

Environmental Audit Committee

Oral evidence: Net Zero Government, HC 89

Tuesday 15 October 2019

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[Watch the meeting](#)

Members present: Mary Creagh (Chair); Mr Philip Dunne; Ruth Jones; Caroline Lucas; Kerry McCarthy; Anna McMorrin; John McNally; Dr Matthew Offord; and Derek Thomas.

Questions 100 - 165

Witnesses

I: Nick Smailes, Director, Energy Systems Catapult and Modern Energy Partners; and Dr Christopher Jones, Tyndall Centre for Climate Change Research, Manchester.

Written evidence from witnesses:

– [Tyndall Centre for Climate Change Research & Centre for Climate Change and Social Transformations \(CAST\)](#) | [PDF version](#) ( 126 KB) 

Examination of Witnesses

Witnesses: Nick Smailes and Dr Christopher Jones.

Q100 Chair: I call the session to order and welcome our guests for our final panel into net zero. We have had a bit of backwards and forwards on this inquiry because we have been prorogued for slightly longer than we would have liked, but I welcome you both.

Can I ask you to introduce yourselves so we can get the levels for recording, starting on my left with Nick?

Nick Smailes: I am Nick Smailes. I am a director at the Energy Systems Catapult and I now head up a programme called Modern Energy Partners on behalf of BEIS and the Cabinet Office.

Dr Jones: I am Christopher Jones. I work at the Tyndall Centre for Climate Change Research at the University of Manchester. My role is knowledge exchange, working across the team to be a better link between our academic research, industry and policymakers.

Chair: Great. Can you speak up a bit? We have quite a lot of helicopter noise outside the window. I do not know if we can shut those windows maybe, although it is boiling in here as well.

Dr Jones: Yes, I can lift my voice.

Q101 Chair: If you can project, that would be amazing. Chris, can I start with a question for you, please? Can you talk to us about the Tyndall Centre's work with other organisations to develop Manchester's net zero target for 2038? Can you say how replicable it is to other councils—Wakefield is one—that have said they want to get to net zero by 2030? Is there going to be a blueprint coming out of your work?

Dr Jones: Yes. This work is very much a pilot that we did in Manchester as part of the SCATTER project, which was funded by BEIS in a collaboration between ourselves, Greater Manchester Combined Authority and Anthesis Group, which is a consultancy. The ask from us was basically to derive Paris Agreement-compliant climate change targets specifically for the Greater Manchester area, which is very much our part of the work. We also contributed a bit to the work Anthesis led, which was around developing a pathways tool that could try to advise the local authority or the combined authority on the best way to implement that approach.

We used a carbon budget approach, which sets a pathway that emissions should follow in order to be consistent with what we derive as the fair contribution to the Paris Climate Change Agreement for Greater Manchester. That project concluded in 2018, culminating in the adoption



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of that target and budget approach by Greater Manchester Combined Authority and subsequently by Manchester City Council as well.

Q102 **Chair:** How long did it take you to do? Is it just a quick tic-tac-toe on a computer?

Dr Jones: This comes into the replicability point because our initial version took well over a year to fully do. We did it quite iteratively with the stakeholders to give them a budget that they could interpret correctly as well. But now we have done all the background data for every local authority in the UK and that can be aggregated up to a combined authority or a LEP area. Now that is very much a case of going on our online tool. I do not know if I can give the name of it.

Chair: Of course you can.

Dr Jones: It is www.carbonbudget.manchester.ac.uk. I can send you the details for that. You can go on that site and it is a tick-box exercise. You would tick "Wakefield" and that would pull from the same data and the same assumption model that we used for Manchester. It would apply it to Wakefield and provide an energy-only CO₂ budget. That is an important note on the scope there.

Q103 **Chair:** Only scope 1?

Dr Jones: No, it is scope 1 and 2 because it does have emissions from electricity by consumption.

Q104 **Chair:** What about mobile emissions?

Dr Jones: It includes transport.

Q105 **Chair:** So scope 1 and 2?

Dr Jones: Yes. We derive a lot of this data from BEIS and its sub-allocation of energy use and emissions down to local authority area. That is where we get our historic figures from and then we apply the budgeting assumptions on top of that emissions stuff to allocate an appropriate budget to Wakefield, for example, which includes transport, direct combustion of fuels for primarily heating and also electricity on a scope 2 consumption basis.

Q106 **Chair:** How did you set the date or how did it set the date? What was the advice on the date?

Dr Jones: We apply a carbon budgeting approach; we downscale the global carbon budget. The Intergovernmental Panel on Climate Change produce a range of global carbon budgets. We selected the one most consistent with Paris, the "well below 2 degrees" global carbon budget, and downscaled that to Greater Manchester first.

Then we have an extrapolation basically of that total budget, say in million tonnes of CO₂ and how that would play out over time. Obviously that has to reduce to fit below the curve, then we have a curve that



follows a consistent reduction pathway down to zero, ultimately. Because it is a percentage reduction per annum, it takes a long time to get to absolute zero, but by the time we are at about 95% or above of the budget spent, we can consider that to be roughly carbon neutral or at the point where emissions are sufficiently low to say that Manchester has achieved its contribution.

How did Manchester decide 2038? We gave a range of allocation options. There are ways you can split the UK budget down to the local area. There are three allocation approaches that we presented Manchester with and it picked the most ambitious one or the one that provided the smallest budget. That was the one that arrived at 2038. It is output from the budgeting approach rather than something we have worked back from.

Wakefield might have a different end year because it depends on the size of the budget for Wakefield.

Q107 **Chair:** So it was a political choice, as in the Mayor chose the most ambitious budget and got to 2038, but if he had wanted to do it a bit slower, he could have gone to 2042 or 2050 under your model?

Dr Jones: He could have accepted a slightly different contribution. When we did the Manchester project, we gave the full range and let that be a political decision. However, as we have made the tool available to a wider range of local authorities, we have selected a recommended budget, which is based on the allocation method we think best characterises the underlying features of the region.

Q108 **Chair:** The underlying features?

Dr Jones: The economic structure, so the allocation methods—

Q109 **Chair:** Yes, heavy industry, services, whatever?

Dr Jones: Yes, precisely. We use a grandfathering approach, which looks at an average of recent emissions, and that gives some indication of the energy intensity of the area and various parameters like that. We now recommend that singular allocation method so that if lots of local authorities use the same budget, they are slicing from the same pie, whereas if they all choose a different allocation approach, then it will not add up to a common—

Chair: Consistency, sure.

Q110 **Dr Matthew Offord:** That is exactly what I was wanting to drill down into: how do you get to this year of 2038? The Labour Party has taken a political decision; Labour want it by 2030. The Mayor of Greater Manchester is going to ensure that all new development is carbon neutral by 2028, which is admirable, but it does not convince me that that is going to happen. The Liberal Democrats say 2045 and the Government have an estimation of 2050. Norway say 2030, but if there is no international consensus for cuts on an international level, it will stick with



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2050. Indeed, John Sauven from Greenpeace said, "Net zero by 2030 will be extremely difficult, but it may be the right date to aim for. If it can be done, it should be, and if it can't, then missing the target by a few years, or even a decade, is still a far better outcome than hitting the Government's 2050 target, which is dangerously late."

Is it realistic to achieve 2030 across the country or would some local authorities be able to do that, some local authorities in rural parts of the United Kingdom, particularly the south-west, for example?

Dr Jones: I cannot comment directly on the 2030 target. However, I would say that our targets are not based on any sort of technical feasibility. They are based on downscaling the available global budget and then what that says you get to is based on the amount of carbon you can make and stay within that commitment. It is not reflecting any economic, social or technical feasibility necessarily.

In terms of consistency, it would be good if people, when they differed in their assumptions, were very clear on the criteria they were differing on so that they can make them comparable. My colleague, Jaise Kuriakose, has just finished submitting a paper that is looking at the key decisions you make to arrive at a particular budget and therefore target and being explicit about those assumptions so you can then compare them between each other.

The reason Manchester asked for our approach is that it is informed by the science, this global carbon budget, and the downscaling allocation methods that we have done in our published research so that it could make a decision based on science. There is a slight range in those targets because of the different allocations, but it is still driven by an understanding of the science and carbon budgets, not driven by a purely political decision. I would not characterise it as a purely political decision to select 2030.

Q111 **Dr Matthew Offord:** No, I accept that you take a political decision based upon scientific methods.

Dr Jones: Yes.

Q112 **Chair:** If I can move us along, what lessons can the Government take from this to reduce emissions across the Government estate? It is presumably just replicable, isn't it? We just cut and paste your budgets and the energy intensity of the Government's estate and away we go.

Dr Jones: What has happened in Manchester, which is useful context for that question, is that the combined authority or the local authority set the budget, but they are aware that they have control over a particular basket of those emissions through their direct estate, so they have to work with stakeholders across the city. They have set up this pioneer organisations centre, where organisations in Manchester have signed up to follow the carbon budget. They have essentially signed up to



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contribute to Manchester meeting that budget. That is an alternative, downscaling the budget even further.

It is getting the organisations within the area to make their contributions directly to that common budget, highlighting that there are actors within the city who have probably more capability of others. I would probably put the Government estate in that basket as well. They should probably move faster than the budget because we are aware that there will be some harder to decarbonise sectors that need to be dealt with in a slightly different way. Things like the Government estate, for example, universities and other institutions like that, should move probably even faster than the budget.

Q113 **Chair:** The NHS, schools, courts?

Dr Jones: Absolutely. Anyone who has some capability to take a long-term view on their spend or their infrastructure is a very good candidate for getting involved in this process early on and delivering those initial reductions as well. The budget is significant. It very much matters what happens in the next few years as well as what happens by 2030. The more you exceed the budget in the first few years, the less budget you have for future Administrations. That is why we have a fairly even distribution in the budget in terms of the curve because we do not want people to think they have five years to decide and use up 90% of the budget in that period.

Q114 **Chair:** What would you advise the Government? How should the Government follow a carbon-budgeting approach across their estate? Could your tool be used by the Cabinet Office across the Government?

Dr Jones: At the moment, it just downscales to local authority area.

Q115 **Chair:** Could you do it by Department if the Ministry of Justice came in and said, "Look, we have this many prisons, this many young offender institutions and this many courts. Can you put our footprint into your model"? Would you have to do a different model for each bit of the public sector?

Dr Jones: Where we have sub-allocated this particular budget in this way is by administrative area. An alternative would be to subdivide carbon budgets by sectors. I guess in this sense you could have some way of deciding what the Government were going to take as their share of the UK's carbon budget and then distribute that between Departments.

Q116 **Chair:** Are you able to do that sum? Could you do that sum for us?

Dr Jones: We could do. We do not have it ready to go, but if you wanted—some of my colleagues might kick me for this—it is certainly feasible to look into that. If perhaps you sent a more detailed scope of what you were looking for, I could take that back to my team and see what they can do and in what timeframe.

Q117 **Chair:** We know that the biggest emitter is the NHS with 140 billion, but



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also then the Ministry of Justice has the second-biggest footprint, then obviously transport, but that has all of the mobile emissions and the roadbuilding projects in it.

Dr Jones: Yes. You would have to look at where there are overlaps and whether you are comparing apples with apples between Departments. Yes, it would probably need a bit of unpacking. I cannot give you a definitive answer. In principle, it is definitely feasible to do that.

Q118 **Chair:** It is interesting, because the NHS is about to miss its carbon budget for 2020 and so it is off track. We finally found out, after a lot of digging. It has set targets that it is going to miss. There are lots of different ways into that carbon budget. How is it going? It was signed in 2019. What has changed in Manchester as a result?

Dr Jones: It is still relatively early days. Where they have moved quickly is in translating the target into their active policies. The Five-Year Environment Plan, the Spatial Plan and the Industrial Strategy are in some way informed by the budget. For example, the standard on new builds is a reflection of that. That aims to bring forward the zero-carbon standard for homes and for all buildings this side of 2030. I have to check the exact date. I think your colleague mentioned 2028.

Q119 **Chair:** 2025 is the zero-carbon standard in England.

Dr Jones: I do not know how that reflects on the new Government national standard. I am not precisely sure what Manchester decided in the end, but it is that kind of policy, trying to use planning and also trying to embed a climate change framework into other areas of policy, having a running thread through policies across the departments within the local authority to consider how that policy will affect the climate change target through the implementation of the policy and working on how that is going to work in practice because that is still evolving.

Q120 **Kerry McCarthy:** This might be slightly outside the remit of the things you do, but I am particularly interested in land use and the natural environment. If you talk about something, for example, like building zero-carbon homes, do you factor in the fact that if they are built on the green belt that could have a carbon impact in terms of trees, soils or removing a natural carbon sink, and also in terms of the estate that the Government owns?

In my constituency, the NHS own quite a lot of land that is undeveloped and the MoD own Salisbury Plain, which perhaps is not managed in the best possible way for its carbon emission. Does that fit into that at all? Do you look at the negatives as well? I know that the chart we have is about afforestation and peatland restoration, but I am not sure if the negatives of removing those are factored in.

Dr Jones: Our work does not go as far as evaluating the carbon impact of plans. That is a piece of work that Manchester has to undertake sometime in the future. Our budget does not include land use CO₂ for a variety of reasons. One is monitoring measurements; it is not quite



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comparable to energy CO₂ emissions. However, the Manchester budget in particular is contingent upon Manchester. At the minute, it has positive emissions from land use and so it is a net emitter of CO₂ from land use. For the budget to work, it has to become at least a net sequester of carbon through its land use. It is a slightly separate budget consideration, but the energy CO₂ budget does rely on it pursuing policies that get it to become a net sequester of carbon from land use.

Q121 Kerry McCarthy: The concern at national Government level is that because BEIS do not particularly look at land use, it is not factoring that in in the same way. You say Manchester has the same two headings, but it is, from what you are saying, vigilant of the need to think about both sides of the equation.

Dr Jones: Yes. It is thinking of it as a basket because we have aviation as well, which is outside of the local authority's carbon budget, but what happens with aviation will affect the available size of the carbon budget for the local authority. It is the same with land use and non-CO₂ gases because the IPCC assumes that non-CO₂ gases are declining, so we have to assume that Manchester put in policies that contribute to that reduction in non-CO₂ gases as well, which is part of land use also. Combining them makes the budget more complicated, but we also have to be very clear that they are in the same report and they are part of the same basket. One cannot be left to one side or the other to fulfil the budget.

Q122 Mr Philip Dunne: Nick, we have heard from Chris about carbon budgets as a way of trying to identify a glide path to get to the net zero emissions, but you have admitted that you are not offering any technical solutions. It seems to me that Modern Energy Partners exist to help the Government introduce technical solutions across their estate to try to reach these targets. Is that a fair way of assessing the role of Modern Energy Partners, as you see it?

Nick Smiles: Technology solutions are part of the solution. We are working at site level. Chris is at the macro level. We are down on the public sector sites. We have three prisons on the Isle of Sheppey: we have Catterick Garrison up in Yorkshire; we have HMS Collingwood down in Portsmouth and we are just introducing an NHS site at the moment. We have the University of Cardiff in Wales as well.

At the site level, we are working out how you get from where you are today to a 2032 target of 50%. It is the Clean Growth Strategy target, as put together by BEIS. It is for a 50% reduction on the sites. We call it non-traded emissions, which means we cannot take the benefits of clean electricity in this or cleaning the grid. This is a 50% reduction onsite, but it is a 50% reduction.

Then it is an introduction of technologies, but it is also fixing some of the issues you have today. We have what they call backlog maintenance. The NHS say there is £6 billion of backlog maintenance across its estate. You



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have to fix some of those things first. If the windows do not fit, the heat pump is not going to work. If the building management system in place is not working, you need to fix that first. There is a lot of fixing what is already there and then introducing new technologies to get to the target according to a plan that gets you out to 2032.

It is planning first and lots of learning while we have been planning. That has been the first phase of Modern Energy Partners. The second phase is now delivery on those sites. Planning is one challenge, but delivering these solutions on the sites comes with all sorts of other challenges. You get into procurement, financing, decision-making, understanding the capabilities. These are complex plans and you need people who have that expertise to pull them together and deliver them. Capabilities are also part of it. Technology is an element, but unless you do the other bits it does not tend to get you there.

Q123 Mr Philip Dunne: As you have been going for 15 months, are there any early wins you have identified that might be applicable to roll out across the wider estate rapidly?

Nick Smailes: Yes, there have been some early wins. A lot of it is about telemetry, monitoring, data and evaluation. A lot of our sites have a paucity of submetering. To give you a feel, HMS Collingwood is 60 acres with 2,000 or 3,000 people onsite and 80 buildings. We know how many electrons come in at the gate; we know how many metres of gas come in at the gate. How that gets used across the estate is not entirely clear and we have very different things going on.

A third of the site is accommodation, but there is weapons training going on at some parts of the site and radar training going on at some parts of the site. To understand that is helpful because you start to understand that some buildings are being heated when there is nobody in them and that in some buildings you have the heating system fighting the air-conditioning system. As you monitor this, you start to see what I would call very quick wins because you can start to address those with behavioural changes.

Q124 Chair: Having the heating on with the windows open, for example, is grossly inefficient.

Nick Smailes: That is a classic example. There is a behaviour part to that as well. At the Sheppey prisons, the fiscal metering was also not accurate. The metering that determined the billing was not accurate. By being onsite, we were able to point that out.

Q125 Chair: It was too low or too high?

Nick Smailes: Sadly, it was too high in summer but too low in winter. They were just using the same reading over and over again, month after month. There are some quick wins, absolutely, and we are now implementing solutions. We expect to be delivering some carbon savings



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on these sites before 31 March 2021, which is when the programme is set to finish its second phase.

Q126 **Mr Philip Dunne:** That is on the five sites, but you mentioned telemetry. That can be extended to 40 sites, is that right?

Nick Smailes: Correct, including the five sites.

Q127 **Mr Philip Dunne:** Then there are a further 200 sites for a different pilot. Can you explain what that is?

Nick Smailes: The 200 is a pipeline. Something I have been very encouraged by is the enthusiasm across the public sector estate to engage. We went to the MoD, the MOJ and the NHS and said, "What sites would you put forward to be part of the Modern Energy Partners programme?" Those 200 were put forward. That is a longlist. We have now prioritised that longlist down to the 40 sites that will have telemetry. They include the five sites that we will be implementing plans on.

Q128 **Mr Philip Dunne:** If this is running for only another 18 months, is that because the objective is to create a template for each individual Government Department to spread out itself or do you envisage a continuing role beyond 2021 if the pilot work is demonstrably sensible?

Nick Smailes: The current programme is funded by BEIS. BEIS do not have responsibility for property. That is important to understand. Going forward, this needs to be embraced by the Department. We are working closely with the Office of Government Property in the Cabinet Office. There is a role at site level, but there is also a role to aggregate what you understand of a site to start to make this repeatable and scalable.

There are archetypes of problem on our sites. There are buildings that were all built in the same decade, for example, and therefore it might be more sensible to address those as one block and potentially go region by region to deliver that. You can leverage the scale of the estate to procure solutions at the right cost.

The Office of Government Property we expect to take it forward beyond this stage. We are developing a methodology and toolkit. The methodology and toolkit will help sites prepare plans. We would expect to maintain that methodology and toolkit in the Catapult and we would look to the Office of Government Property to then seek to roll it out across the estate.

Q129 **Mr Philip Dunne:** When do you expect that toolkit to be available?

Nick Smailes: Version 1.0 will be available on 31 March 2021, but we are already using versions of it in the work we are doing today.

Q130 **Mr Philip Dunne:** Given that the overall timescale is very tight to get to 2032—

Nick Smailes: Incredibly.



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Mr Philip Dunne: —and you are not going to be producing the toolkit for another 18 months, there seems to be a lack of urgency about spreading the good work that you are undoubtedly doing across the partners.

Nick Smailes: I do not think there is a lack of urgency. Certainly when I engage with the civil servants involved, they are very keen that this goes quickly. This is complex. This is really important. We are in the foothills of understanding all this complexity: how you get heating to work with electricity to work with transport, how you integrate all these technologies, how you are able to develop contracts with suppliers that are pretty clear on what you might do today, but are far less clear on what you might be doing in 2025 and 2026, when hydrogen might be an option, for example, or flexible energy markets might be part of the mix. That is very complex and hence, I am afraid, it takes time to get the methodology and toolkit. I have a team of 25 people who are working extraordinarily hard on this.

Q131 **Mr Philip Dunne:** Could you explain a bit more for us then about how the integrated nature of what you are looking at works? As you have just described, they are very disparate things, mobility and buildings.

Nick Smailes: They are very disparate things. I am going to start with electricity and gas for heating and transport on these sites. There are 3 million car parking spaces across the public sector, apparently. You have to assume there will be more electric vehicles in these car parks going forward. You have to assume that there is going to be more electrification of your heating as you decarbonise, so there are going to be more heat pumps and more demands on the electricity that is coming into the site and also being generated on the site. You have to start thinking about that in an integrated way.

How much electricity are you going to need at the peak load of the site, which will be undoubtedly some time in the winter, usually towards the end of the afternoon? Peak load is 4 pm to 6 pm. Are you going to want to be charging vehicles at that time when you are going to be heating some of the living space? How do I control that in a smart way that enables me to say, "Maybe I charge my vehicle only at times of the day when I have less demand for heating"? When do you heat your buildings? If they are well insulated, you can heat them earlier in the day and they will still be warm enough for someone to come into them at peak time. That is part of the integration.

A lot of the integration is also around, for example, combined heat and power boilers. We have a number of examples where we have installed them on sites as a single-point solution and then subsequently have done something like put LED lighting on the site. We have found that the load has dropped because of the LED lighting and have found that the combined heat and power boiler has become a stranded asset. It is thinking through what I am going to do today. Understanding what I might be doing in subsequent years is another way of thinking about integration.



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A final way of thinking about integration is, for example, at Sheppey we are putting on telemetry and monitoring at Sheppey; we are putting on LED lighting. Both of those have quite quick payback periods. We are talking about putting in a district heat network. We have three prisons on the Isle of Sheppey. Currently, they are all individually heated. We are talking about putting in one heat network that will integrate all three.

The payback period on that is more like 15 years and the payback period on these earlier things is much smaller. If you look at this as a whole implementation, you start to get payback periods closer to nine or 10 years and those are more fundable. There are a number of ways you can think about integration.

Q132 Mr Philip Dunne: That is very helpful. In terms of the realism of the target, do you think achieving a 50% reduction in Government emissions from their estate by 2032 is feasible?

Nick Smiles: The challenge should not be underestimated at all. The appetite I am seeing across the Government is significant. I have engagement with Directors General in BEIS and the Cabinet Office. I have all the property leaders in the NHS, the MoD, the MOJ and people from Crown Commercial Services and Treasury engaged. The engagement is far greater than I expected and the urgency is very clear. It is going to need more resourcing and more focus if we are going to hit the targets we have set ourselves, but it is not impossible. That would be my view.

Q133 Mr Philip Dunne: To follow up Matthew's point, to achieve 100% reduction by, for example, 2030, have you any sense of what resource would be required to achieve that? Is it technically feasible?

Nick Smiles: I will not answer that from a Modern Energy Partners perspective, I will answer that more from a Catapult perspective. Inside the Catapult, we have a team called the strategic analysis team. It is, in terms of capability, not dissimilar to the Committee on Climate Change. That is its expertise. We have modelling environments that we inherited from the Energy Technologies Institute, which was a joint venture between the public sector and the private sector for 10 years. It is a big model called the Energy Systems Modelling Environment or ESME. Those tools were designed specifically to hit a target of 80% reduction by 2050.

We have now looked at how we might use that tool to come up with pathways and solutions to a net zero by 2050 target. We have various dials. We can dial up things in aviation; we can dial up bioenergy; we can dial up carbon capture and storage. At the moment, if we use all the dialling up, we get to 88% by 2050. The models are techno-economic models. They envisage technologies that will be available before 2050 at a price point of less than £300 per tonne of carbon. Anything that was not envisaged to be available before 2050 and did not hit that price was excluded. The economics are from the United Nations and the IMF. That is where we get the likes of our predictions and our assumptions, but we were always driving to an 80% reduction.



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All pathways at the moment look like we need to take carbon dioxide back out of the atmosphere. I do not know if you have heard of direct air carbon capture or DACC yet, but all pathways are now beginning to say that this might become an important part of the last few per cent.

To answer your question, we are still working that out. The Committee on Climate Change is due to report in the middle of next year or two-thirds of the way through next year on how we can get to 2050, what the pathways will be and then whether the Fourth and Fifth Carbon Budgets can remain as they are and we have a dogleg up or whether we need to adjust the Fourth and Fifth Carbon Budgets accordingly. We are waiting on that piece of work from the Committee on Climate Change, but my team at the Catapult is supporting it in that work.

Q134 Mr Philip Dunne: When were the parameters set for that analysis, in which year, and how old are they? Was the technology envisaged recently or some years ago?

Nick Smailes: The Energy Technology Institute ran from 2007 to 2017. The first iteration of ESME was around 2010 and 2011. Assumptions have been updated regularly, but I do not think they are fully up to date.

Q135 John McNally: It is very interesting to hear the practicalities that translate on to how things are effective. I would like to move you on to the potential role of partners that are achieving the zero carbon emissions in the wider Government estate. Who do you think are the key partners and stakeholders in aligning the wider Government estate to get to net zero emissions by whatever year we are speaking of now? Is it going to be 2050 or sooner?

I would like to know what support frameworks you have that should be put in place to meet this goal. I was quite interested to hear you talking about the integrated European Marine Energy Centre. I would like to hear a wee bit more about what you are doing in Orkney and Shetland with the tidal energy system and if that funding from your European partners is going to be affected post-Brexit.

Nick Smailes: There are a lot of questions there.

Q136 John McNally: Sorry; I will go back to the first one. Who are your key partners and stakeholders in aligning the wider Government estate?

Nick Smailes: For the Government estate, the majority of the knowledge in terms of climate change is in BEIS, so BEIS is critical to understanding how to take this forward and to set the policy.

In terms of authority and management of property in the Government estate, I understand it is quite distributed, but the Office of Government Property has been brought together to start to set principles to manage the estate. There is something called One Estate, it has a programme there, and it has something called the Digital Estate. It has just hired a



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head of sustainability and it is recognising that sustainability is going to be a key part of its mandate going forward.

The Office of Government Property Office and the Cabinet Office become very important, but then you need the heads of property in the Departments that have big property portfolios. That is the NHS, and NHS Improvement in particular, the MoD and the Defence Infrastructure Organisation or DIO in particular, and then the MOJ as well. Those are the three big ones, although this does not include the local authorities, which are another very significant part of the Government estate emissions. All of those need to be engaged.

Then, importantly, you need clarity on targets. It is all very well having these targets at a top level, but they need to cascade down to the people on the sites so that they understand that it is part of their job on a daily basis to enable those sites to deliver these targets. It is also important to recognise that we are going to outsource a lot of these solutions. Energy is complex and getting more complex. The primary services that the Government estate delivers are also getting more complex: healthcare is getting more complex and defence of the realm is becoming more complex.

We are going to have to outsource to the private sector some of these solutions and they will be key partners, big organisations that are able to deliver solutions that reduce our carbon year on year. Most of those solutions, we believe, will come from the private sector, but of course the public sector will need to be an intelligent customer to ensure that it gets the solutions that it needs to deliver the targets it has set itself.

Q137 John McNally: You are going to have commercial, legal and Government partnerships that have to be formed. I think what you are saying is that this is going to be extremely difficult to put all of these together if you are looking at 15 or 20 years' time. How do you work back to this when you have to have these in place from the very beginning? How do you do that?

Nick Smalles: You are interviewing someone from Crown Commercial Services in the near future. Procurement, I understand, is beginning to look at this. BEIS and Treasury are very advanced in looking at how the funding and the finance can work. The Office of Government Property is looking at how decision-making can operate.

Your question about European funding is probably more for Chris because that is more around research.

Q138 John McNally: I am very interested in the decision-making process locally and how people and the decision-makers are affected, especially with the devolved Administrations. Without going into that too far, certainly in Scotland we are pursuing an absolutely clean energy system and I know we are working with various partnerships with Holland, Belgium and so on. I am interested in the tidal system and how that is



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going to be funded because it is a huge project. I would like to have a wee bit more information if that is going to be placed in jeopardy. I do not think you can answer that.

Dr Jones: Unfortunately, I cannot speak on European funding or the test facility at Orkney, although from previous experience I know it is a great facility for testing those in-water systems.

On the case of how you work with devolved Administrations to develop capacity, there is a great opportunity at the local level where they can bring in a wider range of partners who have on the ground knowledge about the local energy system. One of the key things we see in Manchester is the local authority working with the gas network and the electricity distribution network operator and the estates team at the university. Currently they are fairly ad hoc, as I understand it, but there are some more formalised relationships through climate change boards that some cities are forming where they can start to put together some of the private sector and public sector expertise and capacity to accelerate change by collaborating more.

There is a very good example from London where they have, I believe, 10 organisations working in a project. I cannot remember the name of it. It is led by the Greater London Authority. It has brought together 10 of the largest key players in the local area that own estates and major commercial services and is getting them to work together to look at common ways they can link up where they have overlapping estates and energy use and whether they can collaborate more to drive towards a common climate change goal. It would be great to see those kinds of relationships more incentivised or formalised or replicated in different areas. There is a lot of opportunity there, especially when you have a localised target.

We tend to refer to it as coproduction of measures, not just having it top-down, "We have done the analysis and we think this is optimal" but having more of a co-developed product when you understand from the local energy managers on the ground what they think will work and what they need and develop it in a two-way process as well. That kind of city scale seems to be a good level to do that at, certainly. They are a good size.

Q139 **John McNally:** Maybe there are geographical losers, because you can have these things and they are probably easier to achieve in cities where there are very easy connections, but when you move out, it means people are further out in less favoured areas and so on when you should be trying to depopulate areas. Are they going to lose out because of the concentration of efforts elsewhere?

Dr Jones: It depends. There are other mechanisms like the LEPs or whatever you call those kinds of organisations that typically will have more rural or peri-urban areas within their remits. There is a risk that areas with a lot of capacity such as Manchester and London can build



these in a very ad hoc fashion from the ground up. There are regions that do not have that capacity because you need staff time ultimately to make these things happen. You need to bring in expertise. Some areas do not have the advantage of having actors on their doorstep and they can knock on the door and say, "Come along to a monthly meeting where you can feed into that."

That is why it would be good to see this more formalised in some way through policy so it can be transplanted to areas that do not have the existing capability to get that going off the ground. We work with local authorities in areas where they are more challenged in that regard. They are equally enthusiastic and equally driven, but they do not quite have the capacity to do that. That would have to come from the Government to make sure there is an even distribution of that capability across the country so areas do not get left behind with that process.

Q140 Ruth Jones: It was interesting to hear you talk about the high-level strategic stuff and bedding it in with the local level.

I will declare an interest, Chair. For 30 years I worked in a variety of NHS sites and different environments. I do know a little bit about some of those sites, although obviously not the MoJ or whatever.

You talked about co-production and things like how you bring it down to a local level, because at a local level the directives and objectives are very different from your high level. What funding measures do you require to make sure the whole Government estate will align with our net zero target, things like funding frameworks and financial incentives?

Nick Smiles: We are only beginning to touch on this in Modern Energy Partners, but from our conversations across the Government estate, capital allowances, CDEL basically, is very important here. My understanding is that each Department receives a capital allowance from Treasury at the beginning of each spending cycle and that is effectively that Department's ability to raise debt so it can then fund projects out of that CDEL.

But my understanding is that all projects then compete for that CDEL. Projects for primary services—in the NHS world, projects for more ambulances and projects for a combined heat and power unit—would compete for that CDEL. The ones for primary services are often prioritised, for good reason. As a taxpayer, I think it is for very good reason. Therefore, a lot of energy projects are not necessarily prioritised.

There is another factor in there. The teams who decide or the committees who judge these proposals are often experts in their field, which in this case would be medical and healthcare, not necessarily experts in energy and so are not necessarily equipped to assess a proposal on energy. Currently we see a lot of energy proposals not prioritised.

There are discussions about potentially creating a capital allowance that is specifically for energy that could then be drawn down by Departments



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specifically for energy proposals. That is as much as I know. Treasury and BEIS have teams that are investigating that.

Q141 Ruth Jones: Would you recommend almost like a set-aside budget, separate from the business of the day, for the priorities of say health or prisons or whatever?

Nick Smailes: I did have a conversation with Treasury. In my naivety, I said, "Why would we not ring-fence part of the departmental budget for energy?" It said, "It might not get spent and it might get raided. You would need to do something separate." That was its response. It is the expert, not me, in this area.

Ruth Jones: Dr Jones, do you want to add anything to that?

Dr Jones: I would add that funding can do a lot, but also that—as has been touched on by a few people today—as a target this needs to break out of just the sustainability manager or the particular silo it is typically housed in and get into a wider framework. When you are assessing spends, for example, you are looking at either that standard triple bottom line that looks at environmental impacts as well as cost impacts, or a more formalised way where you embed the targets into a wider range of functions within the organisation.

Maybe funding is a way to free up capacity for people to look at and deliver on those targets as well, but ultimately it needs to permeate a bit more widely in the organisation than just the person who has the remit or the job title of energy services manager, for example.

That is one of the things they are trying to do in Manchester. The Greater Manchester Climate Change Agency look at how to embed that climate change framework into wider aspects of policy so that almost every spend the council does or every project it embarks on is at least considering the target and is explaining what it is doing in relation to that target just to get it into the organisational culture more firmly. That is a change that could happen as well as funding.

Nick Smailes: Can I endorse that as well? We are very lucky that we have these high-level targets. When we go down to the site level, we do not see that there is clarity and prioritisation of those targets for the people who are responsible for energy on the site. We also see that there is going to need to be an investment in capability at that level as well because of the complexity now of this energy. I think there are 80 energy managers across the NHS today and we might need a few more. We will need to build that capability.

The question is whether you build that capability at site level or whether you build it centrally and then make it available at site level, but because you build it centrally, it has the ability to then aggregate what it learns at site level to then perhaps do bigger programmes across the whole of the Government estate. Embedding those targets is key, I completely agree with you, and making sure that the capability has capacity to do this



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work. Those are two key things for me. Funding is part of the solution, but only part of the solution.

- Q142 **Ruth Jones:** If you were suggesting ring-fencing or putting in a cross-cutting theme, how much are we talking about here in terms of budgets to make sure this is a realistic target that can be achieved?

Nick Smailes: I am working site by site and it is already millions of pounds per site. BEIS has some analysis on that. It talks about £4 billion to £5 billion of investment in energy efficiency and then at least the same number in terms of decarbonisation of heat. You would have to ask BEIS for that number, but it is billions of pounds.

- Q143 **Ruth Jones:** If you are putting this money in, who do you think should be overseeing this funding and making sure it gets to the right place and does not get raided because the ceiling is falling down in a theatre or something like that?

Nick Smailes: That is a very good question. BEIS is important because that is where the knowledge is in the public sector. The Cabinet Office and Treasury is where the authority lies. That would be my view.

- Q144 **Derek Thomas:** Chris, can you explain a bit about what a lifecycle assessment is? You wrote about it in 2017 in relation to distributed energy.

Dr Jones: Sure. Basically, you do not look necessarily at a product and what it is emitting or what its environmental impact is just at the point of use, you consider the material and energy inputs into its production, transport and all of those features to get it there, as well as what it does during its use phase or operational period. Typically, at the end of its life, you look at whether you can recover materials from it or whether you have to dispose of it. That gives you an aggregate figure of the combined environmental impact of a product. Typically, it is relative to a functional unit, so the number of times you use it and what you get from using it.

- Q145 **Derek Thomas:** That is brilliant, thanks. In terms of assessing the Government estate and using that, is that lifecycle assessment the way to assess the Government estate when it comes to distribution of energy?

Dr Jones: It can be. It depends on the scope of emissions you are interested in. Typically, we are interested in our territorial emissions. The net zero target, for example, is very much focused on territorial emissions, so emissions that arise from activities within the UK, whereas a lifecycle assessment will look at all inputs whether they are within the UK or not, so it is more of a consumption-based approach to emissions. The lifecycle approach might not fully align with the target that you set because it is counting emissions in a different way to how emissions have been counted in relation to a target such as net zero.

It is good practice in the sense of, as your colleague touched on before, being able to consider a wider range of impacts, so whether it is land use



impacts from building a house and whether that house is net zero, and being able to look on balance at whether that is favourable in terms of global warming potential or another impact category. In that application, lifecycle assessment can be very valuable because it can tell you if, in pursuing a particular goal, you are having any unintended consequences or any detriments elsewhere across the supply chain or across the lifecycle that would in some way be a headwind to the environmental impact you want to ultimately get to.

It is very useful for perhaps periodically testing to make sure policies are going to get that net benefit and fully realise it in the best way. However, it is quite intensive in terms of analysis to perform and so it is not typically suitable for ongoing analysis of emissions from, for example, an estate. You would probably apply if you had an intervention like putting in combined heat and power. You might do a lifecycle assessment to say that that is not necessarily as carbon saving as some alternatives, for example, and then your basket of interventions could be based on that approach, but how you apply the interventions would be based on a more carbon accounting process, which is typically about the direct emissions from the process.

Q146 Derek Thomas: Nick, can I ask you a couple of things along those lines? First, does that whole energy system modelling help us to know how we can reduce emissions on the Government estate? Also, if we take this seriously and go hell for leather to 2032 to get our estate to a place where it can go on and be energy efficient and even net zero, should we expect a peak in emissions during that transition because of the kind of carbon footprint that would be needed to put everything in place in order to be net zero afterwards? If you have to shove a load of effort into getting a building like this building to where it needs to be, presumably the carbon footprint of that process would be quite significant.

Nick Smiles: Are you saying that in implementing the solutions, maybe retrofitting insulation into a building, you emit carbon against the whole lifecycle?

Derek Thomas: That is right, yes.

Nick Smiles: Absolutely, you do that. However, once you have your insulation in place, for example, you will see a significant drop of emissions very quickly.

On the Government estate, on my point on backlog maintenance, I will give you the example of HMS Collingwood. HMS Collingwood has a district network that is over 25 years old. The pipes have furred up and the pressure has built up in the boiler, so it has turned down the temperature and now cannot heat the site. It has had to buy 500 oil-filled plug-in radiators to heat the site and it brings two gensets on to the site every winter to keep the site going. With all those, you can see there is an excessive amount of carbon emissions because of the short-term measures it has had to take to deal with the fact that it has a system that



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is at the end of its life. It is not quite as simple as saying, “We will ramp up” because there is so much backlog in maintenance to address that you may find that in doing so you get quick paybacks.

Q147 Derek Thomas: Finally, can the Government use their position as a large landowner to implement small-scale energy generation? Should that absolutely be a core priority for the Government on their estate? I will give you an example. Salix funding, which you might be familiar with, is Government money that can be available to a public building to retrofit and put in some renewable energy infrastructure and then get paid back over time. Is that a sensible use of money? Is that a constructive part of the solution?

Nick Smailes: It comes down to the parts of the network. Sheppey is very interesting for us. Sheppey is called a constrained network. The pipe that takes electricity into the Isle of Sheppey is of a certain bandwidth and can only allow a certain amount of electricity. To upgrade that pipe is very expensive because the distribution network operator would not take it on board, so deploying renewables in Sheppey is quite a good idea. There are wind turbines. In fact, there are wind turbines on the site that we are now looking to connect the prisons to. Deploying renewables on constrained sites is a very good idea. There might be other parts of the network where you are not constrained at all and you are best off getting your electricity from the grid and you might have an unconstrained pipe into the site.

Again, it comes down to planning. If you do your planning upfront, you work out these things. That is part of what our methodology enables you to do, to make those considerations and work out where it is appropriate and where it is inappropriate.

Q148 Derek Thomas: I am a Cornish MP. I represent the Isles of Scilly, so you may be aware of what we are trying to achieve there.

Nick Smailes: You are constrained.

Derek Thomas: Exactly as you just described. Planning is absolutely the case. We have turbines turned off because we do not have anywhere to put the energy, so it is a frustrating success story. I appreciate that, thanks very much.

Q149 Chair: Thank you very much. I was just reflecting on the Isle of Sheppey and the pipe. Isn't that where the former Mayor of London wanted to build his airport? It would not have been that easy to build it.

Nick Smailes: You can always increase the size of the pipe, but it comes at a cost.

Chair: To airport-level size, yes.

Nick Smailes: It comes at a cost, yes.

Chair: No problems there, no technical challenges. Thank you.



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Q150 Caroline Lucas: We have been getting down into quite a lot of detail and I just wanted us to zoom back out again, if that is all right, as a summary question. I wondered if each of you could summarise what actions you think the Government needs to take now and over the next five years to align their estate with net zero emissions by 2050 or sooner. It is like the whole thing again.

Dr Jones: This will not be particularly detailed to the Government estate, but the general advice is that obviously what we see from the carbon foot-printing approach and the interim targets is that we do have to reduce emissions very rapidly. What happens in the next five years is crucial, whether it is paving the way for credible outcomes further down the line or implementing demand-side measures in the very short term.

There is a lot that can be done in five years. Typically, demand-side issues, as Nick has highlighted, are things you can implement quite quickly because they do not require the infrastructure build time. They can be implemented very quickly. That comes down to having that audit or having that understanding of where wastage is happening in energy use and where you can install those demand-side measures and get those demand-side measures in very quickly in the next five years and then start looking at the longer-term infrastructure developments, whether they are moving to more onsite renewables or transforming the infrastructure in a more substantial way. You do not have to wait five years to do something though. You can do a lot on the demand side within the next two or three years.

Nick Smailes: At a macro level, I think that capability is key. We are going to have to invest in some capability. Energy systems of the future are more complex and the public sector needs to be an intelligent customer to buy the solutions that it needs to deliver its benefits.

Q151 Caroline Lucas: It is insufficiently intelligent?

Nick Smailes: It needs to become an intelligent customer. We should recognise that this capability does not exist in the private sector either. This is not a public sector unique issue. When we worked with the supply chain to deliver these plans, they were doing this for the first time ever. Capability is going to be significant.

Embedding targets we have talked about, but targets need to be cascaded down to the people on the ground who are going to be responsible for delivering them. That cascaded target needs to provide some strategic direction. For example, if all things were equal, would you choose a heat network or would you choose heat pumps? That is, if all things were equal, a very hard decision to make but someone needs to make that decision. Let's say, for example, hypothetically speaking, the public sector said, "We will deploy heat pumps where it makes sense to do so", you might suddenly find you have a customer for tens of thousands of heat pumps, which obviously makes for a very interesting conversation with the supply chain and jobs and where you put those.



There is something around commercial arrangements and I am not sure this is only for carbon targets. How the public sector works, with PFI off the table and with energy performance contracts under review, we are going to need some kind of commercial instrument that enables us to deliver these and then obviously that will have implications for procurement. I think that would be my third area.

Then I go back to telemetry and data and monitoring. Without the telemetry and data on a site, you do not have a baseline. If you do not have a baseline, you do not know if you are getting the benefits. We are not necessarily talking about it always being savings of cost. Sometimes we are talking about avoided cost and to measure avoided cost you need telemetry, baseline and monitoring if you want to know you are going to hit your targets. Those would be the big four for me.

Q152 Caroline Lucas: Notwithstanding that both of you have indicated that big changes will be needed, if the question was just, "Do the Government have the current skills required to do this?"—and you have talked about them using those skills perhaps more intelligently and so forth—would you say they do?

Nick Smiles: My project is bringing those skills to the table. We are working on four sites and building a pipeline of 36 sites and we are fully stretched. The skills exist, but not in the right quantity. You have to start where we are because you have to understand the challenges that you are up against and get into it. The skills exist but they need to be increased.

Q153 Caroline Lucas: Can I just ask one last question? Apologies if you covered this before I came in. Everything so far has been talking about 2050 and I noticed your response to my colleague around the significance of the pathways even to meet that. I wanted to put something to you from Professor Tim Jackson, who has given evidence to our Committee on several occasions. He is from the University of Surrey. You probably know him; he used to be on the Sustainable Development Commission. He has said, "It is notable that reduction rates high enough both to lead to zero carbon (on a consumption basis) by 2050 and to remain within the carbon budget require absolute reductions of more than 95% of carbon emissions as early as 2030."

On this basis, the professor is arguing in favour of setting a UK target for net zero carbon emissions by 2030 or earlier with a maximum 5% emissions addressed through negative emission technologies. I would be interested in your response to that, not necessarily wearing your respective hats, but just as concerned and informed citizens.

Chair: We did have a brief chat about that earlier, but if you can sum up quickly, that would be great.

Dr Jones: We have a carbon budgeting approach that we have done through the Tyndall Centre. That is available to local authorities. That downscales a well below 2 degrees target down to local area. That implies



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very quick reduction rates of around 10% to 15% per annum to meet that target. The end date has not been the key element of that. It is the budget and the budget is quite tight. Typically, those budgets reach zero somewhere before 2040, but they are very low by that point. A lot of reductions are made by 2030 to be within the budget given the point we are starting at.

They are not consumption based, they are territorially based. Consumption-based emissions are very data intensive to calculate and implement, so I think it is worth having a very tight territorial budget that accounts for the fact that we buy in a lot of our stuff, so an allocation method that accounts for that, which ours does. Then not only focus on the end year, what you are doing by 2030 or 2038, but your reduction rate and how you are meeting these annual or at least five-yearly midpoints to get there. If we do not get off the emissions that we are at now very quickly, particularly in transport and heat, then we will have very little of the budget remaining in five years' time.

Nick Smailes: I think I have already responded, but just quickly, Modern Energy Partners is working to a 2032 50% emissions reduction target on the estate, and that is called non-traded emissions, so you do not get the benefit of the grid decarbonising. You have to do your 50% emissions onsite. Then I am looking to the Committee on Climate Change to see how it advises we reach this new net zero target and what that then means for existing carbon budgets.

Q154 **Chair:** Can I ask you to go back to one of your previous answers? You were talking about the question mark over energy performance certificates and you said something before, that that was also under review. What was it?

Nick Smailes: PFI contracts have been taken off the table really.

Chair: PFI, yes. Anna McMorris had a quick supplementary.

Anna McMorris: Yes, very quickly, and apologies if you have already touched on this before I came in. In terms of the project you are working with across different Government Departments and areas, how are you working within the devolved Administrations and across so that this is a whole-UK approach? Of course targets and focus is very different, for example, where I am in Wales, very different. How are you managing that?

Nick Smailes: One of our sites is the University of Cardiff and we have that site because we work with Welsh Government quite closely through Catapult. We deliberately went to them and said, "Can you find us a site?" They have also found us a hospital, although I think that is in the pipeline, but we are working quite closely with Ron Loveland and Jon Oates in Wales. We are not yet working with a site in Scotland.

Q155 **Anna McMorris:** Can I ask which hospital it is?



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Nick Smailes: It is Cardiff. It is one of the Cardiff universities.

Anna McMorrin: At Heath?

Nick Smailes: It has been put forward. We have not engaged on it yet, but it has been put forward.

Q156 **Anna McMorrin:** Does that differentiate then? The policy framework and legislative framework is very different in Wales than it is in England. How does that differentiate in terms of what you are coming away with and how you are addressing what you are doing?

Nick Smailes: The way we developed the plans for Cardiff is we used suppliers to come up with our plans. The Carbon Trust generated the plan for the University of Cardiff. It used the legislative and policy parameters that were specific to Wales to come up with that plan for the University of Cardiff. There are other advantages to working with Wales. On that particular site, we are working with the RE:FIT programme, which is funded in Wales and is funded in London, but struggles where it is not funded, which is the rest of the country.

There are also benefits of working with Salix. We are talking to Salix on that site as well. Salix has clear carbon targets for Wales, which are different to the ones in the UK. There is a lack of consistency. I find carbon targets bewildering at times, I have to say.

Q157 **Chair:** Can I just ask about Salix? Do you know how much money it has annually and how it has waxed and waned over the last 10 years?

Nick Smailes: My understanding is that it currently has £280 million.

Q158 **Chair:** A year or in total over five years?

Nick Smailes: No, it is what I would call an evergreen fund: they lend it, the cost of capital is zero, but it has to be paid back over a period of five or six—I think it is even trying to extend that. As the money comes back, it can then relend it. I think there have been discussions to extend the overall pot to closer to £380 million. I do not think that has happened yet, but that is how it operates today.

Q159 **Chair:** Does the payback time affect the ability—

Nick Smailes: Yes.

Q160 **Chair:** Would you recommend that we should be looking at extending the payback time so that some of the really hard projects get done?

Nick Smailes: If you want to decarbonise heat, you have to recognise that the payback periods on those are going to be longer generally. Giving Salix more flexibility would seem like a great recommendation.

Q161 **Chair:** That is helpful. You have talked about experts. You have not talked about the Green Building Council. Do you not think that its methodologies and novelties and innovations can help you? One of the



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things I am conscious of in this inquiry is we have had the academics in, we have you in today and we have industry in. What is the crossover between you and them or are you in particular, Chris, just at the very high budget level and the stuff that the Green Building Council is coming up with is separate and is a kind of add-on for when you get into building these new buildings?

Dr Jones: It is not an organisation that I have dealt with directly. Obviously we work with a lot of local authorities setting the targets and we do get asked a lot about where to go next. There are a lot of organisations we can refer them to, any organisation that helps provide expertise and steering on how they can get to BREEAM “excellent”, if it is a new build that they are looking into and get advice on that. There are a lot of energy charities out there who have a lot of great advice that they can channel to consumers and end users on energy demand reduction.

There is quite a distributed range of expertise available. Pulling it together in a coherent way is probably a slight challenge for the energy manager who has to look at and filter all those different sources of information. Having it more in a one stop shop—apologies to the one stop shop if it is already out there—is something that local authorities certainly are interested in.

Nick Smailes: As a principle in Modern Energy Partners, we are not trying to reinvent the wheel. We are trying to work with many organisations that have already covered this ground. We tend to work with BREEAM. We have borrowed quite a lot of its insights. We are working with the Energy Managers Association and with the Energy Institute. I would endorse Chris’s point. There are an awful lot of organisations out there and trying to work with them all is quite difficult. Some rationalisation of the landscape would be welcome.

Q162 **Chair:** When GBC came in, it was talking about green cement and saying if you could make the shift to green cement, if the Government could say, “We are only going to rent buildings built with green cement” you transform overnight how the private sector makes its buildings, for example. Those sorts of policy-level decisions can have a very big impact downstream, particularly on the scope 3 emissions, and drive the technology to become as cheap as traditional cement.

Nick Smailes: There is a very interesting programme in Australia called NABERS—not the soap opera, but NABERS. My understanding of it is that the public sector has a policy that says it will only rent private sector buildings that meet a certain NABERS standard. That has driven significant decarbonisation across the built environment, so it is worth looking at.

Q163 **Chair:** Thank you for that. We will have a look at that. It sounds very interesting.

What one thing should Government do, if you were to sum up? That is the hardest question of all. What one change do Government need to do?



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At the moment Greening Government targets are waste, water, carbon. Do you think that is fit for purpose for greening Government now? Is there one target they should be measuring or one behaviour change they should be introducing?

Dr Jones: To pick up on the earlier point about demand-side interventions, because they are typically ones that are used to roll out, it could be that there are energy demand targets, not necessarily efficiency, because efficiency does not necessarily translate into demand fully in a lot of instances. If it is a true demand target to address energy consumption at as small a level as you can go down, that kind of target is likely to provide the carbon savings. It is a quite reliable source of carbon savings in the short term. That is one thing.

Q164 **Chair:** How do you stop them doing what the Ministry of Justice does, which is to say, "We are going to reduce our carbon and just shut all the old courts", which is what it has done in my area? It has met its targets, but it has closed all the access to justice and now everybody has to get in a car for Leeds at 9.30. If you are somebody who may have committed a crime in a part of the district, you might have committed that crime because you are not very wealthy and you are not going to be able to get to Leeds for 9.30. How do you stop them gaming the targets?

Dr Jones: This is something that is referred to as a hot air problem, where you have a major closure that affects the baseline. It is very difficult to address without making sure that the target is reassessed when there is a major change such as a closure. Then the baseline should be adjusted on the basis of that closure, or you can do it per building or per square metre. Particularly with building stock, you can—

Q165 **Chair:** You do energy per square metre rather than just absolute figures?

Dr Jones: I have seen organisations that have set square meterage targets as a way to scale up or scale down their ambitions.

Nick Smailes: I would say recognise that this is a whole systems problem. If you take ad hoc solutions, you are not going to get there. You have to see that this is a whole systems problem: electricity, gas, transport. You have to think of it like that if you are going to get to the targets you want to achieve.

Chair: Including local government as well, obviously. Great, thank you both. It has been a fascinating morning and I shall go off and look at your online tool straight away. Thank you very much indeed.