

Environmental Audit Committee

Oral evidence: Sustainability and HM Treasury, HC 181

Tuesday 28 June 2016

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Members present: Mary Creagh (Chair); Peter Aldous; Margaret Greenwood; Caroline Lucas; John Mc Nally.

Questions 1-34

Witnesses

I: Karen Ellis, Chief Adviser on Economics and Development, WWF; Professor Michael Jacobs, Visiting Professor, the School of Public Policy, UCL, and the Grantham Research Institute, LSE, and Visiting Fellow, the Institute for Public Policy Research; Claire Jakobsson, Head of Energy and Environment Policy, EEF; Rob Lambe, Managing Director, Energy Services, Willmot Dixon; and Dimitri Zenghelis, Co-Head Climate Policy, the Grantham Research Institute, LSE, and Associate Fellow of the Energy, Environment and Development Programme, Chatham House.

Written evidence from witnesses:

- [WWF](#)
- [Grantham Research Institute](#)
- [EEF](#)

Examination of witnesses

Witnesses: Karen Ellis, Professor Michael Jacobs, Claire Jakobsson, Rob Lambe and Dimitri Zenghelis.

Q1 **Chair:** I call the meeting to attention. I am delighted to welcome our distinguished panel of witnesses. We intend the Environmental Audit Committee to be an island of sanity in an otherwise difficult and turbulent world. We are grateful to you all for being here with us this morning. I welcome, from left to right, Rob Lambe from Willmott Dixon; Karen Ellis, chief adviser on economics and development at WWF; Professor Michael Jacobs from UCL; Claire Jakobsson, head of energy and environment policy at EEF; and Dimitri Zenghelis, co-head of climate policy at LSE. You are all very welcome.

Can I kick off the session by asking, in general terms, why you think the Treasury matters when it comes to promoting environmental sustainability? Can you give us the 30-second pitch from each of your perspectives about why this matters?

Dimitri Zenghelis: Shall I volunteer to go first? It absolutely matters because it is central to steering the investment landscape of the country and so both the structure of the economy and the structure of physical and natural capital will depend on decisions taken, which steer private and public investment. A lot of those decisions are either directly or quite powerfully indirectly affected by Treasury decisions, so if the Treasury is not cognisant of the impact of its actions and policy decisions, it is very difficult to take a long-term view in terms of the sustainability of economic growth in this country.

Chair: Okay. Anyone else want to pitch in on that? Rob.

Rob Lambe: Obviously, on the points that Dimitri has made, the Treasury sends very strong signals to business and business tends to, I think, put more credibility in what Treasury is saying than from any other Department. That is maybe not a healthy position, but that is the reality as I see it at the moment. What Treasury says is seen as probably more likely to happen than what is said by any other Department. The Treasury has the opportunity to put in place mechanisms and instruments that influence behaviour and decision making, investment decisions and innovation. It is in an extremely influential position in reality as well as in theory.

Chair: Great. Anybody else? Miss Ellis.

Karen Ellis: It's important because the environment completely underpins the economy and the economy has a huge impact on the environment. We are seeing increasing risks to the economy from environmental degradation, which are becoming increasingly visible. We are getting to know more about them through work in the Natural Capital Committee, for example.

Q2 **Chair:** What are those risks?

Karen Ellis: Things like flooding from poor land management of river catchments, for example. Climate change is an obvious one. Health costs from pollution and so on. The numbers are really quite big and it is an economic issue. Treasury has both a responsibility to start to think about those risks and what they mean to the economy and to different sectors of the economy, and to start to manage them better through appropriate policy levers, many of which it has at its disposal. They are not necessarily in DEFRA's remit; they are things that Treasury needs to do, which will set the economy on to a more sustainable growth path and put in place the right incentives for the private sector to manage these kinds of risks.

Q3 **Chair:** We are going to move on. I wonder if I can ask the people who haven't spoken yet to answer. The 2015 spending review made a number of announcements that had implications for sustainability and the environment. Can you give me examples of decisions made by Government that had an impact on sustainability, either positively or negatively? I am thinking there might be some examples from 2015.

Claire Jakobsson: Absolutely. I think the spending review is an interesting one. If possible, I would like to come on to the Budget a little bit as well in terms of positives. On the spending review, obviously, the industry had a huge shock with the withdrawal of the £1 billion support for carbon capture and storage. That was not something that the industry had seen coming. We had been working very, very closely with several Government Departments, including DECC and BIS, to develop these industrial decarbonisation road maps to 2050. Carbon capture and storage was a very integral part of that, so it was not something that we saw as going to suddenly disappear from the framework. In terms of giving investor confidence to business for the long term, this was not a very good signal to send. From our point of view, we saw that as a very negative result for sustainability and for encouraging business to take those kind of leaps of faith into making those investments in long-term, sustainable technologies and clean-tech goals.

Q4 **Chair:** What explanation did the Government give for that happening? Did anyone ever get one?

Claire Jakobsson: It is difficult to answer that. When you talk to DECC, they say it was a decision that seemed like it was taken out of their hands. I suspect it was the fact that there was a fund sitting on the table that had not yet been used, despite the fact that the decision was coming only a month later. The detail is probably something for others to comment on.

Professor Jacobs: This is a very good case study of why the Treasury is important. The Treasury determines public expenditure, and, when it chooses to, it does that at a great level of detail. This was a very good example of how the Government acted over three Administrations. The CCS competition was originally initiated by the Labour Government—I was involved in those decisions—and it was continued by the coalition Government, and although it had changed its form over time, there had

been a consistent set of statements by Government that they were committed to it.

Nevertheless, when it comes to a spending review the Treasury is in total control and you have seven years—in fact, the original policy was longer—of consistent policy by three different kinds of Government just overturned in a unilateral Treasury decision for which was there no explanation other than that this was more money than could be spent at the time. It was the same amount of money that had been spent throughout the original period of austerity, so if there was a time to cancel it, it would have been in 2011 with the new Government saying, “Look, we can’t do this. It’s too expensive.” To treat business—a number of businesses had spent tens, possibly hundreds of millions of pounds, and put in a huge amount of effort—in that arbitrary way is deeply damaging, not just to CCS policy but to all kinds of policy, because businesses look at this and say, “Are the Government going to go through with anything they have committed to?”

In a sense, the wider lesson is that even though DECC is technically in charge of energy policy and climate policy, the Treasury controls the purse strings and has the ability, in its biannual statements, to shift the nature of policy—not just spending numbers, but policy—very significantly. That indicates an imbalance in the way policy is made and how power over policy is distributed.

We have other examples. The dominant constraint in energy policy is now the levy control framework, which is the total amount of money that the Treasury sets for the subsidy going to renewables. We have two problems. We have the problem of the limit that is set that is no longer consistent with investment certainty. The levels are not consistent with the climate targets and the timing is not consistent with investment certainty. So, this hiatus has now occurred in investment, particularly in renewable energy, because we do not have a levy control framework number for beyond 2020.

In terms of the Autumn Statement, the biggest decision made was not to have a levy control framework number for post-2030. It was the absence of a decision that has left another year of investment uncertainty. Investment has dropped off a cliff in the past year because of that. Unfortunately, you do not have a balance of powers and responsibilities between the overarching Ministry responsible for policy in DECC and the Treasury.

Q5 Caroline Lucas: Is that just wilfully negligent or something else? What you just said is pretty damning. I don’t really understand whether that is because people in the Treasury simply don’t get it or because they are applying a different view.

Professor Jacobs: Can we widen the concept of the Treasury, or make sure we know what we are talking about? The risk is that we talk about the Treasury as an institution that is autonomous. There are things that the Treasury does in middle and lower levels that are pretty autonomous—Ministers don’t have much control over them—and some of those filter up

into quite important decisions, particularly framings. But, in the end, these are political decisions. The Chancellor is the Treasury and the Chancellor is the decision maker. I don't blame Treasury officials for any of these decisions; it is the Chancellor who makes these decisions. There is sometimes a wish to demonise the institution. There are lots of reasons for doing that, but the main decisions are always taken by political Ministers. We have seen that Ministers can change those decisions, so the Treasury is not an independent institution making decisions.

- Q6 **Caroline Lucas:** What I was trying to get at was whether it's because they are applying different kinds of models of what is economically rational and, because the model is somehow faulty when you're dealing with sustainability, that leads to these perverse outcomes. You are saying that it is less that and more a set of political priorities that are contrary to the ends we are talking about.

Professor Jacobs: I should let other people speak, but the conceptual frameworks do matter, and some of them are embodied in guidance on how to make decisions—for example, the Green Book, infrastructure guidance and so on. Some of the conceptual modelling, which is done by the Treasury, has changed over the years. It is not the same as it used to be; there is much more environment in it, as a succession of Ministers and evidence has changed the picture. But in the end those are never determinants of the decisions. They may help frame the decisions, they may push them in certain directions, but it is Ministers who make the decisions.

- Q7 **Chair:** That is very helpful, thank you. Professor Jacobs, you have talked about putting this at the Chancellor's door. Obviously the Chancellor is now in the departure lounge—I can say that because he pretty much said it himself this morning. In our evidence, we heard the Cabinet Office Minister say that environmental sustainability is not a separate concept; it runs from top to bottom through everything we do in Government. I wonder whether anyone has any specific comments on the carbon price floor decision in 2011. I can see that Mr Lambe and Ms Ellis are keen to speak, so I will bring in Ms Ellis first.

Karen Ellis: I don't have a comment on that specific issue, but more generally, on whether it is a Treasury issue or a political issue at stake, I think it is both. A number of things are constraining the Treasury's proper management of environmental issues. One of those—I say this having been at the Treasury for a number of years myself—is the laissez-faire ethos of the place, which has stood us in good stead in terms of economic management over time but which does not really address issues like environmental externalities, which any first-year economics student knows are a big problem that the markets will not solve by themselves. We need to be more open to the idea that some form of regulation or other policy lever is needed—obviously they do use those kinds of things, but we should be more open to the idea that we need to manage a transition towards a low-carbon, sustainable, resource-efficient economy. The market will not do enough by itself, so the Treasury could change its

mindset on the need to support the market. Ministries of Finance and Ministries of Economy in other countries are already beginning to do that.

Q8 **Chair:** Can you give us examples of other countries?

Karen Ellis: Japan. Quite a lot of countries have long-term green growth strategies, though they may call them by different names. They set targets for the size of the market they want to see in green goods and services, for example, and put in place policies that will support that growth. We do not really have a tradition of setting a plan or strategy like that here in the UK; it is seen as something the markets should lead. But in practice the markets want more of that, so that they can see the direction of travel. Even without the policy leaders knowing the direction of travel, it is pretty important, as people have already alluded to.

That is one big issue—having a strategic long-term approach—and short-termism is another. That is partly driven by political electoral cycles, but there aren't adequate structures within the Treasury to necessarily facilitate or encourage long-term thinking. During the spending review, I am not sure to what extent the long-term impact of some of the spending cuts was considered or reported on. That is another big problem.

There is also the issue that the Treasury has a lot of power. It has combined the roles of a Ministry of Finance and a Ministry of Economy. It has responsibility for public finances and for promoting long-term economic growth, and there could arguably be a conflict of interest, in some ways—other countries often split those two responsibilities. That means that during times of austerity, spending cuts are prioritised over anything else, which may store up problems for the future in terms of longer-term costs that will arise as a result of those cuts. There is a need to address those kinds of things. We have put a number of recommendations on the table: an Office for Environmental Responsibility, for example, that would help to scrutinise Treasury and other Government Department decisions in terms of long-term environmental sustainability—a bit like the Office for Budget Responsibility, but focusing on that aspect—or a Minister for Sustainability, or different kinds of institutional mechanisms that could help to offset some of those problems.

Rob Lambe: I want to come back to the point about the spending review and the line of questioning about who is calling the shots. As another illustration, in terms of the built environment, after the progressive dilution of support for improving the performance of buildings and the existing building stock—the progressive reduction in both policy and funding support—there was very strong support for the improvement of homes in particular to be considered a national infrastructure priority and to be recognised as part of the infrastructure plan that was widely called for. I understand that many Treasury officials also supported that, but it never got through.

In the reaction to the spending review, the absence of anything positive coming through or any signals of anything positive coming through sends very clear messages about where the market is going and where

businesses should be focused in terms of any investment. It is a lack of anything that is actually positive, on the back of a number of years of progressively reducing the clear signals of policy support and fiscal support.

Q9 **Chair:** Is this the new, cheaper home energy efficiency scheme, replacing the energy company obligation? Is that what you are talking about?

Rob Lambe: That is a core issue. The energy company obligation was put in place in 2012. Almost immediately, it got wrapped up in what was arguably just a political football, with comments about “green crap” and the costs on bills. That was an example of something that was well considered, put in place for all the right reasons and fully embedded, and, as a business, we were very invested in the market that was going to develop from that. While we were hearing lots of noises that this would be cut, reduced, reversed, or otherwise, we did not believe it, because we thought, “This can’t possibly happen”—but it did. So it was effectively a kind of unilateral decision, on a whim, just because it was political. That has undermined the marketplace that was developing.

Another example of where industry has come together with Government Departments to develop something that is arguably in the long-term interest is the zero-carbon homes policy. It was introduced and embedded by Gordon Brown in 2006. Since 2006, industry and Government have worked closely together to develop the detail around that policy. Last year, again, an almost arbitrary decision in the Treasury report said, “Actually, we’re not doing this anymore”—uproar from the industry, apart from maybe a small faction which were probably powerful lobbying. But, coming back to the question, there was no evidence to support that reversal of the policy. There was no credibility to that reversal of the policy, so there was no substance to it. It simply said, “This is going to be a burden on industry. We need homes and cannot afford any sort of burden on industry, therefore we are going to reverse this policy that has been in place for 10 years.” It is a further illustration of decisions being made where there is a wealth of evidence to support the decision made in the first instance, but being overturned by a dearth of evidence to say otherwise.

Q10 **John Mc Nally:** That seems to be the practice: looking for action here and now, or in the short term, rather looking at 30 years from now. It must be really difficult for yourself. If certainty of policy is lacking, companies will invest elsewhere. Would you agree with that? The capital they have built up in the renewables and the carbon capture sector will vanish. I have read a lot about this over the past week or two—because we had nothing else to do. Renewable energy is essential for long-term sustainable growth, so why has that not been prioritised? Why are they changing their minds so often? There must be a fundamental reason for this.

Rob Lambe: I am probably not best placed to talk about the policy on renewables. I am partly involved and sit in the Aldersgate Group, a coalition of businesses and NGOs trying to drive the sustainable economy.

There are members of that who are entirely embedded in the renewables who are, absolutely, constantly changing their own decisions on investment in the UK, because of the uncertainty and constant change.

John Mc Nally: That is shocking.

Rob Lambe: The fact is that the DECC report issued in 2014, "Delivering UK Energy Investment", said that energy efficiency was going to be at the forefront of policy. It set out some really high-level and significant numbers in terms of the amount of investment required—£45 billion to £60 billion required in investment by 2030—and cited numbers from other reports, such as 100,000 jobs supported by that, yet none of that is fed through to any policy. So DECC has put a very clear report together, less than two years ago, which says that energy efficiency ticks all the right boxes and is probably the most cost-effective measure for energy reduction and therefore carbon reduction; it cites the economic benefits and the GDP benefits, which are well reported in a number of reports it recognises; and yet it is not flowing through into any policy that is influencing anything on the ground.

- Q11 **Chair:** Can I come back to this point about carbon capture and storage? Has anyone estimated how much money was invested over that seven-year period, with all the cancellations? Do we have any figures?

Claire Jakobsson: I don't have them to hand, but we could certainly share them with you.

Chair: That would be enormously helpful. John, we are going to move on to question 3, because we have wandered into question 2.

- Q12 **John Mc Nally:** The Treasury has told us that it works collaboratively with other Departments. What is your perception of the relationships the Treasury has with other Departments—you touched on this a wee bit earlier—on delivering on sustainability? How has it affected the progress and performance of Departments such as DEFRA, DECC and Transport? You mentioned earlier how carbon capture and storage in Peterhead was pulled and that Shell had invested a huge amount of money in that. How do you think the devolved Administrations have been affected? Has the Treasury been speaking to the devolved Administrations? Clearly we are trying to pursue a clean and green energy image in Scotland. If possible, Mary, I would like to hear what the experts think about how our policy is being affected, because we think we have a certainty of policy, and the last thing I would want to see is that being jeopardised in any way.

Claire Jakobsson: I can certainly talk about the relationships between the Treasury and other Government Departments, and about the perceptions we have externally. Perhaps a more positive example of how it can work was when we recently did a lot of work with the steel energy sub-group—UK Steel is also part of EEF. It was a fine example of where leadership and collaboration between partners can result in something quite positive and conclusive in terms of policy framework development.

The Steel Council brought together DECC, BIS and the Treasury—I think those were the main Departments leading the operation, which was led overall by BIS. Having all those guys in the room in one session meant that we could voice all concerns from all sides and work through what the objections might be from a Treasury perspective, from a BIS perspective and from a DECC perspective, and what the objectives were, and then start that from the base point up. We could then work through those problems early enough that the end result was much more proactive and conclusive.

We then broke off into a steel energy sub-group, which meant that we could work through the much more detailed policy frameworks with the Treasury in the room. Their objections were aired early, so there was no opportunity for them to come back later and say, “No, this isn’t going to work.” There is the potential for that kind of cross-departmental collaborative working to happen, but you do not necessarily want it to happen only when there is a crisis; you want it to be the standard procedure.

One of the things the EEF is currently really pushing for is an overarching industrial strategy. We feel that we are currently lacking something where we can work across all Government Departments, so that industry and business can be given that clear signal and message—“This is the direction of travel. This what we are going to do and look to achieve for the longer and medium term”—rather than it just being very short-term, quick decision making that can upset or, conversely, change behaviour. That is where we are coming from at the moment.

Rob Lambe: Prompted by being invited to give evidence today, I looked at the Government website to see what it says about the Treasury’s role, and I looked at the Treasury website to see what it says to people who are interested in careers. Both are very similar in their messaging. It is very much about being the gatekeeper—having responsibility for public spending, setting tax, and managing financial services and the related regulatory framework. The only reference to working towards the long-term greater good of the UK is a reference to a sustainable economy or long-term growth. That is the only part of all the bullets that describe their remit that might imply that they have an interest in the long term. I think that translates into the way the Treasury operates. They see themselves as the gatekeeper and the arbiter, not actively participating in trying to find the solutions.

We have many examples, particularly from when we work with DECC, because we are heavily involved in the energy efficiency market. We have many, many conversations in which people say, “Yes, this is a great idea, but we’ll never get it through the Treasury.” We have lots of conversations about flexing taxes, such as the stamp duty tax, to incentivise people to make a conscious decision when they are buying their properties. It has been modelled to be revenue-neutral.

Q13 Chair: Can you explain what the idea is?

Rob Lambe: The idea is quite simple. When they use the tax on road licences and company cars, they say, "Let's make it beneficial for people to choose a low-carbon or higher-efficiency car." The same principle applies when people are buying their home. At the point they are making a significant investment decision, the fact can be highlighted to them that it is not just about the cost of the home, but the cost of living is also a factor. They should therefore be more aware of the amount of energy that will be used to heat and light the home. Using the systems in place—the energy performance certificate—which gives that information, it would be very easy to say, "Depending on the banding of that property, you either pay more or less stamp duty."

The proposal goes further to say, "Actually you have a second bite at this. If you still want to buy that property that is less efficient and you pay more stamp duty, you then have 12 months to improve its efficiency." Arguably, they would be doing this during the period when they would be likely to be changing the bathroom or kitchen, so it is the right time to do this investment, and then recover the additional amount of stamp duty they paid.

It is a very powerful mechanism. It doesn't have to be a lot, because it is a very sensitive area. People get quite uptight about what tax they pay. It is a really simple mechanism to make people more aware and to make them take conscious decisions. It has had a great deal of support and lots of papers have been produced on it, probably for four years now, but at the final stage it keeps getting dropped. Some of the reasoning is simply, "This is too complex," or, "We don't want to open the box on this." Rather, we should proactively try to see how this can be taken forward.

John Mc Nally: I think a degree of libertarian paternalism is being applied here. I think that is what you are really asking for, and it has certainly been done in other markets. Maybe the Treasury needs to take its role a bit more seriously now it promotes sustainability and to drive people into a more energy efficient way of living and reduce everything long term.

We seem to be going back to the same thing. We seem to stagger from one thing to the other and then to take a step back. Everything you have described seems to me to be the right way forward.

Chair: Mr Zenghelis, do you want to come in?

Dimitri Zenghelis: I worked in the Treasury for 10 years or so. The first thing to say is that Michael is absolutely right. Most of the issues that we are talking about are to do with the fact that the Treasury tends to be very political in its decision making. There is a Treasury ethos, born of the fact that the Treasury is there to arbitrate against competing demands on the public purse. It takes a degree of pride in being tough and taking a tough line, because you can't say yes to everything—that wouldn't be a sustainable way to run an economy. That is certainly part of the hard wiring of the Treasury; it is in the blood of Treasury officials to some extent.

The Treasury tends not to like broad strategic visions if possible. It doesn't like picking winners. On the flip side of that, it tends not to favour protection of particular sectors either. To some extent it does encourage the transfer and shift of resources from slow-growing, low-productivity sectors to fast-growing, high-productivity sectors. From the point of view of renewable energy and energy efficiency, that could be a good thing. It is not against change and transformation.

However, coming back to Michael's point, we need to recognise that, as an institution, like all institutions, the Treasury is staffed by people. Most Treasury officials are a very well-meaning, expert group of people. They work for the public sector. They could make a heck of a lot more money in the private sector, but they don't because they like to influence policy and to change things. But to influence policy in that institution and to advance your career, you need to have the ear of Ministers. You need to be invited to meetings with special advisers. If you want to have the ear of Ministers and be invited to those meetings, it really does help if you say the things that Ministers like to hear. So you will tend to support the political cycle. If their interests are based on a five-year term, that is what officials, if they want to get ahead, will tend to support.

I think that is the nexus of the problem. It is almost an inversion of the cliché that the civil service has the long-term public interest at heart and politicians have their own political careers. Actually, the Treasury, which is at the heart of the civil service, is a very political organisation, because that is how the senior people inside the Treasury will get ahead.

- Q14 **Chair:** We have talked about DECC, Transport and DEFRA. What about DFID? A new international climate finance mechanism is emerging with about £5 billion of UK taxpayers' money going into UN mechanisms. Does anybody feel qualified to comment on that?

Professor Jacobs: This is an interesting example of—I don't know whether I can widen it first—the relationship between the Treasury and other Departments. The International Climate Fund, which has £5.8 billion in it over a period of four years, I think, derives from the Government's overall commitment on aid budgets, so without the Government's overall ring-fencing of the aid budget, you definitely wouldn't have had this huge climate fund. I think that is pretty clear, but once that decision had been made, you then have the question, "How do we spend it?" The Government has provided, broadly speaking, very strong support for the international climate regime. Despite what it has been doing domestically in climate policy, it has maintained a very progressive stance on international climate policy both within the EU and in the run-up to and at the Paris conference.

Given that you had this big budget envelope—the ODA commitment to keep the 0.7% of GDP—this was then a very good way of spending it. My understanding is that the Treasury has been pretty supportive. There are differences between DFID and DECC, which has part of the money, and a little bit of the money goes to DEFRA. In many ways, the Treasury has built up, since the period of Gordon Brown, a lot of expertise in

international development, because he was very interested in it and he wanted to command as many policy fields as he could. That was one of the ones that he was very keen on. The Treasury has maintained that, in my understanding, and I understand that it works pretty well as a collaboration between Departments. There are differences, but all those Departments think quite hard about how to spend it. There are huge capacity constraints because they have all this money to spend but have very few staff to spend it with. That is a consequence of cuts to staff. I think that is a rather good example of where the Treasury has collaborated quite well with other Departments.

The general point I would make in response is that, culturally, I think there is a kind of superiority complex in the Treasury. They tend to think that other Departments are special pleaders and not as bright as they are, and it is the Treasury's role to bring a degree of intellectual coherence across Government as a whole. It tends to be true that the brightest civil servants often go into the Treasury, but you can overcome that. What I saw—I was at the Treasury for three and half years as a special adviser and then at No. 10, and I worked with the Treasury in that period—was that if there is sufficient political will, the Treasury, in the end, will go along with even new conceptual frameworks.

A good example of that is carbon budgets. When DEFRA, as a result of huge pressure from outside, decided that it would be a good idea for the UK to have a Climate Change Act with annually reducing targets originally, and then the suggestion was made for carbon budgets as a way of doing this, the Treasury opposed it. It did not think that it was right to constrain the economy with an externally given constraint. All decisions had to be weighed in the balance, in a sense. You always had to trade off—that is a sort of core institutional view—but politically, that decision was not agreed with. In the end, the Chancellor did not agree with the approach that his officials wanted to provide. It was one of the few times when I disagreed with officials as a special adviser—by and large, we ended up agreeing—and the Chancellor made a decision. Once that was in place—once a system of carbon budgets was adopted under the Climate Change Act—the Treasury then tried to make them as good as possible. The Treasury was then a willing and active participant, with very good civil servants, in making that work. The low-carbon transition plan, which was the first attempt to implement a system of carbon budgets, which was done in 2009 following the Act, was with full Treasury support, and the Treasury helped that process.

That would be evidence to me that, although the Treasury may start with an institutional bias, if political decisions are made to adopt a kind of framework—not just a policy, but a framework—the Treasury will then apply its intelligence and abilities to make that work. We have some good examples of that coming up, with the recommendations from the Natural Capital Committee, which is proposing new ways of thinking about natural capital. Treasury officials, I suspect, would be very nervous about the impact of that on the cost-benefit analysis of project decision making. It is very noticeable that the one recommendation of the third Natural Capital

Committee report that is not accepted by the Government is that the National Infrastructure Commission should have a natural capital investment plan. Everything else is a bit general and has been agreed. That one is very specific and has not been, but that is where the Government needs to make some decisions.

The Government will decide. Ministers will decide—not Treasury—how the new frameworks that are beginning to emerge from that will be applied in practice. The National Infrastructure Commission will be a good lesson. We will need to see whether it really does take this on board, because its decisions will deeply affect the natural capital of this country. I can imagine those conversations going on. I can imagine Treasury opposing them, but if the right ministerial decisions are made, Treasury will be on side, because the decision will have been made, and will then help implement them.

Dimitri Zenghelis: Although that could work both ways when it comes to policy reversals as well.

Karen Ellis: To build on the point about natural capital, I think there is an opportunity going forward for Treasury to play a more proactive and supportive role in the context, perhaps, of the 25-year plan for the environment, if that continues to be progressed in the light of what is going on at the moment, which I hope it is. A lot of the issues we are talking about, such as environmental sustainability, call for more integration, involve lots of linkages between different Government Departments' interests and require working together. Treasury and Cabinet Office could play a really important role in that process. We really hope the 25-year plan is not all about DEFRA, but is a cross-departmental plan, and that Treasury will play an important role in both designing and implementing it.

We know that Treasury are interested in natural capital. They have been open to ideas from us and others about what they should be doing on it, which is great. It is a sign of Treasury being willing to listen and engage on these ideas. I agree that they might not like some aspects of it—anything that hampers any kind of infrastructure development, for example. I think they do see it as an opportunity to turn environmental policy into something that can support the economy, but how that is done is not entirely clear.

The sustainable development goals are another area where you need a bit of cross-departmental thinking, which is not really happening to date, as far as we can tell. Again, that is about making trade-offs and having an open process to discuss how you make those trade-offs, not just that going into the black box, which is Treasury decision making at Budget time or spending review time. There are some opportunities. We have made recommendations around things like fund pooling, which would be Treasury getting different Government Departments to jointly submit proposals for funding for things that would deliver for both Departments.

At the moment, the way budgets work is that, often, Government Departments are all putting in their proposals somewhat independently, and they are just competing for resources. They are not encouraged to think in a joined-up, coherent way about how they can deliver or achieve certain goals more effectively. For example, investment in green space can benefit in terms of health costs and productivity, but DEFRA's budget would have to pay for that. There are a lot of opportunities now, in the context of the 25-year plan and SDGs, for Treasury to play that role going forward and to build on some of the positive things they have been saying or making soundings about recently.

- Q15 **Peter Aldous:** You have all answered a lot of the questions that I was going to put. I think a lot of what you are saying comes down to people—a Chancellor's short-term political aspirations and civil servants' career ambitions. The Treasury, I feel, should be getting the balance right between short-term political commitments and long-term economic returns. The OBR and the IFS probably play a lead role in scrutinising the short-term fiscal impacts. All of you have emphasised the importance of natural capital, the sustainable development goals and, indeed, the provisions and the framework set down by the Climate Change Act. Do you feel that some other sort of mechanism or framework needs to be put in place, so that the Treasury takes account of sustainability performance and setting those strategic goals when making their decisions?

Dimitri Zenghelis: Absolutely everything that has been said so far points pretty much to that conclusion. Even on the day-to-day running of things, the Treasury tends not to have sufficient incentive to take a long-term view, for reasons we have already discussed. The Treasury does initiate and entertain discussion on long-term issues. There is a whole plethora of reviews that are essentially long term. The Stern review, the Eddington review and the King review are all reviews that go outside the lifetime of a Parliament and of spending reviews, but there is not an institution to see that they are followed through in a coherent manner, and I think that is why these suggestions for an Office of Sustainability come up. We are seeing calls for a National Infrastructure Commission that is all about looking at projects that have a long-term lifetime. Hardwiring environmental sustainability into that institution will be crucial. The risk is that if we lock into infrastructure with capital lifetimes of decades, we will have to revisit, retrofit and replace, because we find that it is not compatible with our environmental, carbon and other long-term targets. Taking a long-term view is essential, and we need an institution that takes the politics and the short-termism out of some of the key decisions around some of those long-term investment proposals.

Rob Lambe: I will go back to a point that was made earlier and use it to illustrate your question. On long term against short term, the decision was made to reduce the amount of energy company obligation funding to support the energy efficiency of homes; that was going to reduce energy bills in the long term, because it reduces the amount of energy used. What has actually happened is short-term energy bill reduction, reducing what

people are paying now, but there is no mechanism to reduce those bills over time. Indeed, they will continue to increase. It was a short-term decision to say, "We have to reduce the amount that people are paying today on energy bills," rather than, "We need to continue this programme of investment so that everybody pays less and uses less in the future." That is a clear illustration of short term against long term.

The Green Book includes a requirement that says that all Government procurement will take account of whole-life costing. I think that has been in there since at least 2008. In 2008, it was probably looked at, at least. The market conditions and the public spending situation have been slightly different since then. Nevertheless, I can say that nobody takes account of that requirement in the Green Book. Where the Treasury even cites that there is a requirement for whole-life costs to be taken account of in procurement decisions, no account is taken. There is no mechanism—whatever the framework or mechanism might be—to ensure that, even where it is stated as a requirement, somebody has actually taken account of that, or that it will be taken into account to ensure that it happens.

Professor Jacobs: There is no question but that there are biases towards short-termism. I do not think that is simply the Treasury as an institution. There are political biases towards short-termism. There is an old economic philosophy that I would argue is biased towards short-termism. The question is how you could change that. Some kind of institution that is responsible for thinking and talking about the long term in a way that the OBR is intended to talk about budget responsibility would be useful.

The other thing we have is the use of targets and long-term targets. From an economic framing point of view, the Treasury and many economists are nervous about long-term targets because, effectively, you should make all decisions on the benefits and costs. Long-term targets can perhaps constrain you to something that looks non-optimal. The huge advantage of having targets, particularly those set outright, is that they constrain. What you then get is the optimisation of policy within them. As economic actors are much more flexible than you know *ex ante*, you can get very good, efficient and dynamic decisions within a constraint that you might not have realised when you first set the constraint.

That is the beauty of the Climate Change Act, which we have talked about. It sets a framework of targets with a long-term trajectory; there are five-year budgets set 15 years in advance. Policy has to be made within those, and investors have a sense of where policy is going. The additional beauty, which we have just discovered, is that even if the Government rips up most of its climate policy, within a few years—a year and a half—it has to produce a new load of policy because it has a budget. Your responsibility in Parliament is to set the fifth carbon budget this week, according to the Act.

The Act also says that the Government must have a plan to meet the budget. There is an automatic process under the Climate Change Act—even if you abolish all your policy in mid-term—of coming back and saying, "How do we meet these?" It gives investors certainty and so on. You could

do that with natural capital in other forms. You could set targets and so on. Obviously EU regulation on air quality, water quality and all the other things that we need to retain in the new circumstance do the same thing—they set those limits. You then constrain policy, but you get dynamic policy development and investment within those. That is a useful way of policy makers thinking about how we protect the long term. We now have some experience of doing that, and I think that natural capital is the next place where we will need to do some of this.

Karen Ellis: To build on that a little bit, in terms of natural capital, we have published specific recommendations that would help to embed natural capital thinking in the Treasury's daily processes. For example, there is the idea of stress testing for natural capital impacts on the economy. That is already done in relation to future scenarios in the financial sector, and also increasingly on climate change, but not for natural capital yet. If we could think about what future, potentially very realistic, trends in natural capital depletion—both in the UK and globally—will have on different sectors of the economy, that would help the Treasury and business to understand what the most material risks are, how they are likely to play out and how to start to address those. That is an area that we just don't really understand yet, and the Natural Capital Committee has recommended more work in that area. That is a really important one that is right in the Treasury's area. They should be tackling that.

Natural capital accounting is another important area, and we are already making progress on that. We think that should be published alongside, and given equal weight to, GDP, and published in the Budget with a discussion about the trends, what they look like and what impact that will have on the economy. Those are things we think the Treasury could be doing. There are then the external scrutiny points that have been made already, such as having an office for environmental responsibility. We think that long-term impacts of spending cuts should be considered and should be published for scrutiny as well.

Chair: Thank you very much indeed. Caroline?

- Q16 **Caroline Lucas:** I want to go back to the Green Book, in particular, which "sets out the broad framework for the appraisal and evaluation of all policies, programmes and projects" of the Government, which in principle includes valuing non-market impacts, including environmental impacts. Why do you think, given that sounds like it is going in the right direction, it is not delivering the kind of policies that would better protect the environment? Maybe I can ask that in a slightly less tendentious way: to what extent do you think it adequately takes account of environmental impact?

Karen Ellis: The Green Book?

- Q17 **Caroline Lucas:** Yes. In particular, the Green Book says that it encapsulates the idea of valuing non-market impacts, yet everything you have been talking about for the last hour seems to suggest it is not doing

that in a terribly good or effective way,

Karen Ellis: First, it is quite difficult to do it. Even if everyone was trying very hard, it would still be difficult to do that properly, but we are progressing in that direction and getting better at doing that over time. That is one area. Second, it is not being operationalised very much. On the point you were making earlier, those pieces of guidance are not actually being used and there is no mechanism to enforce that or scrutinise whether that is happening. There was a study by DEFRA itself a couple of years ago that reviewed this and said that only 50% even take these kind of things into account at all. Basically, I think it is not being implemented properly, partly because it is challenging and partly because there is no incentive to for some of those businesses.

Dimitri Zenghelis: I am not an expert on the Green Book; when I was at the Treasury I was a macroeconomist in charge of the macroeconomic forecasts. I only moved into this field post-Stern review, but it is pretty clear that a lot of the models applied in the Green Book, and the modelling applied to making decisions for most projects, even long-term projects, are based on the notion that these projects are marginal and don't change the state of the world. Say you build a bridge; does it make sense, in terms of cost-benefit? Does it connect communities, improve transport and so on? A lot of the decisions we are talking about here, either because of large-scale, potentially irreversible impacts like climate change, or because you are changing the shape and nature of the way our cities are planned or the kinds of technologies we adopt in energy and transport, have non-marginal consequences. They change the way the world is. They have spillovers and externalities, to use economic speak; they have indirect effects that are incredibly difficult to measure and that are reasonably uncertain.

They also mean you can't, for example, take a discount rate off the peg, which you do in the Green Book. A discount rate will be a function of the whole economy growth rate. If your decisions have such a non-marginal impact that they may change the whole economy growth rate, they will change the discount rate. If there is a risk they may change the whole economy growth rate, you need an array of discount rates and so on. I think accounting for uncertainty, irreversibility and the impacts of decisions that have substantial potential to change the shape of the economy and the environment requires a rather broader approach than some of these narrow models allow you to take. They have their place, those models; they are not to be thrown away, but they need to be used with all the health warnings as to where they are appropriate and what their limitations are. The mistake that is often made is that they are assumed to answer all the questions.

Q18 **Caroline Lucas:** On the discount rate in particular, where is the debate at, within the Treasury or anywhere else, about how appropriate the one-size-fits-all 3.5% is when it comes to longer-term sustainability investment?

Dimitri Zenghelis: I can't answer that question. I don't know.

Karen Ellis: I think there is debate, but it is very inconclusive as to what the discount rate should be set at. Basically the discount rate is set at the level it is set at because it assumes future growth will enable us to pay for it in the future, but that in itself is a questionable assumption and possibly has self-fulfilling implications. That will continue to rumble on, and there is no real way to conclude that conversation. That is just a difference of opinion.

Q19 **Caroline Lucas:** Does everyone agree that it is a major obstacle—the “one size fits all”?

Karen Ellis: Yes. Also, to build on Dimitri’s point, when you look at a project and are doing a cost-benefit analysis of it, and it looks like environmental considerations are going to be a problem for it, you really don’t want to go down that path, so you don’t do it properly. If this was done in a much more planned, coherent way—other countries are already doing this—where you zone different areas depending on the value of the natural capital in that area, and decide you will not develop there but will develop here instead, you can make those kinds of decisions in a much more strategic way, rather than on a case-by-case basis, where the environment will always get trumped. We just need to be looking at this from a more holistic, long-term planning perspective, which is not the ethos of the Treasury. It may be in the 25-year plan; I don’t know.

Q20 **Caroline Lucas:** Would it make much difference if the Treasury embraced the idea of the precautionary principle rather more operationally? Would that make the discount rate less of a significant issue, if you were going to try to build that in as more of a guide?

Professor Jacobs: I am not personally convinced that the techniques are the crucial determinants of decisions. The techniques help guide policy, but as we have seen with HS2, if the techniques do not generate the benefits, they can be discounted. You don’t need a cost-benefit analysis to approve projects or protect them. The environmental movement in this country has stopped lots of things happening that would definitely have got through cost-benefit analyses. That is the power of politics—of which you and your colleagues have been exponents. Selling off forests was a good idea until the public said it was not, and the mobilisation of that stopped it. No amount of Green Book utilisation made any difference to either the first decision or the second decision. So I think we should be trying to improve the techniques.

There is an interesting debate about discount rates. The Natural Capital Committee have proposed particular ways of valuing natural capital, and we should be looking at and using those. I think they will change the framing of decisions, but I do think that in the end, major project decisions are ultimately determined by what goes in—they are not driven by those techniques. That is either in the sense that if the Government really want to do something, they will not use the Green Book in the way that is set out—as we have heard—or they will use the Green Book and then wider critical pressures can stop something from happening.

Rob Lambe: To reinforce that point, in any long-term investment decision, there is an awful lot of uncertainty, unknowns and assumptions that need to be made. It depends on your starting point—whether or not you subconsciously or consciously prefer the outcome to be this or that—as to how you treat those assumptions in the model. It is very much the inputs, rather than the tool that you are using, that is likely to give you the decision at the end, and I think it depends on what factors you consider. Coming back to homes and the improvement of energy efficiency, when any models are used to look at the investment return—GDP or otherwise—they do not take the full consequences into account, in terms of health and wellbeing, the impact on NHS budgets, or the impact on fuel poverty and all the social issues that come through that. What answer you get depends on what issues are fully considered and taken into account, as much as on the tool and the model.

- Q21 **Chair:** Can I just ask Miss Jakobsson something? I have two very specific questions on this. The first is about the energy-intensive industries. We have had a little discussion about Green Book, net present value, discounted rates and so on. Going back to a previous question, how well do you think the Treasury has supported the competing issues around innovative technologies and protecting energy-intensive industries? You talked a lot about the carbon capture and storage decision, but there have also been decisions on protections for energy-intensive industries. Have there been decisions that have harmed those industries?

Claire Jakobsson: Absolutely. As you are aware, in recent months, there has been a lot of activity around protecting those energy-intensive industries from carbon leakage and issues around the costs of green levies on process emissions, which they cannot avoid by the very nature of what they produce and manufacture. Those discussions have ramped up recently, and the Treasury awarded an exemption in this year's Budget to energy-intensive industries from 2017 and beyond, meaning they are no longer exposed to those green levies. From a long-term industrial perspective, that is a very positive thing. It gave them certainty, and the reduction in electricity prices, which were inherently more costly than anywhere else in Europe, meant that they could be more competitive than they would otherwise have been.

Conversely, though, the issue of how we address investment in innovation is still quite unclear. In this year's Budget, we saw the retention of climate change agreements, which is certainly a very positive thing in terms of the industry's approach and their environmental strategies. It raises awareness of their energy usage and consumption for the longer term; obviously, they have to calculate and submit all those numbers in order to get their climate change agreement. It means that at board level, there is exposure and awareness, which means it is a very positive thing, so that was great.

They also then called for the scrapping of the carbon reduction commitment, which has probably more impact on medium-sized manufacturers than energy-intensives. However, what comes next is where we're at now. Beyond that, it was seen as a very burdensome,

complex scheme that did not really seem to deliver what it was set out to achieve—fundamentally, reducing carbon. We are now in discussions with DECC about what will replace it. However, it is unclear what the end goals actually are and where the incentives come in to trigger those investments in innovation.

The Treasury obviously has a very important role to play there in ensuring certainty, as we said before, and a longer-term approach. The payback time for some of these investments in energy efficiency measures, particularly for the larger energy-intensive plants, is huge, and the investment up front is more than they can afford right now, so they need that loan or grant system in place in order to achieve it. Again, we are having conversations with Treasury about that, but fundamentally, for the longer term, they will need some form of incentive mechanism and financial support mechanism to make those leaps of faith into the energy efficiency measures.

Chair: Thank you; that is helpful. Mr Lambe?

Rob Lambe: I would say there has been a lot that has actually hampered innovation and investment in innovation. Nevertheless, there are two examples that I think have been positive in the main. One is the Treasury support of a publication produced by the Green Construction Board, a joint Government-industry body that sits under the Construction Leadership Council for the implementation of the industrial strategy. The document produced is "Infrastructure Carbon Review", badged HM Treasury. It is not about policy; it is about encouraging innovation. It is about encouraging anybody involved in infrastructure, particularly major infrastructure, to consider carbon reduction as a cost reduction, and therefore to look at all the different ways and learn from each other.

That document was published two years ago. Again, because of the signals that that sends the major signatories on both the contractor side and the client side, there has been a huge amount of interest, and signatories are working together now. That is an example of where no funding, support or policy has been required; it is just HM Treasury saying in the document, "You should look at this, and look at the cost savings associated with carbon."

The other example, although it has also been slightly troubled, is solar PV. Without the support of feed-in tariffs, we would not be in the position that we are in with the solar PV industry. The fact is that the systems are now at least twice as efficient as they were eight or nine years ago, and half the price. The support that the industry got and the signals of support for the industry going forward generated a huge amount of investment in technology, in looking at different ways of delivering that as a solution. The emergence of battery storage is another key part of the whole energy and security issue. In the main, that is a positive story, albeit parts of it have not been well handled.

Chair: Bumps in the road.

Rob Lambe: Absolutely.

Chair: There are plenty of those coming.

- Q22 **John Mc Nally:** I totally buy in to what you are saying about counting the cost of not buying a technology, whether it is a house, a hospital or any infrastructure problem. I don't suppose you can actually count the cost of not doing something—it is probably not an exact science. Going back to the innovative side of things, I was reading through the eight great technologies, and hopefully something gave me an answer there. The Government have the eight strategic technologies and this is what they were planning to do, but then Innovate came out and they have reduced it by four—they have halved it, and I am not sure why. One in particular that they are interested in is energy storage. When you are talking about the new type of batteries, I believe there is a possibility they can store renewable energy in salt mines off the North Sea and various other places. That seems to be completely taken out here. Can you tell me why? Is this an absolute change of policy again? We have eight great technologies on the one hand: it was put down by the Government and it includes advanced materials, agri-science, big data and energy-efficient computing—we have a whole list here, but 1, 2, 3, 4 and 5 have been omitted by Innovate UK sector groups. Why is that?

Professor Jacobs: I do not think any of us know the answer. You should probably ask the Government that. It is further evidence of the political nature of decision making. The previous Business Minister under the coalition Government, David Willetts, was very interested in those technologies. The eight that were developed were very much under his personal involvement and he was open to interventions of various kinds from Government. There is now a different Business Minister under the current Government, who as far as we know is a much more laissez-faire kind of person than David Willetts was. I do not know whether that decision was related to that, but you can clearly see that the BIS Department is much less interested in that kind of more active industrial policy as a result of that. They are the same civil servants—I bet they are all exactly the same—but they have been directed differently, and that is why policy changes. I do not know whether that is why Innovate has reduced from eight to four, but the original eight were a very personal bit of work by the previous Minister.

- Q23 **Caroline Lucas:** Thank you. One last question on the Green Book, notwithstanding everything you keep telling me—that it does not matter at all, because it is all about the politics. Given that the Treasury is going to update the Green Book in the light of the Natural Capital Committee's last report, is there anything that the Treasury could do to improve how the Green Book does account for natural capital in the environment—more specifically than what we have said so far? Perhaps I can come back on that.

Chair: You can have a think.

Caroline Lucas: We just need to change the Government—no problem.

Professor Jacobs: It may be easier to do that than changing the Green Book, Caroline.

- Q24 **Chair:** Can I ask you to indulge in a bit of prophecy before we come to our final question? On the Swansea barrage—obviously, we have had the examples of CCS, the building industry, everybody entering with good faith over a long-term project. The tidal barrage and so on have all been ramped up. It is a fairly small-scale scheme—not a £3 billion, £300 million or half a billion project. First, what do you think about it? Secondly, there is a review going on—what do you think about that? Thirdly, what do you think is going to happen there? For example, what are the sunk costs? Does anybody know how much has been put in by the company or companies in the consortium—has anybody any ideas about the Swansea barrage?

Claire Jakobsson: I cannot delve into the specifics, in all honesty. However, in conversations we have had around this topic, particularly with DECC, their response has very much been, “When the numbers add up, we will look more closely.” So at this stage it seems to be very much a review process.

- Q25 **Chair:** What are their concerns about the numbers?

Claire Jakobsson: I would think they are too long term.

- Q26 **Chair:** So we are back to the cost-benefit and the NPV numbers.

Claire Jakobsson: Yes. It is too long term is where they are at the moment. For them, it is all about it has to be on a competitive playing field with other technology, and as I understand it, it is not quite there yet.

- Q27 **Chair:** Where do we think EDF and the Hinkley Point decision will go, post-vote for Brexit?

Professor Jacobs: My view is there is huge political commitment to Hinkley Point on the part of both the British Government and the French Government and, although EDF is wobbling, it will come under a lot of pressure from the French Government to deliver Hinkley Point. So my prediction would be that Hinkley Point has quite a lot of momentum still in it, despite the numbers going backwards. I think if you were making a decision now, including the current Government, you would not do it.

Chair: You wouldn't?

Professor Jacobs: You wouldn't do it, not least because the timing is completely different—it was originally something to prevent the security of supply crunch in 2017. Again, we were in Government when we made the original decisions and it was aimed for 2017, when there will be a supply crunch. It is now 2025 or later, and obviously the cost has gone up hugely. So I don't think you would do it now.

You have also got a situation where the long-term options for demand management in the power system, rather than supply, have rapidly changed—the kind of technologies that Rob was talking about. So I do not

think you would do it now even without concerns about nuclear and whatever, but the institutional commitments have been made and vast amounts of money—if we are comparing it with a CCS project, a lot of money and effort is put in. An economist would say those are sunk costs and, if they are wrongly done, you should not throw good money after bad, but there is huge institutional commitment to it.

Under circumstances where you have a whole change of Government, those are the kinds of political changes where you can make clean breaks, and that remains an option. It has not been finalised, but I would not hold your breath on it.

- Q28 John Mc Nally:** We have had a lot of discussion about this. The Treasury often has a range of evidence and tools available to it when it makes decisions that affect environmental sustainability, such as the macroeconomic forecasting models and cost-benefit appraisals that you have already mentioned. How well are these tools able to quantify the environmental impacts and therefore enable the Treasury to take those impacts into account, considering that earlier on you said that the environmental lobby did not seem to be at the table at all in some cases? Do you see the environmental aspect of these things as quite weak?

Dimitri Zenghelis: Yes, in a nutshell. Again, that does not mean that these tools have no value; it is just that you need to apply the tool to the appropriate problem. There are different models but most of them struggle to cope with uncertainty and most of them struggle to price in an array of externalities, some of which are acknowledged to be much larger than any attempt to endogenise or incorporate those externalities. By externalities I mean things like pollution, congestion and carbon emissions—nasty things that are very difficult to price and value and incredibly difficult to model.

A whole suite of models—what they call general equilibrium models—assume that the economy is optimised and efficient. That means, for example, there is no unemployment and no inefficiency. So if you are trying to look at the impact of policies on efficiency, you cannot use those models—they are next to useless. Some models do not look at export markets, so if you are looking at strategic change to build sectors that will compete in a globally transformed market, those models will tell you nothing. Very few models encompass the driving processes of innovation, so if you are actually seeking to push innovation which will change the costs of technologies, which will then have a ramification on behaviour, institutions and policies that might then further change the costs of technologies, most models will have nothing to say.

- Q29 John Mc Nally:** You say then that these models should not be used?

Dimitri Zenghelis: For most of the problems we are talking about, I think they probably should not be used. If you want to model the impact of a change in the oil price or a fall in interest rates or something on behaviour over the next couple of years, these models are very useful. You assume the world mostly stays the same, and for the purposes of the exercise that is a valid assumption, and you look at the behavioural responses of a

clearly identifiable short-run effect. When you are actually looking at something that is subject to risk and long-term impacts, these models tend to fall apart.

Time is another factor. Models are quite good—I used to head the UK model in the Treasury. It is okay for the next five years because the assumption is that after five years, we don't know what is going to happen and everything will revert back to some trend—of course, politicians then spend ages trying to fiddle the trend, but that is a different matter. That does tell you something about the impact of shocks in the short run on things like inflation, interest rates and unemployment. You cannot use that kind of model to tell you something about what the world is going to look like in 2040 or 2050.

- Q30 **John Mc Nally:** We heard from Senator Kevin de León, a Californian senator, earlier this year. They seem to have put in this certainty of policy. I don't know if you are familiar with what California has done, but the money and the investment seems to have followed their policy. I don't know what their models were, but they have obviously taken a decision, and everybody seems to be quite happy with it. I wish we could do it in Scotland, because we have plenty of water and they have plenty of sun. If we could reverse it half way round, it would be a wonderful planet. Why have they managed to do that in California?

Dimitri Zenghelis: Michael made the point that very often, even less structured and less formal models will be based on empirical evidence of things you have not tried. If you try something, those models will use that evidence to tell you that the effects will often be one way or another. In fact, if you add constraints in a way you have not before, people tend to be incredibly innovative. Companies, businesses and entrepreneurs tend to buckle up if the policy is credible—that is a crucial “if”. If they believe you actually mean what you say, they will develop the tools, processes, technologies and behaviours to bring it about, and usually at a much lower cost than you expect. However, if they are not certain you mean it, they will not commit the resources to do so. The problem then becomes self-fulfilling, because if you cast doubt, the investment does not follow because there is uncertainty, and it then becomes much more costly and less effective; then the people who cast doubt turn around and say, “You see? We told you.” Credibility is a crucial driver of success. It is impossible to model. It is a psychological variable sometimes.

- Q31 **John Mc Nally:** We are working on utopia. It may be a wee while off yet.

Karen Ellis: There is an issue of the dominance of the particular modelling approach that Treasury uses. There are other models out there that attempt to address these things. We commission work from Frank Ackerman, a Harvard economist who showed benefits from climate change policies that the Treasury model had totally failed to take into account. All models have massive weaknesses of different kinds, but looking at different approaches to modelling these things would help to provide a more informed understanding.

Chair: This is going to be our final question.

- Q32 **Margaret Greenwood:** A number of stakeholders have criticised the Treasury's focus on GDP as the main indicator of the health of the economy, because of its failure to take into account environmental sustainability. Are there any realistic alternatives that you could suggest to using GDP?

Professor Jacobs: I will have a go at that. GDP is a very useful indicator for doing what its core job is, which is to tell us what the national income is. National income is a very important indicator—it is an indicator of income; it is also related to jobs and so on, so in itself that is useful. Technically, there are some issues around it. The digital economy is making a lot of economists wonder whether we are measuring GDP correctly, because it is based on statistics that we gather about transactions in the economy.

Within the statistical world, there are now some real questions about whether GDP is the right measure. Some of those emerge out of environmental concerns. Some of those emerge out of the role of depreciation, for example. We use gross domestic product; should we be using net? We should be looking at some adjustment to GDP, which is likely anyway because of the changes with digital. My own view is that net national product—being concerned about the depreciation of assets—is particularly important. It is important in physical assets as well as natural assets. What I am nervous about is the attempt to shoehorn every objective we have into a single indicator. You can try to adjust GDP for all kinds of things that reflect the other things you are concerned about. Distribution, for example, which is not reflected in GDP, is a gross measure—it does not tell you what the distribution is. Then there are various environmental concerns, happiness or whatever. It seems that the more adjustments you do to GDP, the more you are losing the thing that it is measuring. It is no longer measuring anything; it is just an adjustment to a set of numbers, whereas GDP does measure something right now and you can do some adjustments.

I am broadly of the school that says that we should absolutely have other objectives, we should measure those properly and we should publish them, be concerned about them and direct policy at them, but inequality is a different thing from GDP. We should have indicators of inequality that are up there and published at the same time. We should be directing policy at doing both. When they are in conflict—which they are not very often—we should be trading off in some ways in political discussions. The same goes for the environmental indicators. There are definite limitations to GDP. There are definitely other things that we should be doing. They need their own indicators.

I would quite like to see a small suite. You get too many if you go down the sustainable development indicators route. You get so many—169—that nobody can concentrate on anything. I would like to see a small suite of five or six key economic indicators, of which natural capital would definitely be one, which would help to guide policy in a wider sense, but in

the end it is policy that matters. Indicators do not give you policy. Indicators tell you the state of things but they do not direct you in any particular direction. We have a Gini coefficient for inequality and that has not stopped Governments allowing inequality to rise. It is not a failure of measurement; it is a failure of political attention. That is up to the political debate much more than it is up to the statisticians.

Chair: Very helpful. Ms Ellis?

Karen Ellis: I think that one of the main problems with GDP is its short-term nature, because it focuses on income in one year. That is why I would certainly agree with some of the points you have just made about natural capital being important but that there are other measures that take account of our future wealth and future economic prospects, not just how much we have made this year. You can boost GDP by chopping down all the trees but that means you don't have any to chop down next year. Just taking into account longer-term impacts, including through natural capital accounting and inclusive wealth accounting—the other frameworks that try to do that in other ways and that take account of other stocks of capital, not just natural capital—is really important for the sustainability of our economy beyond environmental sustainability. Clearly, the SDG indicators need to be in there as well.

I thought of a response to Ms Lucas's question, which is that the other point about the Green Book is that—I think the Natural Capital Committee has made this point—it should take account of the impact on natural capital stocks, not just flows of services from natural capital because, again, that is a short-term approach. You can increase flows while you draw down on your stocks, which will damage future flows. That is problematic and challenging to do but we need to start taking account of that. Fixing those stock depletions will be much more costly. That is a big cost that is not taken into account by incremental changes in any one year. Replacing that may be impossible in some cases or require expensive artificial solutions. That is the big challenge for the Treasury.

Chair: Mr Zenghelis?

Dimitri Zenghelis: This is one "University Challenge" question that we can all answer, and we are all answering it the same way, which is encouraging. Michael is absolutely right: you need that dashboard of indicators that is easy enough to monitor. Karen raises an important point, which is that GDP is a flow concept. It can have perverse effects. If you have spare capacity, a good war or a good earthquake—as we saw in Kobe in the mid-'90s in Japan—can boost GDP. It is good for GDP but very bad for capital. Climate change did that to some extent. The extent to which we are going to have work hard to rebuild things could boost GDP, but it is not something that we want to encourage.

GDP has its limitations. This points to the need to develop a better measure of underlying wealth. There is work going on, which I am involved in, in Oxford at the moment to try to advise policy makers on methodologies to measure the broad gamut of wealth—not just physical

capital, but natural capital, human capital, and social and institutional capital. Ultimately, that is actually what we care about. If you were told that your income might go up for a few years but that all the other elements of your wealth would be eroded dramatically, you would probably not accept that deal. Yet, most of the economic focus is just on the income. How you generate income will have an important bearing on what happens to the rest of your capital.

- Q33 **Caroline Lucas:** I got the sense overall, as the conversation has developed, that maybe we are barking up the wrong tree. Before we end the meeting, I want to throw you a more open question instead of asking about the Green Book, the measures, GDP and so on. If the question simply were, "What could the Treasury be doing to better promote environmental protection in this country?"—a more open question—is there a way that you would answer it that you have not yet said because we have asked you more specific questions?

Claire Jakobsson: In a nutshell, from a business perspective, it is to show greater leadership and consistency in those policy-making decisions so that you can give the surety that they are not going to change with the wind, as it were, with another decision being made later on. It is simply that: leadership and consistency.

Dimitri Zenghelis: Some degree of institutional reform. We did cover it, but it is worth reiterating.

Professor Jacobs: I would support consistency of policy. The Government need a long-term framework for the natural environment and climate change. We have a pretty good framework on climate change. It can be undone in the short term, but there is a framework to restore it. We do not have that on natural capital, and I think that the Natural Capital Committee's work is beginning to move us to a place where we can think about natural capital in a more comparable way to how we are thinking about greenhouse gas emissions, with clear targets that set constraints on the way in which policy and individual decisions are made. I think that will partly be about technique, because I think you need the techniques, but it will then be about political discourse and whether politicians, the media, NGOs and others can create a sense that we are losing valuable natural capital and that we should be accounting for it in different ways and making different decisions. I can see that happening, and I think the NCC has been a particularly useful start to that process.

You want consistent policy within the framework so that investors, businesses, consumers, voters and politicians know that this is the trajectory we are on and that it isn't going to be changed by capricious political decision making and by capricious politicians. That will both protect our natural capital and our atmosphere and enable businesses to invest in creating value and wealth within those constraints.

Karen Ellis: I also support policy consistency, but I would go one step further and say that it needs strategy. I know this is more controversial and not Treasury ethos, but many other countries are developing a

strategy for managing these issues in a joined-up way. Even the World Bank has moved away and now completely opposes any kind of planning over time, because the new environmental world we are moving into needs to be managed through more co-ordinated approaches. There are huge opportunities out there for us, as well as huge risks from not addressing these issues. The Treasury needs to be playing a leadership role in that space, and it has the potential to think about it in economic terms, both in the climate change space and the natural capital space.

Q34 Chair: To what extent do you think that the sustainable development goals, which obviously now apply domestically for the first time, could provide that framework? What do you think is the overall Treasury approach to sustainable development?

Karen Ellis: I think they provide a list of issues that would need to be addressed by the framework. Papers have been coming out saying that, actually, we can't meet all the SDGs because there are lots of conflicts between them. There are competing demands for land, for example, that will make them impossible to achieve, unless you fix sustainable production and consumption and natural resource efficiency.

There is a need to bring together an understanding of all the different pressures, which will keep growing over the next couple of decades—business is already getting to grips with the modelling—and work out how you are going to navigate this space in a global economy. The UK is well diversified, because we import a lot of our stuff, so we can probably just start importing it from somewhere else, but commodity prices are going to go up as these issues come to bear over time. Managing that and positioning ourselves to do well in that space, including on low carbon technologies and the markets that will open up, is something on which the Treasury, and no one else, is in a position to take the lead and put the thinking together. The Treasury should not just do that by itself but should do it in an open and inclusive way. A 25-year plan for that whole subject would be great. I don't know whether we are heading in that direction, but that is what we would like to see.

Rob Lambe: I would reinforce and endorse the points on consistency, certainty and long-term policy in whatever framework and strategy they sit in. As an organisation, like many others, we understand that everybody has to recognise their own responsibility for making this happen and for playing a role. We hope that our organisation will move towards a more sustainable future, which is the core of our policy as a business—that is what the Treasury needs to recognise. The Treasury needs to understand that it has a responsibility not just to set tax policy or to worry about the regulations on banking and investments but to be fundamentally involved in developing solutions to the challenges that we face. Such responsibility and recognition is key, and a very small thing that might make a small difference, or maybe a more significant difference, is to clearly reframe the role of the Treasury.

Returning to what is said on the website, to me it is not a clear, straight message about the role that the Treasury has to play in looking at the

long-term sustainable development goals and the long-term success of the UK and society generally. It is not clear, and reframing it would help to ensure that it is better understood.

Chair: I think we are all in for a great deal of reframing over the next months and years. Thank you all very much for a fascinating discussion.