Environmental Audit Committee

Oral evidence: Sustainability and HM Treasury, HC 181

Tuesday 5 July 2016

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Written evidence from witnesses:

- Veolia
- Mineral Products Association
- Chartered Institution of Wastes Management

Watch the meeting

Members present: Mary Creagh (Chair), Peter Aldous, Caroline Ansell, Jo Churchill, Zac Goldsmith, Caroline Lucas, Kerry McCarthy, John Mc Nally.

Questions 35 - 99

Witnesses: **Lord Deben**, Chair, Committee on Climate Change, and **Matthew Bell**, Chief Executive, Committee on Climate Change, gave evidence.

Q35 Chair: I would like to welcome Matthew Bell and Lord Deben from the Committee on Climate Change. Welcome to our Committee hearing this morning on the role that Treasury plays in sustainability. I have said before that this Committee intends to remain an island of stability in a sea of political and economic storms. You are very welcome here with us this morning.

Can I perhaps kick off our session by asking both of you about the Government announcement on the fifth carbon budget? To what extent are you happy; have they accepted all of your recommendations?

Lord Deben: I think that we have understood that the exceptional nature of the time has meant that they are a little behindhand. The Climate Change Act is very clear on timing, which, by the way, seems to be one of the strengths of the Climate Change Act, because it does stop things sliding, which in Parliament and Government very often do. But I understand those circumstances and that within those parameters they have published—it seems to me perfectly reasonably—and they have done so in a way that accepts the broad thrust and the details without the kind of reservations that some suggested might happen, so we are very pleased.

Q36 Chair: You are happy with the Sovereign Act of the UK Parliament then that set out those five-yearly budgets?

Lord Deben: Yes.

Q37 Chair: As well as setting the fifth carbon budget on Thursday, the Government also set out the credit limit for the third carbon budget. Are you happy about that?

Matthew Bell: As you say, rightly, there are two different things that happened. One is that they largely agreed with the 57% on the fifth carbon budget around 2030. The second thing they had to do was look at the credit limits for the third carbon budget, which is the next carbon budget period that we will enter into. The committee had advised, given our knowledge of technology, given our knowledge of where things are in terms of the economy and GDP and income, fuel poverty and everything else, that the third carbon budget could still be met without needing to use overseas credits and offsets in order to meet those. We are still having some conversations, but our understanding of what the Government have proposed is effectively because there is still some uncertainty in the forecasts—and the forecasts have to go out five years or so over that third carbon budget period—it was prudent to roll over the credit limit that they had in the second carbon budget that they had had previously.

The legislating to permit the use of carbon credits is solely there to account for uncertainty over forecasts, rather than to offset a lack of action to meet the carbon budgets. On the basis that there is some uncertainty over the next few years that sounds sensible. The committee has always been very clear that, unless there are exceptional and unpredicted circumstances, international offsets should not be used as a reason not to act domestically.

Q38 Chair: Because they could be seen as a watering-down of the carbon budget, couldn't they?

Matthew Bell: They could be. If the anticipation of their use was that it would delay action and delay emissions reduction in some of the sectors in the UK, then that would not be consistent with us ultimately being on the least cost path to 2050, which we have to achieve through actions in the UK.

Lord Deben: The point all the time is we have a statutory requirement to reach a particular point in 2050. We are charged with ensuring that we do that in the most cost-effective way, but both the words "cost" and "effective" are important in that, and we are not effective if we use mechanisms that should only be used for an emergency, something that happens that you could not have taken into account. That is a perfectly reasonable flexibility. You need to have the power to use that flexibility, as long as you are quite clear in advance that that is not for general use but is merely to be a power that might be of necessity in very specific and extreme circumstances. That has been the Government's view of it.

Q39 Chair: When you said it is to be used in an emergency, do you think that is what we are in now?

Lord Deben: No. It just is that we are talking about a period far enough ahead, even when we talk about the third carbon budget when we cannot read everything, we cannot tell everything. We are very honest about the fact that the difficulty you have is that you cannot be sure of everything all the way along the line, you just try to do it as well as you can. That amount of flexibility, for a real reason, has been in the system. We are happy for it to continue to be in the system, as long as it does not in any way suggest that it would be a normal way of meeting the targets that we have to meet from our own resources.

Q40 Chair: A final question from me: emissions in 2014 were already 10% below the level that is necessary to achieve the third carbon budget. Do you see things changing that means that these offsets could be needed?

Matthew Bell: The thing about emissions is that they are not like money that you put in your bank account and that you know is there, they can go up or down. They have been on a downwards trajectory pretty much since 1990 and, as you say, over the last few years. There are a range of factors that determine whether they continue going down, not least of which are policy decisions by Government. You are right, we are well within the second carbon budget now and we think we are very likely to meet that. We are within the third carbon budget, but it is far enough in advance that if, for example, transport policy does not deliver on starting to reduce emissions in transport or buildings policy does not start to deliver on reducing emissions in buildings, then the curve could go the other way. That is why it is important for us to think in those five to 10-year timeframes and make sure that we are continually putting things in place that will continue that trajectory.

Q41 Caroline Lucas: Would you agree that it does send out some negative signals, to be building in that degree of contingency because, although you say it will only be used in an emergency, there is no reassurance about that? Given that we are already on target to not need it, I would argue to give out that signal is, at the least, ambiguous in terms of investors and so forth. I wondered if you would reply to that.

Lord Deben: If it were a new signal I think you might have a case, but it is a continuation of a policy that we have had. It does not seem to me to be an unreasonable policy in the circumstance of saying we have a very rigid arrangement, which is unique in the world, which says, "We are going to achieve this end and we have a mechanism that enables us to do that in the most cost-effective and sensible way of doing it". It is not unreasonable in those circumstances to say, "We do not intend to use these things that make it easier; we do not intend to use them, but it is legal to use them and if there were circumstances that made that sensible, we would not object". But they would have to be specific circumstances and I do not think that is a bad signal at all. It would be if suddenly halfway through the programme we said, "Oh, we haven't done it up until now, but we will do it now". My own view is that it has to be read as it has always been read, which is: it is in the system but only for extreme circumstances.

Q42 Caroline Lucas: You do not think it acts as a disincentive to be, for example, upping significantly the amount of resource that goes into energy efficiency right now, because there is this sense that people have this "get out of jail free" card that they can use if they need to?

Lord Deben: It is a judgment. I don't think that is. There are other things that make people less willing to do some of the things I want them to do, but I don't think that is the one that I would use as being germane.

Matthew Bell: An element of the signal is clearly the carbon budgets; another element of the signal is the emissions reduction plan that has been committed to by the end of this year. The emissions reduction plan—which may or may not be called an emissions reduction plan—is intended to set out how the fourth and the fifth carbon budgets will be met, what are the sets of policies and the sets of initiatives that will be put in place to meet those carbon budgets. The credibility in that sense is: are there are a set of policies and a set of initiatives out there that will credibly deliver the fourth and the fifth carbon budgets and through the third carbon budget in the process? Is there credibility behind that without needing any credits or any external action, action beyond action that the UK may take? As we also said in our progress report to Parliament last year, that will be a very important document. It will be one that the committee will review and will be able to say then whether the domestic action and the action that is being taken here is commensurate with the ambitions set out the carbon budgets.

Lord Deben: It would not be possible for us to support a programme that did not meet that requirement. It would not be possible to support a programme that inherently believed that you could use these, as you kindly put it, "get out of jail free" cards.

Q43 Chair: You did write to the Government on 24 February recommending that the credit limit should be nil, so it is a material change from your advice and it is quite a significant change, is it not, given that you wrote that letter in February?

Matthew Bell: It would be useful for the Committee to follow up with DECC and ask them to set out whether it is a material change. As I said, my understanding is that both the advice that we gave and what Government has accepted is that the credits that they have legislated for are not intended to replace domestic action to meet the carbon budgets. What they are there for is because there is uncertainty in the forecast, for example, of the baseline. If we took no action at all from now onwards, we are not sure what emissions will be in five years' time. They could be slightly higher; they could be slightly lower. There is uncertainty just in the forecasting. That is the reason they feel that need to have that level of protection. Prima facie, that is not an unreasonable reason. What would be unreasonable is if they are legislating the credits in order—as we were saying earlier—to avoid action, whether it is on energy efficiency or transport emissions or the power sector or anything else. Our understanding is that is not the case but it is worth following up with Government.

Chair: Maybe they know something you do not know.

Matthew Bell: Maybe.

Lord Deben: If they were doing that, then that would be contrary to the advice that we had given.

Q44 John Mc Nally: In the committee's opinion, how important is the Treasury for helping to meet the UK's carbon budgets and can they be met without Treasury support?

Lord Deben: The Treasury of course is almost instinctively unhappy about anything that restricts its total freedom of movement. This is a fact of life, a fact of all treasuries, not just this Treasury or this party or any other party. It is the nature of treasuries to want to have total freedom. Of course what the Climate Change Act does—and what other things no doubt will do—is to recognise that there are some circumstances and some policies that do have to have a longer-term programme. You cannot avoid that. Somehow or other, you have to balance the immediacy and the opportunity for change that a democratic system demands, and the fact that if you do not keep a policy over a long period of time, you cannot solve certain serious threats. It is that balance that—in my view, remarkably—the Climate Change Act managed to make.

Treasuries of course would much prefer to be in total control at every moment without any kind of restrictions, but I must say, so far we have found the Treasury to be—after the initial arguments, which we all know history took place—remarkable in accepting what their role has been. For example, the £7.6 billion, which was a necessary amount up to 2020 for the first part of the decarbonisation of the electricity supply, was provided for by the Treasury at a time in which very severe cuts were done for many other things. That and, in my view, the very welcome protection and extension of the aid budget were the two things that one could point to as having been maintained.

In the macro sense, Treasury has been not only helpful but would have to be helpful, because you could not deliver it otherwise. That is certainly true. We have regular discussions with the Treasury on the issues that mutually affect us. They are very important for delivery, particularly because they have so much interconnection with all the Departments that we have to deal with. So I would not underestimate their importance nor would I say that they are other than, in a macro sense, very supportive.

Matthew Bell: I guess the other bit of context to add is that there is—and particularly in light of the conversations around investor certainty and the role of Treasury and the long-term nature of carbon budgets and the 2050 target—always a risk of a mismatch at two different levels. On the one hand, Treasury can view itself as the guardian of the overall fiscal position. In that respect it will set Government spending targets and departmental spending targets. It will set them in line with whatever fiscal rules the Government of the day and the Chancellor want to have. In that context, carbon budgets as well provide the high-level targets. That provides a high-level articulation of the direction of travel.

There is then a second role, which is the involvement of Treasury in specific departmental decisions, specific decisions around carbon capture and storage, grants for electric vehicles, or in other areas, GP contracts or schools' capital funding or wherever it may be. The risk of the mismatch in terms of investor sentiment and investor certainty is that if Treasury is going to be involved in those types of discussions and conversations, then it also has to be part of the articulation of the vision for those sectors, so: where are we trying to get with the power sector or where are we trying to get with transport? The mismatch happens if Treasury involves itself in those detailed decisions but only articulates a position at the very high level about the fiscal rules and departmental spending.

You can make a choice; I think treasuries can make a choice. They can make a choice about, "Do we stick to the high-level ambition, both articulating it and overseeing it, or do we get involved in the detailed decisions?" Then we also have to be involved in the more detailed articulation of policy in those areas, because that is when investors and other people are not sure how to treat departmental announcements and how much confidence to put in what the Departments are saying.

Q45 John Mc Nally: Some of the evidence that we have been presented with, we have had descriptions of: the influence of the Treasury from "very strong and influential" to "profound". Do you think the Treasury should then play a role in making sure other Departments contribute appropriately towards the UK's climate change obligations?

Lord Deben: One wants to extend what Matthew said about the nature of the Treasury. The more involved the Treasury becomes in the detailed policy, the more it becomes essential that the Treasury explains how that detailed policy will end up in meeting the targets to which, at the high level, the Treasury has undoubtedly signed up. If it is not involved in this, then it is for the individual Department to defend that.

Q46 John Mc Nally: You are telling us that there is co-ordination within the Treasury to choose the sustainabilities integrated into their various Departments? We seem to be getting conflicting messages with this.

Lord Deben: I think I am saying something, Mr Mc Nally, further than that. I am saying that if it is involved, then it has to be involved in the articulation of the total picture; it cannot be involved in arguing about this particular issue and then just stick to the overall thing. It has that role and it is also the role to which you refer, Mr Mc Nally, which is a degree of ensuring that if this is what Department A is doing, that what it is arguing in Department B is consonant with that, that the two come together.

Q47 Chair: Are you saying that there is not coherence in what the Treasury argues at the high level and then the decisions that are made at departmental and policy level? You are saying it is important that that happens. Do you think it does happen?

Lord Deben: The Treasury is very clear at high level and less clear at the individual departmental level and it is important for that to be clearer. It is also important that we do have an understanding of the different lengths of time that are needed by business. If you want confidence, it is very good to say, "Up to 2020 we have this confidence", but if you then have a long gap to 2050 that is difficult for business to handle, and different sorts of business have different sorts of lengths of time that they need.

As a businessman, one of the things for me historically is I just recognise that, if you are going to build a power station, you have to have a long period of knowledge to be able to do it. If I am building some warehouse, I have a shorter period and I write it off over a shorter period. I am not always sure that that is taken sufficiently into account in the decisions that are made at the Departmental level and that are made there with very considerable Treasury influence.

Q48 Peter Aldous: At the outset, I should just say that I do have a specific constituency interest in offshore wind. I am a partner in a family farm that has a solar PV field. I am also on Lord Oxburgh's informal committee looking at a way forward on climate change, carbon capture and storage.

Set in that context, I think you both very much articulated the challenges the Treasury faces in setting that long-term vision against the dynamic of an electoral system every five years. Just exploring in a little more detail what the Treasury's role should be in an ideal world, in setting that long-term vision, in not having sudden changes in policy with specific industries that might be described as sudden flip-flops, which investors have no indication are coming, and also articulating that long-term vision and not having cliff-edges, say at 2020, I would welcome what you think should be happening in that ideal world.

Lord Deben: First of all, I think we have to make a distinction between means and ends. One of the problems is that we are committed ourselves to the ends. The means are mechanisms that are chosen by Governments to achieve those ends. The Climate Change Committee's job is to say whether those means are going to reach the ends that are demanded. It is not there to tell the Government, "You should do this rather than that". It can advise this or that may be necessary. It can advise that a range of things might be necessary and it can in retrospect each year say, "It did not work that way, did it? We will need to do some other things and here are the things to do". In a democratic world it is the right of the Government to make those decisions.

The next thing that comes from that, of course, is that there are people who enthusiastically understand the need to deal with climate change but for whom any change is seen as a damaging thing. I am inventing this for a moment: if the Government felt that we had too much solar for the way in which the structure is and, therefore, pulls back on the opportunities for solar, there are people who will immediately say that that is to deny the overall, which is entirely unacceptable. It seems to me that one has to be sensible about this and to say that there will be changes over time as to the emphasis. Particularly, if you have a portfolio of mechanisms to produce the low carbon and no-carbon electricity that we need, you are bound to have those changes.

I think we have to distinguish between the Government's right, indeed duty, to change things when clearly they have the measurement wrong or the market has moved very much faster or the price has fallen very much more sharply. It would be ridiculous to say that they would have to stick to whatever it is that they said, so then you have to say that it must not be retrospective and people must be able to trust that what they have signed up to they continue to have. I think the problem area is the bit between those.

The problem area is: how do you give enough time for people who have genuinely built on the Government's promise, but are not quite there; what are the rules about that? They are very important for confidence. Also protecting yourself against the concept that the perfect is the enemy of the good and that sometimes you have to allow something to continue that is not perfect. It is not how you would start it, but to change it would cause real difficulty in the marketplace.

In general, I think those things are best done if very properly discussed out. I am not sure at the moment that we have a close enough discussion with the Climate Change Committee about the details of those things. Of course they would have to be in entire privacy, but it is the repository of the best knowledge. The Treasury is not necessarily. Although we have constant talking with the Treasury and it listens very carefully, I am not sure we always have a specific discussion about a specific concern that the Treasury has—whether it be on CCS, whether it be on onshore wind or whatever else it is—sufficient to make sure that all the best evidence has been brought together before a decision is made. It is for the Treasury to make that decision. It is about the evidence upon which that decision is made.

Q49 Peter Aldous: Should you be having that discussion on specific technologies with the Treasury or with DECC?

Matthew Bell: Partly that goes back to following up now on what we were articulating earlier, that if in your ideal world the Treasury is going to be involved at that detailed level of decision—and I think it is a strategic choice for Treasury, they could say, "We are not going to be. We are going to be the guardian of the fiscal rules and overall spending and we will not involve ourselves"—then it becomes incumbent both for the Treasury and the Departments to jointly articulate, "This is where we think the power sector should be in 2030" or, "This is where we think transport should be by 2030". In the context of something like an emissions reduction plan, when it comes to the carbon budgets, for them to jointly own that decision, which provides a level of clarity and a level of visibility to investors and to the public sector who have to come up with policies, and then for us to be involved both with Treasury and with the Departments when it comes to particular decisions to make sure that in the area of our expertise—which is the carbon budgets and climate change—is the right evidence being considered?

Q50 Peter Aldous: Do you feel that the carbon budget framework, the Treasury pays enough attention to it in terms of creating a stable environment for investors and innovation?

Lord Deben: Yes, I think it does. I think there is no perfect system, but this is a pretty good system for doing that. It is about outcomes, which is very important. It therefore defends itself against fashion and particularities of the marketplace. I think it is very effective. The point that I was making—I want to underline this—is that it is a Treasury decision. If the Treasury sticks to the high level and leaves the Departments to make the decisions, then the relationship is between the CCC and the Departments on those decisions. If that is not what it does, then there is a different relationship that needs to be built, which to a large extent has been built but I think needs to go further so that, when decisions are made on a joint basis, they are also jointly informed by the expertise of the Climate Change Committee.

Q51 Peter Aldous: I know very much that you try not to get your technology neutral, shall I say, but did you see carbon capture and storage playing a key role in meeting our carbon budgets?

Lord Deben: Carbon capture and storage is absolutely essential. We have made that very clear as part of the world as we can see it from now. We are looking at the world long distance, but we don't see that you could have a package that does not have carbon capture and storage in it. The mechanism for delivering that is a matter of argument, and again ends and means. The distinction is very important. It is not for the Climate Change Committee to say that a particular means of delivering carbon capture and storage is essential. It can advise that some means is better than another and, "There are drawbacks with other things and do the rest of this", but the decision is perfectly properly in the hands of Government.

What I don't think is in the hands of Government is the judgment as to whether we need carbon capture and storage as part of the mix. We do. Therefore, if the Government decides without discussion that the way they were going to do it is no longer the way to do it, then it is perfectly reasonable for us to say, "Then what way are you going to do it?

What is the other mechanism for doing it?" That is precisely one of the reasons why we are so interested in the work of the Committee on which you sit, Mr Aldous. We have to find an alternative way of ensuring that we have access to carbon capture and storage. It may be that in 20 years' time we discover that there were other ways of dealing with these things, but you can only live in the world as you are and you can only build on your best information. It is surprising how people do not seem to understand that, as recent events have shown, but you can only work on the best information that you have. On our best information—and very strongly—we think that carbon capture and storage will be a necessary part of defeating climate change.

Q52 Peter Aldous: The final question I have is on the recent referendum result. What role is that going to play in the whole role of creating a favourable investment for businesses investing in the low-carbon sector?

Matthew Bell: It is important just to step through that—and I am sure Lord Deben will have comments—in a few stages. First of all, the Climate Change Act at the highest level, which is a UK piece of legislation, not derived from any European requirements or directives or anything, is not affected by the referendum. The processes and carbon budgets and everything else that it sets up are not affected by the referendum. In fact, we have now had legislation off the back of the Climate Change Act by a Labour Government, by the coalition Government and now by a Conservative Government across a broad range of political views and political spectrums. That is an important foundation stone when it comes to investor—

Q53 Peter Aldous: I accept that. Is that a foundation stone that investors accept?

Matthew Bell: I think it is a starting point. It is not the end point that investors accept. Then the question is: what flows down from that? One of the things that flow down from that is the carbon budgets. We have now had the fifth one agreed with by the Government and that provides perspective. Then you get into what flows down from that at each of the individual sectoral levels in the power sector and in transport. That is where we come to this means versus ends discussion, that clearly some of those mechanisms are intertwined with European mechanisms, the EU Emissions Trading Scheme, fuel standards for cars, product standards, the Common Agricultural Policy, a whole range of mechanisms are tied up then with Europe.

It is effectively too early to say right now what will happen to those. What is clear is that the basis of the carbon budgets is that they can be met through domestic action and, to the extent that policies and initiatives that have come from Europe change, we will be able to make commensurate adjustments and meet the carbon budgets in that way. For a specific investor in a particular sector, they will want a particular type of certainty. That is then another level down and we could discuss each individual sector, but I think that is the framework within which investors will—

Lord Deben: Obviously we are working in a world that we had not expected to work in and that has certain very fundamental difficulties not least that a whole series of questions, which did not have to be answered, will now have to be answered in one way or another. As we do not know in what way they are going to be answered, there is an inherent uncertainty. In a curious sense, our policy on climate change is less uncertain than almost anything else we are talking about, because there is a fundamental Act and a clear majority in support for it. That is very happy, but it will mean that—and we will have to remind people all the time—because of exterior uncertainties, there will be assurances that will be necessary to be made by the British Government that might not have to have been made had we been in the same context as we started off by. That will be true, but that is true of any kind of statement about anything in our society, which is the reason that many of us warned of the considerable dangers of throwing ourselves to the mercy of events that we have managed to do. But as far as climate change is concerned, I do not see that there is a fundamental change in it, except that we are now going to be in a less certain world and that must always be more difficult than being in a more certain world.

Q54 Zac Goldsmith: I want to come in on the end of Peter Aldous. In the overall package that you were describing earlier, which we are going to need in order to meet our carbon budgets, why do you think it is that over the last few years—this may be a little unfair—so little emphasis has been put on efficiency and demand management? Where, in terms of the value for money or the cost-effectiveness that you were talking about earlier, that clearly is where the solution is cheapest. Is that a political issue?

Lord Deben: I think it is fundamentally your fault; not you personally. If I may speak as an independent, I think it is to do with boys' toys. I think it is fundamentally that politicians want to have things that you can point at and say, "We have done that" or, "We have built that". The problem with energy efficiency and with these things that are much deeper in their impact, but slower in their impact, it is very difficult to say, "Do you know, I have been responsible for a 22.2% increase in the efficiency of light bulbs". It just is not good on a platform. I think it is a real problem of how you articulate those kinds of things. You can see the audience turn off as you get on to the subject of not boiling as much water in your kettle, more than you need.

Q55 Zac Goldsmith: No, I understand. As you will know, over the last few years DECC have been trying to produce or deliver a programme they have been referring to as "Negawatts". They have been talking about this now for the last eight years—preceding the coalition Government—the idea of putting energy saved on a par with energy generated and creating market incentives for doing it. Why has that stalled? We have had a lot of talk, a lot of enthusiasm. The current Secretary of State, the previous Secretary of State, everyone has been excited about the concept and yet, as far as I am aware, we have made almost no progress. Is that because there are technical difficulties in tweaking the market to incentivise energy efficiency, or is it because these are not glitzy new toys and the excitement levels are not there?

Lord Deben: It is not as bad as you make out, first of all because the policy on smart metering and smart grid opens up all sorts of opportunities for doing this, which will be very advantageous. It is amazing how very simple changes can make a huge difference and what a row happens when you do it. When you say, "We don't want a particular kind of light bulb and by removing that you really do make a difference", certain newspapers talk about it as if we have entered the Third Reich. It is quite unbelievable. "They will take away our kettles" was an important part of the campaign for leaving the European Union. They were not taking away any kettles at all, but what they were saying is that you should not sell kettles that are unnecessarily expensive of energy. I do not accept that Mr Dyson has a right to say that he can produce a product that uses more energy than it needs to use.

It seems to me those issues are going to be just as difficult for a Government that is going to say it is not going to do it on a European basis. In fact, it is going to be more difficult, because it is going to be very difficult to see how you are able to do it for this small market when we need to do over the larger market. Quite how we are going to handle that sort of thing I do think is a very real issue. I think it is going to be more expensive and more difficult and the argument of articulation will be very much greater.

Matthew Bell: On the Negawatts and the idea that the demand side could bid into the power sector auctions in the same way as supply side and generation could do, I think there is a strong argument that we could be more ambitious than we currently are, that changes to the auction regimes in the markets could happen faster than they have had to allow a proper bidding to get the least cost solution to whether we need to supply more electricity or whether we can reduce demand, given all the energy efficiency savings that have happened. There is a pragmatic point about the fact that the auctions have been designed in a certain way up until now and there is a bunch of learning that has to take place in DECC, and among the potential demand-side participants in the auction, in order to make sure that it works effectively and we still do balance demand and supply and keep the lights on. So there are some pragmatic considerations, but the ambition to make sure that we include that demand side properly in the market makes complete sense from an economic point of view.

Q56 Jo Churchill: Following on slightly from the earlier point about the Treasury's central position, giving your evidence you have inferred that it has a central position, but then it sort of picks and chooses whether it wants to work at a micro level and does not always communicate effectively with those parties that it needs to while it is doing that. Given that and this less certain climate, we used to be considered a stable market to invest in, but we no longer are. Are there mechanisms we could use, like break clauses and so on, that would be more attuned to driving investment in so that investors could work out a degree of certainty? Thinking of the way FIT tariffs have gone and pre-accreditation has gone and so on and so forth, this doesn't allow, particularly on our large-scale investments—and I am not talking solar, I am talking the big kit—a degree of projection to be applied.

Taking that just one step further, technology: does the Treasury have a central role around initiating or incentivising technology in order to improve the situation, because again, if we do not fund it, we will not find it out?

Lord Deben: First of all, the point that you make about the Treasury's involvement and uncertainty, of course becomes even stronger if there is less of an outside series of parameters, which you have—that is merely the fact of removing ourselves from the European Union—and the Treasury, therefore, seems to me to have a greater responsibility to add to the sureness of people and to the confidence of investors now than it would have had before. That must be true. Its natural attitude is to do that at a high level, to say, "We do this by reducing this tax or increasing that opportunity or investing in that kind of encouragement". The more that it deals with things in a basic departmental sense; it also has to do that. It is the parallel of what we said earlier on, it has to realise that it has a role there. If it is going to have a role at all, it also has to have a role in ensuring people's confidence, otherwise all that happens is that a Department says, "Terribly sorry, we cannot do that, because the Treasury will not let us". That is a well-known thing. It is exactly the same way as people saying, "We cannot do that because the European Union will not let us". Most of the time that is not true, as a matter of fact, but it is a good way of shovelling it off. Similarly, the Treasury has to get itself into a position in which there is a single and clear view about these things in which it is involved that will maintain the confidence of investors.

The other thing that I think that you are alluding to is the whole question of technology. For me, this is going to be one of the biggest challenges in the future, because technology is moving so fast. The latest exhibition, the last Monte Carlo exhibition, it is so far ahead of what we thought about last year that getting to grips with that, in a society that is extremely suspicious of picking winners and all the rest of it, is extremely hard. There will need to be some much greater concentration on how we help the technologies we need to market in the circumstances of a small market.

Q57 Chair: Sorry, I have to move you along, because we have to finish. You talked about investor confidence and we have talked a little bit about the unsexiness of loft insulation, but where do you think the decision to cancel the CCS competition has left the UK carbon capture and storage R&D and the businesses that invested in some cases millions—possibly 10s of millions of pounds—in that?

Lord Deben: At the moment it has left it in a state of abeyance, I think that is the only way to put it, until there is some alternative clear direction. There is work going on and—

Q58 Chair: Do you have any indication from Treasury or DECC what the alternative is for CCS?

Lord Deben: Absolutely.

Chair: You have?

Lord Deben: We have insisted that there should be such an indication. That is very important and we would expect such an indication, because if there isn't then we will not be preparing properly for the budgets that we set forward.

Q59 Chair: When do you expect to see that?

Matthew Bell: There are two things. Where we sit right now, the Government has been very clear that carbon capture and storage is part of the long-term solution to climate change. They have been very clear that in order to meet both our domestic UK targets, as well as what we signed up to in Paris in the international agreements, we are going to need carbon capture and storage. In the committee's view the issue is, given the evidence that we have seen—and this is the Climate Change Committee—in order for that to work, we need to start quickly on carbon capture and storage in order to do the pilots, put the infrastructure in place, get ready, because you cannot turn it on at the flick of a switch when you need it at very large scale in the 2030s and 2040s. The Government so far has not articulated a view about whether it needs to do something quickly or whether it can wait a decade or two and then do it. The latest analysis suggests that if you wait a decade, you very much increase the costs of delivering CCS.

Q60 Chair: We are waiting a decade though, because we have spent seven years on the competition.

Matthew Bell: As part of the emissions reduction plan at the end of the year, there will have to be an articulation for the power sector of how the power sector is going to get to where it needs to be in 2030, for industry about how we are going to get to industry and start to decarbonise industry and transport. The reason why carbon capture and storage is an important part is because it cuts across all of those and that is why it is still a technology neutral argument that CCS has a role, because it is cutting across and creating options in a whole range of sectors. Given the decisions that have been made, looking forward that now needs to be articulated, otherwise we do start to lose the skills, the expertise and the knowledge that was built up over the last seven or eight years.

Chair: Also the investor confidence.

Lord Deben: When you say, "What is the time?" it must be in that Government statement before the end of the year. If it is not in that Government statement, then in fact we will have made a decision about the way in which this was developed that is wholly contrary to the cost-effective way of delivering what the Government agrees has to be delivered. So that is the date, in very clear terms.

Q61 Caroline Lucas: I want to ask you about some computer modelling, because we have had quite a bit of evidence from people saying that the CGE model, which the Treasury depends on, is not very helpful because it does not account for the wider benefits of decarbonisation to the economy, whether that is to do with health benefits or greater innovation and so forth. My question is: what you think the impact of that particular way of modelling is and whether or not that is conducive to positive outcomes or not?

Matthew Bell: All models—and not just the HMRC CGE model—you have to treat as providing a range of evidence, but not as the gospel on what the world really looks like. Effectively there are two different types of models that you can look at. The kind of general equilibrium models that Treasury has, which roughly say that the world works in an efficient way. We are roughly close to full employment. We are roughly using resources efficiently, and if you put anything into those models they don't have any great impact. It plays its way through and out you come with the world is still roughly running in an efficient manner.

There is a separate class of models that say that there is a whole bunch of rigidities. That wages do not adjust quickly. That markets are imperfect and that, if you put innovation and Government action into those models, then you often get lots of benefit out of them. The important part is understanding what the models are doing, and then being able to interpret the results in light of that understanding. It is important that Treasury, HMRC, Government in general—which is partly what we do as well—use a range of different models. You look at what these models produce and you interpret the results intelligently.

Q62 Caroline Lucas: Would you argue, though, that the Treasury depends overly on the CGE model, which is why, for example, it has been suggested that the Chancellor was not particularly enamoured of the fourth carbon budget, and indeed had the review and so forth, because he thought it was going to cost the economy more? That is putting it very simplistically, but essentially would you say that the Treasury should be making the most of more modelling?

Matthew Bell: In my experience, the difficulty of taking wider benefits into account—like health benefits or air quality benefits or economic jobs and growth benefits—is not so much down to the specific models that you use. It is down to the very real difficulty of trying to allocate departmental budgets and trying to capture benefits that cross Departments. That is something that we have to be conscious of and try to make sure that wider benefits are taken into account. I don't know if that is specifically down to the modelling, I think that is down to an intelligent interpretation of what the models are doing.

Lord Deben: If I could take it—perhaps rather extremely—one stage further. When we talk about models, we use the phrase "20 years". It is the sort of timing we talk about. The challenge I want to put is simply this: if you said to the young father of a family, "Look, you have two possibilities. You can spend a lot of money every year on a particular form of generation, which will certainly provide you with the electricity that you want, or you can spend more money every year over 30 years and then get free energy for your children. Which would you do?" The father of a family has an interest in intergenerational attitudes. Models are not very good on intergenerational concerns. That is why I think certain answers to our problems are not treated as equal because we do not find it possible to say—and not just because of our models, but because of our way of thinking—for example, "If you built the Severn Barrage it will cost you more now, but your children would get 5% of Britain's electricity free, in effect". I use that merely as an example, although I have a history of being interested in it so I know about it.

That is a question that does ring bells among most people; most people see the sense in that kind of question. We do not have a mechanism of asking that question and then comparing the answers with the suggestion that you build a nuclear power station or a gas-fired power station or whatever else it is. In some sense, the point about climate change, having to think in the longer term, does make real challenges about how you make those judgments. They are challenges that are central to the Treasury, because they challenge some very fundamental assumptions that people do not much like being challenged on.

Q63 Caroline Lucas: To turn it around slightly, would you say that you don't think the Treasury has the necessary tools to be able to fully incorporate the impacts of climate change in its decision-making? That is not a criticism specifically of the Treasury, but that basically Government does not have those tools?

Lord Deben: We are living in a world of enormous change. The institutional mechanisms that we have will have to change more quickly if we are going to make the right decisions. At the moment, I am not sure that we are quick enough on our feet to understand that.

Q64 Caroline Lucas: To clarify, you would not say it is the case that the Treasury is using one set of models, you are using a different set of models and that is one reason why there may be some tension from time to time? That is not the case?

Matthew Bell: I don't think it is about the models.

Lord Deben: No.

Q65 Caroline Lucas: I have one very last question about whether you think the Treasury makes enough use of your expertise when assessing carbon budgets and climate policies more generally. You have talked very warmly about your relationship with them, which is very nice, but is there any more you can say about that, about where there might be some tensions?

Matthew Bell: Going back to something we said earlier. We provide a lot of briefing to the Treasury, but what is often not clear to us is specifically what question is the Treasury interested in. It would be more useful—and I think our expertise would be used in a more valuable way—if we were clearer on what the specific question is the Treasury is asking, whether it is about carbon capture and storage, whether it is about FITs or whether it is about low-emission vehicles or whatever. Right now, we provide and have lots of very useful and productive conversations at a high level. They go into the discussions somewhere in the bowels of the Treasury and then a decision emerges.

Where we could be used in a more valuable way is Treasury saying, “This is the particular issue on which we are making a decision. Can you give us the best evidence?” Then, very rightly, it is the role of the Government generally and Treasury in its role to then make that decision, but us knowing what the particular issue is that is being debated and being able to offer the independent and the best evidence on that issue.

Lord Deben: This committee has existed now for many years. So far its advice has been seen to be the best that has been available. There has not been criticism of the quality of advice. Secondly, there has never been a leak of material in a way that has embarrassed anyone. Therefore, I think that it would be very valuable were the Treasury to say, in advance of making a decision about whether to change the way we deal with carbon capture and storage, “Can we go through what are the alternatives and what are the problems? You have done this work”. I think sometimes there is an assumption that that is the sort of thing that ought to be kept close to the chest. I think it ought to be much wider. This is a fortunate situation, to have a committee and very, very good staff to be able to give that advice. Then, okay, if you don’t like it and you think some other advice is better, that is for the Treasury to make up its own mind, but I would be happier if I felt that advice had been more precisely tailored at the point for the decision that is being made.

Chair: Thank you very much indeed. That concludes our panel. Lord Deben and Mr Bell, thank you very much indeed.

Examination of Witnesses

Witnesses: **Matthew Knight**, Business Development Director, Siemens, and **Barbara Vest**, Director of Generation, Energy UK, gave evidence.

Q66 Chair: It is a pleasure to welcome here today Matthew Knight, Business Development Director from Siemens—you are very welcome here—and Barbara Vest, Director of Generation, Energy UK. We are going to begin with a question from Zac.

Zac Goldsmith: Thank you, Chair, and thank you both very much for coming along today. The Treasury deals with lots of different competing interest groups spanning the whole economy. Can you just summarise the business case for investing in the sector that you are here to discuss today?

Barbara Vest: Thank you, and good morning, everyone. The business case is quite simple. We need energy. We have a fleet of generation that is now reaching its end of life. We have a mandate from Government that says it wants coal off the system. Therefore, we need to ensure that there are secure supplies for our public and we are open for business, "Please come here and invest".

Matthew Knight: I have very little to add to that. In every country energy policy struggles because the nature of energy issues is the investments are long term, they are complicated things, they are very interrelated, and they need a long-term, stable, technocratic approach. Politics is not like that. Politics is short term, simplistic, populist and usually wrong. In any country, the business model has to take account of politics.

The UK has a lot of good things going for it: the Climate Change Act, the rule of law, proximity to the City, and all of those other things. The UK should be way out in front in terms of a place to invest in energy. Unfortunately, for a whole host of reasons, we end up being average because we shoot ourselves in the foot from time to time with some of the politics around it.

Chair: Too much politics.

Q67 Zac Goldsmith: Yes, that is a very good point. I was going to take you up on that. The business case you say has to take into account the reality of politics, but the same is true the other way round. I suppose the question is: do you believe today's Treasury understands and accepts the business case that you have just made?

Matthew Knight: There are many talented people in the Treasury and many of them do understand. The perception of the Treasury has a big impact on business confidence. I met with a group of Treasury officials just a couple of weeks ago. They asked me, "What should the Treasury do differently?" I said, "Very little, but just smile while you are doing it". Paraphrasing what Lord Deben was saying earlier, the perception that the Treasury is there grumbling about decisions taken, looking to claw back money at the first opportunity, really undermines a policy that has been decided on. My understanding of Government is that before the policy got announced the Treasury was signed up to it. There is a role for spending Departments and the Treasury to go on repeating, "Yes, we meant that".

Q68 Zac Goldsmith: If you could try to speak for the sector as a whole—I know you cannot completely do that with authenticity—the perception of hostility from the Treasury, which is there, there is no doubt, you are saying it is not a consequence of policy decisions and positions the Treasury has taken, it is more about the body language? Is that right?

Matthew Knight: I think it is a combination of things. Body language is important.

Q69 Chair: Whose body language?

Matthew Knight: Parliament and Government and various commentators. The nature of decisions made in Departments and the Treasury is that the discussion tends to go on in private. However, very publicly Members of the House of Commons and House of Lords, who do not know much about the detail, love to make populist statements in the newspapers.

Zac Goldsmith: Heaven forbid. That does not happen in Parliament.

Matthew Knight: The industry can hear you doing that. In some ways, we ought to have a little more public discussion from the experts in the Department about policy and a little more engagement with industry about policy. We could do with turning the volume down on the chatter from the politically interested but uninformed other areas.

Q70 Zac Goldsmith: I fully take on board what you have just said and I do not think anyone would disagree with you. But if you move away from the body language bit and look at the actual policies and actual positions taken by the Treasury, do you think that, collectively, they make the case that the Treasury does understand the importance of and is on board with the decarbonisation agenda? Forget the language and the body language for the moment and look at the actual policies.

Matthew Knight: Let us talk about some specific examples that have perhaps been unfortunate. The Climate Change Levy and the carbon price floor are effectively taxes and viewed by the Treasury as taxes. Their intent was to encourage investment in lower carbon things and discourage investment in higher carbon things, but the nature of the annual budgeting cycle, and the Chancellor or the Treasury's decision to freeze or to change things, undermines the investment message that was originally behind them. I don't know whether that is a lack of understanding. I think that may just be a pragmatic political decision given a wider context, but it is unhelpful to investment.

There are a number of things that have been created over the years to encourage investment that, for various reasons, are diminished because of the annual budgeting cycle, not least things like the Green Deal and various home efficiency things that are locked in this continuous cycle of, "Are we going to have any funding next year?" They spend six months ramping up to start delivering something and then six months worrying about whether they are going to continue. My colleagues in Germany seem to find policies like that are a bit longer lived. Once they are decided upon, they are given a few years to run rather than perpetually reviewed at every budget.

Barbara Vest: I would add as well that our projects take an awful long time from just thinking about them, getting the funding, right through to delivery. Not really understanding the detail of the Levy Control Framework beyond 2020 is really unhelpful. We have people who are keen to invest, but they need more solid signals about what they are investing in and how long those policies are going to be there

One of the things that we did last year was that we undertook a study among many of our members. We extended it to the manufacturers, to distribution networks, and we said, "Can you tell us what the big asks are from within this industry?" One of the big messages was about the changing energy mix, the fact that things are moving from the big transmission down into distributed generation, and so on. All of this needs to be thought through and an investment programme developed for these industries, some of which are very fleet of foot and can move quicker.

I know you asked about demand side initiatives. We need a bit more of a joined-up approach to things and what we need is Treasury being open to discussions, DECC being open to discussions, but also including other Departments, like Transport, Housing and so on, so that we can understand where they are all going and what the big vision is. If we get that big vision, then we all know what we are working towards and what we need in place in order to see delivery against those targets.

Q71 John Mc Nally: Thank you very much for your honesty there. I think it is becoming quite clear that the uncertainty of policy in this country is harming a lot of investment, which takes me on to your own business here. It was recently reported you put future investment in UK wind power on hold following the UK's decision to leave the EU. What could the Treasury do to reassure Siemens, in particular, that it is worthwhile to continue investing in the UK?

Matthew Knight: First, the statements that were made by our UK chief executive, Jürgen Maier, were somewhat taken out of context and were actually made before the vote and have been recycled. The point that he was trying to make is we now have a period of uncertainty post the referendum. Uncertainty makes it difficult for business to invest. Our existing investments remain. We remain committed to the UK. It is just that we will need to review potential opportunities to make further investments over the next years as we get more clarity.

In terms of what the Treasury could do specifically, I think it is back to the point that was made earlier by the first panel. Treasury has to decide is it involved in the detail of a policy, in which case it has to be shoulder to shoulder with the spending Department and engaged in that. Or if it is at a higher level it has to be genuinely hands off but supportive with, "Here is the money for that". It is about communication, the Treasury being seen to be supportive and going on to be seen to be supportive. Policy tends to be announced and there it is, and business worries if we do not hear reassurances over a period of time.

John Mc Nally: Carbon capture and storage and PFI were a phenomenal example of a huge investment that was just taken away from them.

Matthew Knight: Yes. Mostly confidence is not made, or sometimes it can be damaged by a single announcement or a single speech. We have certainly seen examples of that. I think confidence is made by consistency and a sense of a clear direction. Ideally, that should build over many years. We have had 26 years now since privatisation during which time the policy of DECC and its predecessors—the policy on, say, electricity—has been to have a market. It has not been to have a market that achieves something in particular. Now, finally, people are recognising that there is no natural market in electricity. It is a made-up thing. It is a set of levers and balances that are created by Government to try to deliver an outcome and the outcome was always kept mysterious. The future for energy policy is to be clear about the outcome and say, "You know what, we will go on pulling the levers and changing things because stuff will happen, but here is the direction of travel". The industry can help Government by reaching a good consensus view on at least 80% of where we are going and we can argue about the other 20%, rather than leaving it all completely up for grabs.

Barbara Vest: We saw the November 2015 Amber Rudd reset speech as helpful. It gave some direction there. We are still waiting for some of the consultations that we were promised from that to be delivered, but there have been one or two political things in the way that have held up business. That is good. That is something that we can use to move on from and to help the industry with where we are going.

Q72 Chair: Can I just come in with a supplementary? Did the CCS decision influence the Siemens' announcement around the suspension of future investment or to pause it? Also, while we have been meeting, the Governor of the Bank of England has said the risks around Brexit are beginning to crystallise and he has reduced the capital requirements for banks in order to get them to lend to houses and business. What do you think the future holds for your investment portfolio in the UK?

Matthew Knight: We are conflating two separate things there. Siemens has not announced a suspension of investment. We have just reflected; as all other businesses are at the moment, suddenly we are faced with a different set of unanswered questions and that is a different environment for businesses to invest in all kinds of things.

On the CCS point, I have some sympathy with the decision. The issue is about the speed with which the decision was made and the lack of notice or debate. My perception, and the perception of many in the industry, is it was a decision that was taken more on financial grounds than as an energy policy thing. In the absence of anything to explain otherwise, our collective belief is that DECC had a finite budget. It had to cut something and the thing that got cut was CCS.

Q73 Chair: Why did you say you were sympathetic to that decision?

Matthew Knight: As was said earlier, I think CCS is essential but it is a longer game. Where we had got to over a long period of time was a competition that was focused on fitting CCS to power stations, the largest point source of carbon dioxide. The technology was saying, "We are going to decarbonise something. Where is the biggest source of carbon?" rather than saying, "We are trying to decarbonise the entire economy. Which are the difficult bits to get at that we really need to fix CCS to?" That had drifted over a period of time. I think a reframing of the policy was probably okay but could have been explained, and the suddenness of it was the bit that, if anything, has damaged confidence.

Q74 Chair: Are you saying it did not affect your decision and it was the Brexit decision that has affected it?

Matthew Knight: Yes.

Chair: Brexit is the decision that has affected your pause?

Matthew Knight: Yes. If we had not had the Brexit referendum, my views on investor confidence across energy at the moment would be that we were moving back up again. We had bumped along the bottom for a while, but I think we have seen some clear explanation of policy from the DECC Ministers and, to be fair, we have seen Treasury and the Chancellor nod their support to that. I think confidence was starting to rebuild. Brexit is now a different pile of uncertainty that has dropped not just into energy but everything else we do.

Q75 Peter Aldous: I want to explore this. DECC says that it works collaboratively with other Departments. Would you agree with that? From the comment that Barbara Vest made on the Secretary of State's reset speech last year, you probably do feel that there is a co-ordination there at the present time.

Barbara Vest: We deal with lots and lots of different Departments and one of the things that we think was positive was the fact that Amber Rudd and Andrea Leadsom came from a Treasury role into DECC. Therefore, there has to be that joined-up thinking there. That is helpful, but we think that there could be other things to improve on. As I say, if we have, for example, a long-term plan towards electrification, then we need to understand what the calls on that would be from a heat and from an electric vehicle perspective. We need some co-operation there across transport, health and so on, as well.

Q76 Peter Aldous: Do you feel perhaps that the relationship between the Treasury and DECC is more driven on the personalities and how Ministers get on rather than having a proper system, a proper relationship institutionally laid down?

Barbara Vest: It is difficult, not being in the Department ourselves, to say what the personalities involved would be, but I would hope that there is a lot of co-operation. We are certainly speaking to Ministers from either Department on exactly the same issues and hearing some similar views.

Matthew Knight: To try to answer that, by observation the relationship between Treasury and DECC has changed with the move from the coalition to a majority Conservative Government. Several things have happened there, but there has been a change of Ministers. Both a benefit and a disadvantage of the coalition was—again, the perception from outside, I don't know what the reality is—the perception that DECC was regarded as a Liberal Democrat Department and the Treasury a Conservative Department and, therefore, there was a challenge between the two, whereas now it is more harmonious.

On the other hand, the need to get policy decisions through the quad under the coalition meant that any announcement for any Government Department anywhere had at least a second coat of looking at before it got made. We have seen a new ministerial team come into DECC, go up a steep learning curve, have to make some announcements on things for various reasons at an early stage, and that spooked investors because the early messages were all negative. They were all what we are going to stop doing. We are now starting to see, "Here is what we are positively going to do" and that is becoming more reassuring.

Q77 Peter Aldous: The Aldersgate Group—I am a patron of that organisation—has described the Treasury's role as being somewhat opaque. Is that something you would agree with?

Matthew Knight: I think, if you are not an insider, yes, it is opaque, but then so is politics. I am lucky enough that I get to spend perhaps half of my time in some way engaged in understanding energy policy and what it means.

Q78 Peter Aldous: From an investor's perspective, is it wrong that you have to be an insider?

Matthew Knight: What I was going to say is I am here representing a much wider supply chain. Our sub-suppliers, and other people involved in the energy industry, cannot afford the investment, the time and effort of getting intimately acquainted with politics and how it works. Unfortunately, most of the supply chain relies on what it reads in the newspapers or turns up at the occasional seminar. There is a need for Government to try to communicate their decisions as well as possible, knowing that they will get twisted by the media, knowing that people do not have the time to hear. There is more of a role to try to communicate the thinking behind decisions rather than just—

Q79 Peter Aldous: I think it was the London School of Economics that said there is a need for greater coherence. You would agree with that?

Matthew Knight: Yes.

Q80 Chair: Thank you. I wonder if we can go back to the spending review in 2015, which contained a number of decisions that impacted your sector; in particular, the decision that we have already touched on, carbon capture and storage, the Levy Control Framework, the home efficiency scheme to replace the energy company obligation, funding for the Renewable Heat Incentive increasing by not as much as previously planned, DECC's spending cut that you have already mentioned, and so on. Which of those decisions has had the most significant impact on your business and why, either positive or negative?

Matthew Knight: For me, the cumulative effect is more than any one of those. The perception that developed among many in the industry was that, in some way, the Government had fundamentally changed policy. Maybe that was overdone. Speaking personally—and I know I have discussed this with many others in the industry—one that you did not mention on that list had the greater impact. That was the ending of zero carbon homes. The reason that was significant is because it was a policy that I am sure everybody would agree is completely sensible. It was a policy that I think was brought in six years ago, which various elements of the supply chain had started building the capacity to offsite fabrication and other things. Then six months before it finally came in, having a six-year lead-in time, it got scrapped overnight in a bonfire of regulation. Some regulation is good regulation. I want to reassure you that regulations can be very helpful. A regulation that is widely agreed, everybody is expecting and has had a six-year lead-in, to take that away was probably more damaging than any of the others on the list that you just mentioned.

Chair: We had a lot on that in the last session.

Matthew Knight: It was the combination of those things. It highlights the fact that—

Chair: So the combination is negative?

Matthew Knight: The combination is negative, yes, but it also highlighted that energy is complicated. We know it is complicated; we live in that world. A new Minister turns up in a role and has to go up a learning curve. The best Ministers will take six months to do that. Some never bother. We have to live with that. We have to help Ministers and Government Departments to understand the complexities and the interrelatedness of it and try to help steer a steady ship. There is a role for us in the industry there to be clear about where we agree. If the Solar Trade Association and the Nuclear Industry Association can agree with Energy UK that here is an 80% agreement on the energy mix for 2030, we should be saying that because then it gives less scope for it all to be vague and cloudy. I think it is incumbent on us to be telling you what the future is as much as waiting to hear what politicians will say to us.

Barbara Vest: One of the most interesting things that we have done recently is to invite Ministers in to meet a lot of our members all together. They are hearing a number of different business models, different views being articulated, and what we have had in feedback from those sessions is, "Do you know what, I have met you before and I have met you before, but not all together, and I am hearing different views". You all have your own drum to beat and your own business model that you want to promote, but when we get a forum where we can share that, that is much better. Perhaps we need to do more of that more generally, not necessarily just get one Minister or one Department in but to get quite a few of them in all together and get the right people in front of them to share those views.

Q81 Chair: Can I press you on the CCS stuff? Was that communicated with you in any way or your industry before it was announced?

Barbara Vest: No.

Chair: It was a complete bolt from the blue?

Barbara Vest: In fact, I was at a meeting in the House and Shell was there. They heard it when we heard it and they are part of the process.

Q82 Chair: What impact do you think it is going to have on CCS in the UK?

Barbara Vest: What impact? Well, it has been devastating so far. We did expect some delivery. I think we can only say that that is going to go backwards, even though we are now getting support from the Committee on Climate Change to say, "We see this as a fundamental part of the plan going forward. We need to do more work around that".

Q83 Chair: What about the decision not to extend the Levy Control Framework in the spending review? What impact will that have on investment in low carbon technologies?

Barbara Vest: Uncertainty. It is not very good for the industry.

Chair: There is a policy cliff edge after 2020, which you did mention I think, in a previous—

Barbara Vest: Yes. We need to see a more forward view, a more long-term and stable view.

Q84 Chair: Did you say that in your meeting with Ministers?

Barbara Vest: Oh, yes.

Chair: Reassuring.

Barbara Vest: Our mantra chant.

Chair: We will wait and see if they have listened to you when they make their next set of decisions, if there are indeed the same Ministers in post.

Barbara Vest: Yes.

Q85 Chair: Mr Knight, in the spending review, the Government announced it would increase R&D money for new renewable technologies. When do you think you will see the benefit of this decision and what do you think of that decision?

Matthew Knight: It is always welcome. I think about half of that money is focused particularly on small modular reactors, as I understand it, and other bits on elements of the smart grid, which is part of the portfolio that Siemens does.

Can I step back one level and say the transition that our energy system needs to make is unlike many other things that countries have faced before? The need to decarbonise and the need to replace old power stations, there is a finite amount of time to do both of those things. The climate science is some way ahead of the global political consensus, and the political consensus is some way ahead of the action, and the action takes many, many years. We know that we need to decarbonise our economy by the middle of the century. The sets of levers that we are going to use to do that will take maybe two decades to deploy.

Let us think of decarbonising domestic heat. We have 23.5 million gas boilers out there. We either have to replace those with something electric, and that means a peak of five times the electricity demand today and that is a huge spend, or we have to put a different gas in the grid, and hydrogen would be the obvious thing there, or we have to try something else. We seem to be paralysed in making a decision between those into not doing anything. Once we have decided which one of those it will still take us 20 years to roll it out.

My encouragement is, yes, we need to be researching new technologies for the future, but just at the moment we need to be deploying some stuff. We need to be taking what we already know about now—I am a project manager by background—and we need to plan to throw one away. The nature of politics is no one wants to be accused of having made a wrong decision, but just at this moment we should spend the next five years as a country trying several things because the likely answer is going to be a combination of all of them. We can go on doing PowerPoints and studies for as long as we like, but on the gas one let us try converting the gas grid in Leeds to run on hydrogen. It will take five years to do that but, at the end of it, we will know how practical it is or it is not. We will know how much it costs. If that is the answer for the rest of the country, then we can roll it out over the next 20. Just at the moment we are on the cusp of so many things. Yes, more money for research is great and we also need to deploy some things as well.

Barbara Vest: Can I add on that point as well that is absolutely fundamental going forward? One of the things that we are positive about is the fact that the National Infrastructure Commission has been established. What we would like to see is some sort of taskforce established below that, whereby the Departments can all be represented but industry experts could also be nominated for that commission to go to from time to time, when it is carrying out its various studies, in order to say, "Look, I have this problem. Can you give us some variations on a theme to what you think the solution might be?" If there were industry experts involved in that, we would have some transparency about the dialogue, the direction of travel, and so on. We are trying to create a terms of reference for that group and a business case, which we will be publishing very shortly.

Matthew Knight: Can I build on that by saying what investors need is a consensus view? You can make a consensus view by creating a new body that brings everything together or just by getting the existing bodies to talk to each other. I would support that and the terms of references, but the benefit comes from including DECC, Ofgem, Treasury and academics and industry, and people like National Grid, collectively, to arrive at a clear, "This is our best understanding of the way we are going, so let us all go in that direction". The National Infrastructure Commission can help with that if it is supporting that. If it is just another voice going in a different direction, it does not help.

Chair: To be continued. Thank you all very much indeed. We are going to move to our third panel.

Examination of Witnesses

Witnesses: **Estelle Brachlianoff**, Senior Executive, Vice-President UK and Ireland, Veolia, **Jerry McLaughlin**, Director, Economics and Public Affairs, Mineral Products Association, and **Dan Cooke**, Director of Communications and External Affairs, Viridor, and Chairman of Communications Committee, Chartered Institution of Wastes Management, gave evidence.

Q86 Chair: Can I welcome our third panel? We have Estelle Brachlianoff from Veolia—thank you for joining us today—Jerry McLaughlin from the Mineral Products Association, and Dan Cooke from Viridor and the Chartered Institution of Wastes Management. Thank you for being with us here this morning. We are going to start with our first question from Kerry.

Kerry McCarthy: Obviously, the Treasury has a significant role to play in terms of the landfill tax, but that only gets us so far in supporting the waste and recycling centre. Some people would argue that it has got to the limit of what it can do. What other mechanisms do you think the Treasury could use? Do you think it gets the importance of supporting the waste and recycling sector? That is quite a lot for an opening question.

Dan Cooke: If I could have a go at that then, credit where credit is due: the landfill tax was the biggest single driver that has driven recycling and greater resource efficiency in our sector and across the UK over the last 10 years plus, and it has worked very well. As you say, it has probably reached a point where we need further clarity, a further review of what next for the landfill tax. Indeed, we are seeing some obscure behaviour that was not forecast in terms of the export of non-recyclable materials now, because the tax acts as a driver and we did not build enough infrastructure to deal with that in the UK. We are paying other countries to create jobs, investment and their own energy, when we could do that ourselves.

Other things—big picture—that Treasury could do at the moment, in terms of drivers, is they could review extended producer responsibility as probably the biggest single idea and step forward that could be taken, creating a direct connection between those who produce waste, as in the packaging industry, other industry, and so on, and our sector, the sector that better manages it. We could help them recycle more and get much greater resource efficiency.

One other quick thing that they could look at is the idea of working at scale, economies of scale, resource networks, looking at how they can encourage planning for waste infrastructure at a city regional scale to enable infrastructure to be delivered, not only for local authorities but also businesses who need the essential service and could do much better in terms of resource productivity.

Estelle Brachlianoff: I would add to that first to say credit to the landfill tax. Listening to the previous panel, it is to the credit of this country to have been able to stick to the plan for, what, 15 years or so? Hence all the investment of companies—like mine and yours and many others—to invest in alternatives to landfill in this country. I think it is a great example of success of policies in general terms. I wanted to emphasise that again because I think it is important.

It goes with the importance of certainty again. Investment goes with the certainty of the direction of travel and knowing what the Government wants to achieve as an outcome. In terms of recycling as much as anything else, the question is: beyond just achieving in 2020 50% recycling is that really it or is there anything else? We have commissioned a report with Imperial College that says the circular economy could create 175,000 jobs in this country. I think it is a £19 billion a year addition to the GDP, so there is a great potential for getting economic growth and jobs here in this country that goes with recycling and a lot of other stuff. So, is it that?

One of the tools that the Treasury can use to drive this small circular economy is, instead of just putting all the burden of more recycling to, say, the local authorities, which are facing austerity measures, to put some part of the burden—let us put it that way, which is a potential as well as a burden—to the producers and manufacturers. Typically, VAT reduction for those who produce products that have some part of recycling, as opposed to virgin material, would be a great help to drive the manufacturing sector in this country towards more circular, which again creates jobs.

Q87 Kerry McCarthy: Do you have any indication that the Treasury and/or Defra are interested in pushing forward with the circular economy? Scotland has already come up with their national implementation plan or whatever you want to call it. We have not seen that. Certainly, I have heard the criticism from many quarters that we do not have anything resembling a joined-up waste strategy coming from the UK Government. Do you think they realise the economic potential or do they just see this as unnecessary interference with the way things progress?

Estelle Brachlianoff: My personal opinion is we are probably somewhere in the middle at the moment. The potential is here—I think a lot of people realise that—but there is this common idea usually that we cannot afford it, as if it was either you are green or it is good for the economy but it cannot be both. We have lots of solutions that can be good for both, creating jobs and being good for the UK economy that we can afford. Again, the landfill tax is a good example in some ways. That is the first comment.

I would say, in terms of the more negative elements, the absence of a waste strategy in the Defra five-year plan is something that has worried the industry quite a lot. It is a question mark more than anything else, probably.

Q88 Kerry McCarthy: There is huge potential but it needs help?
Estelle Brachlianoff: But still to be released.

Jerry McLaughlin: From our perspective, there has been a lot more progress. We are in the aggregates business and about 30% of aggregates supply is from recycled sources. Most of the material that can be used in the sector is peaking now in terms of the recycle availability. The landfill tax has been a significant element of that, but there have been a range of other incentives as well, notably awareness campaigns about the use of these materials, what they can do and what they cannot do.

One of the problems we have had with the Treasury approach is that there is no real assessment of the broader issue. There is a tax called the aggregates levy. There are various explanations for it. One is to encourage recycling, but the recycling had already improved by the time the tax came in. When we were having discussions years ago with the Treasury about the aggregates levy, it was not in any holistic sense. It was just on the basis, "We want to introduce another environmental tax. There are a couple of options. Either we do it on pesticides or we do it on aggregates". It was about the technicalities rather than what we want to do.

There is an awful lot one can do without financial measures. Certainly, as I say, in our sector, it has been very successful in terms of maximising the extent. Along with Holland, our market is three times higher in terms of recycling than the average in Europe. It can be done.

Dan Cooke: Can I just add one point to that question? In terms of engagement with Treasury and/or other Government Departments, again credit where it is due: Defra has been talking to the sector about what big ideas or big policy areas the current Government could look at to take things further forward. We have identified extended producer responsibility, further resourcing to address waste crime, for example, and looking at greater consistency in terms of collection systems, greater consistency in working at scale, delivering economies of scale. Is there a connection between those ideas and Treasury? That is far less clear. Defra has encouraged the sector to step forward with ideas for progress and how we can deliver greater resource productivity, greater recycling levels and so on but how far does that dialogue go into Defra? As a sector, we tend to talk to Defra and, indeed, to try to engage with BIS, DECC and others, but it is less clear in terms of direct engagement and, therefore, strategic conversations with Treasury.

Estelle Brachlianoff: Shall I add to that EU comment? Lots of people were hopeful or lobbying or waiting for the EU package about the circular economy, which obviously now will not be the next step for this country. This country will have a specific ambition to be set, so again the question mark is still probably what type of outcome we want to achieve. I would add to that it is probably something about more recycling in an affordable way. That makes business sense, as well as probably a lot more energy from waste plants in some way as a way to produce energy within the energy mix. That is why Defra and DECC working together can be very helpful.

Q89 Jo Churchill: I could not agree with you more on that point because, if you add it into things, like public service villages, we should be heating our swimming pools and things off that type of environment but it needs structural planning and an ability to have that interconnectivity. To Estelle mainly, you and a number of local authorities have highlighted the challenge of driving recycling in the context of tight spending settlements, which we certainly know are there. What could the Treasury do to support increases in recycling while maintaining its overarching approach to spending, so being fiscally aware but being encouraging?

Estelle Brachlianoff: Before answering your question, as everybody knows, the reality is tough for local authorities. We know that there are austerity measures on one side, which has the conclusion directly for a lot of them to charge for green waste collection, which was free before. A lot of local authorities have gone through this route. A lot of others have gone through suppressing the specific service of collecting separately food waste, which then ends up being more difficult to achieve better recycling rates. This is typically what we have seen in a lot of places around this country.

Again, there is probably a lot to do not only with local authorities to achieve higher recycling rates. That was the point I was trying to make earlier on. If you want to achieve, say, a higher recycling rate in plastics, it is not only the way of collecting more plastic, it is as well the fact of ensuring that in the end all the plastic that is collected in this country finds a usage in another loop of production and manufacturing in this country. Hence an idea of—again, trying to help Treasury—the manufacturing of goods to be manufactured with some recyclable materials in because now it is not technically an issue anymore. Virgin material has the same characteristics as a lot of recyclable materials, like the example you gave for aggregates.

There is a lot to do on the two parts of the value chain, from the collection from inhabitants and the local authority through to what we do with it eventually. At the moment, we still have—if I remember the figures well—half of the paper and plastic that is recycled shipped abroad because there is not enough manufacturing capacity for that in the UK at the moment. There is an element of reassuring employment and jobs by trying to drive higher recycling rates in the production cycle again. A VAT reduction for those who have a certain percentage of recyclables that goes into their production as opposed to virgin material would be of great help.

Dan Cooke: Viridor works with over 100 local authorities and, of course, CIWM represents 6,500 members, a great proportion of which are local authority practitioners. Some of the ideas, in terms of practical measures that could be taken, I would agree with; green procurement standards, for example, clear targets. The Welsh Government are showing very clear leadership in terms of not only clear targets for local authorities, which are staged so as to be achievable, but also transition funding. Obviously, the funding of local authorities and the methods of funding for local authorities to ensure that adequate money can be ring-fenced to deliver further progress in recycling, greater energy recovery and so on and, therefore, landfill diversion and greater productivity are some simple things.

Again, I come back to, on the bigger scale, this idea of planning and encouraging local authorities to work at regional scale. Rather than an individual local authority, if you can plan for infrastructure along with those targets and transition funding mechanisms, which we have heard described, that is how further progress can be made in terms of raising not only recycling levels but also, as importantly, recovery levels and then the efficiency of that recovery. That is where combined heat and power schemes come in to use the non-recyclable, not only as fuel but to use it efficiently and more efficiently as we go forward.

Q90 Jo Churchill: You are basically arguing for economies of scale with a little bit of underpinning planning to it. Devolution may offer you that advantage?

Dan Cooke: Yes, that is one way as well as some of those individual mechanisms like green procurement rules, for example, that will drive behaviours in terms of finding outlets for the materials and using them themselves, so driving greater circularity within not only local authorities but the regions and economies that they represent.

Q91 Chair: You talked about the achievement of the 50% recycling rate. Obviously, last year it dipped by 0.7%. Could you say what you think the effect of the withdrawal of support for seven PFI projects in 2010 had on the recycling rate, those projects in Cheshire, Coventry and Warwickshire, Gloucestershire, Leicestershire, Milton Keynes, north London and south London? The Environmental Services Association, which you have just mentioned, Mr Cooke, said that that is the way that you deliver large-scale waste facilities. Since PPP/PFI is now closed, new merchant facilities are unlikely to be delivered without some form of intervention. Conditions for investment are tough and planning and finance is not mapped together. So, if you can look backwards but also forwards, Ms Brachlianoff?

Estelle Brachlianoff: Just a few facts here. We still have between 2 million and 3 million tonnes of waste that is shipped to mainland Europe, because it cannot find a way to produce energy here. De facto, I would call it a fuel that this country does not use, which I think is a pity because there is an opportunity missed here. I see it potentially as a valuable fuel. There is a lot more infrastructure to be built. Not to a massive scale, I would say, but still between 2 million and 3 million tonnes.

The signals from Treasury to make it happen, you can imagine the various types of things. Traditionally, you had the PFI credit, which is directly in money, but you can have a varied spectrum through to various incentives. The energy subject that was covered by the previous committee is exactly what we are talking about. I could tell you about the ROC as well as the TRIADs. All the various mechanisms to produce energy in a less carbon intensive way can be of some help. We can have some projects we can fly provided that there is a clear direction of travel in terms of green energy incentives that can help waste to energy plants—including management—to be built.

The spending review of spring 2015 was very damaging in terms of all the green energy, even from a west perspective, because it gave the impression that we cannot build on some certainty to invest private money into those types of alternatives. It is more like everybody is waiting to see if the next few months or years will prove to be somewhere more consistent over the long term. Again, it is not only about PFI credit. I think it is about the certainty for investors like us to invest in this country because we know that, if we commit to something in the next five or 10 years, there is something we can count on. It could be subsidies but it could also be various help of some sort, including the energy elements.

Dan Cooke: Again, credit where it is due: the PFI mechanism was very effective in delivering good amounts of infrastructure. Viridor were involved in one of the projects that fell by the wayside, as a result of the very sudden decision not to proceed with that number of projects.

Q92 Chair: Which project was it?

Dan Cooke: Cheshire. The disappointing thing was: what is next? The decision to withdraw that PFI funding showed, effectively, that the ambition of Treasury was to achieve the landfill diversion targets, and that was it, rather than showing further ambition as has been shown by other Governments, the Welsh Government, the Scottish Government, in terms of having clearer recycling targets as well as greater efficiency and resource productivity.

The big question is what next; what mechanisms can be put in place to replace that? There are opportunities. The circular economy package is not the opportunity that we are looking for, but there is a real opportunity, hopefully for UK leadership, if Treasury can engage with the other Departments in terms of what the UK version of the circular economy package or a waste strategy is. The 25-year environment plan that Government is planning, if that has a robust waste and resources section within it, then that may provide the framework for further investment opportunities. Companies like Viridor, and companies represented by the CIWM members, want to invest in new recycling technology. The current generation of recycling technology is arguably outdated. We need new innovation and further investment. We particularly want to invest in the capacity for energy recovery and much more efficiency in that energy recovery if the framework can be put in place.

Jerry McLaughlin: I was going to add one specific point. In the most energy-intensive part of our sector—which is cement making—about 44% of the energy in thermal terms comes from waste-derived fuels. Half of that is biomass related. The design of measures, such as the Renewable Heat Incentive, can have a big effect on this. At the moment, because of the limitations in the RHI, we are having trouble sourcing these materials. We would like to use a lot more to replace coal. At the moment, the use of these materials is equivalent to half a million tonnes of coal a year, so it is pretty significant. We are very concerned about the limitations as a result of the Renewable Heat Incentive. That is really constraining not only future investment in these facilities but is causing us a lot of concern about future supply, or even the existing level of waste-derived fuels.

Estelle Brachlianoff: I want to add a few figures to that. CIWM and ESA have made a calculation that says that, if we equip the waste that is produced in this country with producing energy, so for the part that cannot be recycled, it is roughly 10% of the green energy mix of this country that can be produced through waste. It will not replace the nuclear tranche of course. It is not of this size. It still is very significant and I think we have to have that in mind. It is not a minor niche something. It has its place into the energy mix of this country.

The second thing is there is usually a misconception that energy from waste is against recycling because if you burn then you cannot—or whatever, it is a complication. All the experience we have seen around all countries in Europe is exactly the opposite. They go hand in hand. The Scandinavian countries have a very high energy from waste rate, a very high recycling rate, and an almost down to nothing land filling rate. It is probably a type of model that, in my opinion, would be very suitable for the UK to try to achieve. The reason why I mention that is, if you are wondering why we are talking about both at the same time, they really go hand in hand.

Just to one of your points, the RHI is a very important scheme that we all count on. All the energy from waste plants in this country already produces power. They can all be very well connected to heat users as well, so either local big heat consumers or it could be district heating of housing as well. There is a lot of potential for the heat usage, not only for the power element, and RHI is very critical to achieve that.

Q93 Kerry McCarthy: I want to go back to what you said: the circular economy package is not the vehicle or whatever to achieve this. Presumably, looking at last Thursday's vote, you are assuming that we are not tied into that. There is a bit of a degree of uncertainty because we are governed by the rules that are in place, but that is clearly just an EU-wide initiative. The concern would be that, given the role the UK Government played in the circular economy negotiations, where they seemed to be arguing against a target-driven approach, and very much in favour of voluntary measures, do you think there is the political will now to implement something that is equivalent at a UK level? What would be the key drivers that we would want to see? What do we want to see them do to show that they are serious about doing it at a national level now that they are not bound into doing it at an EU level?

Dan Cooke: I would agree, yes. The reason I said it is not going to be the driver is that, because we are in the current period of uncertainty following the decision last week, we have to assume that existing regulation will largely remain in place, but a large degree of the regulatory framework did come from Europe. The circular economy package was being negotiated and we have to assume—or it is our current assumption—that that will not be put in place in the UK.

That is where I say there is this opportunity for the UK to show leadership and to make a point to say that, if it thought that was far from perfect in terms of the circular economy package, the hard targets that were put in place, can the UK put in place something that is more pragmatic, that achieves the same level of ambition in terms of greater resource productivity, greater resource efficiency and more recycling? I believe there was a consensus. Certainly Government indicated 65% recycling, or something like that, it was very hard to see how it could be achieved. What is a more practical level of recycling and a complementary level of very efficient energy recovery? How can we also encourage greater circularity in terms of waste reduction in the first place, better patterns of consumption and greater circularity? While it will be a challenge without the targets and the certainty that that framework can bring, the UK has an opportunity—and maybe it is through the 25-year environment plan or something similar—to put forward an alternative that can be practical but can deliver the jobs, the resource productivity and an appropriate level of recycling and recovery without that European framework.

Q94 Peter Aldous: Mr McLaughlin, I think you did touch upon the reforms to the RHI and the Treasury's reluctance to encourage your industry to use lower carbon fuels. How do you feel the Treasury could amend the RHI to encourage your industry to use lower carbon fuels?

Jerry McLaughlin: From our perspective, the essential problem is that the existing RHI only covers indirect firing. For example, if you heat a boiler that then produces hot water, it is liable and it is in scope. In our case, we take fuels and we put them in the kiln with the raw materials. That is direct firing and that is out of scope. We do not understand why it is out of scope, because it is incredibly efficient in terms of the use of the heat and you get a much bigger bang for your buck in terms of carbon reduction per pound spent. It is a bit of a mystery, really. The logic of not extending it to direct firing is contrary to getting the best value for money from the actual initiative itself.

Q95 Peter Aldous: When you initially discussed this with DECC, were they sympathetic to the issue you have just outlined?

Jerry McLaughlin: Not really. To be blunt, it is a DECC decision that the Treasury do not seem to be interested enough in to get involved.

Q96 Peter Aldous: Do you feel that DECC is second guessing perhaps what the Treasury's response might be?

Jerry McLaughlin: One of the points that have been put to us is that the current arrangements for the RHI are fairly broad and, as I say, it includes some relatively inefficient activities and excludes some more efficient activities. It has been put to us that perhaps that is because politically it is good to be seen to allow some of the more inefficient processes because then people can see there is some sort of personal benefit from the RHI, whereas if more of the benefit was going to large industries the visibility of the RHI might not be as high, even if the environmental benefit was stronger.

Q97 Chair: Are you getting that from DECC or Treasury?

Jerry McLaughlin: DECC.

Chair: Interesting.

Estelle Brachlianoff: Apart from the RHI, there was a signal that was taken very strongly negatively, the Climate Change Levy exemption removed in May 2015, which is another system that goes back again to the previous comments on no warning before the decision was taken and announced, which was quite a big hit as well.

Q98 Chair: Some of our witnesses have argued that without PFI the only policy driving waste and recycling is the landfill tax. Do you think that is enough to drive the industry in the long term?

Dan Cooke: There is a question. To say it is the only driver is probably not the case. We do have other drivers, not least coming from big business. Big business recognises that greater resource productivity and greater resource efficiency makes common sense from a business perspective.

Q99 Chair: Do you think Treasury understands resource efficiency?

Dan Cooke: I guess the opacity of whether it does or not is the key point. The lack of strategic direction and ambition—that is obvious, certainly to our sector—coming from Treasury in some of the indicators it puts out is probably the nub of the issue. One thing Treasury does understand is what drives business and makes good business sense, certainly from a big business point of view, in terms of leading UK businesses and the opportunities and investment that can bring. One hope is that the Treasury will cotton on to principles of circularity, greater resource productivity and the jobs and investment that that can bring, and will recognise the opportunities for greater resource productivity and putting in place clear strategic drivers to help it in future.

Estelle Brachlianoff: To answer your question, I don't think the landfill tax alone will help us move into the next step. It has helped us already, quite significantly, to get to where we are, but if we want to go further we will need two other pillars. For me, ideally, it will be three pillars. One is landfill tax. Another one is to help energy from waste to be part of the mix of green energy, with all the various systems you can have to help that. The third one is to have producers and manufacturers incentivised to have to put some recycling materials into their production cycle. With those three pillars, with a clear direction of travel and outcome and one or two incentives, probably not that many, I think we can get to the next step.

Chair: Brilliant. Thank you all very much indeed for being with us this morning. That concludes our session. Thank you.