# Inside Octopus - Renewables

**Russ:** [00:00:02] Thanks for downloading Inside Octopus, where in this episode we are introducing the team behind Octopus Energy Generation, who joined the Octopus Energy Group back in March 2021. Formerly named Octopus Renewables, the company entered the renewables market in 2010 and has grown to become the largest investor of solar power in Europe and a leading investor in onshore wind. My name is Russell Goldsmith. I'm joined online by Octopus Energy Generation's CEO, Zoisa North-Bond, their co-head, Matt Setchell, Paul Loran, Head of Innovation, and then finally Chief of Staff, Ashleigh Gray. So, thank you all for taking the time out to chat to me today. So Zoisa, let's come to you first. I've set the scene very briefly there in the introduction, but why don't we start by you just explaining what we mean by renewable energy? And then perhaps you can give a bit more background to your part of the Octopus Energy Group?

**Zoisa:** [00:00:50] Hello. Yes, of course. So, what we mean by renewable energy is actually energy that comes from inexhaustible supplies, so it can be places like the wind, the sun, even the sea. So, because of that, it means that it's cheaper and actually easier to use. So, rather than taking things from finite sources like fossil fuel energy does, it means that we can use it with abundance within our homes. Within Octopus Energy Generation, we have been set up to accelerate the mission, to making renewable energy the cheapest electron that could be used in homes and in businesses, here in the UK and around the world. In terms of the way that we work, we're on a kind of mission at the moment to disrupt the renewable energy space in favour of consumers. So, looking at ways to drive down the cost of producing electricity and then working with the end consumer to help identify the times of day when energy is cheaper, and they can use that within their homes. Just one of the models that we've been working on in this last year that fits in that mould is something called the Fan Club, which some listeners may already know a bit about. In its very simplest form, this is where customers can receive as much as 50% off their energy bill when they're using energy at times when the wind is blowing or the sun is shining, which is super exciting. So, on the one hand, we are developing these kind of new models that are right for investment, and then on the other, we also have a fund management team that works within the generation business, and it is managing about £3.5bn worth of renewables on behalf of investors. So, when I say renewables, these are predominantly wind and solar farms because actually what we see coming into the market now, so, in order to accelerate this move to net zero, I think it was at last calculated, certainly going into COP that there was about £136tn that's going to come into this economy, that will be targeted at accelerating our move to making the whole of the space better and lowering carbon. And this team is really expert in capturing that investment, and then, on the other hand, will be creating models, more models like the Fan Club where we can put that investment. And actually, these two things together, along with our expertise in supplying customers, will mean that we can accelerate this move, much more quickly than we than anybody else could.

**Russ:** [00:03:12] And that fund that you mentioned that 3.5 billion, how many projects does that, you know, invest in and also, you know, are you able to go into kind of like whereabouts that is, is it, you know, specific territories at all?

**Zoisa:** [00:03:22] It amounts to about 350 projects of which about 35 are wind farms actually here in the UK, but it's across seven different markets. So, we're in other markets like France, like Spain and some of the Nordics, like Finland and Sweden. But we are obviously on the path now and have ambitions to enter many more spaces in the renewables world. Very similar to the places where we are actually retailing energy at the moment. So, also places like the US, for example, Australia, New Zealand as well.

**Russ:** [00:03:57] Matt, how has the market developed over the last 10 years to get to where we are now?

**Matt:** [00:04:20] Well, I've been really lucky I've been involved in and participating in this market for the last 12 years, and I've seen this sort of incredible transformation across loads of different parts of the sector. So, you know, in 2010, when we started, we saw the urgency and we saw this sort of opportunity to accelerate this mass rollout of renewable energy generation, which I mean, now it seems really obvious, but actually, at the time, it didn't feel like that at all. So, in the UK and elsewhere, onshore wind, solar, wind more generally was seen kind of at the periphery of the energy mix required. So, you had people saying you'll always need gas. Lots of countries are still burning lots and lots of coal and the need for nuclear as well, and alongside that, it was also incredibly difficult to get funding. So, Octopus was a pretty niche investor, it was seen as a niche investor going into renewables at that time. We couldn't get the pension funds particularly excited or focusing on renewable energy projects, and the banks were more challenging getting the terms in for bank debt. Move forward 10 years, that’s completely changed around. Very few people are now questioning that wind and solar are going to be absolutely central, to providing energy for the future, but not just the future, for today. And the reason for this is really simple, actually. It's basically because wind and solar are the cheapest source of power generation in almost all markets. It really is the fact that the cheapest electron is the cleanest, greenest electron, and if only we had more wind and solar installed, we wouldn't be facing all these issues we've got today where we're beholden to the cost of gas in the system. And this is what happened because the cost of building renewable energy assets has reduced by a staggering amount over the last 10 to 12 years. To put that in perspective, a little bit. So, when we did our first deal solar plant in the UK in 2011, the cost of that solar plant cost about £3million per megawatt, which is pretty meaningless for anyone that doesn't talk in terms of megawatts outside the investment management industry. But put that in perspective, that's about £10,000 to power someone's home. We're just about to close on a deal where the cost has gone down a staggering amount to about £2,000 to power someone's home. That's an incredible 80% reduction in the cost of powering people's homes, renewable energy. And that's to my mind, that's an amazing lesson to be learned because you get loads of naysayers out there saying things like the rollout of heat pumps never, never work because, you know, the cost is too high. But we've seen this trajectory that new technologies can accelerate much faster than anyone can imagine at the time. The second part of this big transformation is on the funding side. So, from being a niche investor, renewables has gone mainstream. There's a huge wall of capital out there looking to not just invest in renewable energy assets for the attractiveness of that investment, but also because the underlying savers really want to make more of an impact with their savings. So, we're seeing money coming in from pension funds and other savers into renewable energy assets. So broadly speaking, we're in a good place and frankly, we need to be to roll out cheaper renewable energy projects. I think the biggest challenge at the moment is how do we accelerate that? How do we make the rollout of this even more quickly than we're doing today? And that's exactly what energy is doing. We're at the forefront of using technology with our renewable energy generation assets and our and our customers to accelerate this transition.

**Russ:** [00:07:22] Paul, that brings us nicely up to date then, so what does the current picture of renewables look like?

**Paul:** [00:07:28] I guess just building on what Matt and Zoisa just said there, we're seeing a real changing picture in how energy is being generated across the UK. I think it was back in 2020, renewables outpaced fossil fuel generation for the first time in the UK, which obviously shows the direction in which we're looking to travel in terms of how we're going to create energy and then obviously supply that onto our customer base. I think even more recently over the weekend, ~~I think it was storm Malik~~, you saw that up to half of the UK's energy requirements over this period was supplied by wind, which is something that just wouldn't have been the case a few years ago. So, we're seeing a real change, and I think one of the really interesting aspects of that is the change that's being demanded by customers and by people. You know, Octopus is a very customer-centric business, and we're at the forefront of engaging with our customers on the supply side, but across the business as well. And we're seeing a real demand for renewables and sort of people led renewables, and my background is in sort of more traditional development of renewables. I spent many a time of my sort of early parts of my career working with communities and more traditional style wind projects up in Scotland and speaking to the communities, trying to engage them about why the benefits of renewables. And I think we've seen a real change over the last few years as the climate issues become more and more sort of a focal point of people's lives around the types of energy they want to be consuming themselves. And also, we're seeing this mix from the sort of nimbyism sort of approach to renewables, particularly more so wind in the UK to people actually saying, look, we really see the value in them for the reasons Matt was just mentioning, then around the cost of generating the cost of that fuel, it's the lowest form of electricity cost at the moment. So, I think we're seeing a real change as time goes on, and I think there's going to be a big mix in terms of what that generation sort of portfolio looks like. It's going to be a big influx, I think of offshore wind, and I think particularly innovations in floating offshore wind is going to be something that's really exciting. We can harness higher wind speeds the further out we go, and I think we're also going to then see on the other side, more sort of decentralised generation. So, citing some of these projects in the communities where people are wanting to then consume that electricity and it being a sort of real people focused initiative.

**Russ:** [00:09:40] Zoisa, you mentioned COP 26, earlier, one of the goals of that conference was to secure global net-zero by mid-century and just listening to what Paul was just saying there, I mean, how important is the contribution of renewables to achieving that?

**Zoisa:** [00:09:54] The contribution of renewables to achieving that is vital because when we look at greenhouse emissions globally, one of the highest, well, the highest emitting sector is electricity and heating and it accounts for about 31% of all emissions globally, and that is ahead of things like agriculture and also transport. When we then look at the global energy mix, renewables at the moment, it only makes up about 11% of that. So, we have got to make huge strides to be able to get to a world that is net-zero by 2050. We are seeing governments making big commitments. So, for instance, the UK has said already that by 2035, it will be fossil fuel free in its energy. Then actually, we are also seeing that Germany, for instance, when it's looking now at using public sources of funding, will not be backing fossil fuel generators anymore, and that's from this year. So, there is this tremendous opportunity for businesses like ours that is on a mission to accelerate the use of renewable energy. The scene is set, the stage is set, and we have, as Matt was describing, on the one hand, all this expertise in capturing the imagination and investment appetite needed. And then, as Paul is explaining all of that expertise, also, in understanding people and what they want to live within their communities and building an abundance of these models where we can put this money into the future. So, those two things together and this dire need now to move as quickly as we possibly can to a net-zero world means that we're perfectly placed to be able to deliver this mission.

**Russ:** [00:11:27] Paul let's come back to you then. Can you just talk us through the whole process of how wind and solar energy is created and then how those clean electrons actually reach the customer?

**Paul:** [00:11:37] Yeah, sure and to sort of caveat it slightly. I'm not a chemical engineer or mechanical engineer, so I'll try my best. But with I'll take solar to begin with, Solar PV, probably helpful to note what the PV stands for and it's photovoltaic, and in essence, you have sunlight creates an electrical current through energising of a semiconductor, which is typically silicon in the sort of panels you might see on a household or on a business, and when they're hit by photons from the light that then creates say that that electrical current and then that current is known as DC, which is a direct current. But unfortunately, we can't use direct current in the UK, so your sort of three-pin plugs and businesses and households all run off AC, which is called alternate current. So, they go through an inverter, transfers that to alternate current and then that can be fed into the national grid and directly into our homes and businesses, depending on where the solar is located. I guess with wind, it's slightly simpler, and if you think about sort of winds been around for many, many years if you think back to traditional windmills when they would use and harness the wind power to break down corn and make flour, very similar concept. But instead of making flour, we're making electricity, and this can be when the wind doesn't have to be particularly strong, it can be when it's only moving at a couple of meters a second. The wind turns the blades of the wind turbine, which turns the rotor inside the cell, which is the big bit at the top of the turbine, and that spins a generator and then that makes electricity. Then that passed down to a transformer on the site of the wind farm or the wind turbine, increases the voltage so that then can be connected into the transmission network of the national grid.

**Russ:** [00:13:12] Thanks for that. Matt, let's come back to some of these projects, that Octopus Energy Generation has invested in. Can you just talk through some of the work that you're doing? And also, why you think you're offering to investors is different from other fund managers?

**Matt:** [00:13:26] Zoisa has touched on a little bit, but if I step back a little bit, so we invest across lots of different countries, we'll invest across different stages of when the projects are being developed, through from development, through to construction, through to operational. We also invest in lots of technologies. Where we have done most of our investments as Zoisa mentioned is in onshore wind and solar, and we're leading investor in that field. But we've also invested further afield, such as in biomass and other different technologies that are complementary to onshore wind and solar. The solar farms, these are typically these very large solar farms that you might see on the edge of the motorway. So, they range in size enormously. So, the ones around the UK, you might have seen are probably around the sort of 20 to 30 acres, which is roughly the size of 15 football pitches. But, more recently, we're looking to agree terms on building a massive solar farm in southern Spain, which will be about 1000 acres or 570 football pitches. Put that in perspective, it will cover most of central London from the West End to the city. Similary for onshore wind, we look at sort of the larger projects. We've just got one of the largest turbines we've built has gone up. That's in Sweden, there's a height from the ground to the tip height of 200 meters, which is pretty hard to grasp, when you're standing underneath it, but it's about two Big Bens stacked on top of each other, but equally, not all of our products are large. So, we talked about bringing generation closer to the end customer, and we do have a lot of smaller solar assets that are either put on people's households or on industrial commercial buildings like warehouses. Outside wind-solar, in terms of other countries, so, we've got a large portfolio in the UK, but we're increasingly growing our international team. We add a new market, at least one new market every year, and more recently, we've added investments in Poland. We're about to go into Germany. I think Zoisa mentioned we're in France, Ireland, Spain, Sweden, Finland. We're building up a pipeline in the US and Asia as well. I think the second part of your question is around how we're different as the team. There's two pretty main aspects of this. First of all, we are a specialist investor and we've been a specialist investor in renewables since 2010, and we've grown a really large team with a really excellent track record, so we've got about 85 people. What's really interesting about that is that because we're specialists, we don't sort of see ourselves as a pure financial investor. Most of the people we recruit are actually outside of the financial services industry. So, these are people that come from energy companies, whether that's the utilities, other developers, whether it's people who do the operations and maintenance on the sites. People that know about the commercial challenges around negotiating and managing the solar and wind farms. And I also think we're different in terms of where we invest. So, I touched on, we don't just invest into operational wind and solar, but we've got a team of people that understand how to develop these things, and this is really critical to what I touched on earlier. Which is actually the real challenge, is to accelerate the deployment into new assets and therefore getting in at the earlier stage is going to be critically important to that. And we have again, specialists have come outside of financial services to come in and really know how to develop wind and solar assets. But I guess the second part is the really exciting part around this, which is actually, we as a fund management team sitting within a broader energy company and not just any old energy company. Octopus Energy is at the forefront of technology and customer engagement, and that's where the kind of the magic really happens. That's where we can bring to our investors completely different products. We can bring completely different engagement with the end customers and with our investors. We can use that technology within Octopus, that's called Kraken, to manage some of the challenges that are inherent in the rollout of mass rollout of renewable energy assets by managing the flexibility of these assets, depending on whether it's windy or sunny. So, that's where it's really exciting. I don't think we've even scratched the surface on using that technology within the business, so that's where we're going to bring something completely unique to our investor base.

**Russ:** [00:17:06] But in terms of, given the topic of investment, as you're saying there, how do you balance that conundrum of what the investors want with what the customers need?

**Matt:** [00:17:15] I get asked this question quite a lot because on the face of it, our end customers, they want cheaper, greener electricity with excellent customer service, which is exactly what they're getting from Octopus Energy and our investors in the projects, they want to get the best price for their electricity. How do we reconcile the two? But actually, I don't see this as a problem at all. I see this as a massive opportunity, and it's as I sort of touched on it, it's one of the most exciting things about being a fund management business within a wider energy company. If I go back to what I said earlier. Renewables are the cheapest way to generate electricity. The only reason we have this energy crisis at the moment is because we're still using too much gas in the energy system. So, in a massively oversimplified way, if we can roll out more renewable energy projects, we will have cheaper electrons to our end customers. And that's what's really exciting about Octopus Energy. We've got Kraken, which I touched on to manage the issues that many of the naysayers that talk about renewable energy projects. So, you know what, if it's not windy or what if it's not sunny? You've got this technology that's going to help balance this all out within the same business and combining that technology with a mass rollout of renewable energy generation and an increasingly fast-growing and engaged customer base on the retail side. I think we can deliver this triple win, so, we can deliver cheaper, greener electrons to our end-customers. We can deliver better returns for our investors, and clearly, we can start removing any fossil fuels from the system, which is necessary to help the planet.

**Zoisa:** [00:18:40] Can I just come in on the back of this one, I think specifically on your question around what investors want, with what customers need. I think certainly from what Matt is talking about, I think fundamentally those two things into the future will be exactly the same because one of the biggest limiting factors to actually developing renewables is if customers want them and the speed that we know that we now need to move at and the volume of projects that we need to deploy to bring ourselves up from that kind of 12% of renewables that I was talking about earlier. It depends on if people want them. So, it's going to be about getting more people on board, working more closely with communities, getting these projects, not these enormous industrial-scale things that we used to have decades and decades ago that sat on the top of grid networks up in Scotland and electrons were travelling down from one end of the country right to the other. It's going to be about making them smaller, bringing them closer to people's homes, making them more secure, giving people the opportunity to use them when there is an abundance of wind on the grid because the wind is blowing and sending them those directions and signals to be able to do that and then being able to kind of store those in their own homes or businesses and then use them at times when there isn't an abundance of wind or solar. So, I think that traditional view of the two things being entirely separate, if we are going to get to the place that we need to get to, we need to kind of erase that, because we have to have the worlds of investment and what customers are using and needing, colliding. And those two things have to come together if we are truly going to become a net-zero by 2050.

**Matt:** [00:20:16] And that’s exactly where the real interest is here, that's where you ask about what's different about Octopus Energy Generation? There's no other investor out there that can combine the two. They just don't have the capabilities and indeed, they don't have the thinking around this, which makes it a super exciting place to be.

**Russ:** [00:20:31] Well, actually, that leads nicely onto the next question, which I wanted to bring Ashleigh in, who's been sat there very patiently for over 20 minutes. So, let's bring you into the conversation, Ashleigh, and what I wanted to ask you about is something that we've touched on, on in Inside Octopus quite a bit, is the culture of the organisation. I was just wondering, as Chief of Staff, how important is the culture of what you guys are doing, your team, and Matt's also mentioned about new people coming into the team as well. How important is that in achieving the aims that you've set yourself in terms of disrupting this whole space?

**Ashleigh:** [00:21:05] It’s so important, I think, to disrupt any space, it's key to think completely differently about challenges and move quickly to test potential solutions, and for that, you need a culture of empowerment and one that values independence and initiative, and that approach is so ingrained in the Octopus Energy DNA. Everyone here at Octopus is encouraged to come up with new ideas, to question established wisdom, and consider how things can be improved, because things can always be improved. Then when you have an idea, you're given the freedom to pursue that. So, small teams who are excited about a project actually work together to test solutions, which with each of them operating as a sort of start-up within a start-up. Obviously, if they fail, that's fine, because what's important is to fail fast and then be open with the rest of the team, as to why that happened, so, that we can also learn from that and hopefully apply it in future efforts. I also think if you're not failing every so often, you're probably not trying hard enough. When it comes to our specific team, though, I'd say it's really interesting because to reach the scale that Zoisa and Matt have been speaking about, you have to bring an innovation mindset to a very traditional industry. One of the things I love most about our team is that we combine people with years of experience in energy, investments, and fund management, with people who come from altogether different backgrounds, but with skills that translate well into that space. I, for one, was a corporate lawyer so completely different to what I do now. So, each person in the team brings that completely different perspective, and that creates a very dynamic environment and a certain magic when it comes to coming up with new ideas that maybe the established players in the market have never thought about.

**Russ:** [00:22:50] And so just listening there to what you're saying then, did the culture change in any way, after the team became part of the wider Octopus Energy Group?

**Ashleigh:** [00:22:59] Well, I mean, I think you'd be speaking there about our fund management team joining us on the Octopus Energy side. I'll let Matt probably answer that, as the person who's experienced it most directly. My guess would be that our self-serve environment has meant that they've been empowered to, for example, solve their own tech issues and think altogether differently about what they can do themselves and where they need support across the team. But I imagine it's perfectly obvious that the internal slides at least have more GIFs on them. Matt! But I'll let you speak about that.

**Matt:** [00:23:32] I don't agree, Ashleigh, I've received lots of compliments on my use of GIFs these days, which is a step-change from the old business! I was incredibly lucky because, you know, as fund management at a renewables fund management team, we've got an amazing team, not only incredibly motivated but unsurprisingly much smarter than me and also like the nicest bunch of people you could work with. That's because where we came from, the sort of the culture of the team was already sort of really central to what doing business was all about. But the shift to OE is really that track change and ambition and motivation. So, there's two parts to it, you know, it sets out, you know, we're trying to build this global energy business and generation is going to be a key part of that, and that changes people's mindset and the entrepreneurial nature within Octopus Energy, just takes it a step up, and all the stuff that Ashleigh talked around, about how the sort of the operational model within Octopus Energy is different to where we've come from and probably different to most, if not all other fund managers, which is this empowerment that is really liberating actually for the team, and I know they've really settled into this and they can see your opportunities and take them on board and to Ashleigh's point, fail fast if needed. But we're just seeing this change sort of compounding day in, day out.

**Russ:** [00:24:41] Ashleigh, anything else, then that you could add that would sum up why your team is different, that's going to enable you to achieve those goals that you've set yourself.

**Ashleigh:** [00:24:49] I think we've covered a lot of it, but the one thing that I think sort of hasn't been mentioned yet, maybe because it's so obvious to all of us, but less so for people who are listening, is that no matter what function you're looking at or what background you're recruiting from, absolutely nobody is here by accident. Everybody is so uniformly motivated by the mission and by accelerating the transition to a net-zero world. So, one of the things I find quite remarkable is you never have that sense of somebody that someone might respond over, 'that's not my job' when you're asking for help. There is absolutely no culture of 'that's not my job'. If people are excited to get involved in any number of different projects, even if it's not something they've ever done before because they've never done it before, so much, the better it means they'll learn something altogether new. So, that is such an inspiring environment to work in, and I think that also is clear when we speak to our customers and when we speak to investors that people are here for the right reasons, which I think is also makes a huge difference.

**Russ:** [00:25:46] Zoisa, let's come back to you then to finish off. We're recording this episode at the end of January 2022. So, what's the plan for the rest of the year? But also, what can our customers do to help support the creation of more renewable energy?

**Zoisa:** [00:26:00] I would say front and centre of what we will be doing this year, is actually helping our customers understand what part they can play in this. It is absolutely essential for all the reasons that I was mentioning earlier around the way that the world will now work, which is we will be building these projects around people because we're building them for people. It isn't about bringing in investors to make certain returns any longer. We're actually building projects because the output is essential for the world that we need to become in the future, which is something that is net-zero in its energy use. So, we'll be doing many, many more things, like our Fan Club model that we mentioned earlier on in the podcast to the point where at the moment we have two projects where we can offer discounted electricity when the wind is blowing, and we can text price signals to our customers, and they can receive as much as 50% of their bill. We have two at the moment, we will be building at least five immediately. There will be at least 30 more in the next couple of years, with up to 2,000 of them actually by the end of the decade. So, we'll be doing many, many more things to help customers really appreciate the part that they can play in this energy transition. In terms of where we really see customers playing a part and we've been blown away just from our test examples with our two turbines, is that customers not only sign up to use the energy, but they're also telling us where they want us to come and build these. So, on the back of the sell-out of these two tariffs that come from Fan Club, we now have something like a thousand communities that have come to us and said, 'Can you build a project like this near us?' and so it will be working more with these types of people and these types of communities. We also, have businesses there as well and will be marrying up investment with pipelines like that

**Russ:** [00:27:47] Just that topic of Fan Clubs, we'd love to get you guys back on to the podcast in a short while to talk a little bit more about that, if that’s OK, because that sounds like it’s going to make a great discussion. But listen, for now, so Zoisa North-Bond, Paul Loren, Ashleigh Gray, Matt Satchell, thank you all so much for joining us and talking to Inside Octopus. That is actually it for this episode, but as always, if you've got any comments on anything we've discussed today, please do get in touch via the website at Octopus.Energy or via the usual social channels. But for now, from me, Russell Goldsmith, thanks for listening and goodbye.