HOUSE OF COMMONS

Environmental Audit Committee

Oral evidence: The Seventh Carbon Budget, HC 1327

Wednesday 7 January 2025

Ordered by the House of Commons to be published on 7 January 2025.

Watch the meeting

Members present: Mr Toby Perkins; Olivia Blake; Julia Buckley; Jonathan Davies; Carla Denyer; Barry Gardiner; Sarah Gibson; Alison Griffiths; Manuela Perteghella; Dr Roz Savage; John Whitby; Sammy Wilson.

Questions 153 - 190

Witnesses

II: Nigel Topping, Chair, Climate Change Committee; Emma Pinchbeck, CEO, Climate Change Committee.

Examination of witnesses

Witnesses: Emma Pinchbeck and Nigel Topping.

Q153 **Chair:** Welcome, everybody, to the second part of our session today, where we will be hearing from Mr Topping and Ms Pinchbeck from the Climate Change Committee. You probably need no introduction, so we will get straight into it. I will invite you to tell us who you would prefer to answer each question. Your advice for the seventh carbon budget presented just the one balanced pathway. Previous iterations have suggested multiple pathways. What was the evidence that led you to take this more singular approach?

Nigel Topping: There were a few things. Perhaps the first one is that we are now giving advice over a shorter time period. With each budget, the pathway to 2050 shrinks by five years. In particular for this budget, a lot of the key actions are based on technology where the level of uncertainty is low now. Some 60% of the reductions are based on electrification such as renewables, EVs and heat pumps. There is no huge technological uncertainty there. Towards 2050, you start to get to some uncertainty, so that is the main reason.

The other thing that we felt is that the way that most people engage with the pathways is to focus on the particular sector that they are interested in. We will hear people say that our balanced pathway is overambitious on sustainable aviation fuel, or not ambitious enough, which is a sign that we are getting the balance right. That is the way that most people engage with the advice.

The final thing that I would say is that we felt that the real value of the scenario approach is when you get into the real detail of all three, but it is really, again, at a sectoral level. We have been able to use the team's resources to look a bit more at levels of uncertainty within sectors, as well as contingency, which has more value overall, with one central, balanced pathway and then contingency around specific sectors.

As I say, the main reasons are much less uncertainty because of a shorter timescale, and most of the technologies needed to 2042 now being much more certain than they were five years ago.

Q154 **Chair:** Alongside the Climate Change Act commitments, the UK is party to the Paris agreement and subject to the International Court of Justice advisory opinion on the obligation of states in respect of climate change. To what extent do your modelling and assumptions consider the UK's fair share of emissions and its expected contribution to a just transition?

Nigel Topping: Our mandate is around the pathway to net zero by 2050. In our additional advice, which we were asked by the Secretary of State to give on the level of ambition for the NDC, which is really relevant to the multilateral process, we do consider those international fairness issues. Our assessment is that the balanced pathway, which, of course, is the same analytical underpinning for the CB7 advice as for the NDC advice, represents a fair and ambitious contribution to global efforts.

I was in Belém for COP30 this year, and I would say that there was a very strong sense that the UK's NDC is both fair and ambitious. Not everyone would agree with that, but it is one of the leading NDCs among a group of over 100 countries that have now committed to net zero by mid-century.

There are a couple of data points that are worth looking at. One thing that we look at very closely is what our NDC implies in terms of per capita emissions. That is a good benchmark of fairness. As you know, the definition of fairness is contested depending on how much you consider the historical and the current. On that metric of per capita emissions by 2035, which is the end date for our NDC and the beginning point of CB7, we are at 2.6 tonnes per capita, which is the average global per capita level of emissions needed to be on a Paris-compliant pathway. Again, we think that it is both ambitious and fair.

Q155 **Chair:** We are all conscious that certainly the UK political consensus on climate change is under threat like never before. To what extent does your committee consider that political landscape when determining the deliverability and the recommendations that you make on the balanced pathway?

Nigel Topping: We are not asked to give political advice. We are giving policy advice. We look at the policy landscape. We recognise that there is a nuance there. We look very carefully at technological maturity and costs, and at the economics of investment and benefit. We are also very aware that we are giving advice to make policy in a complicated transition. We have increasingly been looking at including insights from the behavioural sciences. Because we are giving advice to policymakers, we have to make policy that is going to land with the citizenry.

For CB7, we have significantly beefed up the social science research sources. In particular, as you may know, we ran a citizens' panel, getting insights from a broad cross-section of citizens on how they see issues such as fairness in different parts of the pathway. The team has done some really innovative work, which Emma may want to say more about, looking at different archetypes of households. There are many types of households, and the way that this transition affects them will be very different. The citizens' panel and the archetypes have been two ways in which we have beefed up the behavioural insights that we have then included in the overall achievability assessment of the pathway.

Emma Pinchbeck: Just to build on that and to really nail down the question, we have very clear guidelines in the Climate Change Act for what we consider to be economic and social factors, and the aim of our analysis is to give you a sense of whether that end number is feasible to deliver. Ultimately, that is what all 400 or so pages are for. Each time we do the carbon budget, it is in a different context. I just talked about, for example, clearer technology certainty, because we are a way through the transition, than maybe for the first carbon budget.

The committee is also seeking to give you additional advice that is useful for the period that we are in right now. For this carbon budget, we did additional analysis on distributed impacts. It is 12 different types of household, and 15 different types of farm in the farming advice, so that you can see what the central pathway means not just for a typical household but across different kinds of household or farm across the country. That is useful in a context where people are talking about the cost of living and fairness.

Similarly, there is an increasing debate about how the public think and feel about net zero, and hopefully the additional information that we have been able to give you from what is quite a sophisticated process, working with the citizens' panels, is useful in both the mitigation and the adaptation advice to come.

Q156 **Chair:** On issues such as aviation demand management, your previous advice was that elements of demand management were going to be necessary for any expansion to be in line with climate goals. The Government seem reasonably uninterested in that and are banking a lot more on technological and other developments. Can you provide assurance that the political weather is not going to influence your factual response, and that you are going to be willing to stand up and say, "Hang on. We do not believe that the Government's approach is one that is going to get them on target", if that is the case? Can we be confident that you are going to hold the line here?

Nigel Topping: Yes, absolutely. That is a big part of our function in our annual progress reports, in which we will continue to call out where Government policy is in line with the legislated ambition and where it is not. You will know that those reports historically have quite a lot of red and amber, and we will continue to do that.

On demand management, it is worth saying that we do consider that. 60% of the reductions in the period to CB7 are from electrification, and 22% from demand management, which is about half efficiency and half behavioural changes. You alluded to aviation. We have a very significant demand management constraint in our assumptions. We assume that demand stays roughly flat to 2035 before there is any benefit from real deployment at scale of sustainable aviation fuel. Then we have a demand increase of only 10% by 2040, whereas the business as usual baseline is a demand increase of 45%.

We are deploying multiple ways of presenting a balanced pathway, with sustainable aviation fuel and some demand management assumptions. We have been asked, as you know, to give some specific advice on the Heathrow expansion.

Q157 **Chair:** I do not want a detailed response, because we are going to go through different elements of policy. In the most recent Budget, just as an example, fuel duty was frozen once again while introducing a new tax on electric vehicle use. Is that consistent with what you were expecting in terms of the projections that you have made, or have you called that out as a misstep?

Emma Pinchbeck: I realise that this is an answer that you always love when we give it, but the progress report is the time that we comment on current Government policy. We will be looking at, among other things, announcements in the Budget. We have the Government's warm homes plan to come. The committee has never shied away from saying where there is a gap in Government policy, but that report is coming in the summer, so I am not going to prejudge what we are going to say in it.

Your question is whether Nigel and the committee have a problem talking about when the Government are falling down. No, I would not say that they have not done that in any of the progress reports. Just to pull an example from the adaptation world, for example, the adaptation progress report was blunt on Government progress on adaptation. We said that it simply was not good enough and that we had not made progress anywhere, really, across the economy from the last time that we assessed progress. I do not think that that is a concern that parliamentarians should have in terms of us doing our audit function for you.

Q158 **Julia Buckley:** Just following on from that, the former Government's delivery plan for previous carbon budgets resulted in a High Court ruling that deemed it unlawful and inadequate. Does the current Government's response to your advice to date, including the recent carbon budget and growth delivery plan, give you confidence that the UK can deliver the recommended seventh carbon budget?

Nigel Topping: You will have seen that, in our last progress report, we saw some positive signs compared to the previous year. As Emma says, we will give our really detailed reflections on the full range of policies. Particularly, we will be looking at some of the areas that we highlight in our top 10 recommendations. We have been encouraged by some of the things that we have seen in the delivery plan and the Budget, particularly removing some of the policy costs from electricity, which you will know has been our number one recommendation.

We know that the actions so far have not gone far enough. We are looking forward to the warm homes plan and real delivery. We know that CB7 is deliverable, because we have done the analysis to say that it is. The question really is whether the policy ambition matches that, and that is the job of our progress report. From memory, in the last progress report, we assessed 61% of emissions being covered by no or low levels of risk, so we will be looking to see that number go up significantly this year. On the basis of what we have seen so far, I am confident that it will go up, but, by quite how much, I do not know.

Q159 **Julia Buckley:** We are aware that you have repeatedly pushed on that electricity price, so I am sure that you are pleased to see not just the 150, but also addressing that imbalance between electricity and gas.

Nigel Topping: It does not address the imbalance nearly enough. It will reduce bills, but it will not address the balance enough.

Q160 **Julia Buckley:** What more do you want to see? What is the missing piece?

Nigel Topping: We did some estimates in the last progress report about just how much could be taken off electricity and either put on to the Exchequer or distributed to general taxation and gas. It is quite complicated to work out, because there are other things going on at the same time. As I say, when we have the full warm homes plan, that will be in time for us to do that full analysis. When we give you the progress report in June, we will be able to say what has been helpful and how much more is needed to be done. We may break that out in a bit more detail.

Q161 **Julia Buckley:** Ms Pinchbeck, will it help address one of those barriers around costs?

Emma Pinchbeck: Again, the answer to whether Government policy is enough to keep us on track is to do with what we will say in the progress report. Without having the warm homes plan, it is hard to give you that information.

Julia Buckley: You are hyping this report.

Emma Pinchbeck: I know that that is an answer that you really enjoy. However, there are two issues at play. One is getting bills down for people at a difficult time, which we have historically said would be a good thing to do, so we have welcomed the action that Government have taken in the Budget in that context.

For the CCC, what is important is the ratio between gas and electricity prices, because the evidence from other markets that have had a successful roll-out particularly of heat pumps, but also other electric technologies, which are core to the seventh carbon budget pathway, suggests that a critical factor in success is a ratio of electricity to gas prices of no greater than three to one. It is higher than that in the UK. We will say more on whether we think we have achieved that ratio once we have seen the full suite of Government policy proposals after the warm homes plan. On what they have announced to date, we are signalling that we need to see more in terms of that ratio between electricity and gas.

Q162 **Julia Buckley:** The carbon budget and growth delivery plan also assumes that wider factors and these cascade effects will themselves contribute almost 125 million tonnes of reductions over that carbon period. Is that a realistic assumption? What cascade effects will have the most significant impact on emissions?

Emma Pinchbeck: Again, we are planning on giving you a full readout of the carbon budget and growth delivery plan in the progress report in the summer. One thing to say is that they have modelled cascade effects, or taken a slightly different modelling approach to us. One thing that we are doing is talking to the Department about how it has come to model those cascade effects and the assumptions that it is making. We are doing that work with them to be able to give you a view in the spring that we do not have an immediate like-for-like.

Having said that, it is very reasonable, given what we know about how people adopt technologies, to assume that things will not necessarily be linear, and that there will be things such as cascading effects. If you are not clear on what those are, the Government quantified two feedback loops, for example. One is where they looked at time-of-use tariffs and those then leading to more reduction from new technologies or increased abatement. The other one that they looked at was, if you get an electric vehicle, you might be more likely to get a heat pump or a battery, if you have access to those technologies.

It is not an unreasonable thought process, and so, on the surface of it, it is not an unreasonable assumption. Unpicking what is behind the exact abatement will take more work from us, and we will give you some more information on that in the summer.

Julia Buckley: There are lots of promises there, and a really exciting report.

Emma Pinchbeck: Yes, an exciting progress report.

Chair: We are all looking forward to that one.

Q163 **Barry Gardiner:** Ms Pinchbeck, last time we spoke at this Committee, I challenged the CCC on its approach to SAF. You said then what you have just said to my colleagues now: "I will tell you next time". Now is the next time, and I want to push you a bit on this. Broadly, the Committee has received evidence so far that says that the balanced pathway is optimistic and is over-reliant on nascent technology, particularly for aviation. We are talking about direct air capture, SAF, or sustainable aviation fuel, and BECCS, or bioenergy with carbon capture and storage. Do you accept the criticisms that previous witnesses have made of your over-reliance on those technologies?

Emma Pinchbeck: I am very happy to answer that, but now that you have Nigel, who was here when the aviation advice was being developed, it might be a good question for him.

Nigel Topping: No, I do not accept that criticism. I welcome it but do not accept it. To say that we are techno-optimist is to have not read the very detailed approach that we take to how we think about technology. It is interesting that the three technologies that you talk about are three that are less mature.

Q164 **Barry Gardiner:** I accept what you said to the Chair earlier, but there are real question marks here over BECCS and SAF, never mind DAC.

Nigel Topping: We tend to think about technologies in two way. There are those that are more mature and less uncertain, where we are very much relying on evidence of learning rates—the famous Wright's law about how quickly costs come down with deployment. That is one of the reasons why we are so confident on EVs, because we see battery prices continuing to come down and sticker price parity being reached. Our modelling suggests that we will get to over 90% market share in terms of sales by 2030.

On the technologies that you talk about, there is much more uncertainty because they are earlier. They tend to be relevant towards the end of the pathway and not so relevant in volume terms in the 2030s, towards the end of this budget period and the pathway. What we do there is we only include technologies that are at least past technology readiness level 6, and we make sure that we keep optionality. We do not bet and gamble. In all of those, you will find that we have included in our pathway multiple ways of mitigating those emissions—behavioural, technology, and others. I know that you have to go and vote now, so I am happy to come back to that.

Barry Gardiner: It is a critical moment, but we will resume.

Nigel Topping: I would note that, on SAF, for example, you have also had people saying that we are not being ambitious enough.

Barry Gardiner: The Government are saying that. Their estimates are higher than yours, but I disagree with them as well.

Chair: Members will have to go and vote now, and we will return to this scrutiny with Mr Gardiner in a moment.

Sitting suspended for a Division in the House.

On resuming—

Chair: Unfortunately, I cut off my colleague, Barry Gardiner, in his prime, so now we are back.

Q165 **Barry Gardiner:** That is the nicest thing that anybody has said to me for a long time, Chair, that I am in my prime. I thought that I was well past it, but there we are.

Mr Topping, we are dealing with what you have admittedly said are the riskier elements—direct air capture, sustainable aviation fuel, and BECCS with carbon capture. 60% of the engineered removals such as BECCS that you talked about there are allocated to aviation. That is 13 megatonnes of CO_2 equivalent by 2040. That is in your balanced pathway. That seems risky in that the engineered removals are as yet, as you admit, risky and unproven, and are unlikely to be at the scale required in the timeframes that we may need them.

It also has ramifications for the other elements of the balanced pathway that we might need to use those emissions reduction elements for. It seems that you have gone down this line to allow aviation growth and not alienate Government. That is the primary accusation that people are making. You have seen where Government are going—they are going hell for leather for airport expansion and they want growth—and you have modified what you have said. My criticism to Ms Pinchbeck last time was that, instead of giving us science, you were giving us what you thought would be acceptable, whereas your job is, in effect, to tell us the truth, and then let Government say, "If that is what the science is, we are, none the less, going to take these decisions because, politically, that is what we can do".

Nigel Topping: You may want to jump in on some of the specifics about the number of megatonnes, but I will make just a couple of points about our approach. It is less science and more engineering and economics, to be clear. The science tells us how bad the problem is. The engineering and economics tell us about the solutions.

I did not say "risky". I said "less certain". There is a big difference, because these are solutions that are required later on in the pathway than some of the things that are more certain.

I just want to address head-on the accusation of bending with the political wind. Where we have these less certain technologies, the models often want to find the cost optimal and say, "Just do that". We force the models to keep optionality. Given that it is 10 or 15 years away and we have not yet had technology lock-in, we do not want a model to tell us what the answer is. We want to make sure that we have a rate.

We also want to make sure that we do not rely just on technological silver bullets. For example, in aviation, remember that we have a baseline of very significant demand growth of 45% by 2040. It is against the baseline that we are always mitigating. 54% of the emissions reductions in our balanced pathway for aviation are demand reduction, so it is not as if we have just thrown a technological silver bullet at aviation.

Q166 **Barry Gardiner:** While you are on demand reduction, can I just ask you specifically about that? The CCC position is that we need a carbon price on non-EU air travel. You say £272 per tonne by 2029, and the jet zero strategy assumes a carbon price on non-EU flights from 2035 of £484 per tonne by 2050. You know as well as anybody that, at the moment, the Government have no policies at all in place to deliver that price hike. You quoted 17% before the break there. You said, "We are less optimistic than the Government's 22%. We are saying 17% by 2040 of SAF", but the Carbon Brief analysis says that SAF will cut emissions by only 0.8% below the current levels by 2040, precisely because of the point that you have just made, which is that the demand is increasing exponentially.

We have nothing in place to suppress demand in terms of price indicator. You are agreeing that the price has to go up, but there is no evidence that it will. If it does not, you are not going to get those reductions that we need.

Nigel Topping: I have just a couple of thoughts on price, and then I will ask Emma to answer some of those detailed pathway questions. There are a couple of points that I want to make on price here. One is from our citizens' panel, where I would say that it is the food and aviation areas where citizens' panels come out strongest in their views that the policy response should be fair, and also that it should embody a polluter-pays principle.

When you talk about our model pathways assuming prices on emissions, it is really important to just consider that there are two ways in which you can send a price signal to try to dampen demand. One is that you can just reduce supply, but then the price goes to a scarcity rent and does nothing to change the trajectory of the sector. The other is that it can go to pay for the technology—in this case, for the SAF. I want to be very clear that we think that the latter is sensible because it is driving change. The other one is just pushing demand elsewhere.

Barry Gardiner: We are aligned on that.

Nigel Topping: Emma, do you want to talk about some of the details?

Emma Pinchbeck: Just to be clear about where that rent goes to in a polluter-pays model, it goes to airports instead of to the aviation industry, investing in staff, but also DAC. The costs in our report reflect some of those cost pass-throughs for the technologies that we are recommending.

In terms of price, you are, of course, right that one of the things in that model is that there is a degree of assuming what price will do in relation to demand, and assumptions about price elasticity for flying. Again, we have based that on the best evidence that we have, but, as Nigel has spelled out, in areas where there is uncertainty, we have not shied away from recommending contingencies in the carbon budget advice.

This is an area where, clearly, we have made a series of recommendations about the balanced pathway, but the Government will need to develop contingencies alongside investing in things such as SAF and whatever mechanism they have for getting the aviation sector to do its fair share of emissions abatement. That has been the thought process.

I also wanted to step back, because you mentioned other bits of the economy. Broadbrush removals in the pathway exist because, after the period of the seventh carbon budget, when we start to get into the late 2040s, there will be, as you know, bits of the economy where we are still emitting. Those will be primarily in agriculture, because we still want to farm and have livestock, and they produce emissions.

Q167 **Barry Gardiner:** If I could just add, if the Government follow your recommendation to stop importing as much biomass, reproducing the same biomass in the UK would take 3% of its land area, which is more than is being used for farming at the moment. I am really keen to understand the holistic way in which you have looked at these technologies that I called risky. What did you call them?

Emma Pinchbeck: Less certain.

Q168 **Barry Gardiner:** Unless we look at it in that holistic way from the point of view of biodiversity, farming and food security, we are not arriving at a sustainable solution.

Emma Pinchbeck: I was going to come in to cover that. If you think about the two areas of the economy where we will still have emissions—or three if you count some residual emissions from industry—they are largely agriculture and aviation. What the committee thought about removals is that, broadly speaking, man-made removal technologies are being driven by aviation and that polluter-pays mechanism. In the agricultural sector, we have thought about things such as natural sequestration, including trees and peatland.

When you then look at our land use advice, we have, for the first time, modelled a whole loop—or, using your word, "holistic"—system. Anything in the seventh carbon budget that has a land use implication is factored in to our advice on agriculture, as well as on things such as bioenergy crops across the economy.

You had evidence in previous sessions about our territorial accounting, which we can say more on in a moment, but your point was whether we have thought about that in the analysis. Yes, we have, and I would be very happy to take you through the detail of that.

Nigel Topping: Your assertion that we are assuming more land use than is currently used for farming is simply not correct, but we would have to take you through the detail on that.

Emma Pinchbeck: It would be worth us running through that.

Q169 **Barry Gardiner:** I do not think that you are assuming it. What I said was that your advice is to use fewer imports of biomass. If we were to take that to the extreme by importing all the biomass, it would be 3%. Those are the figures that I have on that.

I want to move on to what you said about biogas. We have heard in evidence that the future energy scenarios modelling for NESO, the National Energy Systems Operator, which was published after you issued your advice for the seventh carbon budget, highlights for the first time a greater role in the long term for biogas, or green gas, and for the gas network. Is there now a greater role for green gases and the national network than was considered possible at the time of publication?

Emma Pinchbeck: The view on this is that, while higher levels of available biogas supply, such as in the NESO modelling and from some other industry groups, are theoretically possible, we still stand by the recommendation that the route forward in most areas of the economy is electrification, which is particularly true for heat. It is not going to change our conclusion that electrification should be the main driver for decarbonising home heating.

I thought that it would be helpful to say why we differ in view. We have a similar amount of bioenergy supply in the balanced pathway across biogas, solid biomass and liquid biofuels. As you have heard in evidence from others, it is about 100 terawatt hours, so the same kind of primary input, but we use it differently across the economy, and we look, of course, right across the economy. You have just talked about SAF, for example. Some of those areas will sit outside the NESO's remit, where they are thinking about, for example, electricity generation or heat. That, essentially, is the difference.

Looking bottom-up, in most areas of the economy, we are comparing a technology with a counterfactual and working out what the cost-effective route is. In our case, we have looked at the cost-effectiveness of anaerobic digestion as an abatement measure in agriculture, for example. Again, we have differences of view on that when you stack it up against the electric or other alternatives. That is why there are differences, but it is the same broad amount of biomass in the economy.

Q170 **Barry Gardiner:** Thank you for that. Just finally, you said that you would be commenting on current policy in the summer, and I wanted to pick up what you said, Mr Topping, about the public engagement that you had had. The carbon price support mechanism applies a top-up charge to fossil fuels burned for electricity generation of £18 per tonne, on top of the ETS price.

Will you be commenting in your summer review on the fact that the Government were willing to increase the cost of carbon paid on domestic electricity consumption, which, of course, is essential for a decent standard of living, and particularly for the poorest households in the country, but have not applied a top-up charge to aviation, which, of course, is, effectively, a luxury element for many people, given that only the richest 3% of households fly more than six times a year?

Nigel Topping: We will not be making a specific point about the difference between those two policies, but we will, of course, in our progress report, be covering whether the plans for aviation and for electricity are going to lead to the legally budgeted outcomes. We will be covering them both in different chapters, as it were.

Q171 **Barry Gardiner:** So it is good that I made the point now, is it?

Nigel Topping: It is good that you made the point now.

Q172 **Carla Denyer:** My questions are going to link the two panels that we have heard from today, in that the first panel was about behaviour change, and I want to ask you your opinions on some behaviour change aspects. We have heard it described as unavoidable and an economically efficient way of getting emissions reductions, but as politically sensitive. Should behaviour change be treated as a formal delivery pillar for carbon budget 7 on a par with technology deployment? If so, how should that be reflected in the Government's delivery plans?

Emma Pinchbeck: I am going to repeat something that we have already said, which is that, in the pathway to the seventh carbon budget, the vast majority of emissions reduction—about 60%—comes from electrification and that technology change. There seems to be a view that we have not considered behaviour change in our modelling, when, of course, we have. As Nigel said earlier, it is about 22% of the balanced pathway to the seventh carbon budget, and about half of that is behaviour change in the way that it was framed in the first panel, and the other half is efficiency measures or more efficient technologies.

Really importantly, it is, of course, possible that you could go further on behaviour change, but we base our recommendations to you on the evidence that we can see. For behaviour change, that means what we have seen work in other parts of the world where they have gone as far as possible, and that has led to the recommendations that we have made to you.

Then, of course, the citizens' panel advice is really pertinent to this, because it is around what the public think and feel and will do. The public were generally on board with behaviour change measures, but they needed and wanted Government to make sure that the alternatives were attractive, affordable and available, including public transport system availability, alternatives to meat and dairy being cost-effective and available and so on.

The other thing to stress, though, is that, even with all of that, the public came back to needing access to technologies and wanting action, particularly on the up-front costs of technologies. It is important that it is in the analysis. We have looked at it wherever we can, but the advice that we have given you is based on the best evidence that we can see for it working.

Q173 **Carla Denyer:** Thank you. Do you have anything to add, Mr Topping?

Nigel Topping: I was just thinking that we do not always call it a behavioural insight. For example, I mentioned earlier the evidence where the spark gap is closer to two to one than our four-plus to one. That is direct evidence that that price signal is the one that drives heat pump deployment. On EVs, we know that fleets focus on the total cost of ownership. They will buy a more expensive electric vehicle, knowing that they are going to save, but domestic users focus mostly on sticker price, which is why our model for domestic really looks at that. Our advice on meat looks very much at what the historical trends have been. We do not see a potential for a step function, so we are constraining it a bit to what we see as being realistic. It manifests in many ways, but it is always in there. It is not always demand management, but is often a behavioural insight.

Q174 **Carla Denyer:** I am just going to provoke slightly, and then you can come back if you still want to. The reason why I framed the question as I did was not to deny the fact that there was behaviour change stuff in there. It was about whether you think that there would be any merit to it being a pillar that is thought about all together, so that experience and research that we already have about behaviour change can be applied as a project, if you like.

Emma Pinchbeck: The process for the seventh carbon budget did do that. We look at demand management with behaviour change as part of that across the whole economy. I have given you the aggregate figure. We also grouped solutions by household. We looked at what it meant for the household.

As I have said to the Committee before, two-thirds of emissions reduction at the household level come from the choice to get an electric vehicle, when your existing vehicle needs replacing and not before, assuming market conditions are appropriate. The same is true when you come to replace your heating system at the end of its life, and not before, and you get a heat pump. Two-thirds of emissions at what we think of as an individual or household level come from those two actions. That is why our emphasis has been on making the market such that those choices, which are behaviour changes, are straightforward for people, as well as cheap, convenient and accessible. The committee has taken a holistic view.

The other thing to note, as I am sure Nigel will, is that we had Becky Willis on the committee for this period as an additional special adviser whose specialism is behaviour change and working with the public. That was because the committee felt that it was important to the advice that it has given you, so it has been thought about. We can give you advice only where we can really see that it is feasible, but that is not to say that things cannot go differently or beyond what we are recommending to you in the balanced pathway.

Q175 **Carla Denyer:** We heard on the first panel and from you that perceived fairness is really important in maintaining public support for policies, and I just wanted to give you the opportunity to expand on how to deal with that, especially when there is a time or geographical element. Rather than it being just whether a policy is fair, is it better for some people in some parts of the country than others, or what if the cost and the disruption comes now and the benefit comes later? How do you factor those in?

Nigel Topping: The geographical question is a good one. We have not really tackled much on the geographical element. Of course, it is particularly relevant to some of the questions about grid infrastructure. Most of our thinking around fairness has been very much informed by the citizens' panel work, and a few things have come out of that.

One is a very strong common-sense view that the polluter should pay, but balanced a bit without penalising ordinary people. Again, there is a tension. For example, the citizens' panel on aviation was very clear that those who fly a lot should bear the burden of the costs of the transition, but for your average family who may go on an overseas holiday once every two or three years, that should still be within their reach. There is a nuance there that is a natural justice view.

The other point, which Emma made earlier, is about, "Tell us what the facts are". We find that people are surprised at how much progress we have already made. We do not celebrate the fact that we have already halved emissions and are doing a good job. People are like, "I did not know that. Tell us what the options are and why they are good".

We were talking earlier about the fact that a lot of people still have not moved to a cheaper fixed electricity tariff, and hardly anybody has moved to a time-of-use tariff, even though they would automatically save money with very little effort. Natural justice helps us understand and make stuff accessible.

Where there is an up-front cost burden, people will need help. That has been a very clear message. That is particularly the case, of course, with heat pumps. It is one of the reasons why we are so obsessed with the spark gap, because that makes the market able to do cleverer things with front-loading costs and smoothing over a bill period.

Then, of course, there is the point that was made earlier about the NDC and international fairness. We are also very clear in our advice that there is this prize domestically of £700 on transport costs and £700 on home energy bills at the end, which is the prize for us all making this transition. Most of our thinking on fairness is driven by that.

I will just add that Becky's advice has been fantastic. She has been an adviser to the committee, but we have been so convinced that we need that as a core part of the committee that I am now recruiting. One of the things that we are looking for is somebody who brings that behavioural insight. I do not know if you want to add anything. Maybe I missed something on the geographical point.

Emma Pinchbeck: We generally do not look regionally, because our job is to give you the overview for the UK as a whole. However, there are a couple of areas where we talked about regional specifics in the advice, one of which is where we talked about particular communities that will face significant change over the next couple of decades—for example, Aberdeen and the oil and gas sector, but also particular farming communities. The committee acknowledged that and talked about the need for particular approaches for them in the transition.

I will follow up on this, in case I am not right, but I think the farming archetypes that I talked about at the beginning, and the 15 or so farms that we looked at, have a geographic element. It is, for example, a largely dairy farmer in the north of England. I am from a rural community. The nature of farming and what kind of farm you have is highly geographically dependent, so we did capture some of the archetype work.

Lastly, on fairness, I would just point you to not just the citizens' panel advice, but also to the distributed impact analysis that, for the first time, looked at different kinds of households and how the overall impacts and the benefits, so the costs and the savings, fall on different kinds of household. That is there as well. Again, we did not take a view necessarily, but we laid out the evidence so that you can take a view, because some of the question of fairness is a political choice, which is definitely for you and not for the committee.

Q176 **Sammy Wilson:** While the message about reaching net zero by 2050 may have been getting over, a recent YouGov survey showed that 60% of the population, which is a falling number, now support it. Most of the measures that we have talked about here today do not have majority support, even though there is support for the general objective by 2050, and people may not be prepared to accept the cost and behaviour changes.

One of the other areas that we have been informed about is inconsistency, whether that is things such as reports that the Minister responsible for net zero has flown twice around the world since he has come into his position, although he wants everybody else to fly less frequently, or the Government's promotion of EV and then, in the Budget, it putting a tax per mile on EVs. That kind of inconsistency is bound to have had an impact on people's desire to do the things that are required to reduce CO_2 emissions. How important are the mixed messages from Government in causing resistance to the objective that the Government have set?

Emma Pinchbeck: There are two parts to that question. I would slightly push back on the public support for the measures, just thinking about the social research that you can find in the seventh carbon budget and the work that we have done with the public. It is true that there is perhaps not a majority understanding of all of the technologies that we want to deploy, or what the pathway looks like, but we have found that, once you have a conversation with the public, most of them are very supportive of not just the overall targets but the measures.

The thing that they mention frequently is a concern about fairness in various guises. They prefer polluter-pays mechanisms, so there is a concern about people doing their fair share, and particularly the private sector and Government, but also support for the cost of the technologies. Again, that is behind a lot of the recommendations that the committee then want to make.

Q177 **Chair:** Before you move on—and I will come back to Sammy in a moment—you say, "Once we have explained to people, they agree with us", but the majority of people have not sat down with you and had your explanation. Where are we right now with those people who have not been sat in a room and had explained to them what it is all about? Where is public opinion on this?

Emma Pinchbeck: Some of this feels like more of a question for all of you, in that you have the polling information and have seen the same social research as we have. Broadly speaking, people still support the net zero transition. There are decades' worth of polls that say that. It would be fair to say that, on the body of evidence, when the economy is constrained, people's concerns about costs go up. Their concern about the environment might go down, but, in most polls that I have ever seen of the UK public, the environment and climate change rate as a top-five political issue.

Chair: I will let you carry on with the second half of Sammy's question.

Emma Pinchbeck: That is partly the politics of it, which feels like it is definitely a job for you.

The other thing is that you can look at some of the market data, and I wanted to put some of these statistics on the record as well, if we could, in relation to how confident we can be about the seventh carbon budget, which is one of the questions that you asked us earlier. Of course, some of that is about Government policy action, and particularly enabling action on things such as the electricity price.

The other bit of it is what business and people are doing themselves. Some of the indicators that we talked about in the progress report this summer are good and on track for the trajectory that we need to follow. Just this week, the SMMT said that a quarter of new car sales are now electric vehicles. In the progress report in the summer, we said that it was a fifth; it is now a quarter. We have a 56% year-on-year increase in the deployment of heat pumps, and we think that the data looks good for this year as well, again foreshadowing the progress report for this June. Tree planting rates increased by 59% in the last progress report. The perception that things are not moving sometimes does not match the market data that we track, and that is really important to tell all of you as parliamentarians.

Q178 **Sammy Wilson:** Just on the car issue, 25% of cars are now EVs. However, the point that the manufacturers have made is that that was achieved only by giving a £15,000 discount on each of those cars, and they claim that that is unsustainable. You may have achieved that figure this year, but is it sustainable without destroying the car industry?

Barry Gardiner: It is £1,500.

Emma Pinchbeck: Let us not get into the exact economics of the car market, although there is the challenge of a low-priced electric vehicle globally, which will challenge our car makers as well if they cannot keep up with that market. The electric vehicle market is not just domestic. It is international. The statistics that I just talked about for UK sales are matched now by other major economies, which tells you that there is a direction of travel for our OEMs to keep up with.

Clearly, industrial policy and what happens with the manufacturing sector for the automotive industry is outside of our remit, but I would just point out that there is a very clear electrification happening of domestic transport that will impact our manufacturing sector here, and that speaks to the need to keep up with the market.

You asked about certainty, which is the most important thing. Of course, certainty matters, particularly for companies such as manufacturers that have long lead times in, for example, changing over their production lines or, in the world that I used to be in, the length of time it takes to design and commission an offshore wind farm. Businesses regularly come to you and say that they like the carbon budget framework because it gives them a 10-to-12-year roadmap, outside of a parliamentary system where there is often only a five-year look-ahead. That helps them invest because it gives them a sense of direction. That confidence that the Government are sticking to a long-term strategy really does help investment, particularly for large infrastructure and particularly cheaper capital-light venture funds. Of course, it matters.

Q179 **Sammy Wilson:** That certainty is important, and inconsistency can have an impact. We have heard about policy proposals in some Departments. One that was mentioned was from the Department for Transport, where the decision was made, in the face of the harsh reality, that you need a robust transport infrastructure if you are going to deliver economic growth, which is inconsistent and sometimes contradicts some of the objectives of the net zero policy. What role, if any, do you see for the likes of the Prime Minister's office or the Treasury in having some oversight—and, indeed, maybe some interference—in the work of Departments where it is seen that the policies that they are pursuing because they believe it is important to achieve their objectives contradict or set us against the policy of achieving net zero?

Nigel Topping: I will take that. As someone who spent the first half of my career in the automotive sector, I would just reinforce that consistency. It really does matter for confidence in investing in particular, which is what is needed for the private sector to play their part here. Of course, it is consistency within sectors, but there is also a need for some consistency across them. There is a co-ordination need. You have asked us previously about the mission board. My understanding is that that should be the forum for that co-ordination. We have not been asked to present to or participate in that board, so there is a very good question about joined-up governance of the transition.

There has been a very strong, supportive message from the Prime Minister and from the Chancellor. In the Budget, as we mentioned, there were some good, joined-up moves on removing policy costs from electricity bills. That consistency and co-ordination is really important, but we are not aware of how that co-ordination is happening at the moment.

Q180 **Sammy Wilson:** Whether the uptake and progress in technologies such as heat pumps is slower or more disruptive than was anticipated, how important is it that the Government maintain a wider set of lower-impact options, and what might those options include?

Nigel Topping: If you are talking about heat pumps specifically, I do not know what those options might include, because we are very confident that heat pumps are the technology for the majority—about 80%—of home types.

I just want to push back a bit on the assertion that progress is slow, because we know that this kind of technology adoption happens exponentially. Between 2021 and 2024, we have seen a 37% compound growth rate, and 56% between 2023 and 2024. That is from a very low base, and so, in absolute terms, you are right that it is slow. There were 96,000 or 98,000 heat pumps in 2024, but remember that there are 30 million homes, so 1% is 300,000.

Q181 **Sammy Wilson:** That is opposed to a target of 600,000.

Nigel Topping: Yes, but by when? Our pathway gets to 450,000 by 2035. To go from the 2024 figure to our 2035 target, you need compound growth of about 27% a year. For the last three years, we have had 37%. The key thing is to maintain that compound growth rate from a very low base. This is a case where we are very clear about the technology. For example, we have been calling for some time for the Government to clarify that hydrogen does not have a role in home heating. That would be one area where it would be good to give the market the clarity that the Government are going to start experimenting with an alternative to heat pumps.

Q182 **Sammy Wilson:** You have already mentioned in earlier answers that the seventh carbon budget relies on assumptions about future technology deployment, behaviour changes and policy acceleration, et cetera. Despite the fact that the Government believe that the targets can be achieved, only 2% of the public, according to the YouGov survey, believe that these targets can be achieved in the timescale that has been set for them.

At what point does a lack of optimism become a risk to delivery? For example, if people believe that you are not going to achieve this by 2050, they may well then say, “I am not going to go into expensive decisions, because it is pointless anyway”. What do you do in a situation such as that, where there is pessimism about achieving the objectives, and what kinds of contingency measures should be included to deal with that?

Nigel Topping: I have a couple of thoughts, but you might want to jump in, Emma. The really important point that you make is that, if people—the public and industry—start to lose faith that something that is being planned is possible, they will start making decisions on that basis. It goes back to your earlier point that, if people really do not think that something is going to happen, they will not act as though it will, so that confidence really matters.

There are a couple of thoughts. Part of our job is to call that out. We have called that out with the Scottish Government's plans. We said that the targets were unrealistically ambitious and not backed up by decent enough plans. We think that there has been a very good reset there. There has been a very good exchange.

The other point is that that is the purpose of the annual progress reports. We said in our last progress report that the current carbon budget is going to be really challenging to achieve, but it is still within grasp. In the next two or three years, we will find out whether it is going to be delivered or not. Of course, if we start missing carbon budgets, it puts more pressure on future carbon budgets. A big part of our job is to provide that progress report, and to call out when we think ambition is unrealistic.

Emma Pinchbeck: That is the purpose of chapter 6 in the advice, which covers all of the contingencies for if there is delayed action on a technology, or the S-curve that Nigel has spoken to does not come through, so that compound growth does not continue.

We have had conversations about the technology emphasis in the pathway. Some 60% of emissions reduction is coming from electrification. Put simply, that is an energy transition where we are recommending to parliamentarians that you take action to make electricity cheap. If you make electricity cheap, these technologies save households and the economy over time. In many cases they are more efficient than the counterfactual, as soon as you have them. If you drive an electric vehicle now, you are likely to be saving money on your driving costs already. If electricity were cheaper, that would be greater. If the Government take action on electricity, someone with a heat pump will save money against the counterfactual gas boiler.

We need help on the up-front cost, but these technologies are fundamentally efficient. We halve energy losses in the net zero balance pathway energy system, relative to the energy system of today. It is just a more efficient technology. A lot of this is about making the technologies more attractive and available. It is then not a conversation about net zero, as it were; it is a conversation about a cheaper technology. However, that does depend on those technologies deploying at the rates we anticipate. That is why there is a big chapter on alternative contingencies in the plan.

Q183 **Sammy Wilson:** Both yourselves and the previous panel emphasised the importance of the fairness in all of this transition. There was a recent study. By the way, the Institute for Community Studies was not being critical. In fact, it was wanting to see the targets achieved. Its recent study and research was done by researchers from Leeds, York and Trinity College in Dublin. It indicated that 40% of people who we regard as in the poor section of the population would experience what they call transition poverty. It outlined how this would happen in numerous ways.

In your commitment to ensuring that the transition is fair, whether that is in taking some of the costs out of electricity bills and passing them on to taxation or whatever it happens to be, have you done any estimate of the likely costs? How is the money going to be raised to pay to ensure that the transition is fair? Does it mean higher taxation? What you do is you just simply put the costs on in a different way. How much is needed, especially at a time when the Government are already saying that it is difficult to increase taxes any more?

Nigel Topping: That is an omnibus question. First of all, the point about transition poverty is why we have done the detailed distributional archetype work that Emma has talked about—to check that. I do not recognise that 40% figure, so that is interesting. We can take that offline and look at the distributional work we have done and that report that you cite.

In terms of the overall cost of the transition, as we have said in our advice, we see it has come down a lot since the last budget, partly because we have already done some of the investment and partly because technology costs are coming down. It is now a net of 0.2% GDP per year. That is a big investment and a big saving. This is a macroeconomic question. We see very big savings, but you have to invest to get the savings. If you do not invest, you will not get the savings.

Interestingly, part of the challenge we are having with the grid now is the result of deliberate decisions about 10 years ago to invest in generation but not invest in the grid. That has created some challenges. That was a macroeconomic decision.

Our analysis shows a relatively small net cost of investment over savings. Of course, our savings stop at 2050, because our remit is only to 2050. One of the things we are looking seriously at is extending our macroeconomic analysis through to the 2050s, when it is really all benefit and very little cost. How that is distributed is a political question about how progressive or regressive taxation is, how bills are assessed and things like that.

Q184 **Jonathan Davies:** Some of Sammy's questions related to the Executive; these ones relate more to the legislature. Under the Climate Change Act, Parliament is asked to approve a legally binding carbon budget. How important do you think it is that CB7 receives proper dedicated Government time for debate in Parliament? I understand that previously there was 17 minutes of debate in a Delegated Legislation Committee, which either shows that there was perhaps a political consensus around this issue or there was a lack of awareness that it was happening at all. I am not quite sure. In a way, it seems like a sad indictment of our politics that we did not spend more time looking at that. Do you have a view?

Nigel Topping: Our main view is that our advice is given to the Government of the day and to Parliament, and merits scrutiny. It is very detailed advice. It is over 400 pages of advice, with another 500 pages of methodological detail. That is a lot for anyone. We would expect that to occupy significant committee time. How much parliamentary time it gets is a question for the Government of the day. As I said earlier, the NDC, which has already been approved, which is the 2035 target, is based on the same analysis. That has already had some scrutiny. I do not know how much parliamentary time that had.

The other thing is that we are very clear that we are giving advice to Government as a statutory body, but we are also providing evidence to Parliament. I have recently written to the leaders of all parliamentary parties to invite dialogue at a party level, given that different parties have different views, and will have different challenges and different questions to our advice. We would welcome that scrutiny. We are doing whatever we can to make sure that our advice gets as much scrutiny as possible.

Q185 **Jonathan Davies:** Do you write to individual MPs with information about who you are and what you do? I suspect a lot of my colleagues are perhaps not necessarily aware of your committee and how it informs Parliament.

Emma Pinchbeck: No. I said this in a different session, possibly to the ESNZ Select Committee, but we are aware that there is more interest in the advice bit of our job for Parliament. We do now have some resources to be able to do that. We are a small organisation; most of our resource goes into producing 400 pages of analysis and 500 pages of methodological report over years, but we recognise that desire for you to hear more from us and to have that dialogue. We are expecting to do more of it in the run up to the seventh budget, to make sure that parliamentarians feel like you have been able to scrutinise the recommendations of the committee.

Nigel Topping: We really welcome any thoughts you have about how we might be able to effectively do that, because both the committee and the team would really welcome the opportunity to do that.

Emma Pinchbeck: In the process of issuing the advice last year, we did do a lot of stakeholder engagement in the run-up to the publication. Mr Gardiner has already referenced the last time I gave evidence; it was before we published the advice, which is why so many of my answers were, "I cannot tell you now". We also sat down with parliamentary caucuses and groups of parliamentarians and talked them through the advice, and we will be very happy to engage with any parliamentarians that want to speak to the CCC.

Q186 **Jonathan Davies:** Just following on from that, is the impact assessment that the Government plan to publish to accompany the draft CB7 legislation enough on its own for Parliament to scrutinise such a significant legally binding decision, or should Parliament also have sight of the delivery framework and outline sector plans at the point of approval?

Nigel Topping: The process that the Government are going through is the correct one according to the Act. The impact assessment alone is not enough, but it is not alone, because we have the delivery plan for CB6, which of course covers the period to 2037, and we have our very detailed pathways and evidence that covers the whole period. That is a lot of information. Of course, once a budget has been approved the Government will then have to lay the plan before Parliament, which will really add on the next five years of those pathways. The Government are going through the process as described in the Act. You have a lot of information about the whole pathway.

Q187 **Jonathan Davies:** In terms of all the various bits of information that are available to Government, there is obviously a wide range of net zero delivery data available across Government, but it seems to be fragmented. Would there be value in a single CB7 delivery dashboard, bringing that information together in a way that supports clear parliamentary and public scrutiny?

Nigel Topping: We think that we are producing that. You may tell us that we are not. In our progress report we have 23 key measures, some of which there is not enough data for. Sometimes that is because we are early in that technology, but there are 16 of them. Eight are green, four are amber and four are red. The four red are electricity-to-gas ratio domestically, electricity-to-gas ratio industrially, electric van roll-out—we have electric car roll-out as amber—and solar deployment. That is a pretty good starter for a dashboard. Again, we would welcome feedback on whether you think that is too much information or not enough information, but that is really what we try to do with the progress report.

In the time that I have been on the committee, we have tried to simplify it. Although this covers every aspect of the economy and pretty much every Department, we have found that 16 indicators or 10 key recommendations seems to get much better breakthrough in terms of communicating. We welcome any advice on how we can improve that, but we think that what we are producing is a useful annual dashboard.

Q188 **Jonathan Davies:** Are there certain moments where that is refreshed or updated? Some public bodies almost produce a state of the nation report. You know when that is coming every year. There is plenty of that around healthcare regulation. Do you perhaps do that? The media then knows it is a moment when you are going to give your take on where we are.

Nigel Topping: We do that every year. Every June is our mandated annual progress report.

Q189 **Jonathan Davies:** Bearing progress in mind, given the uncertainties and risks in the CB7 pathway, should Parliament expect Government to publish clear early-warning indicators and pre-agreed policy responses if delivery begins to fall off track?

Nigel Topping: There are two questions there. It is reasonable to expect Government to show progress. We think that we say whether we think things are on track. Government sometimes show progress but do not say whether it is on track. We think that a very good thing for Government to present to Parliament would be their assessment of what is on track and what is not, and what the plans are to get back on track.

The phrase you used, "pre-agreed policy", may be going a bit too far, saying that, "If we go off track, this is the policy to get back on track", because you need to know why you have gone off track before you do that. That might be going a bit too far, but we should expect the Government to report on progress and, in particular, to highlight where things are not on track and what the plans are to get on track. Obviously, we play a role in that, but we think it would be helpful if the Government did that as well. That is something that is missing from their progress reporting at the moment.

Emma Pinchbeck: It occurs to me that it might be worth stating the job of the CCC in terms of the Act, because sometimes the distinction is missed. We are the advisers to Government. On the advice on the carbon budgets and on the advice on adaptation that comes roughly every five years, that advice goes to Government. They will then recommend to you in Parliament a level of carbon budget, and that is what you will vote on. Historically, the committee's advice has been taken, so our advice on the target has become the Government's target.

Every year for mitigation, and every two years for adaptation, we report on progress as the auditor of Government for Parliament. The progress report is really the report for you. Therefore, if you think that the dashboard needs something different, I am sure the committee would like to hear that, because that is the information that you need to hold Government to account on the legislative targets. That is a distinctive dual function. We are advisers to Government for the carbon budget advice and for the adaptation statutory advice that they take or do not take, but then, once a target is legislated by Parliament, we give you the evidence that you need to look at delivery.

Jonathan Davies: Thank you. That is very helpful.

Q190 **Barry Gardiner:** Picking up on what my colleague Jonathan Davies has just said, you do publish this, of course, and it is available for MPs, but would it make sense for you to send, as he suggested, an executive summary to each MP? Very often, you go into the Table Office or the Vote

Office and, finding all the documents that you might want to look at, you come out with something like this. An executive summary sent by you to every MP might be a very good way of making sure that they have that information and, if they want to then research it further, they could.

Emma Pinchbeck: Both Nigel and I would say that we are quite keen to make sure that we are doing everything we can to make sure that you are getting the evidence that you need. Yes, that is a good suggestion. Any suggestions about how you would like to receive the evidence will be helpful. Clearly, in the information environment that you are all in, just simply publishing the advice and hoping you see it might not be optimal. It is worth saying that everything that we have spoken about today is available. Everything that we do is available online: all of the methodology reports and all of the supplementary evidence. Should you wish to read all 500 pages, you can find it.

Nigel Topping: If you ask us to do that, we will do it. If you do not, we will probably do it anyway now, given that you seem to be giving us the encouragement to do that. You understand the load on parliamentarians and how you best receive information. We are very serious about our job of providing you with tools to do your job—not you, the Committee, but parliamentarians more broadly. Please be proactive in telling us how you think we can do that better, to make it easier for you and your colleagues.

We have heard people say to us that it is very difficult to find the bit of information you want in a 400-plus-page document, and we accept that. We will do anything we can do to summarise or guide. We would be very happy to send a summary to everybody and to repeat some of those presentations to the caucuses of the interested.

Chair: Emma Pinchbeck and Nigel Topping, thank you very much indeed for that very substantive and full evidence session, which is tremendously helpful in our work. It is important to say that the scrutiny that this Committee has done on carbon budget 7, and the many people that we have heard from, has been an important part of ensuring that the scrutiny of the next carbon budget is better than the last one was. We will be feeding back to Government on that. Thank you for your help. Thank you to the Committee for their questions. With that, we will bring this session to a close.