Transcript of ‘The Wind Cries Clean Energy’

Season 4, Episode 6, Transforming Tomorrow

[Theme music]

Paul: Hello and welcome to Transforming Tomorrow from the Pentland Centre for Sustainability in Business, I'm Paul Turner.

Jan: And I'm Professor Jan Bebbington.

[Theme music]

Paul: This episode, we're finding out what it takes to plan and expand our offshore wind, as the UK heads towards Clean Power 2030.

[Theme music]

Paul: Where'd you get your energy from Jan?

Jan: Ah, well it comes, it comes in through a, a connection. [laughs] Goodness only knows what's beyond that. I'm sure there's quite a mix of stuff beyond that.

Paul: It comes in through a connection. Is there…

Jan: …I'm not scientific. I never said I was scientific.

Paul: Is there a reason you gave up teaching GCSE physics?

Jan: [laughing] Yes.

Paul: Where do you get your energy from? It comes in through a connection.

Jan: Yeah. But, um, and I'm sure what's coming in has changed over time as well. It's still electrons, but it'll be generated by all sorts of different technologies and, and that mix will move and shape over time as well.

Paul: Have you ever paid attention though, with the, whatever tariff, with whatever company you are with, to what type of energy they're producing…?

Jan: …yeah…

Paul: …'cause you can get tariffs that are specifically…

Jan: …yep…

Paul: …renewable energy and such. This is mainly what I was thinking of, where do you get your energy from? [Jan laughs]

Uh, not, there's some wire in the wall and the kettle boils by magic…

Jan: …I'm terribly sorry, terribly sorry. I went a wee bit too basic on that answer. Yeah. Uh, yes indeed I'm, I'm always interested in green tariffs, yeah.

Paul: And especially here where we are in Northwest England, and especially where I used to live on Walney Island, the massive wind farms that have appeared over the last 20 years.

Is that something that you've noticed in life generally over the, those like two decades that you've seen more wind farms here, there and everywhere?

Jan: Yes, indeed. And uh, like taking the train from, uh, Copenhagen to, to Sweden over that, that, you know, big bridge, there's a lineup of wind turbines there.

And as you go over, they go in line, they go out of line, they go in line, they go out of line. So they're really quite, quite tremendous.

And yeah, from, from the, you know, the Morecambe Bay coast, you can see all that offshore wind.

Paul: Mm-hmm. Yes. If you're ever flying over the, uh, east coast of England, out towards, uh, Europe as well, towards Belgium and Denmark, you go across so many wind farms…

Jan: …aah, yeah…

Paul: …over that, there's, they're just everywhere, aren't they? And they've really become a positive sign of renewable energy that's really visible in terms of scale, and in terms of what you are getting through that weird wire you have that produces magic in your wall.

Jan: [laughs] But also the technology of that, of putting wind turbines in an offshore environment, that must be really quite phenomenal.

Paul: Yes, there's, uh, it can't be straightforward. I dare say there's certain places where you couldn't put wind farms, certain places where you can.

The Mariana Trench, I'd go out on a limb and say, it's not necessarily suitable for a wind turbine…

Jan: [laughs] …well, there's not, not a great deal of energy demand next to it either, so. [laughs]

Paul: Which is fortunate, as it turns out.

We're talking about this because today we're going to be discussing a lot about renewable power. We're gonna be talking about wind turbines. We're gonna be talking about the whole planning process, and such, that goes into that as well.

So we're joined today by someone who is the Senior Planning and Environmental Policy Manager with Scottish Power Renewables. Someone who is a chartered town planner with more than 11 years experience across infrastructure, environmental assessment, policy development. And someone who was once an undergraduate student studying in St Andrews when he happened to come across a certain Professor Jan Bebbington. Never mind. [Jan laughs]

Uh, but he's here nonetheless, we are gonna say hello to Duncan Smart. Hello Duncan.

Duncan: Hello. Uh, nice to be with you. Thanks for, thanks for having me on the podcast.

Paul: Duncan, memories of Jan from those years ago in St. Andrews?

Duncan: Uh, yes indeed. Uh, it doesn't, it doesn't seem that long ago. Uh, it's a couple, a few years ago now, but, um, it's, it's great to be, uh, connecting again, again on such an important topic.

But yeah, um, I had a great time in St Andrews when I was studying sustainable development.

Jan: And it's always great to have, uh, students on the podcast 'cause it gives it, it's inspiration to our student listeners about what kind of path that you can go on, um, and be somewhere else than a student.

So perhaps you could tell us something about that path, Duncan, about your discipline background and your journey to being a chartered town planner and how this has led you into your current role.

Duncan: Yeah, absolutely. So, um, I, I was always interested in planning. Um, to be honest, even before, um, I came to St Andrews to do my undergrad, I knew I was really passionate about geography at school and then cities and, um, development linked with environmental challenges.

So, um, yeah, I'd studied sustainable development St Andrews, but then went on to do a master's in environmental planning at Newcastle University, um, which, uh, then led me on to become a chartered town planner.

Um, one of the things with, um, as with a lot of professions, the, the chartership process, um, was linked to accredited degrees, so, um, that's why I went to Newcastle.

Um, but then my background really, um, since, since coming out of uni has been in infrastructure planning and environmental assessment. Um, I've now got about 13 years of experience across, um, various types of infrastructure. So not just energy, which we'll come on to talk about, but, um, I've worked in, um, consultancies doing a range of urban and, um, all types of infrastructure, um, related to water, energy transport.

Um, because planning is about, you know, developing what, what's needed for communities in society whilst addressing, um, environmental issues at the same time.

Um, so I was chartered in, um, 2015 and, um, then in 2021 made a move from consultancy into my current role in Scottish Power Renewables. Um, I currently, I lead on strategic energy planning and offshore planning, environmental policy, which is a bit of a mouthful, but essentially, um, developing the policy frameworks to support the, uh, development of particularly offshore wind projects around the UK and, and Ireland as well. Um, and that's the, and particularly on the consenting and the planning policies to get the projects through the approval stage.

Um, I also support on the, the development side of our projects. So, um, we, we've got existing and projects under construction at the moment in East Anglia, as well as projects that are in the earlier phases in, in Scotland.

Um, so it's really interesting to be involved in the planning process at, at all stages, both, you know, before they get, hopefully consent, but then ultimately taking through to delivery and dealing with complex issues that arise at every stage.

Jan: And what do you enjoy about that work? 'Cause it sounds tough, so there must be fun as well.

Duncan: It is fun. I mean, I think the variety, um, as I was just touching on there, the, um, the fact that it's, um, a lot of my role is, is policy related, so it's shaping the policy frameworks to develop new offshore wind projects, um, or onshore wind, um, onshore renewable projects as well.

Um, but then dealing with the, the project-specific and the environment-specific challenges that come up, that every site's different, every community you're dealing with is different. Um, uh, there's some key barriers and key issues that, um, kind of transcend a lot of the work I do, but the variety, uh, is a challenge that I enjoy.

Um, and as the projects move through, they move from one, one challenge and opportunity to the next challenge and opportunity as, as they go through. And even, even projects that are in operation, you know, that's not the end of the story. There's, um, you know, Scottish Power Renewables, we, we own and operate the, the projects. So there's, there's challenges and issues and monitoring and adaptive management and all sorts of things that, that occur during the lifespan of a project that, um, it's good to be involved with as well.

Paul: So you're doing this work for Scottish Power Renewables.

Who are they? Should we have heard of them? And do they operate outside of Scotland?

Duncan: Yes, certainly they do. Um, so Scottish Power Renewables is, um, part of the Scottish Power Group, which has, um, been in existence, um, for a long time now.

But really, the Scottish Power Renewables is the renewable energy development, um, part of Scottish Power, uh, which overall Scottish Power is a 100% renewable energy kind of vertically integrated company. Because we have separately, there's the networks business, um, which does the grid connections and the, the transmission and distribution.

And then there's the energy supply customer business, which, uh, people will probably be familiar with. There's the TV adverts, there's, um, Smart Solutions, you know, the, the actual energy supply to people's homes. So there's the three sides of, um, generating, transmitting, and then connecting energy, all of which are separate businesses.

I, I work in the renewables business. Um, we focus on onshore and offshore wind. Um, so that's a mix in itself. And then covering, um, UK and Ireland. So each of the different, for me, each of the different planning systems is, is an interesting aspect that it, one onshore wind farm is not the same as another one, um, regards of where it is, but particularly because of the jurisdictions.

Um, and then overall Scottish Power, um, yeah, is part of the Iberdrola Group which is, um, managed from, from Spain and has, um, interest across the globe in renewable energy and energy generation and transmission.

So we've got that global, um, footprint which, particularly in offshore wind, is important because of the scale of it. And, um, offshore wind is growing as a global industry rather than, kind of, country by country.

Paul: So if we were to see wind turbines onshore, offshore in Scotland, is there a good chance that they are part of the Scottish Power Renewables network?

Duncan: I would say so, yes.

There's, uh, we've got about 40 sites, um, onshore across the UK and Ireland, the majority of which are in Scotland. Um, but we have others in England and um, Ireland and elsewhere.

And then offshore, we've got a cluster, uh, off of East Anglia at the moment, um, East Anglia One, uh, which was um, operational roughly 10 years ago. Um, and then East Anglia Three is under construction at the moment. Um, the, the numbering is slightly confusing, 'cause we then have East Anglia Two, which is, um, also in construction, but, um, it's coming slightly behind East Anglia Three.

So that will create a whole east at the, a whole hub of, um, fixed bottom offshore wind in, um, relatively shallow water depths.

We can come onto some of the technical challenges, but that's one of the factors of, of offshore wind to date has primarily been this sort of fixed bottom foundation type, uh, offshore wind rather than floating, which, um, new projects might come into.

And then in Scotland we have early-stage projects that are going through the planning system at the moment, so you wouldn't see them at the moment. Um, there are, there are a number of offshore wind projects around Scotland over the last 10 years that have been built and Scottish Power Renewables, certainly we want to be part of, of the next generation of them. So we've got a

couple of gigawatt scale projects at the moment in the, in the planning system that I'm, I'm heavily involved with.

Paul: So we talked offshore *and* onshore there. Is there a major difference between offshore and onshore wind in terms of generating capacity, size of turbines, et cetera?

Duncan: There is, yeah. I mean, the scale is, the scale is one of the differentiators, I think complexity as well, but the scale, I mean the, um, I'm by no means a physicist, but, um, essentially the, the length of the blade, the swept area that your turbine can cover, um, has a direct impact, obviously on the power output of, you know, an individual turbine.

And in terms of, uh, transport to a location and installation, the, the blade length, there's, you know, less limiting that offshore than there is onshore. Even transporting a turbine onshore, uh, has its, has its limitations.

Um, and the wind speeds, uh, generally are more consistent, um, and stronger offshore than onshore. Although in Scotland we're generally lucky to have a lot of onshore, um, good, good onshore wind resource as well, um, which makes it a great place to develop.

But yeah, the, the amount of power, the power generation you can get from offshore, um, it really means it's a scalable, scalable industry, um, more so than onshore, um, which is why it's now seen as one of the backbones of, you know, the energy system.

Paul: I have family in Scotland who I'm sure would definitely say, oh yeah, one of the big advantages of living in Scotland is the wind.

Jan: [laughs] Yes, indeed! So you were talking there about some of the technical reasons why we might go offshore. Are there other pushes in the system as to the growth in renewable energy and the offshore environment?

Duncan: I mean, I think at the moment in the UK we have the, uh, Clean Power 2030 kind of mission from the UK government, which is covering, uh, various renewable technologies, but it's really seeing offshore wind as one of the backbones of the system because of the, um, because of the scale of the individual projects.

When they come online, they make, you know, quite a material difference to the, the generation capacity and therefore the decarbonisation of the energy system.

Um, so by 2030, the target's 43 to 50 gigawatts of offshore wind, um, which, um, at the moment we're around 16.5, 17 gigawatts. So, um, we've still got a way to go to get to that target in just a few years.

But there are more projects coming through the, the planning system all the time. And, um, there, there, you know, there's a, there's a pipeline to get there, and then more projects into 2035 as well.

Paul: How much power is that when you say 43 to 50 gigawatt, how many houses is that powering?

Duncan: Well, the overall goal is, is, um, you know, clean power is to decarbonise the, the, the electricity system. Um, with offshore wind being one of the largest contributors to that.

Um, at the moment, offshore wind accounts for about 20%, or just under 20%, of electricity generation in the UK. Um, that's, that's the UK government figures from 2025.

Um, but really the aim is to at least double that. And then that means that with that scale of generation combined with things like storage, um, you have the ability that, uh, both onshore and offshore wind can supply, you know, enough renewables into the system that, even when it's not needed instantaneously, it can be stored. Um, and then can account for, for a lot of the system.

Jan: Yeah. And I suppose that's one of the interesting thing is it's the system that's being transformed, not just the energy technology…

Paul: …mm-hmm…

Jan: …at the end of a piece of string.

Paul: That's always been one of the big debates is whether there's battery storage for having all this energy that's generated and being produced when it's not necessarily needed…

Jan: …yeah…

Paul: …can it be stored until a later date…?

Jan: …or can it be used to pump water up hills to then generate electricity from it afterwards?

Paul: Do you use electricity to generate electricity?

Jan: Oh, it stores…

Duncan: …mm-hmm…

Jan: …it stores it. I've done probably better than… [laughs]

Paul: …I know, I know what you, I know, I think I know what you're trying to say, but it was just, like, we're gonna use this electricity to push water uphill so the water can flow downhill and generate electricity…

Jan: …yeah, yeah…

Paul: …it's a, it's a, a virtuous cycle of just…

Jan: …it's just the timing…

Paul: …non-stop electricity generation…

Jan: …a timing issue.

Anyway, ignore us Duncan. We're gonna bicker about this when in fact we ought to be talking to you…!

Paul: …I think I know what you mean but yeah, yeah…

Jan: …yeah, pump storage.

So, um, you were talking about you know relatively shallow fixed bottom, um, turbines. So are there some locations that are better suited for offshore wind and, and what are they, and why is that the case?

Duncan: So I think historically, um, the water depth has been one of the key drivers in terms of buildability and, and therefore cost as well, and engineering risk. So fixed bottom turbines, um, was where the industry was at, or is, is still at, but there, there's moves beyond that now.

I think sort of 70 to 80 metres would've been seen as the, the, the maximum depth of, of, uh, a traditional, if you like, fixed bottom offshore wind. Um, so the seabed conditions around, you know, the UK in terms of depth, but also in terms of rock type.

Um, because you have different types of foundations, monopiles, jackets and others. And depending on the rock types, whether, you know, it depends on whether it's possible to, um, to drill into them or to, to put, um, to, to stably put foundations down.

Alongside things like the, you know, um, wave height. Certainly on, on the west coast. All along the west coast, um, obviously we've got the Atlantic Ocean, which, um, particularly this time of year in the autumn, um, can, can bring some challenges, um, for the UK weather, never mind for any turbines operating out there. So, um, we have to think about, yeah, the stability of the turbines.

And the other factor really is then, you know, it's all very well generating lots of wind where it's, sorry, lots of renewable energy where it's windy. But how do you then get that, um, to where the power is needed. Which for offshore, I mean, offshore wind means bringing it ashore via cables.

Um, and historically the kind of AC, alternating current, cable, um, was, was used and that's, um, the same as the onshore kind of system. But we're now, more and more projects that are a bit further offshore or because of their scale as well, using direct current DC instead.

Um, so the economics of the cables come into it and, um, the, the physical length of the cables that you can do, and whether you need boosters along those cables, um, also plays into where, um, where is a good place to site a project.

Paul: Does that mean, as well, there's practical limitations to how far offshore you'd go with this? Even if there was a seabed that was the perfect place for it in terms of the right bedrock and all, all of that, the right depth of water. If it was too far offshore, then there's no point building it there in the first place.

Duncan: In theory. Yeah, I mean, I think it, that would come down to the cables. The, the viability and the cost of it would be direct current cables once you get beyond, um, certain distance, and then how many of them you would need and whether you would need, it is possible to have, uh, reactive compensation platforms along the way that would boost the, boost or, or maintain the, the power.

Um, but again, the technical challenges of siting those and the cost of those, um, I'm sure over time it will evolve. It, it's not a sort of fixed limit, I would say, it's more based on the technologies of the cables. Um, and, um, all the electrical stuff, which as I say I'm a bit, um, being a planner, I'm by, by no means an electrical engineer, so I'll leave that to the experts.

Jan: And in some ways, uh, just as an aside, it makes me think that some of that knowledge and expertise and the technology that you need to do that is shared with, um, offshore oil and gas.

So is there, you know, technical sharing of information and approaches between what we might think of as a, you know, sustainable industry and one, what we think of as unsustainable?

Duncan: Absolutely. I mean, the, the next frontier for offshore winds is the development of floating offshore wind in water depths that are greater than, than foundations can accommodate. And that relies on a lot of the engineering skills and experience from, um, the oil and gas industry.

And so there is a real move at the moment in terms of a just transition to, um, learn from and utilise and repurpose skills, and manufacturing, uh, and installation from oil and gas sector.

Um, particularly in terms of, because some of the locations where traditionally oil and gas would've been strong as an economic base or a manufacturing base, are the same, same locations where, um, sectors are looking to expand floating offshore wind, um, to really leverage the capabilities that already exist in subsea engineering.

Paul: So we've talked a lot about environmental sustainability concepts. Are there social issues as well to be considered when it comes to building turbines where they're built, and maybe the effects they will have on the people living close to them?

Duncan: Definitely. Um, I mean, any onshore or offshore wind farm project would go through an Environmental Impact Assessment as part of the consenting process. So, um, impacts on communities, any residential receptors, particularly for onshore wind farms, um, will be assessed as part of that.

The landscape and visual impacts would be looked at because there, there is always going to be some level of visual impact from, uh, particularly from an onshore wind farm, just with the proximity to, um, people and receptors.

Offshore, you've got the possibility of them being, you know, obviously further away, potentially beyond the horizon sometimes, but you then, you still have the infrastructure to bring it ashore that would, um, have an impact. So the

assessments cover kind of, yeah, the acceptability of any impacts and any mitigation that's needed, um, for communities.

Uh, the other aspect I think is that, so for offshore wind, we're, we're in a, you know, marine space that's shared with other marine users. So fisheries, shipping, um, oil and gas, um, other aggregates extraction. Um, all of those are key stakeholders in any offshore wind development project. Um, and even in the siting of offshore wind projects in the first place, um, the, you know, shipping lanes and key fishing areas are factored in from the outset, to try and minimise issues before they occur.

Because once you're in a consenting process, um, there may be mitigation that you can offer and there may be, um, agreements that you can reach with stakeholders. But fundamentally, the location of the project is identified, um, prior to the consenting phase for, for offshore wind.

Jan: And you said that a lot of your work is in that consenting phase. So what does the consent process and the social environmental assessments involve?

Duncan: So the first stage, um, is the identification of the site, uh, as I was just mentioning there, which for, for offshore wind is slightly unique in that, in the UK it's a, kind, of government led, um, or public body led process.

So the developers, um, we very much support and engage in identifying the sites for leasing, but it's ultimately public bodies, um, the Crown Estate or Crown Estate Scotland that decide the, the zones or the areas. Um, rather than, you know, onshore for energy generation of any type, that's more of a market led system at the moment.

It may change, but, um, that's, you know, landowners and energy developers identifying areas that they want to develop, rather than the public bodies identifying the sites.

And then once those, once the sites are identified, um, through either route, the main thing that happens next is surveys. Um, there's usually two years of ornithological, so bird surveys, um, done to, to understand the baseline, um, situation in terms of, uh, flights and, and species, um, in an area.

There would also be seabed or ground surveys for, for a wind farm to look at the soil conditions or the benthic conditions, both from an engineering point of view, but also to understand the, what's currently there, um, and what could be impacted.

We then go through the impact assessment process, um, by which point stakeholders are already brought in so that there's a, there's agreement where possible, on what the key issues are on any given project at what we call the scoping phase.

Um, and then you, you run through the impact assessment and identify, potentially, what the impacts of the project would be. And if there's significant adverse effects from a project, in terms of the, the way the regulations and the EIA in its call, work, the, um, mitigation is then identified to try and minimise those effects.

Um, ultimately that then goes into the, the formal planning process. So all of that work happens before you've even submitted to your, you know, application. You then go through a, an application process with, uh, whether it's the Scottish ministers, in Scotland, or the Secretary of State for, um, DESNZ um, for UK projects.

And then there's a, there's a formal determination process, which itself has a number of, kind of, stages where the issues get examined and scrutinised before a decision. Um, so it's, it is a, it's a, it's a lengthy and complex process, which I certainly enjoy working in.

Jan: I think patience is maybe a personal quality that you have to…

Paul: …mm-hmm, yeah…

Jan: …develop. [laughs]

Paul: Have you found, though, that with the industry growing, evolving, becoming much more established over recent decades, maybe that the way this process is gone through now is a lot more straightforward than it might have been, say 20 years ago or more, when it was first happening and people didn't know what obstacles might come in the way? This time you're ready for certain types of obstacles before they appear in front of you.

Duncan: In some respects. Um, so for some issues, um, there's been a lot of work done over the last five years to agree, kind of, industry positions and agree with stakeholders and government how to deal with particular environmental challenges in general so that you're not, on a project by project basis, having to kind of rehearse the debates and go over old ground and potentially end up at the same solution anyway.

So, um, for seabird impacts, um, as well as the Environmental Impact Assessment, there's the habitat regulations that come into play. So the particular designated areas and species, um, originally at European level, um, special protection areas for birds that have now been kind of assimilated, um, post Brexit in the UK framework. And there's a whole process for those.

But the outcome of that process now is potentially the need to develop compensation measures, um, so that you are offsetting, um, or delivering a benefit to the environment that's proportionate to a protected impact on particular protected seabird species.

Um, it's quite complex to be, it is fair to say, but the, there have been mechanisms developed in the last few years to get to that point of compensation. And, um, certain measures, so artificial nesting or predator eradication and control have been recognised as, um, effective measures that, that work and, um, would be suitable to use if you needed to end up compensating for impacts.

So that's become a, kind of, industry process rather than developer by developer, or project by project, and that's helped.

Um, my other recollect, my other observation on your question is that, um, you know you mentioned going back a couple of decades would things have been different? I mean, in Scotland we're, the consenting system is actually still using the 1989 legislation…

Paul: …mm-hmm…

Duncan: …um, which hasn't changed dramatically since then. Um, clearly offshore wind, uh, wasn't the major feature back in 1989. Um, but the system itself has sort of stood, stood the test of time. There's been modifications to it. Even just last year, the UK government, um, had quite a major planning, um, bill, the Planning and Infrastructure Act, which has updated and modernised certain aspects of it, while without, you know, causing a fundamental shift that could cause more uncertainty.

Um, so yes, we're, we're, um, in, in some respects still using the systems that we have, but then updating them where needed.

Paul: Do you have any experience of what the systems are like in other countries, uh, with regards to this whole process for planning and building of onshore, offshore wind farms? Is it any different at all?

Duncan: The individual regulations and some aspects of the procedures will be different, but particularly for offshore wind, there is the general basis that the sites are identified at the outset. Um, and then, you know, developers enter the process and take them through a consenting system.

The, the Environmental Impact Assessment and the Habitats Regulations are both linked to European, um, legislation, so the EIA process, there'll be nuances throughout Europe, but all member states are signed up to it in the same way that the UK, uh, was prior to Brexit. And we, we still follow the EIA system.

So there's a lot of commonalities and expectations of, um, the level of assessment you have to do before you, you would be able to apply to get a consent for a project.

Jan: That makes good sense because it's a, it's a global industry. I mean, it's not, it's not little companies all along the coast deciding to have a wind farm each. It's sort of a scale of investment that needs big company, um, you know, infrastructure investment to go in there.

Paul: You say that, when we're based at a university that has decided to have a wind turbine?

Jan: Uh, I think onshore is different than off.

Paul: I'm just saying though...

Jan: …yeah, well…

Paul: …may, maybe for, you know, there might be the odd company that has [Jan laughs] the just one offshore wind turbine in its little bit of water, maybe here and there…

Jan: …that'd be quite, that'd be quite…

Paul: …don't rule it out.

Jan: [laughing] I won't rule it out, but I wonder about the economics of that.

So, um, so from your perspective, who are the critical stakeholders in this, this whole, uh, process of getting offshore wind from that 20% to the 40% that you spoke about earlier?

Duncan: Um, the UK government certainly has a strong role to play. We're in it, we're in an interesting phase at the moment where we're, generally, not just

for offshore wind, generally we're moving to a more, a more strategic, um, approach to energy planning in the UK.

There's something called the Strategic Spatial Energy Plan that's being developed at the moment that will identify the kind optimum locations and capacities on a zonal basis across the UK for different, different technologies including offshore wind.

Um, that's being developed by the National Energy System Operator, NESO, um, which was set up over the last couple of years to really, um, increase the strategic planning of the energy system. So it's NESO's role at the moment to identify those optimal, um, capacities and locations by zone.

Um, stakeholder-wise, other marine users have a key role to play in that, that early stage of identifying the sites. So, um, shipping and fisheries interests in particular, and, uh, seabird conservation. Um, there, there's, it's, I think it's been recognised that offshore wind, you know, can contribute a lot to seabird conservation through both the compensation measures, but also just through the partnerships which have already been established now for a number of years between developers and, um, the conservation sector. Um, because renewable energy generation is also part of sustainability and, um, ultimately getting to net zero and decarbonising the system.

So there's a myriad of individual stakeholders depending on whether it's onshore or offshore, and what the complexities of that at a project level would be. Um, so it is really a partnership approach. It's not the case of, you know, one industry kind of forging ahead and, and attempting to get to that doubling of capacity. It needs, um, interactions with all the stakeholders that we'll be, we'll be involved with.

Paul: And speaking of those stakeholders who will be involved, do you think, well, there's anyone else who needs to be involved who isn't at the moment, if offshore wind is to realise its full potential for energy generation?

Duncan: I think it's more about coordination, than any stakeholders not being currently involved. I mean, we currently have different systems for seabed leasing and then the consenting and, um, the, the environmental assessments. The discharge of conditions once you get a consent.

Um, we have regional marine plans that deal with various uses. So we have different governance systems, um, each of which are led by different

stakeholders. Um, and for us in Scottish Power Renewables, we've kind of been calling for greater coordination of those so that, you know, once an area is identified as being suitable for offshore wind, let's say, then that's recognised in the next stage of the process rather than it being, kind of, rehearsed again.

Um, and the plans that each body, so the, the regional marine plans that exist around, um, England, certainly that those recognise the, the seabed leasing process, even though that's separately done by a separate body.

Um, the, the work done by Crown Estate and the Marine Management Organisation, um, needs to be integrated. And there has been good strides to that, um, Crown Estate, I've done a lot of work recently on their marine delivery route map, which is, um, the first kind of strategic project to try and bring together, um, eight or nine different offshore sectors so that you're not just planning in isolation for an individual sector.

Jan: And that, that makes me think about some of the, um, the work that we've done here at the University looking at, uh, ocean sectors and ocean industries and the blue economy, et cetera, and how all of these actors, you know, have some different needs, but also shared needs in, in the total.

So it's, um, yeah, what a, what a map to be playing with! [laughs] And looking at all those pieces together.

Paul: Did you know Jan, when he was your undergraduate student back in St Andrew's, that this was his potential? This is where he could end up?

Jan: No, but what a great place to end up. I mean, that's a really good ad for a sustainable development degree, to get you ready to be able to then go on to that additional training, and a really good profession.

Paul: Well, Duncan, thank you very much for joining us, giving in, us such great insight into the whole world of offshore wind.

Duncan: No problem. Thanks very much for the opportunity and it's great to connect again, Jan.

[Theme music]

Paul: I've always been quite aware of wind turbines Jan, just because the wind farm off Walney where I live, was one of the first in the UK, and one of the biggest in the UK when it was built. So it's always been something that I've kind of felt some kind of connection to.

And onshore wind as well because there was a farm that appeared near us and had so much local opposition because it was, the noise was gonna be, apparently, deafening to the entire village.

Uh, I think if you stood within a hundred yards of it now, you'd still struggle to hear more than a rustle…

Jan: …yeah…

Paul: …but the, the paranoia that was there.

And it, it's interesting to hear from Duncan from the whole side of the organisations that are doing all this planning, how much thinking and how much organisation has to go into just getting the turbines there in the first place.

Jan: And even like the two-year bird survey. So spending two years to get a baseline of what the birds are. So I think, um, one of the things that really occurs to me is the amount, um, 'cause time is money, the amount of time and money that's invested by companies to, to even before they, they enter the process to find out if they can do something. So that upfront investment is huge and considerable.

Paul: And, like they said, that they know where they're going to build it, before they build it. It's not like they're looking for lots of different places. They find somewhere suitable. But at least they know they're going to have to do a two-year survey, 'cause it's a standard process…

Jan: …yes, yeah…

Paul: …it's not gonna come as a massive surprise to them.

And it sounds like in Scotland, certainly, the process for lots of things hasn't changed for almost 40 years when it comes to planning and, uh, various consent levels and such. But other things will have changed…

Jan: …yes…

Paul: …in terms of like, say, knowledge of people, of what wind farms mean and what they can do and the technology that's available, and the size of the things. 'Cause they keep getting bigger.

Jan: They do indeed. But it also makes me think of the, the conversations we've had with the likes of John Virdin in the previous podcast looking at the Ocean 100. So these, there's a cross sector, uh, group of ocean actors.

So like the marine development route map from the Crown Estate, but also a Strategic Spatial Energy Plan. All of this sort of background work that none of us ever see because it's, that's done sort of by, by people other than a consumer sort of fronting, uh, kind of, uh, group of people.

All of that planning actually provides the root for this, this, you know, low carbon transition. So I think he's right to be, you know, coming from a planner perspective, 'cause it's the planning that really matters.

Paul: And it all ends up with that magic wire in your wall [Jan laughs] that just produces electricity…

Jan: [laughs] …you're still, you're not gonna, you're not gonna let me get away with the magic, Paul… [laughs]

Paul: …no, no I'm not. That, that's it. That's, where's your electricity come from? Magic!

Jan: [laughing] I honestly, I find electricity quite magical. I don't, don't really know how it, how it works, but it does.

Paul: I, I dare say if you got struck by lightning, you'd feel less, less so, but yes…

Jan: …it's magical…

Paul: …that's understandable. Well, yeah, it was really good meeting another one of your students, who's bizarrely not been put off speaking to you [Jan laughs] these many years later, and, yeah, learning so much from him. So, yeah, it's, it's a great conversation.

Jan: It was brilliant. It's also quite nice though, particularly, you know, I've said this a couple of times in the podcast to our student listeners, you know, here's, here's a, you know, a really vibrant and interesting career that started off with an undergraduate sustainable development, uh, course that did lots of various things. Then further, further study, certification as a planner and then through to this kind of activity. What a nice route.

Paul: Hmm. There was a touch of the Dr McCoy's from Star Trek about it. I don't know if you noticed this? [Jan laughs]

So on, uh, star Trek, uh, Dr McCoy famously says, "Dammit, Jim, I'm a doctor, not an engineer. I'm a doctor, not a nuclear physicist!" [Jan laughs]

And he did stress several times, he wasn't a physicist, he wasn't an engineer. I think he, maybe, wasn't a mathematician as well at various points. But yeah, all of those things do come into his job one way or another, and you never know where you're gonna end up…!

Jan: …so this is our Star Trek episode, is it? [laughs]

Paul: Yes. Yeah. You, you'll have to tell him next time you speak to him that I compared him to Dr McCoy and see if he understands, at all, that reference.

Jan: He might be too young to even know it, but there we have it. [laughs]

Paul: Well, thank you very much for listening and until next time, it's goodbye from me, Paul Turner.

Jan: And from me, Jan Bebbington.

[Theme music]