

Public Accounts Committee

Oral evidence: Achieving Net Zero: Follow up, HC 642

Monday 25 October 2021

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Members present: Dame Meg Hillier (Chair); Shaun Bailey; Mr Mark Francois; Barry Gardiner; Antony Higginbotham; Mr Richard Holden; Craig Mackinlay; Kate Osamor; James Wild.

Gareth Davies, Comptroller and Auditor General, was in attendance.

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Witnesses

I: Sarah Munby, Permanent Secretary, Department for Business, Energy and Industrial Strategy; Lee McDonough, Director General for Net Zero Strategy and International, Department for Business, Energy and Industrial Strategy; Ben Rimmington, Director General for Net Zero Buildings and Industry, Department for Business, Energy and Industrial Strategy.



Report by the Comptroller and Auditor General Achieving net zero (HC 1035)

Examination of witnesses

Witnesses: Sarah Munby, Lee McDonough and Ben Rimmington.

Q1 Chair: Welcome to the Public Accounts Committee on Monday 25 October 2021. Today, in very timely fashion, we are looking at the road to net zero. It is one of the top priorities for the country and the Government, particularly ahead of the COP26 summit, which starts on Sunday and continues through next week. Last week the Government unveiled its net zero strategy, with I think 16 documents and counting—Ms McDonough is nodding—released last week, with more detail on how the Government will achieve their target of reaching net zero greenhouse emissions by 2050.

This is a recall session on this subject because of the importance of it and what is happening in government at the moment. In March this year, when we looked at this, we warned that we were concerned that there was not a fully comprehensive plan about how to get from where we are now to 2050. Clearly the strategy begins to lay some of that out, but we now want to know a bit more about those plans. Is there enough flesh on the bone, given how much has to be done? How is it going to be funded? How will Government bring consumers on board? Those are among many other subjects.

To discuss this and some other issues with us, we welcome our witnesses. We have Sarah Munby, the Permanent Secretary at the Department for Business, Energy and Industrial Strategy. She is joined by two of her senior colleagues from that Department: Lee McDonough, who is the director general for net zero strategy and international—I guess you are quite busy with COP26, so thank you for your time today—and Ben Rimmington, the director general for net zero buildings and industry at the Department. A very warm welcome to you.

First of all, Ms Munby, I wanted to ask the obvious question. This net zero target was set a couple of years ago, but it has taken two years to get these 16 documents and the overall strategy out. Why so long?

Sarah Munby: As you said yourself, there is an awful lot of work in here.

Chair: Sorry; forgive me. Before I get into the main subject, Mr Holden had a couple of questions. I have given you a fair warning.

Q2 Mr Holden: We will go easily into the main session in just a moment. Ms Munby, the Prime Minister made a comment earlier today: “We don’t want to support new coal mines.” Does that rule out now the entire idea of a Cumbria coal mine, or is that not considered new, because it is already in the planning process?



Sarah Munby: I have not seen the Prime Minister's remarks from today. As far as I know there has been no change. The Cumbria coal mine that you are referring to has been called in by the Secretary of State of what used to be MHCLG to be assessed. I have no further comment on it because it is going through that process. As I say, as far as I understand, that is still the situation.

Q3 **Mr Holden:** Mr Rimmington, I just want to ask a quick question about small modular nuclear reactors. There has recently been a big issue with concern about energy supply with wind and so on. Where are we at the moment on approving cash for Rolls-Royce to develop the small modular nuclear reactors?

Lee McDonough: That is actually for me, if that is okay. We have a fund through our innovation portfolio that is looking at SMRs in terms of design. There is an ongoing engagement with Rolls-Royce to look at their low-cost nuclear programme and when it will go ahead, but I do not have any updates on that at the moment.

Sarah Munby: I can say that I have spoken to Rolls-Royce very recently about it and we are working very hard on it.

Q4 **Mr Holden:** Are we expecting an announcement imminently—before Christmas?

Sarah Munby: We are hoping for an announcement imminently.

Q5 **Chair:** I am sure you will keep the Committee informed, and particularly Mr Holden, as he is interested. Going back to my question, why has it taken so long to get the strategy out?

Sarah Munby: The first thing to reflect is that this is not an easy business or a trivial one. This strategy, which is a leading one of its type globally, represents bringing together the entirety of Government and really the entirety of the economic system of this country into a single change plan. It represents making sure that not only do we have the words in this strategy, but all of the sectoral work that underpins it, such as the heat and buildings strategy, the hydrogen strategy and the transport decarbonisation plan.

As you said, this is a mountain of work, and it goes far beyond some high-level approaches. It begins setting out, in all these areas, the critical things that need to happen in the near term to put us on a path to net zero, and for the first time lays out those sectoral trajectories in terms of future carbon emissions. The first and most important answer to why it has taken so long is that it is that amount of work, and it is right to do it properly.

As a side note, COP26 itself was delayed due to Covid. It is fair to say that, were it not for Covid, this would have come out somewhat earlier. Primarily, this is coming out at a sensible time, reflecting the volume of work that needed to be done to get it right.



Q6 **Chair:** That brings me to my second question, which is on the timetable. It has all come out a couple of weeks before COP26. From what you have said, it might well have come out 10 days before COP26 if it had happened when it was expected to happen, so it is linked to COP26.

Sarah Munby: The reason we have brought it out now is twofold. One is the link to COP26. The other, really importantly, is the link to the first multi-year spending review we have had in a while. Again, this is not just words. It is backed up by key spending commitments throughout the strategy. It is a sign of the commitment to the strategy that these spending commitments have been announced in advance of the spending review, which, as people in this room will know, is not the typical approach.

Q7 **Chair:** I do not know; over the weekend, rather a lot has been announced ahead of the spending review and the Budget, but that is above your pay grade and mine. We know, and colleagues will pick up on some of this in the session, that there is always a tension between any spending Department and the Treasury; one would hope that it is a healthy tension. There is also a lot of investment that needs to be put into achieving net zero when there is no particular financial benefit for the Exchequer in the early days. How much has that been part of the reason for the length of time it has taken to do this, and can you shed any light on how you have had to balance those two considerations?

Sarah Munby: There are a lot of pieces to my answer, so I will get to some of the specifics. The first thing to say is that we very much do not think that the journey to net zero is one that should be or can be entirely funded through the public purse. This is really all about leveraging private investment. That means a lot of work for the Government, by the way, because you have to create the conditions for private investment, be that in wind, nuclear or new buildings. That is a whole combination of regulatory levers, spend levers, specific deals and so on, but it is really important to emphasise at the very beginning that when you see estimates of the amount of investment needed to fuel the transition to net zero, we would only expect a small portion of that to come from the public sector. What we are always thinking about when we put public money in is how we can leverage private money to go alongside it.

On your question about how the spend has been part of the picture, making the point about commitment to this agenda across Government, there is £26 billion of new spending in this picture. The full breakdown of that will be laid out by the Chancellor at the spending review. About £12 billion of that is from the 10-point plan, but the rest is incremental to the 10-point plan. That is a big financial commitment. What the discussions have been on is making sure, as I say, that commitment is really leveraging private investment and that the commitment is credible—i.e. that we are confident that we can spend the money and do so in a value-for-money way. We have been interested to find the right cost way to meet net zero and to meet our target.



It is important to say right up front in this hearing that we believe this strategy represents a credible plan to reach net zero. Do we believe there is enough money? We will undoubtedly come back to that question down the path, but for now, yes, we think the funding commitments made here represent, for the next few years, the right first step on a credible path to deliver. Of course that has been something that has been discussed over a long period, as you would expect.

Q8 Chair: The path to green initiatives is littered with stop-start Government incentives for the private sector. In order to leverage in that private sector investment that you talked about, there have been feed-in tariffs. We could list a lot of things that have been put in place to encourage industry to step up, but then very often they have been reduced or withdrawn because they have suddenly become too expensive for the Exchequer. Can you convince us that in this strategy you have a much longer-term trajectory, so that you are not seeing that stop-start, and you are actually seeing industry given the opportunity to properly invest for the long term to deliver on this, rather than allow people who might want to gamble on the chance of making money in the short term rather than making a long-term investment?

Sarah Munby: Yes, absolutely. First of all, it is worth putting that in the context of the fact that we have long-term targets and long-term trajectories that go to how much carbon dioxide we expect different parts of the economy to be generating at different times. That is a big step forward, because it makes it much more difficult for any future Administration—I am not talking about the current Government, because this is a journey that goes on way past the course of any Parliament—to step away from these commitments, founded, by the way, in a legal commitment to carbon budgets and to net zero, without having a very credible answer to how you are replacing or improving what you are taking out. That does not mean it could never happen.

The strategy does not generate an enormous amount of spare carbon-saving, i.e. this is an appropriate path for hitting the target. It is not a path for enormously overdelivering on the target, and that is by design. You do not have a lot of room to take big parts of this programme out, frankly.

The detail is then in the specific pieces of design. I might ask Ben to talk about hydrogen and carbon capture funding, just as a specific example, because that is something where we are trying to build an industry over many years, far beyond the course of this Parliament.

Ben Rimmington: In the hydrogen strategy we set out an approach to a genuinely long-term strategic development of a whole new hydrogen economy—an entirely new energy vector for this country being produced at real scale. In the strategy specifically we set out quite a large-scale package of support, both in terms of capital investment support—£1 billion for the CCUS side of things and £240 million for the low-carbon hydrogen fund—but also, really crucially in terms of your question about the longer term, something called industrial decarbonisation and hydrogen revenue



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support, which we nicknamed IDHRS to try to make it pronounceable, if that helps.

That is designed to provide revenue funding, which people will need to make projects investible for the long term. We have made some specific announcements about the size of contracts we will be able to let over the next few years, but also that we will be making commitments to the medium term to take us to 2030 and beyond, with funding arrangements to be agreed with the Treasury. It is definitely a long-term commitment.

On the other side of my brief, I could also point to a wide range of non-spend areas where we are clearly setting out longer-term signals to industry, by means of future regulatory standards around the future homes standard and provisions on the replacement of fossil fuel boilers on properties off the gas grid, etc., which will give people the certainty to invest to support the transition in the longer term.

Q9 Chair: You have both talked a lot about certainty, but, going back to my point, we have had lots of attempts at lots of green projects that have just failed because that certainty has not materialised and Government have withdrawn or changed the funding model or business just has not taken it up firmly enough. Ms Munby, in a very crystallised paragraph, what is different with this strategy? Why are you confident this one will stick?

Sarah Munby: There has not been anything like this level of cross-Government commitment, this level of integrated, strategic thinking or this level of financial commitment on this agenda at any previous point in history.

Mr Francois: Besides, we have a major summit coming up. Everyone knows it. Let us not be naive about it.

Q10 Chair: Ms Munby acknowledged that right at the beginning. Maybe I am a cynic, but I have been around the block long enough. I have been on this Committee for nearly 11 years. We know that a Government can make a commitment and another Government can come in and change that trajectory. You say the commitment is there and everything, and we have the binding legal targets, but spending Departments sometimes do not all like working together terribly well when they have other priorities.

What if one Department goes rogue and starts pulling out of something? Can they do that? You are the Department that is responsible overall for holding the ring on this. What powers and influence do you have to make other Departments and arm's length bodies fit in with this strategy? I know they have all signed up for it now, but in five years' time there will be a different Permanent Secretary. There will be many different Secretaries of State, at the rate we go through some of them. There might be a different Government—I live in hope. We could see a lot of change in Whitehall and in government. How are we going to be convinced that it is actually going to be deliverable?



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Sarah Munby: There are a few steps to that. The first thing to say is that the first and most important part of our job in BEIS—I will come to where the authority comes from in a second—is to notice. I do not say that trivially. That is the reason why we talk in the strategy about an annual stocktake, where we look right across all of these pathways, right across all of the initiatives and the large set of measures we have committed to report against.

The first step is, “Something is going wrong here.” That could be because somebody is stepping back from their commitment, because they are facing a difficult other choice, or because there is some kind of political change in wind. It could also just be because something does not deliver as fast as we expected it to. There will be bits of this strategy that overdeliver and bits that underdeliver. That is absolutely in line with our expectation. The first thing is to make sure we know that and we have a process for the right set of conversations about it.

On your question about what power BEIS has to make other people do things, that is not the lever of where the power comes from. All this has been driven through by a very clear commitment right from the top of Government, including the Prime Minister, being pushed down into Departments. Our job is to make sure that we can tell both our Secretary of State and Secretaries of State right across the system things like, “Okay, do all these things you are talking about actually add up to a plan to deliver net zero? No, it does not. You are going to need more over here. Have you got the balance between this lever and that lever right in terms of cost and impact on employment or investment? No, you have not. You should do more of this”.

It is not ultimately me phoning up the Permanent Secretary at Defra and telling her what to do. I am glad it is not, because that would not be a powerful or sustainable lever. It is about clear leadership right from the top. Of course, it is true that if you had a future Government who decided they did not want to deliver net zero, there would be a risk of some of these commitments being unpicked. However, they would very much have to deal with the fact that this is a legal commitment and we have commitments to the carbon budgets along the way. They would face some pretty big obstacles in doing that compared with almost any other area of Government policy, where it is also true that long-term programmes can of course be unpicked.

Q11 **Chair:** In the metrics you are looking at, are you looking at the consumer end of it? This is all very highfalutin stuff and big words, but if you are someone on the ground thinking of changing your car, your boiler or whatever, or you are doing something to your home, there are a lot of consumer choice elements to this. Will you be monitoring the consumer take-up across Departments, in departmental areas of responsibility?

Sarah Munby: Yes. Lots of the targets that we are talking about—to take an example, 100% of new cars and vans sold being zero emission by 2035 is one of the targets that we promised to report on—are obviously founded



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in consumer behaviour. It is the same point on heat pumps: we will only get to 600,000 heat pumps if people buy heat pumps. In that sense, yes. It is also true, by the way, that on a quarterly basis we monitor attitudinal issues around net zero, which are not so much the direct things, but we are looking at whether the enablers of these are coming into play. It comes in two elements.

Q12 Chair: How are you working with the arm's length bodies? Some of them will be closer to the consumer or their sector, particularly local government. How is that working in your matrix of organisations and issues and so on?

Sarah Munby: Maybe I will take those in two parts, just to talk about arm's length bodies and regulators, and then I will say a few words on local government, though I can imagine we might want to go into that in more detail later in the hearing.

On regulators and arm's length bodies, you will have seen mention in the strategy of some where there is really substantial action happening already. The Bank of England is a good example of that. We have a new strategy and policy statement coming out for Ofgem that really puts net zero at the heart of what they are doing. The CMA will be reporting back to the Secretary of State on how they think they can enable net zero. There is a lot of bilateral work going on between Departments. The CMA and Ofgem are two of ours, but the same is true across the system.

We have also just completed a consultation much more broadly on the future of the regulatory system, which includes things like what sort of duties regulators should have in the round, including how net zero fits into that.

On the local government side, you will have seen there is a whole chapter in the strategy devoted to local government. That is because we think they are an absolutely key part of this, partly as a deliverer of some of the schemes. Much of the buildings work, which we may come on to talk about, is delivered directly through local authorities. They have a huge role in transport and in waste. What we are describing as the journey that we need to take with local authorities is much closer co-operation, starting with the net zero forum, which we have agreed to set up, to work in a deeper partnership, not just on the individual sections of the puzzle, where we have made huge strides over the last year as we have been building the strategy, but on helping local authorities bring together the story for their own locale. Just as we in BEIS have to bring together all of these chapters into something that adds up and makes sense, it is the same picture for a local authority at the local level.

Q13 Chair: On that bit about adding up, one of the challenges is that you have trade-offs. You have a Department like yours, which has to deal with energy-intensive industries. This country needs a steel industry for many reasons; I will channel my Nick Smith MP, because he has obviously been very active on that, as have others in the House. At the same time, you need to have zero-carbon strategies that counterbalance that. Where have



the particular tensions been? Can you give us a couple of examples of where they have been and how you are trying to resolve them, where you have conflicting targets? That is not just on net zero; clear air is another area where you might have conflicts.

Sarah Munby: In all those areas, what we have tried to do is find the appropriate balance. A good example is new build and new-build homes, where we have really ambitious targets to make sure that enough homes are being built, but we also need to make sure that those homes are being built to appropriate insulation standards and to enable new forms of heating. That means being thoughtful about when the right time is to introduce different measures. It also means being thoughtful about making sure that the supply chain is there and the skills are there, so that you can deliver things at the right pace.

It is not a direct trade-off, because both of those things matter and we have to find a solution that delivers both. Net zero is not optional, but it is about working on a plan that has the right timing and prioritisation. It is that level of detail where we get into the trade-offs.

The same is true on something like industrial decarbonisation, where what we are seeking to do is put in things like the various decarbonisation schemes that we have for industry, that make sure that we can continue to support them but make sure that they change over time at the right moment, both in terms of energy efficiency and deep decarbonisation. The right answer is very rarely to say, "Net zero is the trump card and therefore we should give up on this other piece of Government policy". That is not the way to a sustainable strategy that everybody can get behind. It is about finding something that lets you deliver both goals.

I am not saying there are no trade-offs or no compromises; it is hard partnership work with our own policy teams within the Department or with other Government Departments to reach the right solution. I do not think there is anything where we have found ourselves at loggerheads, as it were. It is not really that dynamic.

Q14 **Chair:** I will go to colleagues in a moment, but I wanted to pick up on that point about industry, particularly in aviation. This is media coverage, rather than direct evidence to us, about the net zero strategy and aviation. It quotes that the Government's response to the CCC's advice appears to directly contradict the BEIS document, which recently appears to have been withdrawn from the BEIS website. This is going to jet zero—you will recognise the phrase—but the DfT's own analysis suggests that there will be residual emissions of some 21 million in 2050, even if the aspirations for new fuels and technology come to fruition. That is a trade-off issue. Can you give us any more information on how you are going to handle that?

Sarah Munby: Yes, absolutely. I talked about this last time I was here. It is fairly obvious, but not all sectors of the economy decarbonise at the same pace. Power has gone pretty early. If you sequence all the sectors,



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aviation goes late. It goes late because we do not yet have the technological solution. You will have seen in the jet zero consultation that, to overly summarise what of course is a much more complex strategy, essentially there is a multi-pronged approach where you are looking at sustainable fuel. You are looking at more efficient airports and aircraft in the near term, and ultimately new forms of propulsion, be that hydrogen or electric.

Chair: They are lots of untried and untested technologies.

Sarah Munby: It is an area where it is as yet uncertain which bits of technology break when, so you inevitably suspect that it will move later. The strategy is built to allow a level of residual emissions from aircraft. That is why we think about all the pieces of the puzzle that are about offsetting that, be that the various forms of carbon capture associated with biomass, for example, or tree planting. Those pieces of the puzzle have to move. By the time that you get there, particularly agriculture and aviation, but some other pieces of the puzzle too, will still have a degree of residual emissions. In order to reach net zero you have to be able to offset them. You will see in here that we describe what that picture looks like for various different scenarios, where we think the residual emissions will still come and how we think we are going to manage them.

Lee McDonough: It is worth saying that, when we set the sixth carbon budget, we are formally counting emissions from aviation. They will be brought in, so it is not like they are being ignored. Sarah is absolutely right: it is a key part of the strategy. It is very open that there will be residual emissions, which may come from specific sectors or slower progress in other areas. That is why we have to move forward on all fronts.

To say a final thing, in terms of our CB6 targets, that is largely focused on delivery through known technology and science that is already understood, as opposed to relying on residual emission removal.

Sarah Munby: We are going to touch on some of that later on.

Q15 **Mr Holden:** This is just a short question, picking up on what you said before, Ms Munby, about the arm's length bodies. One of the things the Secretary of State set out when he became Secretary of State was that he wants to do a review and reduce the number of quangos. Do you think that there is any conflict between what you are setting out today with working with those bodies and that reduction? More broadly, where are you on that quango reduction?

Sarah Munby: I do not have anything to announce now, but we are absolutely, as you can imagine, having conversations about the future of all of our partner organisation ALBs in the context of the spending review. We have talked to the Secretary of State about what he wants to do there, but we are not at the point of having anything specific to say.

It is certainly true to say that in some spaces we have introduced new organisations in order to help with this. Salix, which runs the public sector



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decarbonisation scheme on behalf of the Department, is a good example. In that sense you are right that there is a potential conflict. In the grand scheme it is not a big conflict that keeps me awake at night, because the numbers that we are talking about are relatively small.

For some of our key partner organisations—Ofgem is the very obvious example—this is, as for the Department, a big capability journey. They are strong today, but they are going to have to get even stronger across a wider range of responsibilities. Making sure that we invest in those skills and capabilities is going to be critical. It is going to be more about taking organisations that we have and making them perform even more strongly across more functions than it is particularly about creating lots more, although there are some specific examples where we have had to do that.

Q16 Mr Holden: The Secretary of State basically committed to a review and a reduction, but you do not see that now happening, given that you have created more, for obvious reasons. Is that now the priority, rather than having a look at the broader review?

Sarah Munby: I would hope that we can walk and chew gum at the same time.

Chair: I am sure Mr Holden will take that up with the Secretary of State.

Q17 Shaun Bailey: Thinking back to local authorities and value for money, I know that the NAO noted that there has been a significant increase in grant funding to local authorities in order to encourage net zero, but there seems to be a bit of a risk of fragmentation with that. More broadly, what we are seeing is that local authorities that have won previous funding are winning funding again. What are you trying to do to ensure that authorities that do not have fantastic bidding departments, like my own in Sandwell, are going to actually get a piece of the pie on this? Is it not just going to be the case that authorities with these great, huge teams that can put these bids in are going to get all these lovely grants that you are offering?

Sarah Munby: I am going to bring Ben in to comment on the specific support that we are giving to local authorities to help manage that issue, but I will come in first on the bigger question about the fragmentation of funding streams.

You will see in the strategy, where we talk about how we are going to work with local authorities going forward, that we think there is a question to be asked there about whether there is any simplification that can be undertaken to make life easier and simpler for local authorities. That is not a one-sided trade-off. There is a reason why we run things as scheme on a national level, because that makes sure that, for example, if you run a scheme particularly directed at social housing, you can make sure the places with poor social housing stock that really need support get more funding for it. If you start with doling out the funding in a different way, you get a different balance.



It is not true to say that it is always better to devolve and simplify and give all the money over to local authorities. It is also not true to say that you should always have loads and loads of vertical and national pots. We need to work on the right balance. We have committed to look at it, but I just wanted to say that it is not obvious that the answer is going to be a dramatic simplification, although we really want to talk about where there might be opportunities.

What Ben can talk about is, for example, on the buildings work we are doing, where local authorities do bid for schemes. What do we do to support people who have less good bidding capability?

Ben Rimmington: The answer is a range of things. For instance, the public sector decarbonisation scheme has always been accompanied by the low-carbon skills fund, which is specifically there to ensure that authorities have the capability they require to put their bids into us to a decent standard and to get the maximum value out of the funding opportunities that are available. There will be a similar component to the funding that we put aside for the social housing decarbonisation fund.

Below all of that, in recent years we have always had a network of local energy hubs, which we have now renamed local net zero hubs, which are there to support LEPs and local authorities across regions to both make the best propositions they can on things like the local authority delivery side of the green homes grant programme, but also take best advantage of commercial investment opportunities in the net zero space. This is all investment in capacity-building and support to try to address the point that you raise.

Shaun Bailey: This comes on to the broader point, then, because to be honest, Chair, I am still none the wiser.

Mr Francois: You are not alone.

Q18 **Shaun Bailey:** Let me frame this another way. The biggest thing that local authorities seem to be asking for around this is clarity. Ms Munby, in your initial response you talked of this almost utopian model of great communication when we were looking at more of a national scale between Whitehall Departments. It feels as if that is perhaps trying to be replicated with local authorities.

Given that local authorities are going to be front-ending a lot of this delivery—naturally, because they are the main service deliverers—what I am asking, in a roundabout way, is how are you going to ensure that a borough like Sandwell is not missing out in respect of a more affluent borough. More broadly, how do we ensure that we actually know what the bar is that we are trying to reach here?

I am just very concerned that my local authority, which is getting pulled left, right and centre, as it is anyway, is going to be front-ended with delivering a lot of this stuff and is going to have no idea how it is going to go about getting the money and actually implementing it in the first place.



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It just seems to me that while this vision of cross-working sounds great, Whitehall is different to local government. I am just keen to understand how this is going to work.

Sarah Munby: Can I offer them a tip? If they have not already, I would suggest that they get in very close touch with their local net zero hub, which specifically exists exactly to help them with this problem.

Lee McDonough: This is exactly the kind of issue that is going to have to be brought to the forum that we talked about setting up, including on metrics. Your point is really important. The UK Infrastructure Bank will lend to local authorities for bigger programmes of work, over £5 million, and that is specifically going to set up an expert advisory service to help local authorities develop their business cases and support. That has not started yet but that is the plan.

The key for me is having the forum as a focal point to raise these issues, make sure that we have the right metrics and data and can also convey really clearly what the offers are to people so that they know the lay of the land.

Craig Mackinlay: I have a couple of declarations of interest before we start. I am the chairman of the all-party parliamentary group on fair fuel for motorists, which is obviously a cross-party group, and I am also the chairman of the net zero scrutiny group of Conservative MPs. I was also in receipt of a very small green homes grant, just to get that out there. My experience of that might be useful.

Chair: There is someone who got one, Ms Munby.

Q19 **Craig Mackinlay:** I did manage to get it in; it was quite a surprise.

I have very short questions and I would like very short answers, as I have quite a lot to get through. Ms Munby, we hear a lot about the fact that from 2008 to 2018 the UK managed to reduce its carbon footprint by 28%, the best in the G20, so we are told. Has any analysis been made as to where that 28% came from? Was it through using LED lights, better fuel efficiency, moving to renewables or—this is the important one that I would like to know about—through offshoring of high energy-intensive industries?

Sarah Munby: I can answer that question very straightforwardly. The analysis has absolutely been done. We can give you full chapter and verse. The short version is that it is mostly from decarbonisation of the power system. It is not really at all from offshoring. That is because, if you think about what happened in the decarbonisation of the power system, we shifted from lots of coal plants to wind plants, roughly speaking. That is real change. It is real, industrial change.

The CCC themselves have some very good, independent analysis that demonstrates that, although it is true that our production emissions have fallen faster than our consumption emissions, what is going on when we talk about the changes in the trajectory of our emissions is not caused by offshoring our emissions. It is real change here in the UK.



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Craig Mackinlay: I would love to see that breakdown in due course, but not today, obviously.

Chair: You can write to us with that.

Q20 **Craig Mackinlay:** None of you was in post when that famous statutory instrument in 2019 came through: statutory instrument 2019/1056, the Climate Change Act 2008 (2050 Target Amendment) Order. It was quite a remarkable measure; it had 83 minutes' discussion and it was 250 words. What was happening in BEIS? It was obviously a political decision; there is no doubt about that. Do you think there was a "Yes, Minister" moment, where they said, "Great idea, Minister, but how are you going to do it?" Where did that come from? What was the advice given to Ministers as to its possibility of even getting there? In my view, 80% was a struggle but perhaps achievable. I have a little more criticism of 100%.

Sarah Munby: It is true, of course, that when you make a very long-term decision like that you do not always have the full plan when you start. I would have to go to the historical record and look at exactly what advice was given.

Craig Mackinlay: If you were there, would you have given the same advice? What would you have said?

Chair: You are being a bit unfair on Ms Munby, because she came in and inherited a Government position, which is her job as a civil servant.

Q21 **Craig Mackinlay:** If it was on your desk today, what would you say to Ministers?

Sarah Munby: I would say, "Do you think it is possible? Here is my answer: the net zero strategy. This lays out the credible plan for making sure we can deliver".

Q22 **Craig Mackinlay:** We had a lot of documents last week, 2,000 pages across the different Departments. There was quite a lot to take in. Some time ago, the Office for Budget Responsibility said that debt could spiral up to 290% of GDP thanks to the cost of adapting to an ever hotter climate and more frequent and more costly economic shocks. The BEIS strategy report that we had last week has very similar language. While there are significant costs in reaching net zero, the cost of inaction is much higher.

We hear a lot about the cost of inaction: "This is expensive but the alternative is more expensive." Is there is a model out there that gives us the alternative? My worry here, of course, is if the rest of the world says, "We are not really going to play games on this," and the tide is going to come in on climate change, to the UK and everywhere else, what are those adaptation costs? Have they been formulated?

Lee McDonough: There are a number of interventions on that front. You mentioned the OBR one, which talked about debts. There was also the Stern Review in 2006, which gave estimates of loss of GDP. The IMF has projected a potential loss to UK GDP of 4% over a period of time through inaction. There are multiple factors in play there. In terms of our modelling,



we are just looking through the mitigation lens in terms of how we can deliver on the targets that have been set. Yes, there is modelling in play.

Q23 Craig Mackinlay: I will have to dig those out. Just on costs, Ms Munby, you said earlier on that the hope is that private capital will be the driver of this, with a bit of public seed corn, if you like, but the majority of this has to be found from private. I have had three reports across my desk over the last few weeks. They are quite enlightening, because the reports we had last week were very skinny on costs. They were great on ambition but very skinny on costs. There was one that is particularly relevant for my friend Mr Bailey.

There was a report from Inside Housing about six weeks ago. They are within the social housing sector. They said that the cost of decarbonising public sector homes, council houses and social housing would be in the order of £103 billion across the country. If you scale that up across the entire housing stock, it would suggest that the cost across the entire housing stock, private and public, of £500 billion. That £103 billion for social housing would have to come from either local councils or public social housing organisations. Where are they going to raise that sort of cash from?

Sarah Munby: Can I make one introductory remark and then I will pass you to Ben on the social housing point in particular? On your point about costs, you may or may not have dug into the technical annex, which is my favourite part of the net zero strategy. On page 328, you can see estimates of investment by period by sector, which really lay out quite a full picture. I would just draw that to the attention of the casual viewer.

Chair: Forgive me; I have not got to page 328 of the annex yet, but it is the sort of information this Committee does enjoy.

Sarah Munby: Indeed. That is why I thought you would like to hear about it.

Ben Rimmington: We certainly do not underestimate the scale of the investment challenge that is required across the building stock of the entire country, both residential and non-residential. As Sarah was saying earlier on, that can never come entirely from the public purse. In this strategy we are, however, committing very substantial amounts to drive change on a sustained basis, starting with exactly the areas of the housing sector that you describe and focus on, particularly with the social housing decarbonisation fund and the home upgrade grant. The home upgrade grant, of course, goes beyond social housing specifically, to look at the poorest, hardest-to-treat off-gas-grid homes, where we have the biggest carbon challenge. Across those two, this strategy is committing £1.7 billion. In addition, we have the boiler upgrade scheme at close to £500 million.

We are not saying, however, that that is the entire answer to the problem. We never could. We are going to bring in different requirements on the building stock at different points to ask people to achieve different energy efficiency requirements, and also to phase out the replacement of fossil



fuel boilers, starting with off-grid property, as I mentioned previously. What we hope with that is that with the regulatory requirement we match the public sector pump-priming with pull through from other investment sources, which can be brought to bear on problems such as this in the round.

Now, for different stocks and different tenures, of course, the funding challenges are different and there will be different investment requirements that would be needed, but what we are aiming to do with the funding in this spending review period is absolutely to make a very rapid start on some of these hardest-to-treat parts of the housing stock.

Q24 Craig Mackinlay: If I can help a little bit on some of these costs, a London Councils report two weeks ago suggested that the cost of decarbonising London properties—14% of the entirety of the UK—was £98 billion. Scale that up to the UK and that gives you a cost of £700 billion.

The Scottish Government may not be in my first reading list of advice documents, but this one was very interesting. They suggested £33 billion for just one million properties in Scotland. Scale that up across the country, because Scotland has 10% of the properties and there are 2.9 million properties in Scotland, and that comes to a nice cool £1 trillion.

There are figures out there. We are in a very different place if the cost of capital remains low, as with we are today. I have my criticism of this, and it is probably quite obvious. If the cost of capital remains low—i.e. I can borrow money cheaply and I am fortunate enough to be able to borrow money, or I have money in the bank not earning very much—I will do a calculation that says, “Do you know what? It is worth my while spending £10,000 on a solar array or having a heat pump.” I will do that calculation for myself. If interest rates change, the whole dynamic of what works and what does not work and the business case for it is in a completely different place.

Sarah Munby: You can see that we were all competing to come in to answer this question. It will be interesting to see whether we all have the same answer.

There is a really important point to put into the room at this point. Let us just take one component of what you are talking about, which is gas boiler or heat pump. If you take today’s heat pump costs and assume that our strategy is to put a heat pump tomorrow into every building in the UK that currently has a gas boiler, that will be really expensive, but that is not our strategy.

Many people will be buying a heat pump between 2035 and 2050, by which point we are saying in this strategy that the cost of a heat pump will be lower than the cost of a gas boiler. By the way, it will also be cheaper to run, and you will replace your gas boiler at the end of its life. What that means is that for many people, the transition from boiler to heat pump will be a money-saving transition, not a money-costing transition.



We recognise that is not true today. That is why there are grants described in here, such as the boiler upgrade grant, to help pump-prime this market and give the people who do move early both an incentive and a reward, as it were, for doing that movement. The point of that is to build the supply chain, bring costs down, build jobs and build skills, so that we can be confident we will reach a point where your heat pump is cheaper than your boiler. We could go through similar analysis of all the other pieces, but that is really the fundamental.

Q25 Craig Mackinlay: I understand the strategy, but £450 million out of a figure of potentially £1 trillion is not even a drop in a very big ocean. I would recommend you look at the price of, say, air conditioners. This is not dissimilar technology. They are like air conditioning systems. They work in a similar way. I would look at an air conditioning unit in terms of hours worked in 1985 compared to today. I would say it is not very much different.

Can I move on to house building, because this is fundamentally important? As you can tell, I have some criticisms of all this. We have been talking about these issues since 2005. We had the Climate Change Act in 2008, quite a long time ago. As a nation, why have we not insisted on zero-carbon homes across that period, or even across the last five years? Given now we are building up to 300,000 homes a year, to build them new for net zero is far easier than doing it later. It is just beyond me. We could have been getting a good percentage of our housing stock in the position we want them to be, but we have not. Has anybody got any idea why?

Ben Rimmington: I cannot speak to the past, but on the substance we completely agree. We agree that, if there is any low-hanging fruit, new build is the lowest that we have to go at. That is why there will be a future homes standard in effect from 2025 that will require at least 75%—

Chair: Can I just interject? We have had promises of net zero homes in 2010 and before that as well.

Barry Gardiner: We had one in 2010. It was scrapped. That was one of the first things the new Government did. They scrapped it.

Chair: There have been various attempt at net zero homes. Going back to my point to Ms Munby, this trajectory will only work if there is some consistency in it. I do not know if you have any comments on that.

Q26 Craig Mackinlay: We are going to be building 300,000 homes next year. Why are they not net zero?

Ben Rimmington: There is a genuine commitment to the trajectory to the future homes standard in 2025, which will start with a 30% efficiency improvement next year through building regulations, to already start momentum.

Alongside the other things we are doing—this is critical and comes back to Sarah's heat pumps point—the wider heating market is going to be developed such that the cost of insulation and production of things like



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heat pumps will be at a place where the significantly higher volumes required to use in new homes from 2025 is a much more feasible proposition for the housebuilding sector.

Mr Francois: We are fully committed to a trajectory.

Chair: That is what Mr Rimmington said, yes. The Government's policy is 2025 for that.

Ben Rimmington: With clear interim steps.

Mr Francois: There is probably a gateway as well, and a paradigm shift as well. What a lot of old waffle.

Chair: Mr Francois has only just joined the Committee but he has very quickly picked up that there is a certain language used.

Sarah Munby: No, there is not a gateway. It is a commitment. Of course a Government could come in and reverse it between now and then. The reason we have not gone faster is not because we did not think about it or did not have the idea; it is because the sector does not have all the capabilities and skills to hit both the housebuilding target next year, which is really important for making sure people have affordable homes, and the net zero target.

Chair: Can we do it through the Chair, please, Mr Francois? Mr Mackinlay was still in full flow. You are coming in next.

Craig Mackinlay: Can I perhaps bring my experience of grants to the table? The green homes grant was a mixed grant. Some of the basis behind it was to try to get a bit of economic activity in the depths of the Covid issue, also with the green overtones.

Chair: We had a separate hearing on this.

Craig Mackinlay: Yes, exactly. There is £2 billion committed to it. I had one of these. In broad terms, it was £1,050 of home insulation in the roof. I had to pay £350, a third of it, so £700 was free.

Chair: It was paid for by the taxpayer, Mr Mackinlay, not free.

Q27 **Craig Mackinlay:** It was paid for by the taxpayer; it was free to me. It did not come out of my bank account. I found there was quite a wild west out there, with a very limited number of suppliers. There was this TrustMark; there were very few suppliers that were accredited to it. I could not help but feel after the experience that, if this scheme had not been in place, instead of it being £1,050 it would have been £700. It was almost as if there was inflation going on. This is what you often see in these grants. There is a dash to the end, a load of new wild west entrants to market. We saw it in education years ago, with education and training grants. Do you think grants work, or do we just get tucked up by the market because there are not enough skilled people to do these things within the timescale that has been given?



Sarah Munby: I will give a couple of comments. It might be worth going to Ben on the longer-term strategy. As we discussed at some length when I was last here, first of all, I do not think there were wild west operators involved in the green homes grant. Indeed, the criticism was rather, "Sarah, did you put too many restrictions on who might come in?"

It certainly is a risk that you get price inflation with those kind of individual grant programmes. That is one of the reasons why we had to put price controls in which, as you will remember from our previous conversation, were one of the things that generated operational challenge and complexity. That is why, other things being equal, we generally prefer to do this through bidding processes, which are really at the heart of the large-scale programmes going forward.

Ben Rimmington: The key grant announcement in the strategy is the boiler upgrade scheme. In that context we have pitched it carefully at a level which we are confident usefully bridges a genuine gap in terms of affordability between the current cost of replacing a boiler and installing a heat pump. You would have seen some of the comments already made by some suppliers, which are suggesting it could quite quickly enable us to start closing that gap.

We are fairly confident, if we put the funding through the grant alongside the other pull incentives, through both the building regulations reform and other things that I have mentioned previously, we really will get the economies of scale building that can bring the cost of this technology down. The boiler upgrade scheme has been announced as a three-year programme in order to make sure there are no short-term deadline perverse incentives in the system.

Q28 **Craig Mackinlay:** Just to move on to strategies in the interim, let us assume we can get to 2050 and all is zero and all that good stuff. There are a lot of years between now and 2050. There are a lot of years where residual fossil fuels will be part of the mix. Did BEIS have any influence on a couple of what I would say were rather odd decisions over recent times: the closure of the Rough storage field for gas and the refusal for the Jackdaw field, applied for by Shell a few weeks ago, which could have supplied 10% of UK gas by 2024? In the interim we have seen this massive gyrations of gas prices. There are lots of reasons for that. The removal of further shale technology after 2019 just has not happened.

Do you think that is a wise strategy? Gas can be deemed an interim fuel type, much better than burning coal, for instance, but we seem quite happy to spend billions on Putin's Russia and his coal so that he can produce ships and planes of some offence against the west. It seems a very strange geopolitical policy.

Sarah Munby: I am really happy to comment on that. I am sure you will have seen the North Sea transition deal, which is exactly designed to address the challenge that you are giving us. On the one hand, we need to phase out fossil fuel in order to reach our targets but, on the other hand,



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it is a critical part of operating a resilient energy system today and making sure there is petrol to fill the tank that you currently have. That will remain true for some period of time as we make the transition. The North Sea transition deal is a way of describing and enabling that transition.

To come back specifically on your point about Rough, it became uneconomic to operate.

Craig Mackinlay: It seems cheap now, compared with what we have just been through, but carry on.

Sarah Munby: Let me make one point really clear about Rough. What that storage lets you do is manage short-term fluctuations in gas price. What we are currently seeing is a medium-term rise in gas prices. We can have a debate about the pros and cons of Rough, but having Rough would not have stopped the challenges that we are currently having with gas prices. We should all be very clear that in that discussion, it is ultimately a red herring, because it is short-term storage.

Q29 **Craig Mackinlay:** Can I pick you up on that? Is it true or is it not true that the UK has the lowest gas storage reserve of any country in Europe?

Sarah Munby: The UK has a much more resilient and varied range of gas suppliers than most of Europe.

Craig Mackinlay: We have Qatar and Norway and all the rest of it.

Sarah Munby: That means we have less need, so absolutely, yes, we have less storage than others. We do not need storage, because we have that kind of resilient, varied supply. The storage would not have stopped—

Q30 **Craig Mackinlay:** That is only provided the wind blows. If the wind stops blowing you do not. Is the recent failure of 10 or more of these new challenger energy companies a recipe for success? Does it prove that our mixed gas supply was working absolutely perfectly? With fairly static prices we could have filled up at least 30 days' worth of reserves, but we did not do any of that because some years ago someone said, "We have a great supplier from Qatar and Norway. It is all mixed, and we need not worry about that anymore".

Sarah Munby: Having Rough open would not have stopped what has happened in the energy market recently. If anybody wants to have a more detailed session where we go through that then I can go all day. It is probably not the place we should spend our time. I am very clear on that position.

Q31 **Craig Mackinlay:** Would a limited and sensible use of shale gas reserves over the last few years have assisted us?

Sarah Munby: It is not really a proven technology right now to use here. If you go back in time and we had had a fundamentally different strategy, I am sure that there were strategies available to us, but it is really



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important to emphasise that the gas price issue has been an international one. It has not been avoided.

Chair: On shale, we are in danger of straying into potential hypotheticals from a decade ago, that, to be fair to Ms Munby, she would not have had any influence over, even as a good civil servant, let alone as a policy decision maker. It is not her job to make those decisions.

Craig Mackinlay: I am getting towards my final furlong.

Chair: Can we focus on what we need to focus on, which is the net zero strategy?

Q32 **Craig Mackinlay:** Ms McDonough, I am ever so sorry to have left you out; I will try to give you a few. The Climate Change Committee seems to just be on one track. It seems to be on wind, wind, wind, and batteries, batteries, batteries. Nuclear has not really been a focus, but we are suddenly, thankfully, seeing it coming into the mix. We seem to be focused on one technology and one technology only. Has your Department looked at the global availability of rare-earth metals required for this expansion in batteries, both in cars and perhaps in storage facilities? It is not just the UK going up this path; it is potentially other advanced nations in the world as well, if not all of them.

Have you done an analysis of what the price of these rare-earth metals might be and what the price of copper might be to expand up our electrical networks? The fundamental point is whether there is enough of this stuff on this planet that mining companies can get out for us that does not involve the use of child labour in the Democratic Republic of Congo to do it?

Lee McDonough: Just to be clear, our strategy has a wide range of different technologies, as you have quite rightly identified. There is some work going on about supply chains and the implications for supply chains from the shift in technologies that we are using and critical minerals. The point you have raised is a key part of that.

I do not have the full detail available now but I am certainly happy to follow up. Just to reassure you—and Sarah may be able to come in with more detail—there is definitely work going on to look at that and to consider the implications of the supply chain sustainability.

Sarah Munby: I am struggling for the page reference, but there is a page specifically in here about critical minerals. It is somewhere we need to do more work on all of the points you rightly raised.

Q33 **Craig Mackinlay:** Can you promise me that, when we have a report to this Committee or to Parliament on a regular basis in the future, that you will be doing an honest assessment of the overall CO₂, rather than, “What happens abroad stays abroad, and what happens in the UK is all we are going to report on”? I have always had concerns. Say we need to import copper from Chile, Zambia or wherever else, smelted, and then it goes into the network to expand the electrical system. Are we going to include that



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CO2 that was developed offshore properly in our calculations that you can report to us?

Sarah Munby: It is worth saying that Defra does report what are called consumption emissions, which are the kind of emissions you are talking about. They are harder to measure than production emissions, which is why we use our territorial emissions as our core way of measuring our progress, but you should definitely look up Defra's releases on that, which do show a pleasantly declining trajectory.

Lee McDonough: Just to be clear, the UNFCCC approach is to use territorial emissions. That is the standard way of looking at emissions at the moment.

Craig Mackinlay: Do you think that is a con? Do you think that is not right?

Q34 **Chair:** Can I just be clear? Each country will publish, under some of the climate change proposals, certain of this information. What international league tables are you looking at? Are they published so that anyone looking this up as a UK consumer with Mr Mackinlay's concern could see where there are perhaps increases in emissions potentially? You would not necessarily link it to UK consumer activity, but it might be a proxy.

Craig Mackinlay: Can I—

Chair: Just let Ms McDonagh answer the answer, please.

Lee McDonough: It is as Sarah said. We do have territorial emissions and also the consumption emissions, which are—

Q35 **Chair:** Can you point to other countries' emissions targets to help answer the question that Mr Mackinlay was asking?

Lee McDonough: I do not know how comprehensive those are.

Q36 **Mr Francois:** Can I give you an example that might assist? The UN produces figures, does it not?

Sarah Munby: If the question is, "Where can you see what other countries' trajectories for their territorial emissions are?" I cannot give you the web reference, but that is pretty mainstream.

Mr Francois: But the UN has done some work, amongst others.

Q37 **Craig Mackinlay:** Can I give you a here-and-now example of what is happening today, probably? Scotland has had a massive increase in offshore wind, and it is happening on a daily basis. Everyone says that is great and that it ticks the box for more renewables. Unfortunately, Scottish factories are not being used, by and large, to create those big platforms, the windmills, the steel and everything else that goes into them. That is made in China. Instead of the promise of having hundreds of thousands of new green jobs, those jobs are probably in China. Are we including in our feel-good models the CO₂ output of all of that stuff being made in China



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and then put on a ship back to the UK to be erected off the coast of Scotland?

The trouble is, if we are doing it this way and we are just counting this domestically, we are actually increasing our propensity not just in terms of cost but in terms of fiddling the figures locally. If we make all that high energy-intense stuff abroad, our figures will be massaged to be even better than we thought. Is that going on?

Sarah Munby: There are a few things to say in response to that. First of all, ultimately, it is a case-by-case analysis. We talked about this in some depth when I was here on electric vehicles, when we had a similar discussion. On electric vehicles specifically, the evidence has been put together in really some depth around, for example, the emissions of mining the lithium versus the emissions that come from the offshore rig that is used to dig up the oil that drives the petrol. The picture is very clear that, even once you take everything into account, you are getting a much better emissions picture from an electric vehicle. You could do that analysis for anything. Of course, there might be some occasions when you are pushing emissions offshore. If you did that, you would see it in our consumption emissions data, which very clearly show that we are declining.

What is really important, though, is what we are doing to try to address the core of your issue, which is, "How do we make sure that UK companies are getting a higher share of the opportunities from all of these new industries?" You will see the CCUS supply chain work that we have put out and the commitment in the strategy to put out supply chain strategies for more of the industries that we are creating so that we make sure we are capturing those opportunities.

The second important thing—this is not a tomorrow action; you will have seen lots of statements from Ministers that this is something that is very much under live discussion—is to ask, "What do you do about product standards and carbon adjustment mechanisms at the border?" Ultimately, those are the kind of long-term levers that you use to stop the issue of moving carbon around the world. They are difficult because you want to do them on a multilateral basis to make sure that everybody has the same framework and the same way of talking about it.

I would just highlight those two points: supply chain development within the UK; and the long-term answer about how you handle carbon transfer at the border. Those are the ultimate solution to the problem you are talking about. I must say that when we have looked at it, we have not found big cases of it being seriously problematic. Of course, it does happen to some extent.

Lee McDonough: Just to flag something as well, the Treasury's Net Zero Review, which has been published, does address and raise the issues around carbon leakage at a principle level. It is not something that is being shied away from. The Department is about to launch a call for evidence on demand-side low-carbon products, which is the first step around trying to



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address these issues about product standards, which will fundamentally allow people to say, "That is a low-carbon product".

Q38 **Chair:** Will that be consumer-focused?

Lee McDonough: Yes.

Q39 **Chair:** For example, you might be shipping in toilet paper from Australia or China.

Lee McDonough: Yes, it will.

Chair: I will not name a brand, but, yes, we might know what we are talking about.

Q40 **Craig Mackinlay:** I have my own issues with batteries. They are a potential environmental disgrace. Has work been done and funds allocated to each and every fire service across the country to deal with the distinct fire danger of lithium batteries? We have been seeing a lot of issues around the world. There is an American one that has been effectively kept back. There have been lots of instances of fire around the country. Have you considered this? Are funds being made available to fire services?

Chair: It is a quick question for a quick answer.

Sarah Munby: That is a matter for those who fund the fire service.

Chair: Thank you very much. We are talking about net zero strategy. I know there are lots of questions that we want to ask Ms Munby, but let us try to focus on that.

Mr Francois: Ms Munby, I can remember as a Shadow Treasury Minister, in 2006-07, debating low-carbon and zero-carbon homes on the Floor of the House. That was knocking on 15 years ago. I am sure the then Labour Government had a trajectory then, but we are nowhere near it. That is just a point I wanted to get on record.

Chair: That is a point made by a politician to other politicians around the table. Ms Munby cannot be expected to answer that, but I take the point.

Q41 **Mr Francois:** One of the things that concerns us as a Committee when we discuss this is what you might call the optimism bias in all of this. You could argue that this is all virtuous, but it relies on a whole range of moving parts? I have only been on this Committee a few months, but it has a long history of Government officials and Ministers being extremely optimistic about very complex projects that did not really turn out quite the way they were intended, despite the best of intentions. What have you done to guard against optimism bias in these plans? It all assumes that everything goes right, does it not?

Sarah Munby: The first thing I would say is that we should recognise that, on the one hand, there is optimism bias. On the other hand, our experience has been that we also overdeliver. The fall in the cost of wind power is a really good example. If we had talked about this 15 years ago, we would



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have looked at the current levels and gone, "It will never happen." There is something about the idea that you underdeliver in the short term, but industry and the economy tend to overdeliver in the long term. I would just mention that as a framing device for what I am about to say.

All the trajectories that we have in the document are ranges, because we recognise that there is uncertainty and you cannot absolutely plot everything out. We expect that some things will underdeliver and some things will overdeliver. It is conceivable that, when we come back with our annual reviews in a year, two years, three years or four years, we might come back to you and say, "Actually, a lot of things are underdelivering." We will know it. We will have to tell you about it. That will not be just you, but Parliament and the country.

If that is happening, we will have to look at further levers to meet our targets. The targets are not optional; the targets do not move. The targets are what they are. We think this is a balanced picture of what a likely trajectory is.

Q42 **Mr Francois:** Ms Munby, we are tight for time. I get your point. I understand your argument. Do you agree as a Department that, by definition, climate change is a global challenge?

Sarah Munby: Yes.

Q43 **Mr Francois:** Therefore, by definition, it requires a global solution.

Sarah Munby: Yes.

Q44 **Mr Francois:** If you said to my constituents, "Should we do our bit?" they would say, "Yes." My constituents are environmentally conscious. We have been the national doorstep recycling champions for two of the last five years, off the top of my head. We recycle a higher proportion off the doorsteps in my patch than almost anywhere else. We are playing the game. But they would say that we should not do more than our bit. We have talked about the UN figures. What proportion of total global emissions does the United Kingdom currently represent?

Lee McDonough: It is 1%.

Q45 **Mr Francois:** What is the proportional figure for the United States?

Lee McDonough: It is 17%.

Q46 **Mr Francois:** What is the proportional figure for China?

Lee McDonough: It is 25%.

Mr Francois: I think you will find that it is nearer 29% or 30%. It is not quite—

Chair: Ms McDonagh has got a silver star, at least, for that, which is praise indeed from the Public Accounts Committee.

Q47 **Mr Francois:** I will meet you halfway. If you are right and it is 25%, a



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quarter of all global emissions are Chinese-sourced. If I am right and it is 29%, it is knocking on for a third. Let us say it is between a quarter and a third of all global emissions. Is it not true, as *The Times* reported about a week ago, that China now burns more coal than the rest of the world put together? Was that *Times* report accurate?

Sarah Munby: It is plausible.

Chair: It is difficult for British officials to—

Sarah Munby: I am certainly not denying that.

Mr Francois: *The Times* is the newspaper of the British establishment, so just say yes.

Sarah Munby: Not everything you read in *The Times* is true.

Chair: Mr Francois, they come to the Committee too often to ever just say, “Yes”.

Mr Francois: We live in hope. I did ask whether there was optimism bias sometimes, and Ms Munby was honest enough to say yes, to be fair to her. You can guess where I am going with this. Even if we were to reduce the United Kingdom’s economy to the stone age—some of the people who sit around the M25, some of whom are anti-capitalists, would quite like to do that—and we were to go back to living in caves, the Chinese are opening a new coal-fired power station every fortnight. It is worse than that. Because of the rise in global energy prices, they are reopening some old ones and some coal mines. They are going for coal massively. It looks like they are not turning up at this jamboree in Glasgow. Surely, if we are going to save the planet, which we all want to do, it is far more important to get the Chinese to play ball than rip out all our boilers and replace them with heat pumps, is it not?

Lee McDonough: I am very happy to come back on all of this. The first thing I would say is that domestically this makes sense, not just from an environmental perspective, but from an economy perspective. We do not have to live in a cave. What we are going to be doing by taking this first step is gaining competitive advantage and making sure we have a sustainable economy for the future that is built on green jobs and low-carbon technology. That is the first thing.

Mr Francois: I will contend with that, but keep going.

Lee McDonough: It is really clear. The numbers in this strategy show you what we expect in terms of delivering jobs for the future, which simply will not exist if we do not make the transition. That is the first thing.

We totally accept the point about 1% versus the bigger agenda. If you look at the IPCC in terms of the expectations around what needs to happen for us to be carbon-neutral and stay within the Paris goals, we need to be net zero for carbon dioxide by 2050 across the piece; we need to be net zero



for greenhouse gas emissions by 2050 in developed countries and by 2060 for developing countries.

Q48 **Mr Francois:** With respect, we know all that. You are not telling us anything we do not know.

Lee McDonough: Yes, but this is the point about the difference between developed and developing countries in terms of where they are in their energy transition. One part of the priorities for COP is about making sure we can support people to make their energy transition in the most effective way. China does have an NDC, a nationally determined contribution, that sets out what it will do by 2030.

The key thing, which I cannot predict now, is what they will come forward with at COP. We are hoping to see an improvement in that, and that is the point of COP. Just to be clear as well, even if the world leaders do not attend, there will still be full delegations from all countries.

Q49 **Mr Francois:** With respect, we know all that. What I am saying is, whatever their declared strategy is, whatever PR line they have taken, if you look at their actions—there are satellite photographs to verify it—they are going completely the other way. Why should my constituents pay £10,000 to rip out a perfectly functioning boiler to put in a heat pump that does not heat the house as well as the boiler anyway, just to salve the conscience of a bunch of millionaires at London dinner parties? No.

Lee McDonough: We are not asking for that.

Sarah Munby: We are not asking that.

Mr Francois: No, forgive me, but in a way I think you are.

Sarah Munby: No, we are absolutely not asking you to do that.

Chair: As there are three London Members around the table, for a start—

Q50 **Mr Francois:** With respect, Chair, I said millionaires; I did not mention London billionaires. This is absolutely at the nub of it. Let us be honest. At page 10, in the summary, the NAO Report says, "It is important that Government leads by example as part of its overall efforts to reach the net zero target". The fundamental problem with all of this is that it is, "Do as I say and not as I do," is it not? That is how it comes down to people, do you not think? Why are you asking them to spend all this money over time when there are other countries that are clearly taking no notice whatsoever? Unless you can answer that question, your optimism bias counts against you because people simply will not play the game. Will the man in the pub not say, "I am not doing it if the Chinese are not doing it"?

Lee McDonough: Some people may say that, but the reality is, as I said right from the start, that this makes sense domestically to put us in a really strong economic position for the future. Clearly we need the rest of the globe to do what it needs to do. You pointed at China as a key player in that, which is true. The reality is that this will put us in a strong position



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domestically and it makes good sense for the economy overall here, as well as setting ambition and being able to leverage wider ambition globally.

Chair: I am not going to be able to hold Mr Gardiner down for much longer. We will hear from Mr Francois and then go to Mr Gardiner.

Q51 **Mr Francois:** Is there a heat pump installed in No. 10 now? We should lead by example. Does No. 10 have a heat pump system?

Lee McDonough: In line with the policy, which is set out clearly in the strategy, of going with the grain of consumer choice, the whole point about replacing heat pumps is to do it when your existing system comes to the end of its life.

Mr Francois: So it does not.

Lee McDonough: I am not aware whether it does or it does not.

Chair: Mr Francois, you are probably closer to the Prime Minister than anyone else in this room.

Q52 **Mr Francois:** I have not asked him the question, but as far as I know he does not. Can I just ask whether any of you have a heat pump?

Sarah Munby: Like everybody, we should all—everyone in this room—be planning to replace our boiler with a heat pump at the right point in its cycle. I just want to really clearly put this on the record. It says this exactly sentence in the strategy. We are not asking anybody to rip out their boiler. We are asking them, when they replace their boiler—

Chair: I have to say that no one I know has ever ripped out a boiler.

Sarah Munby: We are asking people, when they replace their boiler, particularly if it is after 2035, to replace it with a heat pump. We think that choice—I cannot remember whether we think the transition will be 2030 or 2035—by 2035 will be the cheaper choice.

Q53 **Mr Francois:** Ground truth, to use a military phrase, to Mr Rimmington's point earlier, I was on a building site in my constituency a few weeks ago. It is just under 100 units. It is quite a nice development. I said to a director of the building company, "What is the ground truth on heat pumps?" He said, "Some years from now they may be better, but at the moment they are not very effective. They do not really heat the house and they are extremely expensive". I said, "Would you install one?" He said, "No." I said, "Can people opt to have one?" He said, "Yes, we give them a choice on the new development. They can have a traditional boiler or they can have a heat pump." I said, "How many units are there in your development?" He said, "There are just under 100." I said, "How many have opted for a heat pump?" He said, "None." That is where we are. We should talk about the world as it actually is, Ms Munby, and not some fantasy world that some people live in.



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Sarah Munby: We totally agree that there is a really big transition to make. That is why we have just written a heat and buildings strategy that outlines all of the things we are doing to fundamentally change the regulatory structure, the supply chain, the skills and the whole picture so that—trust me—when we come back in 2035, you will be installing your heat pump and you will be happier with it than with your gas boiler.

Mr Francois: I am going to hand over in a minute, because we are almost perfectly aligned. Remember that David Cameron said, “Vote blue; go green.” He did not say, “Vote blue; go bankrupt”, did he? I am sorry, Chair.

Chair: Okay, but the point is about consumers, and Ms Munby has given some answers on that. Mr Gardiner, I am sure, will take us further.

Mr Francois: Can we call President Xi to come and give evidence to the Committee?

Chair: Perhaps he will be in Glasgow with some of our colleagues there and your colleagues in government.

Mr Francois: I would be interested to ask him some questions. I wonder whether President Xi has a heat pump.

Q54 **Barry Gardiner:** I would like to return to the follow-up to achieving net zero. Before I do, though, I would like to ask you, Ms McDonough, a few other questions. What are the per capita emissions for the United States?

Lee McDonough: I do not have that figure in my head. I am sorry.

Q55 **Barry Gardiner:** I take it from that that you do not know the per capita emissions of people in China either.

Lee McDonough: No, not off the top of my head.

Q56 **Barry Gardiner:** It is 8.1 in China. I think it is about 25 in the United States.

Lee McDonough: That sounds about right.

Q57 **Barry Gardiner:** When you are talking about responsibility for climate change and you look at the relative emissions between the US, China and the UK, if one were to go back 200 years and look at the emissions that the UK has put out in relation to the US and China, the US would be the largest emitter. Who would be the second?

Sarah Munby: I am guessing we would be making a pretty good fist of it.

Barry Gardiner: I think you would find that it would be the UK.

Mr Francois: What are we now?

Chair: Please let Mr Gardiner continue with his questions without interruption.

Q58 **Barry Gardiner:** Those are the questions and answers that I wanted to



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get on record before resuming our interrogation of you about the net zero strategy.

I have my criticisms of the strategy, but I welcome the fact it has been produced. I want to start with the point that you made about being confident that this is a strategy that can deliver net zero. Are you confident that it will deliver net zero by achieving or overachieving the fourth and fifth carbon budgets as well as the sixth?

Sarah Munby: Yes, absolutely.

Q59 **Barry Gardiner:** We will have to see whether the Committee on Climate Change shares that confidence with you, because to date—this is a new strategy and we have not had a chance to review it yet—the Government have not been able to confidently say that it was going to meet the fourth and fifth carbon budget.

Sarah Munby: We absolutely analysed that question in some depth, as you can imagine. We are not casual about that question. We have analysed it and we think it absolutely does indeed overdeliver.

Q60 **Barry Gardiner:** The annex that you refer to points out the costs of doing that for the fourth, fifth and sixth carbon budgets. After saying that you are confident that it will deliver it, you then admitted that was dependent on consumer behaviour. If I look at the 367 pages of this document, eight of them are about empowering the public. Of those eight pages, almost half of them are half-empty; in the other half, half of the pages are taken up by photographs. It is the weakest part of the document, is it not?

Sarah Munby: Do you have a page reference?

Barry Gardiner: It is page 273 to page 280.

Sarah Munby: I will just make a few framing remarks about consumer choice. The most important consumer choices that this strategy relies on, just to make them super-concrete, are buying an electric car, ultimately buying a heat pump and insulating your home. There are some others as well, but we can take those as the heart of what we are asking people to change.

The way you get people to change those behaviours, particularly the role of Government in getting people to change those behaviours, is what we are laying out in that chapter you are critiquing. We are saying that we should minimise the ask by regulation. For example, on electric cars, we are talking about the ZEV mandate, which means that suppliers—

Q61 **Barry Gardiner:** I understand that. Would you accept that it is a very thin eight pages?

Sarah Munby: I will be quick, because I appreciate that you do not want me to go through all the principles in detail. The strategy is to use regulation to minimise the ask and to make the green choice easy, simple and affordable. The depth of how you do that is in all of the other bits. You



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do not sell an electric car by doing a big advertising campaign about electric cars; you sell an electric car by having enough charge points, et cetera.

Q62 **Barry Gardiner:** Let me move, then, to the large set of measures that we have committed to report against. Those were your words earlier on. Here I would refer you to page 254 of the document. Is it a transparent, clear and effective measure to say “as many as possible”?

Sarah Munby: I am sorry. Can you just tell me which measure you are looking at?

Q63 **Barry Gardiner:** It says “as many homes to reach EPC band C as possible” or “as many fuel-poor homes as reasonably practicable to B and C by 2030”.

Sarah Munby: I will ask Ben to take this, because, as you can imagine, we did not select that wording lightly.

Ben Rimmington: Given the sheer diversity of building stock, you cannot have an absolute one-size-fits-all requirement around EPC standards for these timetables. A little flexibility is required in the way the ambition is set. That is why—

Q64 **Barry Gardiner:** I am sorry. This is not a little flexibility around it. For a start, it is EPC band C, which means that you retrofit once and then you retrofit again. I cannot see for the life of me why that makes sense, because it is a double retrofitting. You are accepting that you are going to have EPC C standard, but you know you have to get the stock up to net zero. Not only that, you are setting a lax standard and then you are not setting a measure for how many are going to achieve it. You are saying “as many as possible” or “as many as reasonably practicable”. That is not a measure or, in Sarah Munby’s words, part of “a large set of measures that we have committed to report against”. It is a not a measure.

Ben Rimmington: On the EPC question, if I may, the EPC C standard is widely seen, with a broad brush, as the level at which heat pump efficiency is good enough even with a low-heat heat pump, to heat the home. With all of these things, one has to go in stages. One cannot leap all the way to the end of the story in terms of the transition of buildings. As I say, there are many different type sort of buildings in existence.

You are absolutely right that not absolutely every building will have achieved standard X by date Y, but it gives us a sense of direction and it is certainly something against which Government can report, because it talks about numbers of properties and the change over time against these measures.

Sarah Munby: What we will need to report is how many we have done.

Q65 **Barry Gardiner:** You will tell us how many you have managed to do.

Sarah Munby: Yes, absolutely. 100%, yes.



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Q66 **Chair:** You will tell us how many you have done; you will tell us how many achieve net zero.

Sarah Munby: Yes, absolutely.

Q67 **Barry Gardiner:** You also accept that heat pumps are only effective if you have well-insulated buildings.

Sarah Munby: Yes.

Q68 **Barry Gardiner:** Therefore, the measures on the insulation of the buildings is going to be absolutely critical to delivering on this standard as well and to delivering on the interim targets and the interim carbon budgets.

The problem at the moment—it was one adverted to by Mr Mackinlay in a slightly different form—is that we do not have the skills base to deliver the workforce that is going to be able to retrofit the properties. In terms of the target for doing that, we are talking about 29 million properties in the country, 19 million of which will need to be retrofitted. Is that correct?

If we look at the report on skills that came out the other day from the EAC, they quote the Institute of Environmental Management and Assessment and the RSPB as two separate witnesses that recommended that Ministers invest in chartered ecology training and make an investment in jobs. They received reports from major infrastructure organisations about a lack of capability and capacity to meet the requirements.

How does the strategy link in with the skills providers to ensure that there is actually a supply chain of ability and personnel who are going to deliver this? That is not something I have yet been able to clearly ascertain from the strategy.

Ben Rimmington: In terms of housing stock and low-carbon heating systems, we would absolutely accept that currently we do not have the workforce in place that will be needed to deliver the very significant volumes of transformation over the coming decades.

Q69 **Barry Gardiner:** Will you be able to deliver a minimum of 600,000 heat pumps by 2028?

Ben Rimmington: Yes, we are confident of this.

Barry Gardiner: You are confident of that.

Ben Rimmington: Talking to the industry, they are confident that they can rapidly train a significant number of current heating engineers to be heat pump installing engineers. The Heat Pump Association has brought in a training course that basically does most of this job in a week for people with transferable skills. This is part of the transformation that Lee was talking about earlier in terms of the transformation of economic opportunity for people across the country. If you do an apprenticeship in plumbing and heating now, you come out with a classical CORGI gas engineering



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certificate to install a boiler; in the future, it will be a heat pump installing certification that people have.

Mr Francois: The fact no one wants one is irrelevant.

Chair: Can we have Mr Gardiner? It is his time.

Sarah Munby: Could I perhaps add one thing about skills just before we lose you? In the chapter on green jobs and skills, there is a whole series of initiatives, like the sort Ben has described. It is important to say that the single most important thing we can do to make sure the right supply chain and skills are in place is to be super-clear about the journey and the opportunity and have that be a credible and reliable commitment. The power of people seeking opportunity and training providers follows where there is clarity.

This is part of the Chair's critique of previous policy. Part of the reason we do not have the right supply chain in place is because we have not had that absolute clarity: "After a certain point, mate, it is going to be heat pumps; it is not going to be boilers. You probably should start training". That has an enormous mobilising effect on the industry.

Barry Gardiner: I entirely accept that, which is why long-term targets are necessary, why interim targets are absolutely vital and why we need to mobilise to deliver those.

Chair: On the point about targets, as a Committee we would be very keen to possibly work with you even to make sure the annual report you promised to make to Parliament is maybe a bit more frequent than that and looks at targets including what consumer take-up is. These might not just be the targets that you have set but targets that are meaningful to our constituents, on which point I am going to bring in Mr Shaun Bailey.

Q70 **Shaun Bailey:** Ms Munby, the NAO's Report, *Achieving net zero*, said at paragraph 17, "Neither BEIS nor HM Treasury collates information on the total costs and benefits of Government policies that contribute to achieving net zero". As the accounting officer for the Department, are you comfortable with that situation? How do you go about advising your Secretary of State particularly in respect of any cost-benefit analysis of the policies you are putting in place? Clearly, that cannot continue, can it?

Sarah Munby: There are lots of layers to this particular onion, if you see what I mean. At heart, it is just worth laying out, before we go into the detail, that as part of setting the latest carbon budget, which has happened since we were last here, we did carry out a full cost-benefit analysis. You can download it; you can look at all the numbers in it; please go for your life. That is the cost-benefit of the overall picture. You then have the cost-benefit of individual programmes. Of course, that has to take place. That is a core component of my responsibility as accounting officer; that is about saying, "Does this thing take into account its carbon benefit work?"



Beyond that, looking at the aggregate costs of net zero, it is worth saying that we do quite a bit already. For example, in our ODP, the plan for the Department, we talk about the financial resources—this is CDEL and RDEL, the capital and operating expenditure—that are put against different targets, including net zero. Other Departments do similarly as part of their ODPs. It is absolutely possible for us to make more aggregated calculations of how much money is being put into this over time. We would be happy to explore and talk about that, but it is important to say that, to the heart of your point, which is about whether we are at risk of making the wrong decisions because we are not looking at cost-benefit, I am very comfortable that we are in shape on that with both the aggregate and the programme-specific cost-benefit analyses that we do already.

Q71 Shaun Bailey: To expand on the point there, I am very conscious that a lot of the net zero strategy involves this cross-Government approach. You have talked about the improvements in communication between Whitehall Departments. In terms of that capacity that clearly you have articulated as being available in BEIS, I do not get the impression—if I am wrong, please correct me—that as of yet we can see that across Government.

The NAO did some fantastic work around its Covid-19 cost tracker, which showed that you could get that data and you could bring that together across Government. Could you talk me through whether we are there and, if we are not there, how close we are to getting there? I am very conscious, given some of your previous answers to my colleagues, that we clearly do need a cross-Government view of the cost-benefit analysis of these projects going forward. I am just conscious, from your perspective, in terms of where we are on that.

Sarah Munby: There are a few things I might throw in there. First of all, let me just give you a piece of context, because it is helpful. It is worth saying that this is not uniform across Government. There is a really big concentration in BEIS; there are then secondary but really substantial concentrations in DfT and Defra. Although you should ask their Permanent Secretaries, both of them have made really big steps in terms of their resourcing and investment in skills even over the last year. Then there is a kind of third category, which will be coming up in the next wave. That is just to put that context out there.

As part of the spending review this year, there are two things that are worth saying. One is that we have an updated Green Book. Again, the details on that would be questions for the Treasury, but it has updated carbon prices and a whole load of new stuff. It is also true that we, in conjunction with Treasury, have been providing training for other Departments in making sure they are able to account for carbon better in the assessments they make.

Are we fully landed and perfect right across the system? I am sure the answer is no. Are we making progress? Yes. Are we in good shape in BEIS? Yes. Are we in pretty good shape in DfT and Defra? Yes. Are other Departments coming up the curve? Yes.



Q72 **Chair:** In response to the specific question from Mr Bailey, you will be alert to the Covid cost tracker, even if it is not directly to your Department. The NAO has done a very useful exercise there, and the Treasury is going to be taking it over. In answer to Mr Bailey's question, is that something you can do for net zero too? Could you do a similar cost tracker?

Sarah Munby: Certainly, something like that could be done. Lee might want to add to this, but the only thing I would say is that what is a net zero cost is a really grey question.

Chair: I am sure we can work with the National Audit Office on this.

Sarah Munby: We are really happy to have the conversation. I just do not want to say, "Yes, it is definitely doable—tick, easy".

Q73 **Chair:** Whatever people's views are on climate change—I imagine there is a range of views in any room and on any Committee—we are all here to look at how taxpayers' money is spent. It is important for us to be able to track the money invested and what the outcome of it is over what period of time so that we can see that very clearly, and consumers and taxpayers can see that too.

Lee McDonough: Just to add to that, we are also making sure that we can capture some of the benefits in terms of jobs and investment. It is easier to capture the spend that is direct investment from Government. We need to do some thinking—all ideas are welcome—about how you look at investment more broadly in the economy, where it is done through the markets. That is, again, a really important part of showing that we are on track in terms of our own domestic economy as well.

Q74 **Chair:** As a Committee we have sometimes seen promises of job creation with very fuzzy metrics about how you measure what is a new job, for example. We would be keen to work with you, because there is a genuine shared interest in making sure we have clear parameters around what is measured and how it is reported.

Lee McDonough: At the moment, the way we look at jobs is basically genuinely expected new jobs but also jobs that will transition from high-carbon to low-carbon sectors.

Chair: Exactly, so they are already there. You have two different categories. To count them as one thing would be a misnomer or a mis-counting. We would want to see whether we can work with you on that. If you could talk to us about your ideas, we would be keen to influence that.

Q75 **Shaun Bailey:** Ms Munby, you made a really interesting comment there—I am paraphrasing it; apologies—in terms of the shifting sands in this space. Clearly, it is a developing space. Technologies develop and technologies change. How are you profiling the risk as things develop? You are stepping into quite a lot of unknowns here as well, particularly as technology grows, things change and unforeseen events happen. I am just



conscious to understand that.

Are we ever going to be able to profile the risks associated with the levels of investment properly? The Prime Minister himself has made £20 billion in general commitments to net zero. There are significant amounts of money there. I am conscious in terms of the risks associated with that. Are we ever going to be able to definitively profile these risks so we can manage them accordingly?

Sarah Munby: We do at the level of individual programmes, and that is probably the right way of thinking about it. A nuclear power station or a carbon capture plant has a risk in the same way as building new railway track does. The fact about whether one is net zero or not does not actually change the picture. You want good discipline about it anyway.

Q76 **Shaun Bailey:** Can I just qualify my question a bit, if that is okay? The narrative we are seeing from the policy perspective is quite broad brush and high level. It is couching everything into a basket. As people who are not in the day-to-day detail of this, we just see the net zero 2050 target. I am just conscious that it seems to me that the policy narrative is one thing but the operational delivery is a lot more nuanced. Would that be a fair assessment?

Sarah Munby: Yes, totally. Both inside the Department and across Whitehall, we track at programme level how our programmes are delivering against their carbon targets and, critically, against the number of buildings treated or the number of charging points constructed—those leading indicators of the carbon piece.

Q77 **Chair:** These are the things that are tangible; they are the things that the consumer, the taxpayer and the citizen can see.

Sarah Munby: Yes, exactly. That is how you tell whether the carbon picture will be where you want it to be down the line.

Chair: It is also about consumer confidence.

Sarah Munby: Yes, exactly. Since we were last here, within the Department—I might ask Lee to comment on the cross-Whitehall elements of this, which she runs—we have set up a new net zero delivery board, which I chair. This is doing exactly what you describe, going programme by programme and holding our SROs to account: “Is this programme delivering? If not, why not? How can we help? What can we do to get it back on track?” We have all of those very delivery-orientated conversations.

Equally, I am sure those programmes will all flow through this Committee over time. I am expecting to be here with some frequency as we go through that, not that I am not already. The same sort of work is happening across Whitehall under Lee’s remit.

Lee McDonough: Yes, absolutely. You know that we have set up cross-Whitehall structures and all that. Just to reiterate, every Department,



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through its accounting officer responsibilities, has the programmes, but we pull it all together. That is the point about the annual progress report. This will be a mixture of things. It will have some specific targets: "Are you on track to deliver your 600,000 heat pumps?" It will also do some contextual commentary about whether anything has changed and it will track major policies, programmes and delivery.

At the most basic level, what we need to do to manage and stay on track for our trajectories is to understand, "Are you on track to deliver what you said you would deliver?" and, really importantly, "Is what you are delivering having the impact you thought it would, either in terms of how the market is responding or consumers are responding so you have the intel and you can manage the risk at that level to respond and adapt?"

Q78 Shaun Bailey: This links in quite well with the public buy-in point that we talked about earlier. When we are framing these conversations, perhaps we are slightly missing a trick here in terms of framing it about the broad-brush piece. Where we probably should be having the conversations is around specific programme delivery.

Particularly given what we have heard around the table, it sounds as if there is perhaps a slight disconnect in the narrative. We can see that there is programme delivery with tangible results there. The importance that we talked about before in terms of consumer confidence was about seeing tangible results and seeing things that could actually happen. I am very conscious that you as civil servants cannot stray into commenting on policy, but would it be fair to say that perhaps we are making a bit of a rod for our own back at times? We are taking a more broad-brush policy approach when the sell on this is around the specific programmes that yield results, which perhaps are not being talked about in the way that we could be, if that makes sense.

Sarah Munby: It is really important to talk about what impact this has on real people's lives and the positive impact that it has in terms of, for example, cheaper energy costs and a better insulated home.

There is one thing that I would say, though. There is an element here around not overstating the impact of the net zero strategy, but this is a real shift. The last time we were here, you said, "Sarah, do you have a plan? Where is the plan? Show me the plan. What does it look like?" I have a plan. It is not going to stay static. Every year there are going to be shifts here. This is going to have gone up a bit; this is going to have gone down a bit. Things will move; new innovations will come into play; there will be new pieces of consumer behaviour.

This is the plan against which we should be held to account. This is also the plan that identifies very clearly what those impacts on people really are. This is a moment where we will talk about this in a different way. We think it is really important that we are held to account on practical delivery. At the same time as announcing the net zero strategy, we announced the results of the first round of sequencing on the carbon capture clusters. The



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paper is not the thing; it is making sure that each of those programmes lands on track.

Shaun Bailey: I have a final question, if I may, Chair. It is probably a bit of a cheeky one, so apologies.

Chair: Mr Bailey, there have been plenty of cheeky questions this afternoon. Go ahead.

Q79 **Shaun Bailey:** I am just thinking operationally, in terms of lines of accountability. Is the current structure of cross-Departmental collaboration—it is great, and there is communication—an effective one? Does there need to be a definite structure, perhaps even a Department, that is specifically accountable for delivering this strategy across Government and ultimately is the person, with their own structure, who is on the block if it goes wrong?

Sarah Munby: I have strong views on this, as you can imagine. I have thought about it a lot. It is really important that net zero is not a separate thing. Your transport net zero strategy has to be completely integrated with your transport strategy. Nobody can do that except for DfT. Your biomass strategy, which has land-use implications, your forestry strategy and your agriculture-emissions strategy need to be thought of together in a Department that cares about land use right across the country. Nobody can do that except for Defra. As it happens, BEIS owns the bulk of the stuff here; we have the big lump.

Chair: You are not after an expansion to your empire, then.

Sarah Munby: Unless you are going to give me Defra, DfT and perhaps throw in something else, it does not work.

Shaun Bailey: We could try to do that.

Sarah Munby: The real practical question is, “Should you put a much bigger co-ordination layer over it all, separate from BEIS?” Because we hold so many of the levers, what you would actually do is just duplicate a lot of expertise and energy. We can all spend more time marking each other’s homework, but I would rather invest in delivering the programmes.

Making these structures of cross-Government co-operation is not straightforward, but any other setup would have its own interfaces. It is like any reorganisation. You just create new interfaces to manage. This is testament to the fact that the model we have is working all right. Whatever imagination may grip any future Government about how to reorganise, the point about making sure that net zero flows through policy areas and is considered alongside them has to be at the heart of the approach. If you take net zero out and make it its own separate thing that is not properly integrated with the other Government priorities, you are lost.

Q80 **Craig Mackinlay:** Mr Rimmington, I have a question on EPC and properties. I have another declaration: I am the chairman of the listed



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properties all-party parliamentary group, and I also do own one. How do we possibly get some properties to C across the country? Every constituency has them: these are old solid-brick builds, properties in conservation areas and listed properties. Their type and structure makes everything beyond a bit of roof insulation rather difficult.

Will you be able to instruct, as part of this, the Department for Levelling Up, Housing and Communities to say, "Local authorities need to say yes." Currently, if you want to put in an air-source heat pump or solar panels, to do anything at all on the outside of the property, or to put in double glazing, the answer from local authorities is, "No, you cannot do it." How on earth you are going to get some properties up to a C with that type of background is really beyond me. How are they going to do it? The worry is that you are going to start penalising high energy-use properties through cost: the cost of gas, the cost of electricity or whatever else. There is a discussion that mortgage companies may have to report their portfolios and what their structure is. How are we going to cope with that?

Ben Rimmington: You have raised a number of points there, but we accept that the fundamental point about the listed buildings challenge poses particular difficulties in this context. Of course it does. When we were putting together the package that we have now in the heat and buildings strategy, we were clear to allow flexibility around, for instance, accessibility to the boiler upgrade scheme.

It is about the necessary levels of insulation to go alongside that, not necessarily EPC per se. Without going into all the technicalities around the exact insulation provision that you put in a listing building, there may be ways of doing it and making it work with some heat pump technologies, for instance higher temperature heat pumps, which could be possible without necessarily achieving EPC C for the building.

Q81 **Craig Mackinlay:** The local authority will not let you have one of these machines visible outside. They will not allow it.

Ben Rimmington: I was going to come on to this. It then depends on the particular circumstances of your listed building and whether there is anywhere that you can put the technology without getting in the way of listed building consents. That is something that requires further discussion, frankly, between us and the Department for Levelling Up. That is going to be a difficult challenge for us going forward.

The other thing I would say is that it is not all about heat pumps. There are other technologies that are available. We have not talked much about hydrogen heating in this context. In some areas, we end up in a place, subject to decisions later this decade, where hydrogen is a heat source. Then you are in a different place, because you just need boiler-style technology installed.

If you have a rural listed building, biomass boilers may still an option. Indeed, some biomass boilers in rural areas is something that we could—



Chair: There is still thought going into this.

Craig Mackinlay: You see the point I am making.

Ben Rimmington: I absolutely see the point you are making.

Q82 **Chair:** There are many challenges around our ageing housing and building stock. There are a last couple of quick questions from me, Ms Munby. The NAO put out its Report in December, nearly a year ago now. It had a lot of recommendations, which you accepted. Have you made as much progress as you would have expected? What has been the most challenging area to deliver? What has been an area where you still think you have work to do despite having put out the strategy?

Sarah Munby: I would pick out—we have talked about it in this hearing—some of the cross-cutting themes here, local authorities being one. There is more progress that we need to make. It is a lot easier to make that progress when you have a shared, published plan. It gives you a much stronger basis for going out and getting these cross-cutting pieces of the puzzle to work better. While we have done a lot over the last year, we are now in a place where we can go further and faster. That is true of local authorities. There are other pieces like that. Skills is another one where we now have a clearer picture now for the public to see around where the skills are needed.

It is about the things that have been harder to progress. That is not because we have been distracted by doing the net zero strategy; we have had to land the big issues in the net zero strategy in order to take them forward. This is things like the role of hydrogen in heating and when that is going to be decided. That is a key question for taking forward your engagement with supply chain and skills providers.

Q83 **Chair:** You have some of those targets. You are talking about integration and working across Departments. That is something we look at a lot on this Committee. Are the mechanisms there? Will there be more Departments trying to work together on net zero as a result of this? Too often, we still see the silo mentality in Whitehall, do we not? Let us be honest. You have been in Whitehall a while. Are the mechanisms there to make sure that somebody is banging Departments' heads together?

Lee McDonough: There are the mechanisms. I have people knocking on the door rather than the other way around. There are a lot of levers across Government. For example, there is the Infrastructure and Projects Authority and the role it can help play in making sure that Government major projects are delivering net zero. This is definitely a whole-Government response.

What we need to do in the next phase, as Sarah said, now we have got the strategy out, is to hard-wire the mechanisms we have in place for the cross-Government working. We need to look at where we can improve those, because, as we go forward, we will find different ways to do things. For example, in relation to the export agenda, as we move forward on that



we will need to work really closely and have different structures for different sectors there. We need to make sure we are making connections across the piece to the wider set of Government levers, whether that is on procurement, major projects, buying standards or whatever it might be so that everything is pointing in the same direction.

There is definitely a lot of interest. I have had so many people contacting me wanting to find out how we are going to work together going forward.

Q84 Chair: Ms Munby, you will have picked up that on this Committee we are very interested in data, monitoring progress and measuring how you have achieved things. Are you also collecting data on the impact of net zero policies on individuals and groups, in terms of equalities, income and so on and so forth? We should be able to compare the impact on Mr Bailey's constituents in Sandwell with the impact on some of our constituents. I am trying to think about which one of us represents the most expensive area of London, but there is a part of my constituency where people are of a different income to much of my constituency and to Mr Bailey's and others. Are you collecting that data? If you are not, should you be? Who should be?

Sarah Munby: Probably the best analysis of that issue that currently exists—you will see why I say "currently exists" in just a second—is the Treasury review that has just been published. There is some really good stuff in there about what the costs and benefits of net zero are, for example, for different income deciles.

What struck me very forcefully about it is that it really demonstrates how complex that picture is. It is very much not a picture where your income decile, for example, is the defining feature that tells us what the impact of net zero will be on you personally. It is a really complicated picture built up by what kind of housing stock you live in, whether it is modern or old; what the ownership of that housing is, whether it is social, owner-occupier, and so on; how you get to work; how your children get to school; whether you have family who live overseas; and what kind of industry you work in.

We are really thoughtful about that problem, but what the work to date has indicated is that it is a complicated problem. We could have produced some quite glib pictures around it. They do not really answer the question. For now, the single most important thing we are doing on that is making sure that the work we are doing within each programme—let us say, for example, the work we are doing on insulation—in itself does not leave people behind. Similarly, as we think about the industries that are changing, we have to make sure we have a plan. If you work in the auto industry, we are really helping the auto industry transition to making electric vehicles.

They will never be entirely equal, but we have to make sure that those plan-level pieces are as equal as they can be. Over time, we will get a more sophisticated understanding of how it all adds up, but it does not add up in



a simple or straightforward way. The risk of trying to look at it fully in aggregate is that you actually miss things.

Q85 **Chair:** Is somebody looking at that? Is it a concern for you?

Sarah Munby: Yes, it is. For example, we have recently commissioned some research particularly on that issue. It is one of these things where you dig a little and you discover that you need five more spades. We are going to keep going, but meanwhile we have to make sure that each element of the programme is not leaning into having haves and have-nots. We are not going to be rescued by some aggregate picture.

Lee McDonough: Sarah is absolutely right. The Treasury report frames the context to the approach that Sarah said. We are publishing a call for evidence on fairness and affordability to set out options for rebalancing electricity and gas prices, and making green choices. It is that kind of thing that helps you get a handle on that. We are absolutely starting to think about it.

Q86 **Chair:** It is important for consumers; it is important for MPs representing constituencies to know who is going to benefit most quickly and who is going to benefit slower. We need to either sell the message or lobby about what is going on.

I just have one final question. We talked about skills more generally, but we know that increasingly there is a high turnover of senior civil servants. You are bought in; you sound very committed. You sound like you have a bit of a plan; we will obviously make some recommendations in our report. You will not all be here forever; 2050 is a long way off. How are you embedding skills and knowledge of this? How are you making sure that Government get this culturally and that the civil service is on the trajectory that Government have set it?

Sarah Munby: First of all, it is worth saying that is a long-term journey—2050 is quite far away. Certainly, relying on people still being here is not the right approach. All the pieces we have talked about around the strategy, the plan, the governance and the structures really helps. We also lay out in the strategy a specific programme of work, which is around skills. That is about exactly making sure that we have the highest value and highest expertise skills that are really critical for some of these programmes, for example people who really understand nuclear.

Chair: They will be on a different career trajectory to the traditional generalist route.

Sarah Munby: That goes right through to making sure that everybody in the policy profession, for example, which is one of the larger professions, has enough of an understanding about net zero. You will see the triangle in the strategy, which shows you the different layers and what it is we need to do.



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Lee McDonough: Very specifically, to give you an indication of what we are doing, we are introducing a net zero element into the Fast Stream generalist approach so that people can specialise and make sure they are going down that route. It is those kinds of things that build the pipeline for the future.

Chair: We have been keen on specialisms in the civil service for longer than you all, probably. That is because we are politicians and you probably come from the generalist stream. That is a bit mean of me.

Can I thank you very much indeed for your time? The transcript will be up on the website uncorrected in the next couple of days. We will be producing our report, I hope, before Christmas. As you rightly indicated, Ms Munby, this is not your last visit on this subject. Between us and our sister committee, the Environmental Audit Committee, we will be keeping a very close eye on the Government's plans for net zero, the 16 documents and whatever else emerges. We will keep asking you questions on progress.

We look forward to working with on how that progress report might be made to Parliament. With the best will in the world, we want to see something that is useful for us to raise with our constituents and in our communities, not just a string of figures that is difficult for your average consumer to understand. Thank you very much.