HOUSE OF LORDS

Select Committee on the European Union

Environment Sub-Committee

Corrected oral evidence: North Sea energy co-operation and net zero

Wednesday 17 March 2021

10 am

Watch the meeting

Members present: Lord Teverson (The Chair); Baroness Bryan of Partick; Baroness Brown of Cambridge; Lord Cameron of Dillington; Lord Carter of Coles; Lord Cormack; Lord Giddens; Baroness Jolly; Baroness McIntosh of Pickering; The Duke of Montrose; The Earl of Stair; Lord Young of Norwood Green.

Evidence Session No. 2 Virtual Proceeding Questions 13 - 25

Witnesses

I: Helen Quayle, Policy Officer, Royal Society for the Protection of Birds; Professor Melanie Austen, Professor of Ocean and Society, University of Plymouth; Trudi Wakelin, Director of Marine Licensing, Planning and Blue Belt, Marine Management Organisation.

Examination of witnesses

Helen Quayle, Professor Melanie Austen and Trudi Wakelin.

Q13 **The Chair:** Welcome to this meeting of the EU Environment Sub-Committee. This is a public evidence session and is the second in our series looking at North Sea energy. The first was in October last year. This time, we are looking specifically at North Sea energy and the ecological consequences, or even possible benefits or drawbacks, of the energy plans for the North Sea. Can I remind everybody that this is a public session? It is being webcast. We are taking a transcript and witnesses will get a copy of that in draft. If there is anything that you feel is not correct, please let us know.

Can I remind Members in particular to declare any interests that they might have when they first intervene in the session? I will declare my own various interests in energy and nature. I am chair of the Cornwall and Isles of Scilly Local Nature Partnership; a trustee of the Green Purposes Company, which has the green share in the Green Investment Bank that invests in wind farms; a trustee of Regen SW; a director of Aldustria Ltd; and honorary unpaid president of the Major Energy Users' Council.

Can I welcome our witnesses, whom we are delighted to have with us? Can I remind witnesses and Members to keep the interactions fairly short and punchy but to make sure that we have all the evidence we need? Before I start, perhaps I could ask our witnesses to briefly introduce themselves.

Helen Quayle: Thank you very much. I am from the RSPB. I am part of our UK policy team, working across the UK with NGOs, industry and government to find joint solutions for climate and nature, particularly around offshore wind.

Professor Melanie Austen: I am Professor of Ocean and Society at the University of Plymouth. I look at a broad spectrum of interdisciplinary research across ocean and society. I am also a member of the Committee for the JNCC. I was on the Natural Capital Committee, which completed its term in December 2020. I also chair the partnership of the North Devon UNESCO Biosphere Reserve.

The Chair: Perhaps I should say that I am a patron of the North Devon Biosphere Foundation.

Trudi Wakelin: I am Director of Marine Licensing, Planning and Blue Belt at the Marine Management Organisation. I am a civil engineer by background and a qualified harbourmaster.

Q14 **The Chair:** Thank you very much indeed. We look forward to the evidence that you are going to give us today. Perhaps I could start with quite a general question for all three of you to get us going. What is the current state of the North Sea's ecology? We are looking at the atmosphere, the sea level and below. What risks does it face from new

offshore wind projects? As I understand it, we have something like 10 gigawatts of power at the moment, and the Prime Minister and the Government are looking to increase this fourfold to 40 gigawatts, in order to meet our net-zero target. Perhaps you could give us an overview of that.

Helen Quayle: We would describe the ecology of the North Sea currently as in a poor state. This is reflected across the ecosystem, notably in our seabirds and ongoing damage to the seabed. We need to consider this degraded state in the context of offshore wind being another pressure that is coming into the system. The reason we are so degraded is ongoing increases in human activity from development and from fishing. We also have impacts from climate change. As you mentioned, this is in the water and on the seabed, and the development is occurring above the sea, so we have to consider this in a three-dimensional way.

Pressure has been ongoing for decades, and we have now reached a point where it has not been adequately addressed. It has accumulated, so we have this legacy of unaddressed impact. We can see ongoing declines in our sea bird species, in populations as well as their breeding success. What that means is that they are just not breeding well enough to even start to recover. This is particularly notable for species such as kittiwakes.

We also have problems for the harbour porpoise, which is a cetacean. They are affected by underwater noise. If we keep developing, we are creating a noisier environment. Cetaceans rely on sound to find their food, to detect predators and to find mates, so that is a big problem. The impacts from offshore wind and other development can include habitat loss, displacement, disturbance and reductions in the availability of food.

Thinking about the seabed and construction, the North Sea is now littered with cabling from energy infrastructure, which changes the habitat of the seabed. For example, if cabling is put through a sandbank, it is then covered with rock armouring to protect the cabling. That is a big problem for sand eels that need to live in the seabed. It has modified their environment. Sand eels are a really important species in the North Sea. They are a keystone species and part of many food webs for other fish species and sea birds. They are also affected by fishing and climate change.

We start to see this picture in the North Sea of threats and issues that are arising at every level of the food web, the habitat and the system. It is building up and we are now at the stage where we face irreversible wildlife losses. Industry deploying offshore wind cannot reconcile this challenge alone, so it is clear that we urgently need a new approach to offshore wind, how we deploy this technology and how we manage our seas. We need to find joint solutions for climate and nature.

Professor Melanie Austen: Helen has raised a lot of the points that I would have, so I will not add to those. As with a lot of the ecology of the North Sea, we do not know what state the seabed is in because we do

not have particularly rigorous or regular installed monitoring programmes. The monitoring of our marine environment around the UK is very piecemeal at best. The data that we have is sparse, and even the Government's own assessment in 2019 said that, effectively, we are not reaching good environmental status in most of the descriptors that are used, so I concur with Helen there.

I remind you that we are talking about, effectively, urbanising the sea by introducing all these structures. As somebody who sits on the interface of ocean and society, that may not always necessarily be a bad thing, but we have to acknowledge what we are doing. We are transforming the sea, the seabed and the state of the sea in a not too dissimilar way from how we have modified habitats on land. When we modified the habitats on land, we did that over thousands of years, through farming and forestry, and there has been a co-evolution to habitats, which, by and large, we like. This is happening much more rapidly in the sea, so we need to understand what those impacts are going to be and what it is going to be like.

Introducing hard structure through the cables, the armouring and the turbines is going to change the ecology and the ecosystem. I am not sure that we know that that is always going to be a bad thing. Structures support aggregations of fish and they provide refuges as well. It is just that we are not quite sure what the system looks like and we are not necessarily asking whether this is a bad thing for the ecosystem as well as for society in terms of the goods and services that come from the marine environment. There could be some positives here, but we are just not looking at it that way.

There are larger-scale effects that I want to mention. We are talking about a massive scale-up, as Lord Teverson said. Extracting this kind of energy and changing circulation patterns on the seabed from turbines or mooring structures for offshore wind could change the circulation at a large scale on the seabed and around the sea. We are already getting modelling to show that even just extracting that amount of wind energy may have far-field, large-scale effects that we do not really understand and are not considering very deeply.

Trudi Wakelin: As Mel mentioned, the Government measure the marine strategy through assessment, which was last done at the end of 2019. It probably is fair to say that it is a mixed picture. Some progress was recorded as part of that, although by no means against all the various indicators. The level of monitoring and evidence that we can confidently use is also not where we would want it to be.

The impacts that Helen listed are fully recognised. From the Marine Management Organisation's point of view, we are particularly interested in the interaction of offshore wind with other users of the sea. There is not only the direct impact, potentially, from the increased footprint of offshore wind turbines and the array associated with the cabling but the potential for displacement activity, such as fishing, which could move pressures to elsewhere in the environment as well as having impacts on

things such as shipping and creating a greater carbon footprint by having to navigate differently. A range of interactions will need to be considered.

The other point, which I suspect we will come to in more detail, is that, to date, the approach taken to consenting has been very precautionary because of that lack of an evidence base. As we improve the information and the evidence we may well be able to be more precise about the impacts that will be realised and, therefore, manage those more effectively.

The Chair: That displacement of activities is an interesting point that I am sure we can come to later in the evidence.

Q15 **The Earl of Stair:** Picking up on what Helen and Mel were saying initially, I wonder whether there is an opportunity to develop and possibly even enhance some of this undersea structure that is going to create better habitats for sub aqua life by producing nursery areas where fish and other creatures would get a bit of shelter. I could see a possible downside to it in the fact that, if you increase the fish population there, you are naturally going to draw fish-eating birds to the area, and then you have the conflict between them and turbines.

I wonder whether that is something that we ought to be looking at. It is one thing to have a turbine built in the sea that is displacing water, displacing currents and changing the infrastructure, but if we were to find a way of adapting that, to try to harbour and provide shelter for wildlife, is that something that we ought to write in or develop for the future?

Helen Quayle: You are right that there may be opportunities to enhance, which we definitely need to look at. We need to move beyond protecting our marine environment to delivering real, meaningful enhancement at scale. We need to understand what that looks like and what the routes are for delivering it meaningfully. Simply put, there are opportunities for infrastructure to create artificial reefs, which may be beneficial for some species, but we need to understand how that might change the ecology of our seas and what the impact might be.

A lot of how we tackle these big issues comes back to needing a robust evidence base and a strategic, government-led approach to how we manage the space and transition to a new energy system that is just and works for people, energy, climate and nature. There are opportunities to explore, but we need to know a lot more about what they might look like.

Professor Melanie Austen: There are opportunities, exactly as the Earl of Stair says. Building on what Trudi said about moving and displacing fishing activity, on the other side of that, by displacing fishermen you create a protected area. There may well be spillover, from those protected areas, of fish that then move outside. Those are known effects of protected areas, so there are opportunities. Some of that hard structure attracts other species that are of importance to commercial fisheries, such as shell fisheries, and those are still accessible. From the fisheries side, there are pros and cons of excluding fishing. Displacing or ceasing fishing activities may provide more protection and different

ecosystem services or provide them differently. We need to take a much more holistic and, as Helen said, evidence-based view of it, but there are opportunities there.

The Chair: We are going to move on now to that research and monitoring side.

Q16 **Lord Cormack:** I was taken by the phrase "urbanisation of the sea". In that context, on a scale of one to 10, how well are the ecological impacts of new offshore wind in the North Sea understood by those who should understand them?

Professor Melanie Austen: At local scales, we have a reasonably good idea of what is going on and what the noise effects are, and an understanding that they will have impacts, such as displacement and changes on the seabed or disturbance. On that scale, maybe I would give it a six or a seven. At a larger scale, on the implications of that huge increase from 10 gigawatts to 40 gigawatts and more moving towards 2050, I would probably give it a one or a two. We need to know much more strategically about the impacts of scaling up across the sea and the huge change in the environment that will happen, as well as all the other ecosystem services that are impacted through those social displacements.

Helen Quayle: I echo Mel's point that we are moving from 10 gigawatts to 40 gigawatts, then to 100 gigawatts or more. The impact on that scale is not understood, quite simply because we have not been in this position before. We have not been in an ecological emergency on this scale before, so we really need to find out where our nature is at sea and the impacts on it. This is a significant challenge for reviving our seas and for infrastructure. If we do not tackle this now, we risk delays to action on our emissions, so it is an urgent issue that needs addressing. I would echo Mel's summation and put it at around a one or a two.

Trudi Wakelin: Mel is right. Because of the way projects are consented, we understand the detail of the footprint of individual projects only as those local site surveys are done. The information can then be used for micrositing to avoid local impacts, but we do not have a comprehensive map of the seabed in our marine area in order to take that step back and a more strategic view.

The Chair: Following up on what Helen said, when we talk about 40 gigawatts, we are talking about just the UK EEZ. The European Union has another 100 gigawatts beyond that that it wants to install, and we should not forget that.

Baroness Jolly: Helen, what would you hope to see delivered by the Crown Estate's Offshore Wind Evidence and Change programme?

Helen Quayle: The RSPB is a member of the Offshore Wind Evidence and Change programme. We are very supportive of this programme and welcome the collaboration between Defra, BEIS and the Crown Estate to bring it forward. We hope that this will be a key way in which we can

tackle the evidence base that we have talked about, which is lacking. We hope it will strengthen collaboration across the sector from industry, government and NGOs, in a transparent way, because we have such big issues that we need that level of co-operation.

When we are talking about the evidence base, we need to know where the nature is and what it is doing in order to tackle the risk that industry currently faces. This should inform where offshore wind goes. We then need a commitment from government to do something with the outcomes from this programme, with the advice from the programme steering group. We need to be mobilising OWEC so that we get the outcomes in a meaningful timescale.

It is important to remember that we should still be considering how we can address the ecological gaps in the evidence base in the meantime, but this really is a key opportunity for collaboration across the sector on these joint problems.

Trudi Wakelin: I am on the programme steering group and, from the MMO's perspective, we see it as a fantastic opportunity to help promote and support that collaboration, because this issue can be addressed only by all parties coming together.

As well as helping to address the evidence base gaps that we have spoken about on impacts and benefits, the programme is looking at how environmental net gain could be achieved within the marine area. The Environment Bill does not include the marine area as part of its provisions; it is focused on terrestrial. That is largely because the marine area is much more complex, and compensating or creating new habitats is more challenging. However, when thinking about the spatial co-ordination of different activities, we also need to ensure that we are making space for nature and identifying those strategic solutions and opportunities.

Alongside the Crown Estate's OWEC programme, BEIS and Defra have set up OWEAP, the offshore wind evidence and action plan,[1] which is looking at how we can develop the appropriate policy and legislative framework and then operationalise it to ensure that those benefits can be brought forward and realised.

Professor Melanie Austen: I want to point out one thing. It is brilliant that all the government groups, NGOs and industry representatives have been brought together in OWEC, but I see one glaring omission: the huge amount of UK university research knowledge and expertise. There is no university or academic representation in OWEC at all, which astonished me when I looked into it—not even the research councils. A lot of the evidence base is in the university and academic sector, so there is quite a glaring hole there, from my perspective.

[1] The witness subsequently clarified that OWEAP is the offshore wind enabling actions programme.

Baroness Jolly: That leads me nicely into my question. Is there enough funding for research? Are suitable mechanisms for monitoring environmental impacts in place?

Professor Melanie Austen: As a researcher, there is never enough funding for research. It is tough one. I looked through the OWEC papers and saw some numbers bandied around in them. It concerns me that the commissioning so far has been through pathfinder projects. One of the problems that you have with trying to develop strategic approaches is government funding. I am not sure whether this is obvious to you, but, inevitably, tenders go out at fairly short notice, and people are asked to tender within two weeks and deliver within three to six months. The academic sector could input richly into some of these projects, but we cannot necessarily respond on those timescales. It is a recurrent echo that I get from my colleagues. I wonder, when you are delivering on those timescales at short notice and to speed, whether what is being delivered will truly be strategic and guide strategic decisions at a larger scale, if these are the pathfinder projects. That is my real concern about how this programme is being developed and delivered. As I said, academics will always tell you that there is not enough funding for research, but how you fund the research and the nature of where you elicit input from people who have a lot of knowledge is also quite important here.

Helen Quayle: Mel made some very good points there. Arguably, if adequate funding was available we would have our evidence base and we would not be having this conversation. We definitely need more work with academics. A lot of work is currently being done by charitable organisations rather than delivered more strategically by government or industry. One thing that we could urgently address outside the OWEC project is thinking about what we have in the pipeline for 2030.

We know where offshore wind sites are going to be in the next few years. We know that we already have problems with kittiwakes and with sandbanks. We could look at the projects that are coming forward in the next few years and enhance the survey effort in a targeted way, to provide more information in the short term for those impact assessments. This could look at particular species, habitats and areas where we know there will be conflict, for example in the southern North Sea. The RSPB is anticipating is that the lesser black-backed gull, gannet, razorbill, guillemot and red-throated diver might be some of the additional bird species that need attention.

This would help decision-makers and industry. We could look at that in the short term, but there is no clear pot of money for doing that. It could be that we use existing planning and consenting mechanisms to enhance the survey effort with funding from government or industry, but that is an existing route. We could also think about contracts for difference auctions that apply to offshore wind. Currently, those do not consider ecology. Arguably, maybe they should, in the context of an ecological

emergency. They could be used as a force for innovation in this technology to reduce environmental impacts.

We should be thinking about how we can mitigate as well as avoid. Avoidance should be the priority, but we are currently getting wrapped up in compensation. We should remember that we need to mitigate impacts as well. That is another route that could be explored. Arguably, we have an urgent situation and we need more collaboration, so that we are not duplicating effort or having little projects. We need a more strategic approach.

Trudi Wakelin: Following on from that comment regarding the multiplicity of little projects, that is very much the case at the moment. Although it might sound slightly contrary to what we have been talking about, there is an enormous body of information out there. There are several different marine data registries.

Part of the work that the OWEAP project is doing is looking at the potential of big data, making sure that all that information is standardised in the way it is collected, so that it can be utilised to create much more intelligent output, but also that there is a feedback loop. Over the course of the last 10 years, monitoring has been undertaken on all existing consented projects, but we are not convinced that sufficient learning from each of them is then taken into the next round.

The Crown Estate's round 4 project, which is going through that tendering process at the moment, is currently developing its plan-level habitats regulations assessment. That will highlight where the impacts of concern will be, which should be able to support the focus of the future evidence priorities, again to make sure that we are maximising the use and value of that information that we are collecting.

The Chair: Trudi, thanks for mentioning the fact that the Environment Bill seems to completely forget the marine sector. I am sure that that is something that the House of Lords will try to put right when it finally gets to us later this year, if it ever does.

Q17 **Baroness McIntosh of Pickering:** I am particularly interested in marine mammal life and the impact of the operation of wind farms on porpoises, dolphins and minke whales. I get the impression that the Government are behind the curve—you confirmed that in your opening evidence—as to the impact not just at the construction phase but at the operational phase. Would you agree with the evidence that we have received from the Wildlife Trusts that there should be a pause at project level until there is a more strategic idea of the impact that each wind farm, as it is created, will have, not just in the construction phase but in the operational phase?

Are you slightly surprised at the apparent complacency from the Government, given the imminent upscaling that they are doing? We heard in December, in answer to a Parliamentary Question, that they are only now investigating the effectiveness of existing, new and emerging

mitigating techniques for offshore wind. Trudi, if we do not have the evidence, how can we develop the technology to mitigate?

Trudi Wakelin: That is a really interesting question. It is fair to say that offshore wind is still a very new sector. It has been around for only the last 10 years. It has, throughout that period, innovated and continues to do so. It is probably fair to say that the focus for that has been more on construction impacts, and potentially pre-construction impacts, and less on the overall operation. Moving forward, we need to bring together the cumulative and ongoing impacts from servicing of the wind farms, for example, and the additional disturbance from vessels that are regularly attending.

Each project to date has been consented by going through the existing required legislative framework. An environmental impact assessment will have looked at those individual projects. However, through the most recent decisions cumulative impacts are starting to become a massive challenge and difficult to resolve without a clear picture of strategic solutions and how compensation can be achieved.

It was only in the sector deal in 2019 that the Government first published a target for offshore wind. It was then increased by 10 gigawatts within the space of a year. Further suggested targets over a longer timeframe to 2050 are now being considered. This issue has moved rapidly over the course of the last 18 months or so, and government is moving, although not quite as rapidly, to get a grip and answer those questions. More funding has been made available through the shared outcomes fund, which has enabled the setting up of the programmes we have spoken about, and likewise through the Crown Estate, recognising its environmental stewardship role given the income that it generates through the leasing of these sites. We are making a good start, but there is more to do and it will require sustained input over the next 10 years.

Professor Melanie Austen: We need to do something about our energy supply and wind is a way of addressing it. I talked about urbanisation. We do not have wildlife in cities that we would have had previously. Effectively, by urbanising the sea and offshoring our problem of energy generation, there will be casualties. The decision about whether we should stop projects now is a political and societal question of the trade-offs between the climate change crisis that is coming and the wildlife that will inevitably be affected. It is really hard to say.

The precautionary principle from the wildlife perspective would say, "Yes, you are right. We stop." The precautionary principle from the climate change crisis says, "We have to do everything we can, ASAP, right now." It is a really challenging question, but there will inevitably be unpleasant side effects of urbanising the sea in this way. The more evidence we can get, and the sooner we can get it and start thinking strategically about what will happen at scale to our wildlife and ecosystems, the better we can come up with these answers, but we do not have them now.

Baroness McIntosh of Pickering: Is there any technology that will

address the impact of that constant hum from the wind turbines on mammals that are banking and ending up on our shores? What realistic prospect is there for floating wind and other such technologies? Do they already exist and are we simply not using them? How realistic are they?

Helen Quayle: The discussion is highlighting that we have net zero and nature in jeopardy, and our approach would usually be the right technology in the right place, with enough space for nature. That is where floating wind becomes part of the conversation about putting technology in different places. If floating wind is to become a significant component of our energy mix, Governments need to act now to make it part of the solution and not more of the problem.

On ecology, you could put floating wind in deeper sites further out to sea. This could exploit windier areas. They may have less impact on nature and may be less ecologically sensitive. I want to emphasise the "may" because it comes back to that evidence base. Seabirds are further from the coastal breeding sites and could be impacted less, but we do not understand what is happening with cetaceans out in these deeper waters. That really needs addressing.

Either way, floating wind is still adding to the legacy of unaddressed cumulative impacts. It is more energy infrastructure in this degraded marine environment. In the context of the ecological and climate emergency, we have mentioned that we will need to have trade-offs. We need a more strategic approach and we need to transform how we deploy offshore wind.

Professor Melanie Austen: I am not a technology expert, so I am going to pass, if you do not mind.

Trudi Wakelin: The main area of change has been focused on mitigating construction rather than operational impacts. The answer is no, we do not know enough about whether that would solve the ongoing background noise issue from the operation of turbines. The other concern is that, at the moment, the way the contracts are awarded is focused on price. Innovation is not really incentivised but is dependent on industry coming forward with it. While it is fighting to bring prices down as low as possible in order to be successful, that does not give it a lot of room to manoeuvre in trialling and creating new opportunities.

Q18 **Baroness Bryan of Partick:** We would like to look at international collaboration. We know that the trade and co-operation agreement with the EU covers the technical aspects of offshore grid development in the North Sea, but we have learned from past development of North Sea resources that international management of a sustainable ecosystem is vital. What forms of co-operation exist between coastal states? How could they be improved and what gains could be made? Can I start with Mel, please?

Professor Melanie Austen: You are probably starting with the wrong person. I am not sure that I am aware of all the collaborations that are

going on, so I suggest you try the others.

Helen Quayle: We can gain a great deal from international co-operation. Nature travels across boundaries, and we have touched on the fact that this is an ecosystem-level problem that needs ecosystem-wide solutions. Thinking about the North Sea, there is not currently a government forum that brings together the political interests and a framework for addressing this. As the host of the COP, there is an opportunity for the UK to show great leadership in how we will deliver this offshore wind ambition and sustainable seas by setting up such a forum.

Something has existed in the past. North Sea conferences took place from the 1980s onwards; the last one was in 2006. The EU marine strategy framework directive is very ambitious and comprehensive. It needs strengthening on certain predominant pressures, including fisheries and underwater noise. We are missing a new framework and direction that looks at the pertinent issues for offshore wind, including marine planning, sustainable fisheries and marine protected areas. We need to think about cumulative impacts and how we could do compensation at this ecosystem-level scale.

There really is an opportunity for government here. Given the potential scale of development, we need a forum that can produce a collective vision and take us beyond having healthy seas that are protected towards securing enhancements that would truly revive our seas.

Trudi Wakelin: It should be recognised that there are mechanisms in place at the moment, so co-operation does take place. For example, through marine planning there is the requirement for us to collaborate and consult on marine plans with neighbouring countries, and we have done that throughout the period of development of plans. There is an ongoing German consultation.

The competence, however, for each of those marine plans lies with the individual nation states, so greater co-ordination would need to take place at government policy level. We are still a signatory to the Ospar Convention, which provides a mechanism for technical exchanges on offshore wind. There is an offshore-renewables database. It has produced guidance on environmental considerations for the development of offshore wind farms, which gives an opportunity to bring those different countries together to share information, but it perhaps does not go quite as far as that overarching co-ordinated approach.

Baroness Bryan of Partick: That is what I felt from what you were saying about what happens within the UK in the development of big data. Surely, internationally, around the North Sea, there is a necessity to develop empirical data. Is that likely to happen, either at an academic or a state level?

Professor Melanie Austen: You are absolutely right. The co-operation that we have had in the past on large-scale EU research projects has been the way that that mutual collaboration in understanding problems

across regional seas has been developed. It will be interesting to see how that plays out. We are still signed up to the research programmes, but there is a massive question mark over how that EU research involvement will be funded. If we can continue doing that collaboration, then from the evidence point of view, it is a really strong way of getting better evidence and more understanding at these larger-scale strategic levels, but, as I said, there is a question mark over that.

I agree with Helen that we need the North Sea conference or something equivalent back again. Even within academic circles, those of us working on similar issues share information among ourselves a lot. That is through not just research publications but people contacting each other and discussing it, so there is still that collaboration across Europe and across the regional seas, but I was less informed about what the governance arrangements were, which is where your original question came from.

The Chair: Let us move on, then, to the policy side.

Q19 **Lord Giddens:** Thanks very much for a terrific evidence session so far. I am very pleased by the emphasis on university research and more data being needed. I wish I could pursue all those things, but because of time limitations I have to stick to my brief, which is to ask you about the UK marine strategy. Do the UK marine strategy, marine policy statement and marine plans set an effective framework for minimising the environmental impacts of offshore wind? What future innovations would you like to see?

Professor Melanie Austen: Trudi has covered the key flaw in marine planning, strategy and policy statements. Currently, the marine plans and the knowledge base around large-scale impacts of marine renewables are not keeping pace. The marine plans have been developed, but they do not take into account this large scale-up of offshore renewables. The licensing that cascades is dependent upon plans that have not been able to take into account the large-scale impacts, or the new knowledge about impacts as they come along. Marine Planning also has not taken into account, necessarily, the forward planning: what happens under climate change to the marine environment and how these trade-offs between different uses of the sea will develop in the face of climate change. There is still quite a problem there with how those frameworks work.

Coming from my natural capital background, I would really like to see natural capital and ecosystem services being part of that discussion about how we decide where and what activities are going on, where licensing is allowed and where renewables are allowed to develop. That is part of the wider strategy of thinking about it much more holistically, rather than a comparatively small-scale impact assessment on local ecology or local ecosystems. We need to understand the implications of potential environmental changes, and the natural capital framework provides that.

Lord Giddens: How would you think about doing that organisationally in relation to the Government? Would you think of somehow working more closely with government agencies to fill in the gaps?

Professor Melanie Austen: Do you mean the academic sector or just generally?

Lord Giddens: I mean both, because these points are pretty profound as a critique of the policy. Therefore, you would have to have some kind of structural component going forward.

Professor Melanie Austen: There are examples of structural components. Different sectors are so interlinked in the marine environment. What is good about OWEC is that it brings in different government bodies and agencies. The Marine Science Co-ordination Committee is also supposed to bring in different departments and sectors. We need these things to join up together, so that we get the science information in, but also the different departments involved. Shipping is a trade-off with renewable energy, but does it come into the discussions about what effect scale-up will have? Structural changes are needed.

Trudi Wakelin: Taking a step back, the marine policy statement is now 10 years old. We have already spoken about how the context has significantly changed within that period. We have recently been invited to work with BEIS on a refresh of the energy national policy statement, which needs to take account of the White Paper and the 10-point plan, and to reflect the ambition. Mel made the point earlier about societal decisions that need to be made as to the fundamental policy hierarchy, what the Government are looking to achieve, and where they are prepared to accept some of those unpleasant side effects, or work to mitigate or compensate for them.

Marine plans are a public participative process, working across government. It is not a Defra-led thing, albeit we are sponsored by Defra. We have engagement with all the relevant departments, including the DfT and the MoD, as well as local communities and so on. Bringing all those different policy ambitions together to develop a co-ordinated and planned approach to the best use of our marine system is really challenging, particularly when a number of areas are not yet clear about what their vision or targets might be moving forward. That forward view is the key point.

On offshore wind, as I said, we now have some clear targets to work with and we can start to prepare for that. We laid a report before Parliament in March 2019 on the effectiveness of the east marine plan, which was published in 2014. That identified a number of these context changes and where we were recommending to Parliament that marine plans needed to be amended to take that forward. That recommendation was accepted by the Secretary of State and we now need to move into addressing those concerns.

There is a spectrum of options, which vary between being very flexible, creative and innovative, making sure that we are not setting things in stone, which might stifle that, and being more prescriptive, which would provide a level of certainty and ensure that impacts are managed very

carefully and well, but there could then be unintended consequences from that. As we said, we need to ensure that that is a fully collaborative approach.

On the structural complexity, it needs to be remembered that the marine plan is a framework that needs to be taken account of by different decision-makers. The BEIS Secretary of State consents offshore wind farms through the PINS process, advised by Defra arm's-length bodies such as Natural England on the impact, but they have the ability to come to a different conclusion. By feeding all those additional complexities in there could be an argument to suggest that streamlining or rationalising those various inputs could also be considered for a future evolution of marine plans.

Helen Quayle: We would agree that we have had the framework; it is the implementation that has suffered. If I may highlight a difference of approach between England and Scotland, in Scotland we have a national marine plan and a national sectoral plan for offshore wind, whereas in England we have area-level plans, four of which are not yet in place, and there is no sectoral plan for offshore wind.

In Scotland, the Government take a more strategic approach to where offshore wind goes, look at the ecological issues from the outset and consider mitigations and risks that developers might encounter. This is a step in the right direction, albeit not the complete answer. Looking at England and the east marine plan that Trudi mentioned, the context has changed but this particular area of the southern North Sea is where we are now seeing a lot of challenges around the landfalls of cabling and cumulative impacts from offshore wind. We need strategic and government-led marine planning that gives us a road map of how we will get to the 40 gigawatts and to the Committee on Climate Change recommendations for 2050, in a just and sustainable way.

Q20 **The Duke of Montrose:** This is treading over some of the ground we have been ploughing. The questions have to do with EU relations in Scotland. How do the UK policies compare with those of our EU partners? My attention has been drawn to the recently published *Scotland's Marine Assessment 2020*, which some of the witnesses may be familiar with. It logs a huge increase in marine protected areas in the Atlantic, but I do not see much in the North Sea. It also includes statistics for climate change, but there is little about the effect of increased renewables on the environment. How do the approaches of England and Scotland compare?

The Chair: This is a comparative question and I know Helen has answered part of it on Scotland. Could we have a brief summary of what works better elsewhere?

Professor Melanie Austen: I can probably talk to that, but others might have a more concise answer.

Helen Quayle: In England, the Crown Estate determines where offshore wind goes, and this is preventing a more strategic approach to marine

management that considers holistically all the uses of our sea. That is what we need to do to find the space for nature and offshore wind.

Professor Melanie Austen: I would mention the climate change impacts on the marine environment. That is where a lot of the academic focus is and where a lot of research is going: what will happen to the marine environment under climate change? It is quite difficult to get the funding to look at offshore wind, because it is viewed by the research councils as being very applied. There is quite a lot of research on wind, but it is largely on the engineering and technology side, rather than on the environmental side, so there is a bit of a gap there. That is why we have more information about climate change impacts than we do about the environmental impacts of offshore renewables from the academic perspective.

The Chair: Trudi, do we have anything to learn from Europe?

Trudi Wakelin: We do. There is a definite benefit in undertaking lessons learned across all other countries that use a marine spatial planning approach. It goes back partly to the frameworks that surround that. For example, in Germany, it is much more state-controlled and directed. The UK Government, or England in particular, need to think about the approach that they want to take. MACA has set out that it is participative, collaborative and about consensus building. That is one way to skin the cat but not necessarily the only way. Part of the work that we need to do is to reflect on those lessons learned with Scotland as a close neighbour but also looking to the EU.

The Chair: We should explain that MACA is the Marine and Coastal Access Act.

The Duke of Montrose: I see that the Oil and Gas Authority has published its UK decommissioning strategy, which is important for the Scots, who are looking at 500 miles of pipeline that may need to be removed, does the framework provide for effective co-operation between England and Scotland?

Trudi Wakelin: As I have already mentioned, we work very closely with neighbouring countries to consider cross-boundary impacts from marine plans. We are grappling at the moment with whether there are greater environmental impacts from decommissioning that perhaps could be avoided, but also the potential for repurposing or reuse of that infrastructure, such as for carbon capture and storage.

Professor Melanie Austen: The co-operation is not just between Governments, but with industry. We need more evidence; we have all said that. A lot of our evidence on the impact assessments is being provided by the industry, whether it be in Scotland, and including the oil and gas industry. There is a huge amount to be learned from the oil and gas industry about the effect of structures on the seabed.

Most of the ecological and impact assessment data is not in the public domain. This is where a really useful intervention could be made, to make a lot more data available, particularly Europe-wide. Norway, when it set up its oil and gas, made it mandatory that all environmental data was publicly available. A lot of the original research that the UK did was based on Norwegian data, because we could get that, and we could not get UK data.

Q21 **The Earl of Stair:** This is a very quick question, principally aimed at Helen and Trudi. Are you having conversations and meetings with the Scottish Government on this subject? If you are not, are there any intentions to do so?

Helen Quayle: Very quickly, yes, my colleagues work closely with the Scottish Government.

Trudi Wakelin: Likewise, yes, we collaborate very closely with Marine Scotland and will continue to do so.

Q22 **Baroness Brown of Cambridge:** I need to start by declaring my interests. I am a non-executive director of the Offshore Renewable Energy Catapult; chair of the Carbon Trust; a non-executive director of Ørsted; and chair of the adaptation committee of the Committee on Climate Change.

I would like to explore how environmental assessments are linked to the already complicated and high-risk processes for wind energy developers of licensing, consenting, connections and contracts for difference. These are processes that cost a lot of money and where the developers have a lot of money at risk. Associated with those, there are a complex array of environmental assessments, which, as we have heard, are necessary. I would like to understand how you think these processes could be improved from an environmental perspective.

I would also like you to be pragmatic about that, because developing a low-carbon electricity system underpins us reaching and meeting net zero. As Mel has referred to, we have to think about that balance all the time: how can we be positive for the environment but also address our climate change commitments to net zero?

Trudi Wakelin: As we have said, at the moment, the legislative framework requires each individual project to be consented. Therefore, project-specific habitats regulations assessments and environmental impact assessments need to be undertaken. It is fair to say that there is a presumption of consent in the national policy statement at the moment, which gives a certain amount of confidence to developers as they are moving forward.

Because of the nature of the local information that is required there are inevitably additional questions, concerns and demands for more information that come out throughout that consenting period. Developers are asked to provide information, which statutory nature conservation bodies require in order to comment on those assessments, and which the MMO as a statutory advisor to the process likewise requires access to.

Ultimately, through the DCO process, the intent from government is to manage the timeliness of that approach, as these are nationally significant infrastructure projects. It is a process that can lead to objections or demands for further information, which can introduce further delay and concern.

Another complication is about contracting, as you have mentioned. It comes back to access to information. An awful lot of information is viewed as commercially sensitive. Industry is not always as open as some other industries might be in sharing the information that it has access to, which can result in duplication of studies being undertaken. This means that you may get different interpretations, as projects go through the process, of that information.

There is value in a more regulated approach to the provision of publicly accessible information. While it would create a cost to business in the short term, in the longer term it should create a more efficient and effective system, both at individual project level and in the more strategic assessment approach that we have spoken about.

Baroness Brown of Cambridge: You are saying that the main improvement would be this publicly available and shared information, which was a point Mel also made earlier. Is that the main change you would like to see?

Trudi Wakelin: Yes.

Baroness Brown of Cambridge: Mel, that is clearly something you are keen on.

Professor Melanie Austen: I think so. In the longer term, with the financial gains that have been made, environmental assessment is quite a trivial part of the costs. I feel that it is side-lined and demonised, even though it is not the major cost of developing offshore renewable energy. Furthermore, on the natural capital approach, if we were to think about the data in that way—"What are the ecosystem service changes?"—we might start to highlight a lot more benefits, as well as costs, of those environmental impacts and to see things in the round, rather than just looking at the negative impacts on biodiversity.

Baroness Brown of Cambridge: Helen, would a biodiversity net gain approach be helpful here?

Helen Quayle: I would support everything that Mel and Trudi have flagged. We need to be careful when we think about net gain. We need to remember that we have the habitats regulation derogations, and to make sure that we are clear on what is compensation, what is mitigation and what is marine net gain. Net gain could have a very clear role, but that needs to be outside the derogations route. We need to think about MPAs as well. What is site management and what should the Government be doing? Where could industry be adding value in terms of biodiversity net gain?

Professor Melanie Austen: We should go beyond biodiversity net gain. The Natural Capital Committee has said this very strongly. Environmental net gain, thinking about the ecosystem services gains, and the wider benefits, will be much more transformative than focusing on just biodiversity net gain, and much more useful.

Baroness Brown of Cambridge: Thank you for that. That is interesting. Because of time, I am just going to ask Trudi this: are the impacts of offshore wind on marine protected areas being managed effectively?

Trudi Wakelin: On consented projects to date, that has been tested through the process and has been consented. We have perhaps not considered the beneficial impacts, as has been said earlier, of the reduction of disturbance, for example from fishing, which needs to be captured. We are going through a process at the moment of looking at the management of marine protected areas. This is one of those things, outside of fishing impacts, that we will inevitably need to take account of over the next couple of years.

Baroness Brown of Cambridge: Are you taking a natural capital approach in order to do that?

Trudi Wakelin: We have just completed some work with Defra on the marine pioneer. There were an awful lot of lessons learned, which included the natural capital approach and how we can incorporate it within the thinking. It is not part of government policy as yet. It is still going through consideration for trials or pilots as to how that can be incorporated. It is definitely one of the aspects that are being looked at.

Baroness Brown of Cambridge: Are there specific improvements that could be made to the assessments and decision-making processes for new electricity interconnectors?

Helen Quayle: I do not have any specific comments on interconnectors. It comes back to this strategic approach, the evidence base and the international co-operation. There are opportunities for cost savings and efficiencies if we can plan our cabling more strategically, for example. At the minute, we have point-to-point connections. That is not the best way for the environment or for using the marine space. We have an absence of a well-managed marine protected area network. Only 10% of our MPAs are well managed. Only 13% are considered as being monitored. At the minute, there is a criticism that they are paper parks. That is part of this bigger picture of how we manage the space better.

Baroness Brown of Cambridge: You are saying, on the interconnectors, that it is a win-win for the environment and for developers if we can share cabling, so there is less of it. Trudi, I am sure you are very conscious of that.

Trudi Wakelin: Absolutely, and we are supporting BEIS with a project at the moment on the offshore transmission network, which is looking precisely at how that can be planned more effectively in the future.

Q23 **Lord Young of Norwood Green:** My question on the interconnectors has been asked, so I am going to go slightly differently. Should it be part of the tendering process for offshore turbine manufacturers to sponsor independent research on the environmental impact? In addition, you have talked a lot about co-operation and collaboration. One of the most outstanding examples of that during the pandemic is the development of vaccines, where large pharma companies have co-operated. Could that not be part of the solution to the problem that you have identified? Have we not also learned that we do not need to travel to discuss and have conferences? We can do them electronically these days.

Professor Melanie Austen: I recall the aggregate levy, where the aggregate industry joined up and invested in research. This is a really timely moment for the renewable industry to do the same thing.

Helen Quayle: I agree. We gain a lot more by co-operation. That is something that we want OWEC to support. The current approach almost pitches industry against itself. If we could take a more strategic approach, that would help with industry working together to find joint solutions.

Trudi Wakelin: The offshore wind industry has a council. It is working on a pathways to growth project, which is about how better to collaborate to help address these questions strategically. We are working in partnership with them, through both OWEC and OWEAP.

Q24 **The Duke of Montrose:** My concern is about the ecological effects of the electromagnetic use of these electric cables. There is a habit of all electric equipment to be connected to earth and that produces voltage in the earth. Do they consider this in the ecological effects?

Helen Quayle: It is not my area of expertise, but I know it has been a consideration in relation to fish. That is something we could follow up outside this discussion, if you would be interested to know more.

The Chair: We will take advantage of that.

Professor Melanie Austen: There has been some research on fish and invertebrates, but it is still a bit of an unknown. The issues have not been resolved yet.

The Duke of Montrose: We need more statistics.

The Chair: We have a tradition on this Committee of asking Lord Cameron to do the final summing up and to get what is really important out of the session.

Q25 **Lord Cameron of Dillington:** My question is to address the elephant in the room, as has been hinted at by Mel throughout the session. The input of the Audubon Society, which is the RSPB in the USA, says that climate change is the biggest enemy of avian population and that wind farms are one of the best weapons we have against climate change. Reading between the lines, they seem to be saying that we should be doing

everything we can to mitigate the problems of wind farms onsite, and to develop offsite projects to assist the species affected, but on no account must we actually oppose the growth of wind farms for environmental reasons. If we do, we are not acting in the best interests of birds or other wildlife. I was wondering, Helen, whether you felt you could go along with that pretty forthright statement.

Helen Quayle: The challenges we currently face are the symptoms of a poor planning process. That is what has got us to the situation where we now have such a degraded marine environment. We need to remember that we have an ecological emergency and a climate emergency. Having a healthy sea is a key part of how we tackle climate change. We industrialise the North Sea without remembering that at our peril. Having healthy habitats and a healthy, functioning system is part of how we lock away carbon.

Lord Cameron of Dillington: Can I stop you? Are wind farms more important—yes or no?

Helen Quayle: It is an ecosystem-level approach. We want to find joint solutions. If we take a more strategic approach, we can do that.

Lord Cameron of Dillington: Mel, you would presumably go along with that.

Professor Melanie Austen: Yes, we have to continue developing, but we also have to continue looking for solutions and trying to address that biodiversity emergency at the same time as the climate emergency.

Lord Cameron of Dillington: My main question was this: what else should the Government be doing to minimise the ecological impacts of offshore wind in the North Sea? What action would you want from government now?

Helen Quayle: Offshore wind is one of the problems. We need to be addressing the wider pressures. We need to urgently get that evidence base, have that strategic government-led marine planning approach, and think about those trade-offs. What can we have? Can we have sustainable fisheries as well? We need well-managed marine protected areas, and we need to do this in a North Sea ecosystem-based way.

We have not mentioned this, but compensation is being brought forward for impacts on protected areas, for kittiwakes and for sandbank habitats. Really, this is going to delay the process and jeopardise nature and net zero. We could do with BEIS taking a more strategic approach to how we address compensation. Substantial sums of money are also being made from the leasing of the seabed. It would be very beneficial for the public interest, countrywide, to see this reinvested back into the natural environment from which it is derived.

Lord Cameron of Dillington: Trudi, do you want to comment on what the Government should be doing?

Trudi Wakelin: I would not want to disagree with any of what Helen has just said. But, using the phrase "the elephant in the room", at the moment we are looking to strategic approaches and better planning to solve all our problems. Actually, I am going to say it: the marine policy statement at the moment is pretty much motherhood and apple pie. It wants us to achieve everything. I am not sure, with the level of ambition that has been stated across numerous sectors, that we actually can have it all. We need government to have that really mature debate to determine what those priorities are, where we will therefore accept a level of negative impact and how best we can manage and mitigate that. I do not believe that, ultimately, you can have it all.

Lord Cameron of Dillington: Mel, you get the last word.

Professor Melanie Austen: There are some real positive options for creating co-benefits and co-location to improve energy production, but also to improve food production, using offshore renewables. At the same time, as Trudi has strongly hinted at, we have to take a mature look at our other uses of the sea and the strategic space. We need to make some hard choices there. There are some wins in co-locations and co-benefits. We are not throwing out the baby with the bathwater by saying, "Go for it with renewable energy." There will be effects on other sectors, and another elephant in the room here is the fisheries sector. There are win-wins out there. We need to look for them, rather than just looking at the negatives, and make the hard choices that others have already stated better than I can.

The Chair: That is the end of the session. Thank you very much indeed. I would normally ask you, if there was any further evidence that you wanted to send us, to please do so, but there is not a lot of point because we will not exist after 31 March. This has been a superb evidence session. I thank you very much indeed for all the contributions you have given today. Helen Quayle, Professor Melanie Austen and Trudi Wakelin, thank you very much indeed for coming in front of the Committee. I hereby bring this public session to a close. Thank you.