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Nilam

Connecting for positive change. Hello and welcome to the second episode of Net Zero talks Podcast Series brought to you by Innovate UK KTN. I'm Nilam Banks, Knowledge Transfer Manager for Place and the lead for Net Zero places Innovation Network. This is a programme that will be delivered over two years, dedicated to supporting local authorities and agencies to connect, collaborate and inform. Before I introduce today's guests, let me give you a quick tour and some useful information regarding the series of podcasts and the Innovation Network. The Net Zero talks has been created for you to hear about how other local authorities have reached Net Zero and delve into the Innovation Network activities of Innovate UK KTN. We work with local authorities to help identify the challenges to meet Net Zero, promote these challenges to our engaged innovators across sectors and collaborate with public buying organisations to make sure businesses and their solutions are procurement ready. Our goal is to provide practical insight into different topics on how to achieve Net Zero in places. If you haven't already, please go to Innovate UK KTN website through the link in the description and sign up to receive newsletters and updates on all of our activities. In this episode, we will talk about the importance of local authorities to decarbonise buildings to meet Net Zero targets. And with our special guests Mike Moseley, Knowledge Transfer Manager in constructions here at Innovate UK KTN and Jo Gay, Head of Climate Change at Southend City Council, we are certainly going to have an interesting discussion. So, Mike, and Jo, thank you very much for joining us today. Before we start, would you like to take a minute to introduce yourselves to the listeners?

Jo

Thanks, Nilam. I'm Jo Gay, I'm Head of Climate Change at Southend City Council. I've been working in local authorities for about 20 years. I started off as a planner within environment specialism and moved across to the climate change environmental sustainability space over the last few years. So, I'm really excited to have this conversation with Mike.

Mike

Hi, I'm Mike Moseley, I'm the Knowledge Transfer Manager for Construction. I've spent most of my working life in construction products, a whole range of different things, I have a lot of experience of things like district heating, ground source heating, energy saving measures on tomes. So I've got a wealth of experience in that in that field, and I'm really interested to take part in this conversation.

Nilam

Thanks, guys. So let's go straight into the first question. So through your experience, what do you see as the biggest challenge to decarbonise buildings? If we go over to you first Jo.

Jo

That's a really, interesting question and if I might, I'm going to take more than one challenge, because I think there's a lot going on in this space. So, I think as a local authority officer, it's really important for me to provide a bit of context, and that is that local authorities have strategic objectives, corporate objectives, wherever they're defined in that space, but these

objectives are often conflicting. So you will often find that there is a Net Zero carbon, decarbonisation environmental sustainability, ecological emergency objective. But equally, there will be something around kind of maximising a local economy and also kind of a planning region housing target one and building houses or building buildings is carbon intensive. So for local authorities, the challenges are a kind of tense from from the get go. But in response to your question, I think there are three main challenges that are very interconnected, data is a huge issue, you can't manage, what you can't monitor, so we really need to have a clear understanding of the building as an individual element of a wider system, so that we can understand what the interventions will do and measure and monitor it on the other side and it can be really challenging to find out that information. If it's a non-domestic building, there might be challenges around commercial sensitivities, or even building managers not really knowing what the building does. And with respect to residential, some similar challenges and EPCs, whilst helpful, don't provide a full picture. I think that probably the one that everyone thinks of first is money and that's a huge challenge. Who's going to pay for it? Why? Is it a loan? Is it a grant? Can we afford it? It's really challenging. And then the other one, I think, that people often forget is around the engagement and education piece, not just for residents and communities, but also for on the non-domestic side, if you manage the building, whether that's because you're the branch manager or it's your own shop or whatever it is. Do you really understand what your bills are saying? Do you really understand how your building operates? For the people that are doing the work, the installers, do they really understand this kind of shift and pivot in technology, and are they able to provide the support that they need? For local authority offices, do we have the knowledge in house? Are we outsourcing that kind of specialist technical knowledge to the right people? I think actors within and outside of a local authority, everybody needs to raise their kind of base level of understanding. And without that, it doesn't matter how energy efficient or what zero carbon technologies you've got on your building, if the people in the building don't use the building correctly, it's not an appropriate building.

Mike

Fascinating, Jo. So much in there. For me, I would probably, sort of put it a bit simpler actually. I think one of the biggest challenge is the scale of it. You know, we've got 28 million homes in the UK, and the vast majority of which need some measures to make them zero carbon and that's an enormous challenge. Then on top of that, all the commercial buildings as well, so there's a huge amount to do. And we've only just began to think about it without even really doing much, it's been a few interesting projects that have sort of path leading ways but there's nothing in scale that we're really doing to tackle what is an enormous problem that we've got to do. I love you're doing your thing about data, I think, that's so interesting and it wasn't something I've thought about but you know, the data on homes is phenomenally difficult to get a hold of, you know, we've got smart meters now, but that doesn't really give us the whole picture about energy loss, it might give us some information about how people are using energy because it's not only is it not only a we got to deal with the physical aspects of shape, saving CO₂, the human behaviour is gonna play a huge part in that as well and we've got very little evidence and data that we can work on that, on the human behaviour. So there's an enormous amount to do.

Jo

Definitely agree. It's huge.

Nilam

Brilliant. Thanks, guys. So the sheer scale by the sounds of it, is going to be a big challenge, followed by actually knowing what interventions do through data driven evidence, I guess. So that sounds really interesting. So, going onto the next question, what support from central governments/policies are there that can support the journey to decarbonising buildings? Mike, if we go over to you first.

Mike

There's a lot of talk, there's a lot of interesting things going on but a lot of it is not necessarily to do with buildings, so that, you know, the government has got lots of policies, around decarbonising power and looking at, you know, hydrogen alternative fuel. There's policies and work looking at using hydrogen as an alternative into the gas network, which has some huge benefits and some possibilities around that. There's quite a lot of intervention and work that's going to help in that space. I think the sad part is that when it sort of comes down to the individual buildings and the individual homeowners, there doesn't seem to be very much at the moment from my view, you know, there's the heat and building strategy, which is going to give you grants for air source and ground source and some biomass boilers changing your boiler position. The area that I've always had a lot of time for is around fabric, you know, how can we change fabric, there seems to be very little in the way of government policy and in fabric. I don't know whether it's me, sort of from my position, not got a good example of that. But that's my sort of quick summary of government policy at the moment. Jo, do you think there is anything else? Am I just being blind and missed some things? I'm not sure.

Jo

No, I think the provision is really kind of a bit bitty and a bit scattered, which is why it feels like we often don't have a good handle on what is available. I feel like for people who access certain benefits or who are kind of asset poor and cash poor, there is quite a lot of provision in terms of energy efficiency, you can get your cavity walls filled, you can get new windows, loft insulation. So those kind of low hanging fruit in terms of energy efficiency, is low hanging fruit, but it's really important. I think in terms of for the public sector, when we're starting to think about our assets, there's the Decarbonisation Fund, which was previously Salix and there are other things that are coming forward. But I think one of the challenges that as a local authority we face is that schemes are often brought in and removed quite quickly, without really having a chance to see it go from beginning to end. I'm still reeling from Code for Sustainable Homes being taken away and that was, you know, years ago and I'm still very kind of caught up in that whole issue and I think for a lot of people that have been in the sector for a long time, this happens a lot, you know, Green Deal in whatever format it is, it comes in, it stays for a short period of time, and then it goes and actually, the process of accessing those funds can be quite challenging because the turnaround time is really tight. By the time you've submitted your bid, you've got what feels like two and a half minutes to get the delivery done and start monitoring, before it's removed. So, one thing I would say, in terms of additional support, is that, just give local authorities and the other stakeholders that are involved in this process, the time to do the work, because it's really not as straightforward and when you're doing these projects by consensus, which is what it tends to be, you know, the more actors you have involved, the longer it takes.

Mike

It seems almost as though we could do with taking this out of sort of party politics, so that, you know, there's some, there's a national consensus of what we've got to do. Because it's such a big problem that, you know, the politics, the individual party politics of it is needs to be stripped out, we need to look at the goals that we've got to achieve and how can we best do that, as a community working together to achieve those. I spend quite a lot of time in Germany, it's really interesting how Germany have sort of, they've done a lot with their buildings, and they've done it over a long time, with a single policy that has been in place for years, regardless of sort of political changes, and that has brought greater benefits to what's going on but I fear that especially around the home owning population, which is very big in the UK, quite important, in the UK, there's little understanding or little drive to do anything around fabric, we've got a lot of discussion around, oh, heat pumps, you know, you get 5000 pounds for putting a heat pump in and that's gonna solve the problem. Well, it might do in some properties, but it's not in the vast majority, you know, I'm very much in favour of, you know, fabric first you've got to reduce, you get much better outputs by reducing your heat loss than you do by putting kinds of heating systems in, you've got to do all that first before then looking at fancy heating systems. I fear that we'll go down this route of lots of heat pumps put in and air source probably at that, because they are basically the cheaper one to install and you can have full of hundreds of air source heat pumps, which are going to be noisy. Will they really perform in the way that we think, if you don't know what's happening to the building? Goes back to your point about data, if we haven't got that data on individual buildings, that's not going to give us the ability to make those decisions. So there's a huge, huge issue around some of those things that we just seem to be not tackling.

Jo

Yeah, I absolutely agree and I think just to pick up on that as well, it feels like we're dealing with energy or decarbonisation in a silo. I don't know if this is my town planner thinking, but it's like, places our systems and we really need to take a whole system's approach. So whilst Heat pumps are beneficial in terms of carbon reduction, there are other issues, you know, that are noisy, and you know, the kind of the localised heat element that comes around them. And if you don't think about the heat pump and the energy as part of a wider system, you just create as many problems as you're trying to solve. So, you know, as somebody who was previously a Sustainability Officer and has always kind of had the adaptation and mitigation parts of the programme, as part of my role it feels very much with everyone declaring a climate emergency that we're going down this very specific carbon reduction energy path without thinking about things as a system and in their entirety, which will lead to more problems, the closer we get to 2030 in Southends case.

Mike

I'm a great advocate of community based systems because I think, when you're decarbonising something, community, both systems can give huge benefits, you might go down a route, now if you had a small community district heating scheme with one heat source, you get the benefit of you could put some heat source in that now maybe an air source heat pump, that might meet the needs at the moment, but perhaps in 10 years time, there might be some other technologies that can be used better and give you a better carbon reduction and on our dishonour on a community based scheme that's more easy to go in and replace that one piece of kit that's serving a number of properties than it is to do it on an individual house property. We seem to be stuck in this idea that everybody must have their own boiler and be in control of their own boiler, where actually there can be huge benefits

from working on a community based system and that's something I feel really passionate about that we want to go away from that and we just need just like to have this idea of owning our own boiler, which is not going to, I don't think, be suitable for the future that we've got to face.

Nilam

So we've already started going into some of the solutions, but what are the innovative solutions in this area that can help local authorities? Mike, if we go over to you, you've already mentioned heat pumps not being the complete answer, which is absolutely right. What are your other thoughts? What else have you seen out there?

Mike

So I talked about district heating, district heating I think is quite an important part of the source. Heat pumps have a really important role to play. But we've got to remember that there's lots of different types of heat pumps as well. So I think we've got to think about, you know, are you using the right sort of solution, because lots of people just think of heat pumps as air source, but actually, you know, you've got your ground source systems, and you've got a variety of different ground source systems, you can have systems, which have closed loops, which are, you know, where you put pipe work into either in sort of field layout, or you can get it out of bore holes or actually interesting enough in commercial buildings, you can actually use the building, the piles that you built the building on, as a heat source for heat pumps. And there's quite a lot of interesting things going on in that, a really interesting, Innovate UK funded project, which is looking at changing the way we put construction piles together, reducing the amount of concrete in the piles, which has a huge benefit in an area you put pipe work down just to extract energy or even dump energy. So we need to look at the whole gambit of those things and how they can work. So there's lots of areas in that. So, you know, there's a lot of wide areas that you can tackle that you need to look at in terms of heat sources. But then again, my other point is around, you know, how do you reduce the amount of energy? There's a lot of technology, there's lots of things that we can do in that space, there's an interesting project that's setting off in Wales, where they are looking at doing drive by thermal imaging of property, to work out those properties that have got the worst performing windows. So you can just do that from doing sort of heat mapping of what's there and then you can target the places that have got the worst performance, so that you can look at trying to try to change those, that's quite interesting. You can do that with windows and then then you've lots of things that external insulation or other insulation can really play a huge role in, in doing that. But it's a really difficult problem in the UK market, because we've got so many sort of brick clad buildings that people don't want to change the the look of the building, it's part of their, what they see as, the value of it and how do we tackle those those sorts of things? There's an enormous problem around putting over cladding on buildings, you know, when your grade listed buildings, the listing always outweighs the need for any energy conservation. I think I saw some figures the other day, Buckingham Palace costs something like four and a half million pounds a year to heat. That's an enormous amount of money, that energy, that we're just wasting and that's because we've got this sort of sense that the look of the building is more important than than the energy saving of it. Is that something we've got to change? I don't know, because it's a huge, huge problem for us.

Jo

It's a huge challenge and I'm internally grimacing, because as a planner, it's one of the main challenges that I used to face when I was sitting in a room with developers and the transport officers there, the planning officers there and the urban designers and conservation officers are there and in that context, the urban designers and conservation officers always speak first, after the developer has done their presentation. And so it goes kind of all around the circle and then energy and environmental sustainability was last, at which point they always claimed that they had no money to do any other measures. I think it's a really interesting point and for me, it kind of highlights that the technology is not really where the innovation lies, you know, heat pumps as a way of decarbonising have been used in parts of Europe for decades successfully. The rollout has been very different from what we're seeing in the UK and I think a lot of the technologies for us to do, the majority of the decarbonisation that we need to already exist. So it's not so much the innovation around the technology, it's about how we as a place or as a country, decide that we're going to really make that work and how we roll out that process. I think for me, a lot of the innovation comes from collaboration and from talking to people and from understanding different perspectives, from accepting that the solution is not one solution, it is a multifaceted, multi-layered, horses for courses kind of approach. The consensus building, which will enable us to do more of the community work that Mike has mentioned, I think those things are really key and that kind of process, that kind of innovation takes time, you have to establish the relationship before you make the request from someone. I think that's where, if we can make that process happen, and really kind of take the momentum that we've had from from the pandemic to get more co-production more meaningful co-production done, then I think we will be in a better place to move forward with this and that's where the real innovation lies. Because we haven't really worked like that in this space, it's always been like, technical solution, you know, we the council will tell you, as opposed to let's collectively have a conversation about what it is exactly that you want and why. I think the point about the kind of the historic buildings is interesting, for some people those historic buildings, the aesthetic of them and the history related to it, is primary importance but there'll be lots of people who feel like, you know what, if we lose some significant things on this building, that's okay, because the function of the building takes priority over the fall.

Mike

There's so much in that, this whole business about, you know, working together and trying to make these things happen. One of the experiences is I've done a lot of work in district heating and there's an enormous problem in that because actually, with sort of a modern building, if you district heat a modern house, or apartment or whatever, you often find that the heat loss through distribution is greater than the heat used in the building itself. They're both quite small but it's still quite a good way of doing it but you end up with people saying, well, I'm paying for everybody else's heat. Well, you sort of are but we do that with some of our systems anyway. And if we look at the sort of, you know, the gas network, for the people at the edge of the gas now at work, it cost a lot more money to put that network into the edge of the gas network than it is in central London where you're getting sort of lots of people coming off the same thing. So we've put those costs and cumulated them across the whole of the gas network and everyone pays us a standing charge for the distribution. But in heat, people don't like that. They say, well, I'm paying for somebody else's heat. And we've got to have these conversations, to understand how people will react to that, and work to that, and how that works. We've got to change the way we do things and we can't burn gas in our own boilers forever now, it's not going to happen and how we change those things is fascinating.

Just a sort of thought that occurred to me was something I saw about human behaviour, there was some really interesting work that Bath University did around human behaviour and it was the use of meters and how people responded and there was lots of competitions set up and it was really, really fascinating that some of the outcomes of that, that people would take part in that competition to see if they could be better than their neighbours, as long as they didn't get about 5% behind or ahead, once they went to the extremes the competitive edge was completely lost. Everybody says that they want figures to make the decisions, and they will react to figures. And if you get sort of a meters that give you the amount that you're using in figures, people look at that and it's fine. But actually, the research shared that people change their behaviour better when they're given smiley faces, so if they're doing really well, and the system gives them the smiley face, they will do more of it. If it gives them the figure, it's too complicated, not too complicated but it takes more, the smiley faces can drive them. I think there's lots of things here that we've got to do in this space to understand how we can help people work together and bring some sort of community sense to how we heat our group of buildings together.

Jo

Absolutely. I think what's interesting as well, is that these challenges that we're thinking about from a kind of engagement perspective, you know, different elements of what the public sector do. So waste, for example, with respect to recycling, there were very similar challenges that we face and the results are very similar. You know, there are lots of ways to nudge people to change their behaviour and it's about finding the motivation for them. So for some people coming back to kind of energy and climate change for some are people, you know, saving the planet for future generations is not their motivator, for some it will be, you know, prices, so we can we can utilise this moment in time for that. For others it will be, you know, keeping up with the Joneses. So it's really important to find what people's motivation is and to not be concerned about what the motivation is, but really to just benefit from the outcome so that we can get the result that we want in terms of decarbonising buildings.

Nilam

Thank you both for your answers. Very interesting, as always. So going on to the final question, how can Net Zero places Innovation Network help you to overcome the challenges to meet Net Zero? So that's a question really for you, Jo.

Jo

I think it's really important to understand that small levels of support are really as important as kind of the larger things. So providing an opportunity and a space for local authority officers to get together and talk about their experiences, share the pain, and also share the successes. I think that sometimes in the spaces that we work in, we don't share our successes enough, so that's really important. But I think it's also important that we have access to experts like Mike, so that we can get an independent perspective and have an opportunity to use that expertise to provide a kind of a critical friend approach. So that we can really understand when we're approached by developers or by you know, product manufacturers, who are claiming amazing returns in different areas, that we have somebody that we can just confirm that what we're being told is right, or that actually, what we're being told, is right in the context of buildings in our area, because there are lots of ways to cut the pie, there are lots of technologies, there are lots of different ways to do things. I think

sometimes just having some independent specialist technical support, to just make sure that it does make sense for us, is really helpful.

Mike

Interesting that the critical friend piece is something I've sort of thought about quite a lot, and do you think there will be a role where local authorities might be that sort of go to place, for advice around you, for unbiased advice? And is that something that the network can help provide us?

Jo

Absolutely, I think for a lot of people, whether they're living in a community, or they've got businesses in that community, they have a lot of touch points with a local authority, you know, all different kinds of things. So the perspective of their local authority as a safe pair of hands, I think, regardless of whether that's a good or a bad thing for that person, I think that is a shared perspective and a commonality. So for many people, if they want to find out information about whether heat pumps are right for them, they will go to the local authority first. And it's really important that we are able to provide advice that is clear and independent and actually make sense for them because if we don't provide the appropriate advice, then what comes back is a barrage of pain for us. So having support to ensure that we are saying the right things, as you mentioned previously, you know, regardless of the political administration, but just that, you know, this is a group of suppliers that we have, you know, understand that we now understand these technologies, these are the appropriate areas in this region to put an air source heat pump, if you live in that region actually, you should look at other technologies, I think that kind of information is really important. As much as local authorities can't go down to kind of specifically this brand over that brand, that kind of medium to high level kind of this technology makes sense in this area and here are some people that we understand will be able to provide you with good, honest, support. That's definitely something that local authorities are looking at.

Mike

I've spent most of my life in commercial applications, but I've always found that if you give that advice in an unbiased way, and talk about what the benefits and the disadvantages are, you'll get much better buy in and we do get bombarded by a lot of people who just see themselves as sort of as the this, snake oil salesman and you don't get that you know, what are the the unbiased parts of it? Because there are, as you say, all these different variations in different properties, different places that different schemes will work for those and it is a complicated landscape. And I think we want a simple answer and there's not simple answers and I think that's the sort of problem of our age, isn't it? Almost where you sort of you get off and get a simple answer, that's what I do. Whereas actually, most of these things are going to be incredibly complicated and you've got to balance what you want and what to do and if you're talking about an individual wise property, well, you know, what's the benefit of putting external insulation on that, compared to perhaps some internal insulation or just doing some other things, and then you've got the whole business. For me, one of the areas that I find interesting is that when you, when you seal up a building, you've then got all sorts of issues around air quality and what you do around that. So it becomes a very, very complicated situation and we need independent advice to help us with.

Jo

Absolutely but I think the complexity is part of the fun, isn't it?

Mike

Yes. Oh, yes, absolutely. I've done some of these things myself. There's lots of pictures of me covered in mud, having tried to do some of these technologies. So, yeah.

Nilam

Brilliant. Well thank you very much, Jo and Mike, for joining us today. We hope you enjoyed the discussion as much as we did. We have added the useful links and a direct link to the Innovate UK KTN website in the description. Don't forget to sign up to receive newsletters of the latest updates of our activities. In the next episode, we'll be exploring decarbonisation of transport, specifically around electric vehicles. So thanks again for following us, we hope you enjoyed this episode and you will come back for more. Until next time, bye. Connecting for positive change.