It will give an idea of all the things that we need in order to develop for 40 GW by 2030. That work is ongoing from BEIS and we are looking forward to seeing the conclusion of that work to give us, local authorities and society an understanding of what that means. That is absolutely vital. We think that that is not just a bit of work that should be put into the public domain but should be hardwired into the legislation.

On those other points you made, exactly that as well. As technologies develop, they should be able to capitalise on each other as the technology itself develops and they find the correct marketplace. We think that there is an opportunity for the NPSs to give that basis, that springboard for those new technologies, rather than just seeing them individually as hydrogen, carbon capture and storage or offshore wind. There is a place there to allow them to develop together that is not currently written into the NPSs.

Q8 **Chair:** Mr McGimpsey, can I come to you briefly, further to Alan Brown's questions? From a distribution network operator's perspective, there is a lot of work for you guys, as well as for the National Grid—we talked about resilience already—around flexibility, the amount of power going over your networks, going in different directions with charging and batteries in the homes and all that type of stuff. Are you happy with where it has landed in the NPS from a distribution network perspective?

Paul McGimpsey: The NPS is looking at the high voltages, so it is looking at 132kV and above. Much of the work that will be required at the distribution voltage levels will be at the lower voltages, which are not covered in the same way by the NPS. With regard to White Paper targets, with respect to connection of heat pumps and EVs, a lot of the work that will need to be done will be done on the lower voltage levels. The NPS is still relevant, but it is only relevant at that upper end of the network.

The majority of work that we will be doing over the coming periods will be focused on the lower voltage levels. Indeed, we have been working with Ofgem, developing our business plans for the next five years, which are putting forward what we intend to do in terms of the development of our networks, such that we are able to achieve the LCT targets that are in place.

Q9 **Chair:** While the NPS deals with generation and transmission, you plug it in the final mile. Have you been adequately consulted as part of the NPS, or are you happy being outside of the circle, as it were, on this policy work?

Paul McGimpsey: We are happy with where we are. We have the opportunity to participate in the consultations. It is not something that our members have chosen to do on this occasion. If we had significant concerns, we would take the opportunity to raise them.

Q10 **Ms Ghani:** Good morning, everybody. Welcome back, Ms Pinchbeck. I have a series of questions. If we can try to keep the answers short, I can get through all my questions. It is mostly about the NPS. Ms Pinchbeck, you highlighted in your written evidence that onshore wind has been removed from EN-3. What is the consequence of this for the deployment of this renewable energy source across the UK?

Emma Pinchbeck: Put simply, we are not sure. It is disappointing to see it removed. When you do not have a specific mention of a technology in the text, it means that there is less clarity on how we can develop and where we can develop it for planners and the system. It also indicates perhaps a lack of Government ambition for that technology. That is particularly unfortunate, because we know that over the next decades we are going to need every tool in the box and specifically that we are going to need to develop onshore wind. In addition to that, onshore wind is now back in the UK auctions. It will be in the auction round this autumn. There is that lack of join-up between what is going on in one bit of policy and what seems to be going on in the NPS.

I would add that it is not just onshore wind that is not there in enough detail. That is one of our points: that we would like to see things like hydrogen and carbon capture not just in the overarching narrative of EN-1, but actually brought within the statements themselves.

Q11 **Ms Ghani:** You said lack of ambition, Ms Pinchbeck. Who do you think is responsible for that lack of ambition?

Emma Pinchbeck: These are decisions for Government. We participated fully in the consultation with BEIS. We submitted detailed responses, alongside colleagues on the panel. We expected to see onshore in, as well as comments specifically on hydrogen, CCUS and other technologies, and they are not there in the final draft. We do not know why that decision has been made. We welcome that BEIS are looking to consult again and we would recommend that they do.

Q12 **Ms Ghani:** Danielle, I am looking at the NPS again. Does the NPS show due regard to the offshore transmission network review process?

Danielle Lane: This is a really important area of concern for us. We believe that it is really good that the NPS is reflecting the energy White Paper and the progress we are making, but particularly EN-5, covering infrastructure, has been published before the outcome of the offshore

transmission network review. This will be very significant for the offshore wind sector. As we heard earlier, the actual proposals that have been put forward are quite ground-breaking. We believe that there should be more detail on this in the NPSs.

Q13 **Ms Ghani:** That is all noted. All reasonable alternatives, as required by the strategic environment assessment regulations, are assessed for each NPS. What is your view on the conclusions reached in these assessments?

Emma Pinchbeck: We did not actually put anything on this in our written response, but we have talked to the members since. They are saying that it is the right thing to do to look at alternatives, which is what these do. We would say—and it is a comment for the NPSs overall—that it is really important that we manage to get an energy mix away in the 2030s. It is very clear that we need to prioritise renewable development over the next couple of decades, but we also need to make sure that we have the gas plant that we are going to convert to hydrogen, the plant we are going to put CCS on and, indeed, make sure that nuclear is there.

Inasmuch as we welcome looking at alternative models, we would be very concerned about anything where we were removing technologies from the mix. It is back to that point about flexibility that was made in the beginning, while also, as everyone was saying, thinking that the NPS does not go anywhere near far enough on decarbonisation.

Danielle Lane: I would just echo the comments from Ms Pinchbeck there. It is very important that we are able to maintain flexibility as well as giving the clarity of direction that the renewable energy infrastructure is going to be at the heart of delivering the net zero ambitions. We need to take account of the fact that innovation is happening at the same time as delivery.

Q14 **Ms Ghani:** Mr Rowlands, I can see you nodding, so I assume you agree. If there is nothing else to add, I will just move on to the next question, if that is okay.

The next question is on planning. I know that Mr Rowlands has already commented on this. Unfortunately, planning comes up time and time again. Looking at the clarity on planning for cleaner energy sources in the future, do you think that there is enough investment in place to help develop clean energy infrastructure? Do you think there is enough focus on achieving net zero, especially considering all the commitments made out of COP?

Danielle Lane: It is fair to say that we are really delighted that the NPSs reflect that we are making progress and there is a way forward. We also particularly like the inclusion of the 40 GW target for offshore wind that has been mentioned previously.

Our concern, though, remains that planning is a really significant barrier for delivery of renewables. The big ask is that we need more resourcing for planning authorities and bodies such as Natural England and the

MMO. The documents need to be clearer about the priority that is given to renewable energy infrastructure and the importance of it. The challenge that we see is that there is a lot of ambiguity remaining in the documentation. Ambiguity will lead to delay, because people are then able to question the value of any particular infrastructure project in a region. We would really like to see a clearer direction that renewable energy has a very important place in the priorities of the UK.

Q15 **Ms Ghani:** Ms Pinchbeck, can you help answer that question? What is the level of clarity that you want to see? Do you think the authority should remain within local authorities or be at national Government?

Emma Pinchbeck: My favourite statistic of the moment is that it takes about one year to build an onshore windfarm and about eight years to get through planning and consenting in this country. If you think about the speed and the scale of change that everyone has referenced, that is not fast enough.

The critical thing here is Danielle's point about ambiguity. In relation to the NPSs, the more certain they can be and the more direction they can give planning authorities, the easier it is to make decisions. We are also recommending removing planning and consenting barrier. In terms of these statements, it is disappointing, for example, that, while we are acknowledging 40 GW of offshore wind, we are not saying how we are going to speed the process up to getting those wind farms away. That is one thing. We would like to explicitly see the Government looking to remove planning and consenting barriers and to go beyond what they are doing with strategic infrastructure, in terms of the Treasury, speeding that process up right across the piece.

In terms of the language in the NPS, to give you some examples, on aviation, for onshore wind, there is nowhere near specific enough comments on aviation. The aviation sector appears to have been preferred over onshore wind. That will slow down development across projects. There are no specific directions for hydrogen, even though we have now had the hydrogen strategy come through. This was also published before the decarbonisation readiness consultation, which sets out guidance on smaller-scale gas and fossil fuel plants, in terms of converting to CCUS. Also, CCUS is not explicitly described in these plans, so there is a lot of detail on these technologies missing.

This is a last point: many technologies, I think as Aled said, will not be deployed singly in this future energy system. They are going to be deployed in things like energy parks and clusters or co-located. You might have a windfarm with a battery, a windfarm with CCUS or a windfarm with hydrogen. You might have a gas plant and an industrial cluster with hydrogen CCUS on it. The Government have acknowledged industrial clusters in their levelling-up agenda, but they have not talked about how we might do that in planning with multiple technology approaches. Similarly, we have acknowledged the need for green hydrogen but not how we might co-locate electrolysers, CCUS and

offshore wind all together. There is some real detail missing for the future. That is the kind of work that we put into our response that has not come through in this, which we would like to see.

Q16 **Ms Ghani:** Mr Rowlands, it feels as though the ambitions that we have for net zero are going to falter at the basics, which is not joined-up thinking and not enabling planning.

Aled Rowlands: Pace of planning is absolutely vital. When I am talking about pace as well, it is not just from organisations like National Grid. It is those statutory stakeholders, such as local authorities. There is that point I made earlier about the holistic network design demonstrating the need for these projects. At the moment, we have to demonstrate the need case of each individual project. If that can be done upfront, it means that we will not have to have that conversation as many times with local authorities, which should save time for us, but also for those local authorities and statutory organisations.

If I can give one example of the ambiguity that Danielle mentioned that has been introduced into the national policy statements in these revised ones, it is around the environment. They talk about us needing to maximise the positive environmental and biodiverse elements of our schemes and minimise the residual negative impacts, which I am sure we would all welcome.

However, in a planning context, "maximise" or "minimise" are almost unlimited. We would go forward with positive environmental projects and we would be open to challenge, with somebody saying, "Yes, they are good, but you have not maximised them". There is language like that, which has been introduced into the national policy statements, which we would ask to be much clearer, to enable us to provide clarity for local planning, for the Planning Inspectorate to be able to have clarity over that, without us having to have that conversation, which, in effect, causes delay, which, in effect, causes a negative environmental impact, because we want to get these projects connected and delivering for society.

Q17 **Mark Pawsey:** I have some questions about how the NPS aligns with Government policy such as the energy White Paper and the national infrastructure strategy. Chair, I am listening to the remarks of our witnesses and hearing Aled say there needs to be certainty. He said that there needs to be a step change in Government policies. Emma used the word "disappointing" many times. She said that there is no direction and lots of detail missing. I am wondering whether your views would be that Government need to go back to the starting point and redo this. Are these documents capable of development in a way that you would see as being satisfactory and able to achieve our objectives, or should we bin them and start again?

Emma Pinchbeck: I should note for the Chair that I am pregnant and I have not had my coffee this morning, so I am probably quite cranky.

There are really good things in these. As Danielle said, it is a huge step forward to see net zero so clearly acknowledged in the NPSs. We welcome that the Government are trying to acknowledge the energy White Paper. It is not that they have not realised that there is a job to be done in co-ordination. It is that the next level of detail down is not there for the sector. I suppose that is our job. We understand how projects deliver, so it is our job to provide the detail.

Very simply, all they need to do is to take into consideration the comments that we gave in consultation. To give you an example, working with our colleagues at RenewableUK, we submitted some two pages of proposed rewording on aviation and onshore wind, none of which then appeared in the text. We have done similar on other technologies or areas of concern. Yes, these can absolutely be updated to do what we need them to do. There are some very good things in these documents. It just requires BEIS to listen to the expertise of the industry.

Q18 **Mark Pawsey:** Aled, do you think they are capable of modification to be satisfactory, from your point of view?

Aled Rowlands: I have a very similar view to Emma. There are things to be called out. That context of net zero and the importance from Government is welcome. It is a good place to see it, but we need to see that translated into the detail and the weighting in a similar way that we put forward in our written response. If those are taken into account, they can be made to work.

Q19 **Mark Pawsey:** Danielle, do you think that the NPS supports the development and implementation of renewable energy sources sufficiently to achieve the 2030 objectives?

Danielle Lane: Yes. It is a huge step forward, but again we would like it to be more precise in its wording, particularly around the importance that renewable infrastructure has to net zero.

Q20 **Mark Pawsey:** What are the next steps? If we modify the document in the ways our witnesses are suggesting, how does it get implemented?

Danielle Lane: If it is adopted, as I understand it, the national policy statements are then used to inform the Planning Inspectorate and local authorities in their decision-making.

Q21 **Mark Pawsey:** Is further legislation needed, or will the document itself do the trick?

Danielle Lane: That is a good question.

Emma Pinchbeck: The document itself will do the trick if they can update it. There is another point here about the bodies, and it relates to the previous questions. We would like to see all the bodies required to look at the NPSs—so, the environmental planners, regulators and other statutory bodies—and that they be required to engage with nationally significant infrastructure projects for energy and these statements from

the beginning of projects, and that they have the resources, as Danielle said, to do it.

The Government need to publish these statements. We then need to make sure we have the institutional capabilities to use them and that we are requiring those bodies to engage in the process with industry. That is because of the speed point.

I have one very last thing. We would like to see them regularly reviewed. Not only do we want the Government to get them right this time, we have all talked about the speed of change and the need for flexibility. We would like to see these undergoing more regular review. In some ways, that would solve some of the problems and challenges we are outlining here. We would like to see them reviewed at least five-yearly, if not more regularly.

Q22 **Mark Pawsey:** Emma, in your remarks and your written evidence you mentioned the need for new technology and no direction. You spoke about that in respect of hydrogen. Can that be included? If it were included, would the documents have greater weight and be more useful, in your opinion?

Emma Pinchbeck: To be fair, the original published consultation said that the Government would put in more detail on hydrogen once they had published their hydrogen strategy, which of course they have done now.

The second reason they gave for there not being detailed comments on hydrogen in the policy statements and keeping it to the overarching statement was that they felt that there would be too many different developments in hydrogen going forward to be clear. We disagree with that. We think that there is more than enough, now that they have a hydrogen strategy, to be able to put some detail in. By the way, that also goes for the Environment Act in 2021, biodiversity net gain and the decarbonisation readiness consultation I referred to. They just need to update this document in line with where policy is now.

Q23 **Mark Pawsey:** Paul and Aled, does the NPS contain enough guidance to energy generators and transmission operators on how to deal with community mitigation? How does it deal with that?

Aled Rowlands: This is a very important point. All of us in the industry, and I am sure on the Committee and in Parliament as well, want to take society with us as we go through this transition. As I have outlined, the amount of projects from National Grid and from other generators and network operators is going to increase significantly. The parts that I mentioned earlier around the environmental impacts are very important. When we develop schemes, we try our best to avoid impacts. Where we cannot avoid them, we mitigate them. That is a very important part and principle for us to be taking into the national policy statements.

It is a question often asked of us from communities: "Okay, we understand that you need to do this, but what do we get out of it?" I am

not talking, usually, about them asking for a blank cheque to develop sports grounds or something, but genuinely how they can benefit from this green energy that is coming through their constituencies. The NPSs are silent on that community benefits side.

We think that there is a role for them to be more explicit and clear about what Government expect organisations like National Grid and others to do in this community benefits space. How could we help with decarbonising local authorities, for example? How could we help with environmental benefits that are not directly connected to our infrastructure but more in a rural area? The points I have made previously about clarity around impacts and the ambiguous words they are using is one side of it. There is definitely a role for them to say something around community benefits, which they are silent about at the moment.

Q24 **Mark Pawsey:** Paul, a greater use of electricity for EVs and heating will require upgrading of our local networks. How does this address the issues that you have with engagement with communities and mitigation of the works that your association will be doing?

Paul McGimpsey: In terms of the NPS, there is the focus within that on undergrounding, which would certainly stave off many of the concerns that our local communities have with regard to overhead lines. Obviously there is a cost associated with that and that is something that would need to be engaged through our regulator, Ofgem. On the whole, Aled has picked up the key points, from both a transmission and a distribution perspective.

Q25 **Alexander Stafford:** Very quickly—I know Emma has already touched on this point—do the revised draft NPSs do enough to discourage or block the building of infrastructure that emits greenhouse gases and generates energy using fossil fuels. Emma, you have already touched on the issues of planning for non-fossil fuels, so do you want to reflect on the fossil fuels side of things?

Emma Pinchbeck: To amend my earlier cynicism, other good things in this draft that we welcome are definitely the current position on the phase-out of coal and large-scale—*[Inaudible]*—generation. To reiterate, the view of the electricity industry now as a whole, as we said before the COP, is that we can decarbonise the power system in the 2030s, but in the UK that will likely be a technology mix. This is the thing that the NPS has to balance.

You are talking majority renewables and we certainly think that the NPS needs to do more to speed the deployment of renewables up and prioritise them. The rest of the mix is going to be made up of plant that we expect to convert to hydrogen and carbon capture and storage, so gas plant biomass with carbon capture and storage and BECCS. Again, it is a co-located piece of infrastructure. Lastly, the CCC has said that you need

to keep some unabated gas plant on, as well as nuclear, to provide some security in extreme weather events.

Making sure that you can do that full range is important. We have said, in relation to the statements on gas, that, first, we thought it should have been about thermal generation as a whole and looking at things like CCUS and hydrogen. Secondly, we would really like to see these positions updated to take into consideration the new standards that are coming for all plants to be ready to convert to hydrogen and CCUS. At the moment, there are limits on plant that are 300 MW and above having to be ready to convert to hydrogen and CCUS. That is changing for it to be all plant, but it is not reflected in these documents.

There are two key points. You need to reflect on technologies. You need to prioritise the renewables development. You need to make sure, where plant is sited, that it can be sited in places like industrial clusters or heavy associated infrastructure. Lastly, we should be making sure that it is conversion-ready and updating the most modern requirements elsewhere in these statements.

Q26 **Alexander Stafford:** To clarify on your points, you are okay at Energy UK with infrastructure that emits greenhouse gases, as long as there is CCUS to abate that, in moderation.

Emma Pinchbeck: It is for a really basic reason. Everyone knows what my position on climate change is, so you can take it that this definitely about the transition. Over the next 10 years, we know we need to maintain our existing plant. Some of that plant will convert. It is making sure in planning decisions that plant that we know is probably going to be the plant that converts over to hydrogen and CCUS, or any new plant that we build because it is in a better place for doing hydrogen and CCUS, for example near industrial clusters, can be built for it to be hydrogen and CCUS-ready, and genuinely so.

The other complexity is making sure that you have the unabated gas that the CCC says we need for backup for blackouts, emergency and providing system security services. Making sure you do that and you get to where the Government have to go overall is a combination of really good planning but also very clear energy markets. As well as this piece on planning, getting that energy mix right is about what the Government do on, for example, EMR.

We are happy, overall, with the strong narrative on net zero. We are very happy with what they are saying on coal phase-out. We would like more wording on hydrogen, CCUS and other technologies, partly for this reason.

Q27 **Alexander Stafford:** Moving on to the nationally significant infrastructure projects, does the NPS adequately recognise the nationally significant infrastructure projects in reducing the impacts of climate change?

Emma Pinchbeck: No, we do not think so. It is Aled's point at the beginning. We would really like to see more weighting given to the emissions reductions you get from particular energy projects. We would like to see not just the overall narrative about the contribution that decarbonisation of power and the energy system will make to the Government's net zero target but actually some helpful removal of constraints and barriers to getting there. We would also like to see the full range of technologies we know we need reflected in this. For us, no, it is not enough.

Danielle Lane: Emma has elegantly outlined my own points, but I would reiterate that we firmly believe that the NSIP documents now need to be strengthened and push for a greater recognition of what needs to be done in order to deliver.

Q28 **Mark Jenkinson:** I have some questions specifically for Aled. We have heard about some of the challenges and perceived deficiencies of the NPS. Do you think the Government have adequately considered the cost implications and is there anything in there that could discourage things that are beneficial for clean energy generation, in your opinion?

Aled Rowlands: I do not want to come across as a cracked record, but one of the things I would certainly say is that the pace of delivering these brings many benefits. Cost is part of those, and I mean cost financially as well as cost environmentally. As Emma mentioned at the beginning, it takes many years to consult on these projects to get them consented to, using the current national policy statements. We do not see the step change in order for us to be able to go through that in a quicker and more appropriate way to do that. Obviously there is a cost in order to be able to do that.

One thing that is becoming more clear as we work through this process is that environmental benefits, and even bringing forward projects and getting them delivered earlier, means there is less CO_2 going to be released from having to use energy sources elsewhere.

There is a point as well around the constraints. When we are talking about the offshore wind and 40 GW, there is a tendency for us to concentrate on the coastline itself and the impacts that we are going to have bringing energy projects immediately on to the east coast, as we currently are. We need reinforcements much further into our network. In essence, energy was being generated in the north and flowing south, in the main, into our cities. Now it is going to be coming from the east and going across to the west, so a different flow, so a rewiring is required from that.

One project we have at the moment, for example, is just north of York, called the Yorkshire GREEN project. That is directly connected to onshore wind from Scotland coming in in subsea cables, offshore wind coming into the north-east and interconnectors coming into the north-east. I do not think the people of York consider themselves to live on the east coast,

frankly, so there is something there around that network. That pace in order to be able to deliver projects in the way that is right for society, that fairness for society, for us to have the right conversations at the right levels, is very important.

Q29 **Mark Jenkinson:** Do you think the statements reduce or increase the red tape that impacts on that pace?

Aled Rowlands: That is a difficult question to answer. In some ways, it increases it. In some ways, it reduces it. I will give you two examples, one of which is that it is giving us clarity on the way that we should create connections through designated areas, areas of outstanding national beauty and national parks. Previously, technically, we would start with an overhead line route through those areas, pylons through national parks and AONBs. Local people and local authorities would object to that and we would look at ways to mitigate, usually by putting them underground.

These policy statements jump to the end of that conversation. Now the wording is that there is a strong starting presumption for all connections to be underground in those AONBs and national parks. That takes us further along. That conversation does not need to happen. We can jump to a further point further down the line. To be clear, the flip is also true. Outside of those areas, the strong starting presumption will now be pylons and overhead lines. That was in the previous NPSs, but it is now more explicit and clearer from that.

The other example I would give is the one I gave earlier, which is that idea of ambiguous language and trying to do the right thing, which is maximising something, minimising something, and the appropriateness of our response. We are looking for crispness and clarity from Government and Parliament about what they expect to see, so that therefore speeds up the process in order for us to get there.

Q30 **Mark Jenkinson:** On your first example of the starting point being the underground lines in areas of outstanding natural beauty, for example, that will add significant cost. Is that offset by the inverse outside of those areas, or is our starting point that it will, ultimately, be more expensive?

Aled Rowlands: We have almost got to that position by default in the current national policy statements. This brings that conversation upfront. Putting cables underground is significantly more expensive, I think as Paul mentioned previously. From a National Grid perspective, it is somewhere between four and 10 times more expensive to put something underground for the equivalent amount of electricity as it would be to putting it on overhead lines on pylons.

Interestingly, because of the planning system, we tend to be able to consent underground cables faster than we can overhead lines, so there is a saving in development costs in that as well. I do not see that part of it being a significant cost change to what we currently have.

Emma Pinchbeck: I would like to add a specific example, which I mentioned earlier, where we are worried about costs. That is on the relationship between the aviation industry and the renewables sector. For the Committee's benefit, as turbines get taller the aviation sector is a constituency we have to deal with in terms of any planning and consent, because of flight paths and radar.

At the moment, basically, the onus has been put completely on the renewables industry to bear the costs of mitigating for aviation routes, including for quite expensive radar approaches. We have been asking for a long time for that to be more of a collaborative process, particularly given that, in the Government's net zero ambitions, we are expecting to see a reduction in aviation locally. In planning at the moment, the priority is given to local aviation development and the costs of projects put upon the renewables developers. That goes completely against what the Government are saying in their own net zero strategy.

We would really like, at the very least, that to be a more collaborative approach. We put in significant and expert wording, drafted with the industry, on this and it was not taken into consideration by BEIS. It is a really concrete example of where there are going to be more and more additional costs for the sector.

Paul McGimpsey: I want to add to the point that Aled made with regard to undergrounding in national parks, etc. From a distribution perspective, whenever we are designing new connections, etc., we have an obligation, which is called the minimum scheme requirements. Minimum scheme requirements will end with being an overhead line. We have found in certain instances that it was always going to be the case that that a cable was going to be required, but we had to go through that loop. It delayed completion of schemes. It added extra internal costs. We see this confirmation and clarification in the NPS as being valuable on that point.

Q31 **Mark Jenkinson:** Danielle, before we move on, have you anything to add?

Danielle Lane: No, everyone has made the points very clearly.

Q32 **Paul Howell:** I would like to move the discussion on to security of supply. Aled, we have listened to a number of things today, ranging from the North Sea Link into Norway, to the changes that are required because of the carbon changes that we are going to need in terms of supply, to the fact that there are so many potential frustrations in planning processes. If you are starting at a macro level, in terms of security of enough supply coming in, how does the NPS protect the security of supply, or does it? Could we start a discussion around that, please?

Aled Rowlands: The context is that the Climate Change Committee talks about having to quadruple the amount of energy generation, we are going to double the demand we have for electricity and we will need to double the capacity for the electricity that moves across our country.

Security and quality of supply is absolutely paramount to National Grid in all the things we do. We fully understand the responsibility we have to society in order to be able to transmit the energy that is generated elsewhere around the country as well.

The power that is on the network itself sits with the system operator, which is a legally separate part of National Grid. From a National Grid electricity transmission perspective, we do not see any reason why the different types of technology are going to fundamentally impact security or quality of supply. Perhaps Emma or Danielle might have a view from a generator's perspective.

Q33 **Paul Howell:** Before I move on to them, part of the question is how the actual policy statements impact on that potential security of supply. Is it a step in the right direction? Is it going to be a frustration? Is it positive or negative, basically?

Aled Rowlands: The context that is drawn around the policy statement is absolutely welcome, putting right at the top that climate change support, achieving net zero and Government targets on that. That was not there 10 years ago, when these policy statements were created initially, so that is very welcome. As I said previously, we need to see that weighting and importance hard-written into the policy statements, so that these projects can deliver at pace.

Q34 **Paul Howell:** Do you think that that clarity itself means that there is a better chance of security of supply?

Aled Rowlands: When we speak with local communities, the conversation usually now starts with, "We understand climate change. We understand we have to do things differently, but can you assure us that this is needed? Can you assure us that you are going to mitigate this as best you can?" That is a very different conversation to what we would have had five years ago, so that is helpful, but we need to see more than that. We need to see practical applications.

Q35 **Paul Howell:** Emma, I will add a little bit more into the question for you, if you could build on what Aled said. In your written evidence, you said that unabated natural gas is an important component of the generation mix and that some might still be present on the system beyond 2035. Do the policy statements need to better reflect the need to enable the maintenance and optimisation of existing assets prior to the future installation of carbon capture and storage or conversion to hydrogen?

Emma Pinchbeck: It is clear we are on the road for the next 10 years to a very different energy system. I welcome what Aled said and what we have been saying for this whole panel. The management of the next 10 years and the speed of the consenting and planning process is the single most important factor in security of supply. We are confident that the end system is a secure one, albeit a very different one.

On unabated gas, that is a reference to the CCC's sixth carbon budget, where it talks about having to keep some unabated gas plant on the system in the event of some kind of unforeseen emergency where they need to turn something up. Therefore, you want to make sure that you have that plant that can do that. Particularly then, on top of that, over the next 10 years as we do this transition and it gets a bit crunchy as we bring lots of renewables on, bring EVs on and go through the process of transition, you want to make sure you have secure supply, first to keep the lights on and secondly to keep the public permission there to do the changeover. You want to show that you can do this and do it efficiently and effectively.

We want to make sure, in these statements, that the full range of technologies we know we need in the 2030s are there. We also want to make sure that there is language in there on maintaining the assets that we are going to keep on up to 2035 and then anything that we might keep on after. That is quite a difficult planning choice. As I said, you get the language clear enough in these and you have specific language on the technologies that we need and it is not just in the overarching narrative. Then you also have market design that delivers those technologies. It is that combination of both that gets you to the system in the end.

Q36 **Paul Howell:** I will make a comment on that. I do not know whether Paul or Danielle want to come in and refer to things here. It appears to me that we have this massive change to go on to get us into the right place carbon-wise. There is a lot of rhetoric in the press and in the public domains about throwing out things too early and transitioning too quick and therefore not leaving us in a position of integrity to get us forward.

As you have said yourself, we need to make sure that the public continue to buy in to the process that is there and understand the things that are necessary to change. A lot of them understand that there are certain elements of the debate that seem as though they want to throw everything out too quickly. I do not know whether that is just press or reality. Could I ask either Danielle or Paul to comment first and then I will come back to you, Emma, to wrap up on that one before we move on.

Danielle Lane: Some of this is an issue of timing. We know that we have ageing infrastructure that we need to replace. At the moment, it is taking near enough 10 years to get a consent for an offshore windfarm. If we are going to deliver the new infrastructure, renewables is the choice that has been made here. It is not a case of "Do we prioritise extending the life of existing infrastructure first?" It is how we make sure we are ready and we have new infrastructure that can be built.

That is why these statements are so important. We have to have the clarity here that allows us to bring forward good projects more quickly, so that we can maintain security of supply and deliver the net zero targets.

Paul Howell: Thanks, Danielle. That is quite lucid.

Paul McGimpsey: I would certainly back the comments that Danielle and Emma have made. Regardless of the voltage level, there are going to be significant increased demands on the network, which is going to require new infrastructure. Planning is absolutely key to that. We are already engaged with BEIS on this point about what changes can be made, both longer-term and shorter-term changes. It is absolutely key and we have to get that right.

Emma Pinchbeck: To finish, on the subject of banning things, as we said, we welcome the exclusion of coal generation now from the NPS. Where you have technologies that are no longer compatible with the Government's net zero strategy, it is right that your planning strategy reflects that. It is the same point that I was making on aviation. What the Government are saying on net zero does not match up to what they are saying in these documents. From the sector, there is a very clear message that we want to deliver this. We want to go to the sixth carbon budget. We are ambitious about doing it.

On the economics, the economics are now very clear. Green electrons and renewables have won the argument. We are busy reorientating the system around those principles. In terms of planning and these NPSs, we do not want to put barriers and constraints in place to any of the things that we have said that we need. We have said that we need a full range of technologies and we need to speed up the deployment of some of them, namely things like renewables, onshore wind, hydrogen and CCUS.

Everything we have been saying today has been about the industry being prepared to make those changes happen and being confident that we can do it, but being very worried that these statements will slow us down in some way. That is the main point. We are fully on board with the overall direction; it is the journey to get there that has to be managed.

Aled Rowlands: I would completely endorse what Emma said at the end there. We are all keen to do our part and deliver, but we need Government, our supply chain and society to all be with us as part of that, if we are to achieve what the Government want us to achieve

Q37 **Paul Howell:** I am taking from this that one of your biggest concerns is the time it takes to get planning in. Hopefully the policy statements facilitate a quicker process around that.

Aled Rowlands: The way these policy statements should be judged is on whether they speed us up and get us to the place that the Government want us to be, because we do need changes in order to reach Government's ambitions.

Chair: Thank you very much. I am now going to bring this session to an end. Thank you, Aled Rowlands, Emma Pinchbeck, Danielle Lane and Paul McGimpsey, for your contributions this morning.

Witnesses: Chris Richards and James Richardson.

Chair: We are now going to move on to panel two and welcome on to the screen James Richardson from the National Infrastructure Commission and Chris Richards from the Institute of Civil Engineers. Good morning to both of you.

Alan Brown: Could I just make a declaration? I am a civil engineer by trade, and I am a fellow of the Institute of Civil Engineers, just to put that on record.

Q38 **Chair:** My first question, gentlemen, is on the implications of Storm Arwen. We have heard that distribution networks are outside of the national policy statement, and that has been where most of the issues are. James Richardson, from the National Infrastructure Commission's perspective, has there been enough investment in distribution networks to deal with these types of resilience issues?

James Richardson: First of all, let me express my sympathies to those who are affected by this. It is an awful issue for people. It is very challenging. We are going to see more of these kinds of storms. We are going to need more investment on this. In our resilience study a couple of years ago, we set out a three-step process that we think is needed here.

First, we need Government to set out what the resilience targets are. What is society willing to accept here? One of the lessons from this is that we may need to think about this not only in terms of the frequency of these events at national level, which is in the existing framework, but also their longevity in terms of how long it is acceptable for people to be off the power system for and what kind of backup systems can be provided to people in these situations.

Secondly, we need the regulator to run regular stress tests. This is partly the response to some of the questions you were asking earlier about whether we were thinking about which way the wind might blow or whatever. We need to be testing the response of the systems that we have to the kinds of shocks that we might expect to see. If you do not do that, with the best will in the world, you are going to get caught out. It is always very hard to think about these low-probability, high-impact events in advance. You have to force that into the processes. As we have learned time and again with major shocks, it is no good waiting until the thing happens and then saying that you will learn lessons. You have to try to get ahead of that.

Thirdly, of course, you need the operators to act on those stress tests and invest, and you need regulators to facilitate that. We will need more investment in resilience, because the pressures on the system from climate change are rising. That is inevitable, but you need an end-to-end system that allows you, as far as you can—it will never be perfect, because there will always be something you do not expect—to get ahead

of these kinds of problems and say, "What do we expect to see? Is our system resilient against the shocks that we might see? Can we meet those standards?" and then to require operators to act on that and to ensure that investment flows to enable that.

Q39 **Chair:** I just want to check my understanding. Presumably these stress tests have been happening. This is not the first time that extreme weather has caused problems that have led to these types of issues. It is not the first time that we have said that we need to learn the lessons. My first question is whether the stress tests have been happening. Secondly, if so, why have they not led to investment to ensure resilience against these types of weather events?

James Richardson: There is not a systematic process. It is certainly true that individual companies will operate stress tests and will look at these things. We are saying that you need a systemic view, in the same way that we have in the financial sector.

Q40 **Chair:** I am sorry to interrupt, but can I just check something? It is the responsibility of the companies to do the stress-testing and that is not supervised by Ofgem.

James Richardson: That is my understanding of the current situation. You may wish to check with Ofgem, but it is not done on a system-wide basis. We do not say, "We are going to stress test everybody's system against a set of shocks", in the way that it is done in the financial sector.

Q41 **Chair:** If that systematic stress-testing had been done, it presumably would have highlighted a resilience issue and therefore the need for further investment. We heard earlier from the Energy Networks Association that the amount of investment that has happened is around £700 million. I cannot remember over however many years that was delivered. To me that seems quite small. From a National Infrastructure Commission perspective, do you have a view about the amount of investment that should have happened and has not happened?

James Richardson: We have not done an estimate of the figure here. It is important to recognise that, whilst it is not much comfort to those affected, these incidents are pretty rare. There is not necessarily a large backlog today. The issue is more that we must expect these incidents to become more frequent in future. That is going to require an increase in investment.

Q42 **Alan Brown:** Can I just ask James a question first? We heard in the last session that it takes nearly 10 years to get an offshore wind consent. Developers then have to access the market through the CfD bidding process, and then there is a construction phase. That is a huge timeframe. Taking that into account, is deploying 40 GW of offshore wind by 2030 a realistic target? If so, is the NPS going to do anywhere near enough to speed up the process?

James Richardson: We think it is a realistic target. It is a somewhat faster rate of deployment than we have achieved to date, but it is not massively outside the envelope of what has been delivered. We think it can be done, and it is of course extremely important that it is done.

As you have highlighted, the pace of the planning system is a significant constraint. Of course, the planning system has to balance a lot of different demands. You cannot simply ram these things through. Somebody mentioned in the last session—and it would be my view as well—that the measure of success for the national policy statement is whether we can succeed in speeding this up.

There are positive things in the NPS that will help with that. There is a strong emphasis in it on the urgency of this investment. It does clarify a number of things that are important. The fact we are now moving to an integrated grid in the North Sea will help a great deal, because it will reduce the number of points of landfall for infrastructure. That has proved a major barrier in the planning system for offshore wind. As others have said, it is not simply about the NPS. It is about the resourcing of the bodies that are involved in that process and other issues and barriers that need to be addressed.

It is about that, but it is also about the Project Speed work that is being led out of the Treasury; it is about the resources of some of these bodies. Together, all of those things have to happen, because we have to speed up these processes while rightly balancing the needs and concerns of local communities and other issues such as biodiversity and so on. All of that can surely be done in less time than it takes at the moment.

Chris Richards: I just wanted to add to what James was saying. It is worth considering the wider changes that are happening to the NSIP regime. There is an operational review going on looking at how you can speed things up. The NPS should not be expected to do all the heavy lifting on its own. There is a wider piece of work that needs to take place to make sure the system as a whole in terms of how we take these decisions is improved.

Q43 **Alan Brown:** If you look at the system as a whole, does the revised NPS align itself properly with the latest policy developments? For example, the net zero strategy and the Government's ambitions on carbon capture and storage already exceed what was previously announced and suggested in the 10-point plan. Does the NPS align sufficiently or are modifications needed?

Chris Richards: The first thing to say is that it is a good NPS, judged on the basis of providing certainty for scheme promoters during this recent period that we have heard about where there is rapid change, effectively. Particularly with a focus on that pace of change and, equally, reflecting the continuing uncertainty of some technologies, any update to a document that is now a decade old would naturally be a significant step in a better direction.

We have seen some good progress over the course of this year in terms of the strategy coming out in the last 12 months, with the energy White Paper and the net zero strategy itself. In the last session, there was a lot of talk about whether or not it goes far enough, particularly on some of those sub-sector issues that have to be looked at. The revision has achieved a careful balancing act to meet that net zero target while ensuring there is enough electricity to meet demand as we electrify the economy.

There are some big trade-offs. It is worth saying that Government will be required to make some big trade-offs from a policy point of view. The impression I get at this stage is that Government are not particularly comfortable with picking winners. The advice from bodies like the National Infrastructure Commission as part of the second national infrastructure assessment will be particularly helpful in giving them that clarity and certainty in terms of where to go next.

We welcome some of the specific proposals, such as on environmental principles, biodiversity net gain and the importance of good design. We can see some of that coming through in terms of the undergrounding of electricity networks as well. It is a good NPS. It is not perfect, but, taking into account the fact that it was a decade out of date and that there are still some significant uncertainties around the role of certain technologies and how they will develop over the next decade, it is in a good place.

Q44 **Alan Brown:** I just have one follow-up question to James. According to the commission's analysis, 65% of Britain's electricity supply could come from renewable sources by 2030. How well does the revised NPS support that?

James Richardson: It supports that pretty well overall. We have already heard about offshore wind, which is a very large part of that. It is very welcome that the NPS explicitly references the 40 GW target and the work on a North Sea grid, which is really important for this.

The other new thing that comes through in the NPS is the support for large-scale solar farms above 50 MW. Ten years ago, this was considered uneconomic. Now, these farms are operating without subsidy. It is a huge change there. It really reflects the need for an update here. There will be a significant part of this simply because the unit costs are so low but also because it tends to be sunny when it is not windy and vice versa. It is an implement complement to wind.

We see a need for a quite substantial expansion there as part of the 65%. This new framework should be helpful for that and it also provides helpful clarity on some technical issues around the use of AC or DC in some of the measures, which should just cut through some of the red tape involved in getting permission for these large-scale solar farms.

Q45 **Alan Brown:** Do you share any of the other concerns that were raised earlier about the exclusion of onshore wind from EN-3?

James Richardson: It is an important issue. In a perfect world, you would have a supportive regime for onshore wind across the whole of Great Britain. It is clear that in England you do not have that. The planning for onshore wind in England is skewed against onshore wind. By excluding onshore wind from this framework, it leaves these decisions in Scotland and Wales largely in the hands of Scottish and Welsh Ministers. The planning regime in Scotland and Wales is much more facilitative for onshore wind. It is fair to say that a lot of the offshore wind resource, because it tends to be in windy areas, is in Scotland and Wales.

You can deliver the onshore wind that is needed within the planning system that we have, because it can be delivered in Scotland and Wales under the planning systems there. In England, it is certainly fair to say that this does not help with onshore wind. Onshore wind remains difficult to permit in England. That is a constraint. It does not prevent us from hitting net zero, but undoubtedly it will add some cost into the system as a whole.

Q46 **Mark Pawsey:** I wonder whether I can come back to Chris, please. A few moments ago, Chris, you said you thought the Government did not want to pick winners. At the same time you said that it is important for the NPS to provide certainty for scheme promoters. How do we square that circle? Should the Government be picking winners? With their commitment to offshore wind, are they not already doing so?

Chris Richards: The specific example that I would give is around hydrogen. We are seeing Government come forward with proposals for pilots around the role of hydrogen and how that will play out. In areas like that, we are seeing Government preferring not to pick winners. On balance, that is right. Overall the discussion around hydrogen is still fairly uncertain in terms of the role it will play.

You are right to pick out things like offshore. There is now clarity. That has now been baked in to the system. Similarly, large-scale solar is also being baked in to the system in terms of this revised NPS. That is what I meant on balance. Where decisions are clear, they have been put into the NPS. That is what makes it a good NPS in terms of the update. Where things are uncertain, it is natural that we leave that open so we can have some clarity and see how things develop over time. The jury is out on some of these technologies.

Q47 **Mark Pawsey:** There is a problem here around balancing flexibility in the statement for areas where we do not yet know enough, for example in hydrogen, with enabling people who want to bring schemes forward to have the certainty to develop them. How would you see that being resolved? How would you like to see it resolved within the NPS?

Chris Richards: Within the NPS system as a whole, one of the things we need to look at—we will probably come on to this later on—is the frequency of updates to NPSs and the frequency of updates to the non-strategic aspects of the energy NPS and other NPSs as well. We need

to move away from the slow pace of updates. That is one way that you could manage that.

We could also bring forward revisions to aspects of the NPS in the future as and when we have certainty. It is a difficult challenge. No one is going to be able to sit here and say what the full shape of the energy system will need to look like over the next 10 years. One of the previous witnesses described how there will be a lot of innovation that will be taking place over that time period, and you do not want to start closing off things that could potentially add some benefit.

Yes, it is a difficult balance to strike. One of the areas that you could look at would be more frequent updates. It has been a decade since the last update to the energy NPS. You could look at more frequent updates to the sector-specific aspects of the NPS as a whole.

Q48 **Mark Pawsey:** Chris has just reminded us that this is the first review in 10 years. This is an area where technology and attitudes are changing fast. The introduction of less CO_2 output is increasingly accepted by consumers. James, from your point of view, how often should we be updating this? How can we do it practically?

James Richardson: Ten years is certainly too long. A logical system would be to review this every five years alongside the Government's national infrastructure strategy and indeed our own national infrastructure assessments that operate on that timetable.

Q49 **Mark Pawsey:** Would Government setting new strategies and targets be an appropriate time to do that? For example, would the net zero ambition have been a trigger for a review? Should it have been a trigger for a review?

James Richardson: Government policies tend to be staggered. You do not want to be reviewing this every year, but you certainly need to have a regular review process that picks up these major changes. You could clearly have done it around either the net zero announcement or around the national infrastructure strategy. In an ideal world, those two things would have been closer together. We know the national infrastructure strategy was delayed for various reasons around Brexit.

When you have these major changes, you want to look at the NPSs as part of that so that the Government's overall strategy is consistent with its national policy statements. Broadly, a five-year cycle is going to be right for that. If you saw some major shift in technologies, clearly you might want to respond to that. That is probably not going to happen more frequently than every five years, but clearly 10 years is too long.

Q50 **Mark Pawsey:** Chris, we heard in the earlier session some discussion about the cost implications of putting new power transmission cables, which are going to be necessary, underground rather than overhead. There will be all sorts of cost implications as a consequence of these statements. Have the cost implications been satisfactorily worked through

and considered in their preparation?

Chris Richards: If I could just come back on that last question as well, I agree with James: five years would be a good frequency to update the NPSs. We also do not have to update the entirety of the energy NPS in one go. If there is a major development in a particular technology, you could update the sub-aspects of the NPS as a whole.

On the cost aspect, our response focused more on the strategic element so I would not be able to comment on that at this stage. It is something that we can certainly write back to the Committee on in terms of an overall view around costs.

Q51 **Mark Pawsey:** What about the broader principle? When we bring statements that are demanding substantial change in this way, additional cost is going to be inevitable. Is sufficient regard given to cost as a broader principle, without asking you to identify what the cost might be? Is cost thought of sufficiently?

Chris Richards: Cost is an important aspect, and it is one of the things that Government will have to weigh in balance with everything else. We did contribute to the work of the National Infrastructure Commission's design group, which looked at civil engineers' experiences around design. That has an implication on cost, but it also has some benefits in terms of climate, people, place and value. Realistically, it is one of the elements in the mix. It will up to the Government of the day to decide where it sits on the balanced scorecard in terms of overall priority.

Q52 **Mark Pawsey:** James, does your organisation have a sense of the cost of the proposals that are contained within these documents?

James Richardson: We have not produced an estimate. In terms of undergrounding, this is often done anyway in areas of natural beauty and national parks. You are not necessarily adding to the actual cost.

Q53 **Mark Pawsey:** There is always a demand for communities to do that where proposals are considered in their vicinity, even if they are outside of an area of outstanding natural beauty.

James Richardson: Indeed, yes. In certain landscapes, this is inevitable as the outcome of these processes. It is actually lower-cost to start from this point. As you heard from the National Grid, it is an expensive process and you would not necessarily want to do it everywhere. If these proposals are well designed, if community interests are given proper thought up front and if environmental considerations are thought through, those things may add to the cost of the scheme, but they should also facilitate a much more rapid process through the planning system. There are significant savings in cost from achieving that. There are significant costs in the delays that are caused by having to rework schemes to make them more acceptable.

Having clarity on these things, even though they may add cost to the scheme, can be neutral overall because it may simplify the processes and reduce delay. Overall, this national policy statement is unlikely to have a material impact on the cost of energy. That does come back to this point that I started with and that others have emphasised: will we succeed in shortening these planning processes? If all we do is add things in and we still have a process that takes 10 years, it will not balance out. If we can shorten that process and reduce some of the costs that are involved in those delays, it is a fair enough trade-off to make.

Q54 **Mark Pawsey:** James, I want to follow that up. We are hearing that it commonly takes 10 years from the inception of a project to delivery. Is there anything in these documents that will accelerate the process of delivery? Are we in danger, as you have just mentioned, of adding additional red tape and additional delay into getting things done?

James Richardson: There are some things here. There is an emphasis on urgency for some of these issues. Clarity on undergrounding avoids an entire loop being gone around, because you start with where you are going to end up. There are things in here that should speed things up. You also heard from some of the earlier witnesses that there may be some specific changes in wording and so on that would help with that.

It is important to recognise that the NPS itself can only get you so far in terms of speeding up the process. It can provide clarity on things that reduce argument. It does that in some areas, and in some areas perhaps there is more clarity to be provided. It is also about discussions around resourcing and the other hurdles in there.

Some of it is in policy. Having a clear plan for a grid in the North Sea should speed up the entire end-to-end process, because everybody will know what they are doing. That kind of work is not planning in a legal land use planning sense, but it is planning in the other sense. That can be very important for accelerating things. In some cases in that policy space, it is about creating policy certainty. This is around something like that 40 GW target. Those things can also provide greater speed into the process.

Q55 **Mark Pawsey:** Chris, we know there is an imperative to get things delivered more quickly. Are there any steps that your organisation would like to see taken to speed up delivery?

Chris Richards: To speed up delivery more broadly, yes, there is plenty that could be included. I have already touched on the operational review and some of the work that can be done in terms of the pre-consultation exercise. There is also work that could be done more specifically at the construction end of the spectrum outside the planning system. Project Speed is looking at the associated guidance that has to be developed and used when it comes to construction delivery.

There is a lot going on in this space. I do not want to spend the time going into detail in terms of what is going on in construction, but there is a lot going on. Project Speed, the Construction Playbook and Transforming Infrastructure Performance are all looking at how we can collectively speed up the end-to-end planning and delivery cycle for major infrastructure projects.

Q56 **Mark Pawsey:** You are confident that we can do things more quickly than we have historically done in the past.

Chris Richards: Yes, we absolutely can. We are always learning lessons. The ICE has 96,000 members and a quarter of them are from outside the UK. We are always drawing on that expertise from other countries.

Last year, post Covid, New Zealand looked at how they could speed up their consenting regime for major infrastructure projects to support the post-Covid boost. Similarly, if you look at what is happening in Australia in terms of the major infrastructure development they are doing, they are going through a similar challenge in terms of going from decision-making to delivery and speeding that end of the process up. There is always a lot that we can learn, and we are always learning and building that in to how we do what we do on the ground.

Q57 **Paul Howell:** To build on what you have just discussed there, we need to make sure we have coherence across different policy statements, whether that is transport, energy or even net zero. Is there anything that should be done to improve that coherence across the different platforms?

Chris Richards: If I can pick up on that question, our submission focused on this area. Whereas historically we have focused on developing infrastructure on a sector-by-sector basis, there is now a recognition that we need to start thinking about the wider infrastructure system. We need to start moving away from having single NPSs and towards having an overarching and coherent national infrastructure policy statement, a single infrastructure policy statement.

As I alluded to earlier, the current NPS has existed for a decade. If we use that timescale to consider what may come up over the next decade and that will require the NPS to stand the test of time, there are issues around the rapid change that we will need to have. We will have to halve carbon emissions over the next decade, including getting the energy system to net zero. That is going to require turning lessons into policy at a far faster pace to lock in a pathway to net zero.

The second issue is around the role of cross-sectoral development. In the previous session, we heard about the role of hydrogen and electric vehicle deployment, to name just two. That will require policy decisions to be made on how to prioritise and drive the deployment of these technologies across sectors, not just within them. We need to move away from having sector-specific NPSs and towards having a single NPS.

Particularly, the energy NPS is a good example of that. You do have EN-1, which focuses on the overall strategy, and then you have sub-sector NPSs linked to different technology deployments. You could take a similar approach to infrastructure as a whole and have a single infrastructure NPS that sets out what we are going to be doing on noise, what the priorities are around things like hydrogen and also what we are going to be doing more broadly in terms of net zero ambitions. Then you could look at sub-sector NPSs: what are we going to do on aviation, roads and the like?

From our point of view, the easiest thing you could do is turn the national infrastructure strategy into a statutory document and have the requirement for a national infrastructure strategy every five years. We also recommend that the strategy is either published as, or with, a single national policy statement for infrastructure in the future in order to close that loop between strategy and planning and development. At the moment, that loop does not exist. Post the national infrastructure strategy being published in December, there are still NPSs that have not been updated to reflect that. Having a single NPS for infrastructure is one of the things that we think could really work in this space.

Q58 **Paul Howell:** James, is there anything you would like to add to that? That was quite a comprehensive answer.

James Richardson: I would agree with Chris. Whether you do it as a single NPS or through ensuring consistency, on issues like biodiversity net gain, noise and so on, you want to have a consistent approach across all these NPSs. That would clearly help.

I certainly agree that you want to have that five-yearly national infrastructure strategy responding to our five-yearly national infrastructure assessment. That should then trigger a look at all the NPSs, however they are structured, and they should then be updated as necessary. The one thing you would want to avoid is the whole process being held hostage by the slowest-moving ship in the convoy. The system that Chris sets out of regular reviews and consistency on these cross-cutting issues is absolutely sensible.

Specifically on transport decarbonisation, a lot of the infrastructure that is required for that in terms of EV charge points, substations and so on is likely to be below the threshold for NPSs. A charge point is typically a permitted development. It is slightly less an issue there of the planning system in terms of land use planning; it is much more about getting that infrastructure out there and getting the incentives right to get this stuff built. It is more about local planning around hubs and so on than it is about the national planning system.

Q59 **Paul Howell:** To come back to Chris for your opinion on that, one of the points that James raised there was about the risk of, to use the phrase, the slowest boat in the convoy stopping everything from moving. One of the things that we have talked about has been costs, be they financial or

environmental, and the need for progress to be made. Do you see any concerns in terms of the slowest boat syndrome, or can that be managed?

Chris Richards: That can definitely be managed. If I can pick up on something that James said at the end as well, what constitutes an NPS and what the thresholds are is something that has always been under review. There have been arguments in the past about whether you have an NPS for digital rollout, for instance, to speed that up. Currently, that is outside the regime. That is something that is always under review, so you could imagine a scenario where you have a Government decide that charge points should be something that is wrapped into the NSIP regime, because we need to roll it out at a much faster pace.

Picking up on that point about the slowing moving ship, while you would have that single NPS setting out a strategic direction and bringing that coherence and clarity in this equivalent to EN-1, you could then review the different aspects of that. You could still have a national network set out, the equivalent of an EN-2, which talks about the priorities around roads. That then allows you to review each sub-sector without changing the overall strategic direction of infrastructure.

It is worth reflecting on why it has taken us 10 years to get a review on the energy NPS. We have had a change in Government over that time; we have a change in Secretary of State; we have had changes of responsibility in terms of the Department that is responsible for the energy NPS. It is really difficult to reopen a review of an entire national policy statement without introducing lots of uncertainty into the sector. Having a single NPS for infrastructure, with those sub-sector aspects that you can review separately if you need to, brings some flexibility into the system. If some sectors are moving slower than others, it allows that flexibility to be built in.

At the moment, we seem to pause, decide it is too difficult to touch and leave it for too long. Technology moves on, priorities move on and policy moves on, but the NPS does not reflect that. We end up in the scenario where we end up with court cases because the NPS is completely out of date. This approach would still allow some flexibility to be built in.

Paul Howell: Chair, we just need not to change the Government for a long time.

Chair: Unfortunately, that is not in the remit of this Committee. We bring this session to an end. Thank you to James Richardson from the National Infrastructure Commission and Chris Richards from the Institute of Civil Engineers.

Examination of witnesses

Witness: Tania Davey and Dr Nick Hughes.

Chair: We are now moving to our third and final panel of the day and welcoming, on the screen, Tania Davey from the Wildlife Trust and, in the room, Dr Nick Hughes from UCL. Welcome to both of you today.

Q60 **Mark Pawsey:** Good afternoon. Do you believe that the national policy statements, which we are talking about this morning, provide the necessary step change to achieve the Government's 2050 net zero target?

Tania Davey: I will be speaking from an ecological perspective. We absolutely support action to tackle climate change, which includes renewable energy, but it must not be at the cost of the environment. The conclusion of the energy NPS is that there could be serious negative impact on ecology in the short, medium and long term, which enters into some of the issues we are currently seeing in NSIPs, which is potential project risks and delays due to those serious conflicts between delivering renewable projects and delivering action to recover the environment.

At the minute, given the way the NPS is written, there are risks in achieving net zero, because of the conflict between the environmental impacts from large-scale infrastructure energy projects as part of the energy NPS.

Q61 **Mark Pawsey:** Nick, Tania has just articulated the tensions there. People will always want to use energy. We have just heard about delivery in the previous session. Should we not be moving to renewable sources more quickly? Tania is bothered about the environmental impact of doing that. How do you see those tensions being dealt with?

Dr Hughes: The environmental impacts of any of these infrastructures are really important, and we need to look at those very carefully. In terms of whether the NPS has created that step change that you referred to, my broad observation was that in general it is very welcome that they do foreground the issue of net zero very clearly, but there are one or two occasions where they appear to introduce some ambiguity about the role of unabated fossil fuels in the system.

That strikes me as an unnecessary note of ambiguity, because it is very clear that unabated fossil fuel use needs to be almost entirely removed from the energy system with the exception of aviation. That really means a radical change in most energy sectors. The key thing is that the NPSs should be drawing attention to the need for that transition to occur starting from now.

Q62 **Mark Pawsey:** Is the unabated fossil fuel bit to do with resilience? We had questions from our Chair to our witnesses on previous panels about the need to maintain resilience in the case of extreme weather conditions. Are you saying that you would rather see that taken out and not be part of the statements?

Dr Hughes: No, not at all. Resilience, affordability and low or zero carbon are of course all important components. It is right that they are all

in there. During the transition period, as we decarbonise our system over the next decade or two, there is a difference between saying that we need to manage that transition and saying that, as the statement implies at times, in 2050 and maybe even beyond 2050 there will still be unabated fossil fuels in sectors like electricity generation. That is basically contrary to the net zero scenarios proposed, for example, by the CCC.

Q63 **Mark Pawsey:** Tania, can I come back to you on your original comment? Are you happy with the suggestion that we might not get to net zero by 2050 and that it might be much later than that, because we are bothered about the environmental impact of new infrastructure?

Tania Davey: No, absolutely not. We support targets to meet net zero. What is missing from the energy NPS currently are solutions to address the serious negative effects on ecology. We are facing a climate emergency; we are also facing an ecological emergency. 41% of species are in decline. Healthy habitats and species are really important in terms of absorbing carbon and action to tackle climate change as well.

We need energy projects and renewable projects to meet net zero, but we also need healthy habitats and species. Of course, we support the delivery of a balanced mix of energy projects. There are strategic solutions that have been in discussion throughout Government and in many organisations to address the environmental concerns, which have not really been captured or addressed within the energy NPS. If they were included, that would take a significant step towards addressing some of the concerns that we have.

Q64 **Mark Pawsey:** Could you give us an example of that?

Tania Davey: Yes, of course. I will give you a couple. First, we think there is a need for strategic planning of energy projects both spatially and in terms of the timescale for the development of these projects. In doing that, if you have a spatial strategic plan, you can also incorporate strategic environmental solutions at a plan level. The NSIP process is very much project-by-project decision-making. We have seen that project-by-project decision-making finds it very difficult to identify environmental solutions.

We can identify those strategic solutions above the project level. If all major projects buy into that when they begin to develop, it not only gives security and confidence for developers; it also gives those with an environmental interest confidence that there will not be further environmental decline from these projects.

Q65 **Mark Pawsey:** I am sorry. I do not understand how that does not just put a further delay in the bringing forward of a new project.

Tania Davey: It will reduce delay by having a strategic plan that will lay out what the environmental commitments and solutions could be. That would reduce the difficulty we are seeing at a project level, particularly for offshore wind.

Q66 **Mark Pawsey:** Are you arguing that this should be in the NPS?

Tania Davey: It could be done at the NPS level. It could be one on a broader—

Q67 **Mark Pawsey:** You said it "could" be. In your view, should it be?

Tania Davey: There are two parts. There is a strategic plan that could sit above the energy NPS. I definitely agree that there should be strategic solutions included in the NPS.

Q68 **Mark Pawsey:** Would you like to see a modification of the NPS?

Tania Davey: Absolutely, yes. For some of these solutions to be included would reduce consenting risk and delay and the risk to achieving net zero, and it would also reduce the risk to the environment.

Q69 **Mark Pawsey:** Nick, would you want to modify the NPS in the way that Tania is suggesting?

Dr Hughes: I would not at all disagree with Tania's view on the importance of environmental impact assessment and consultation on those issues. That is really important to feed in to any process, of course. If there is a way in which those considerations can influence the siting and the choices about investment and what infrastructure is built while still achieving net zero objectives, of course that is to be welcomed.

Q70 **Mark Pawsey:** Is that deliverable? Are we not aiming for something that is absolutely perfect? In doing so, will we simply not get on with things? We will end up with legacy systems.

Dr Hughes: To be honest with you, I would defer to Tania on the environmental impact side of things. It is not really my specialism. I am fully supportive of the notion that these impact assessments need to be done carefully and considerately.

The point that I wanted to make on this is not so much about the tension between net zero infrastructure and environmental impact, which is completely important and which needs to be acknowledged and dealt with. My concern, or how I was coming at this, is more around the tension—it is not explicit, but there is some slightly ambiguous wording at some points—and slight confusion about what net zero means in relation to the trade-off between unabated fossil fuels infrastructure and net zero-consistent infrastructure. That is what I would want to highlight.

Q71 **Mark Pawsey:** If I could turn to your written evidence, you highlighted onshore wind being removed from the renewable energy NPS. What is the consequence of that?

Dr Hughes: For a while it has been thought that you have these three pillars: decarbonisation, affordability and reliability or security of supply. By excluding the lowest-cost form of renewable energy, which is now competitive—in some places it is even less costly than the cheapest fossil fuel generation on an averaged megawatt-hour basis—you are

committing yourself to a more costly route to achieving the net zero goal. You are also potentially not helping with security of supply. If you prevent the expansion or cause the decline of onshore wind in England, that will result in a less geographically diverse portfolio of renewables. You are forced to have more transmission lines coming down from the north of the UK to meet demand in the south.

Q72 **Mark Pawsey:** Why was onshore wind removed?

Dr Hughes: It is my understanding that this goes back to commitments made in the Conservative manifesto in the run-up to the 2015 General Election. That is a whole political process. I am not here to say whether that was right or wrong. My position would be that, if one were to read the NPSs from a neutral perspective and think, "What these people are looking for is decarbonisation that is as affordable as possible with security of supply", it is basically inconsistent with that to exclude onshore wind from that prospectus.

Q73 **Paul Howell:** Again, this is a question to both of you. I will start with yourself, Nick. Do the revised draft policy statements for energy provide sufficient clarity on planning for cleaner energy sources for the future, for example electrification, hydrogen, onshore and offshore wind, solar, etc.? It is a little bit of a follow-up from what you have just been talking about.

Dr Hughes: Yes. They do provide a lot of welcome clarity. In my view, it would help to resolve this issue about what the role of unabated fossil fuels in the system is and the destination for the fossil fuel-related infrastructure. The key thing is to see these as infrastructures in transition. We need to be clear about what the endpoint is, and that endpoint is basically no unabated fossil fuels in almost all energy sectors by the time we get to net zero.

Q74 **Paul Howell:** I am sorry to interrupt, but I want to build on the same point. In your written evidence, you have said that there should be a stronger emphasis on reducing the use of fossil fuels. Can you build on that and say what more should be done to reduce their use?

Dr Hughes: It is being clear about what the endpoint is. With regard to things like pipeline infrastructure, gas infrastructure, oil infrastructure and so on, there could also be more discussion of net zero. If we do invest in those infrastructures in the meantime in order to preserve security of supply before we get to net zero in 2050, we should be thinking about making investments that, as well as meeting the criteria that are listed there, are also net zero-compliant.

In other words, we should be thinking about shoring up infrastructure to make it potentially compliant with transporting CO_2 or hydrogen. It is that sort of thing. The fossil fuel infrastructure needs to be viewed in a way where new investments are clearly seen to be consistent with a pathway towards net zero in the long term.

Q75 **Paul Howell:** One of the things that we have talked about before is, for

example, hydrogen-ready boilers. They will be using gas, but they will be ready for hydrogen. Is that an example of the type of thing you are talking about?

Dr Hughes: Yes, that would be one example at the household scale. At the distribution scale, there could also be reinvestments in the network and the pipeline infrastructure that would be consistent with carrying hydrogen as well.

Q76 **Paul Howell:** Tania, is there anything you would like to add to that? Do you have a different perspective?

Tania Davey: I would just like to discuss the offshore wind farm section of the NPS. That is the strongest section in the whole NPS. It is clear that there are some very good new policies in there in relation to the environment. It is the standard to which the rest of the NPS should be aiming to be written. There are still improvements that could be made to the offshore wind section, but if the other sections were consistent with that particular area, it would be a very clear direction for developers to follow in terms of clarity.

Q77 **Paul Howell:** Are there any particular examples that you can give within that in terms of why offshore wind is better than any of the other sections? Do you have anything that works best for your example?

Tania Davey: First, it is just a very clearly written section. It is easy to follow. In terms of environmental solutions, there are some really great parts in there. For example, we are finding marine compensation very difficult to resolve at a project level. It has made some very good recommendations to ask developers to include compensation plans at an early stage and to discuss them with statutory nature conservation bodies at an early stage, which will really help to resolve some of those difficult issues. That is a really good direction and it should be consistent throughout the whole NPS.

There is some very useful information on monitoring. The mitigation hierarchy is very clearly identified in this section as well. It is a well written section. The only thing missing is the strategic solutions, which would help address the project consenting issues that we are currently seeing.

Q78 **Alexander Stafford:** You may have seen this question being asked in a previous panel. Does the revised NPS do enough to discourage and/or block the building of infrastructure that emits greenhouse gases and generates energy using fossil fuels?

Dr Hughes: Yes. I do not wish to be too repetitive of things that I might have said in answer to previous questions. To expand without repeating myself too much, essentially, in most places they give the right steer, but there are certain paragraphs where it feels like there is a slightly different voice coming through. It seems to me that it is a voice that is rightly concerned with addressing security of supply in the short and medium

term. It correctly says that this is not going to be an instantaneous transition. However, at times that gets taken forward as if to imply, "Therefore, unabated fossil fuels are going to be on the system to 2050 and even beyond". To me, that is not helpful.

Q79 **Alexander Stafford:** If I can help you with the answer, if that is the right word, in the previous panel Emma Pinchbeck, who is the head of Energy UK, was talking about the need for CCUS as part of that. Does the NPS allow for CCUS to be involved in this?

Dr Hughes: Yes. It mentions CCUS in EN-1, the overarching one. It is not given a specific NPS. It could be given one; another option is that it could be more integrated into the existing NPSs, for example on fossil fuel infrastructure, pipeline infrastructure or natural gas/electricity generation infrastructure.

Rather than creating new NPSs for something like CCUS or indeed hydrogen, what might be more constructive would be to fold those things more explicitly into those infrastructure NPSs so they become about the process of transition from a fossil fuel-dominated infrastructure to one that can be repurposed for CCUS and hydrogen.

Q80 **Alexander Stafford:** Tania, also on that point, you highlighted in your written evidence that habitats and species play a central role in reducing the amount of carbon in the atmosphere. How could the NPS be improved to recognise the contribution of blue and green carbon ecosystems in tackling climate change?

Tania Davey: Of course, yes. That was quite a strong point that we made. In terms of action to tackle climate change, it is important to recognise that there is an urgent need to reduce emissions. That is why it is important to have renewable energy projects. The second point is that we need to reduce the carbon in the atmosphere. Healthy habitats and species play a really important role in this, because they absorb carbon and store it away. For example, a hectare of saltmarsh can store two tonnes of carbon per year. Peatlands store over 3 billion tonnes of carbon. We want to have these habitats and species in a healthy condition. We want them to have a recovered condition to absorb carbon. That needs to be recognised initially in the NPS.

The other part is that big infrastructure projects, building projects, can have an impact on habitats and species and therefore the amounts of carbon that are stored away in them. An infrastructure project could cause a loss of habitat. That is losing the carbon sequestration ability of habitats. When infrastructure is installed, for example, on the seabed, it can cause disturbance of the seabed sediment, which inputs carbon into the atmosphere, further releasing carbon. The NPS needs to include some consideration of the impact of these large infrastructure projects on the ability of these habitats and species to absorb carbon and whether a project will cause a further release of carbon.

Q81 **Alan Brown:** Just following up on that, Tania—your answer may have covered this question—are there any alternatives to large infrastructure projects that should be included in the NPS? I note what you are saying about infrastructure projects and taking into account their impact on the environment. Are there alternatives to large infrastructure projects?

Tania Davey: We recognise that there is an important role for these large infrastructure projects in reducing emissions, but there are alternatives to consider in terms of the energy mix and the balance of the projects.

We have heard a lot about how there will be large-scale offshore wind farm development, and we are concerned about the cumulative impact of the scale of that development and the industrialisation of the sea in that development. We need a balanced energy mix so that we have the right amount of energy and the security and supply without having a detrimental impact on the environment.

We also said in our response that there needs to be consideration of energy efficiency and energy reduction. In the overall consideration of energy, not just large-scale energy projects, there should be a balanced energy plan in terms of the consideration of how we can meet net zero.

Q82 **Alan Brown:** How would you see that being incorporated in the NPS documents?

Tania Davey: It really needs to sit above the energy NPS. There should be a holistic energy plan that would sit above the NPS, to which the NPS would conform to.

Q83 **Alan Brown:** Dr Hughes, can I combine a couple of questions? How well does the revised draft NPS protect the security of the UK's energy supply? Do the assessment criteria and decision-making process give sufficient weight and priority to renewable energy projects? Are there any suggested modifications that are required?

Dr Hughes: The importance of security of supply and reliability is strongly noted as a principle, as it should be. My criticism would be that it tends to be in the context of saying, "Therefore, we need to continue to have a bit of gas in the system in order to smooth that over".

Focusing on the electricity system for the moment, the ways in which the electricity system would achieve security of supply with a high degree of variability would be through things like hydrogen as a backup source, electrolysis to capture energy from excess renewable generation and also things like interconnection and especially the demand-side response. You get an interconnection with the transport system as well, with electric vehicles potentially providing that buffer in terms of the batteries and their recharging cycles.

What I would want to see in the NPS is a view about security of supply, as I have said before, that differentiates a bit between that short,

medium and long-term perspective. Of course, right now security of supply does involve infrastructure and secure access to supplies of gas and so on. That is not what security of supply will mean in a net zero system. It will mean a whole bunch of other things. Perhaps it would be good to see those emphasised a bit more.

Q84 **Alan Brown:** Could that be incorporated into the NPS, or would we need to look at a hierarchical set of legislation and frameworks to deliver that?

Dr Hughes: It is challenging, because these all start to become quite cross-sectoral and systemic issues. You are thinking about the interaction between the electricity system and different demand sectors in buildings and transport; you are thinking about transport infrastructure, recharging infrastructure and so on. All of these things start to become increasingly enmeshed.

With its overarching remit, EN-1 is potentially a good place for this. In a paragraph quite early on, it explicitly says that silos will become increasingly more interconnected. There is language of that kind. It could be that it is simply about developing that in that overarching piece. For the more technology-specific ones, it could refer back to that and say that all of these individual developments need to be increasingly thought about in the context of the system-wide issues as referred to in EN-1.

Chair: That brings this session to an end. Thank you to Dr Nick Hughes and Tania Davey for your contributions in our final panel today. I now bring this session to an end.