



OFFICIAL REPORT
AITHISG OIFIGEIL

Environment, Climate Change and Land Reform Committee

Tuesday 23 October 2018

Session 5



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ENVIRONMENT, CLIMATE CHANGE AND LAND REFORM COMMITTEE
28th Meeting 2018, Session 5

CONVENER

*Gillian Martin (Aberdeenshire East) (SNP)

DEPUTY CONVENER

John Scott (Ayr) (Con)

COMMITTEE MEMBERS

*Claudia Beamish (South Scotland) (Lab)
*Finlay Carson (Galloway and West Dumfries) (Con)
*Richard Lyle (Uddingston and Bellshill) (SNP)
*Angus MacDonald (Falkirk East) (SNP)
*Alex Rowley (Mid Scotland and Fife) (Lab)
*Mark Ruskell (Mid Scotland and Fife) (Green)
*Stewart Stevenson (Banffshire and Buchan Coast) (SNP)

*attended

THE FOLLOWING ALSO PARTICIPATED:

Roseanna Cunningham (Cabinet Secretary for Environment, Climate Change and Land Reform)
Lord Deben (Committee on Climate Change)
Maurice Golden (West Scotland) (Con) (Committee Substitute)
Professor Andy Kerr (ClimateXChange)
Andrew Ruxton (Scottish Government)
Professor Jim Skea (Intergovernmental Panel on Climate Change)

CLERK TO THE COMMITTEE

Lynn Tullis

LOCATION

The Robert Burns Room (CR1)

Scottish Parliament

Environment, Climate Change and Land Reform Committee

Tuesday 23 October 2018

[The Convener opened the meeting at 09:18]

Climate Change (Emissions Reduction Targets) (Scotland) Bill: Stage 1

The Convener (Gillian Martin): Welcome to the 28th meeting of the Environment, Climate Change and Land Reform Committee in 2018. We have received apologies from John Scott, so I welcome his substitute, Maurice Golden, to the committee.

I remind everyone present to switch off their mobile phones, because they might interfere with the broadcasting system.

The first item on the agenda is an evidence-taking session on the Climate Change (Emissions Reductions Targets) (Scotland) Bill; it is the first evidence session with stakeholders. We are delighted to be hearing from representatives of the Intergovernmental Panel on Climate Change, ClimateXChange and the Committee on Climate Change. Their important contributions will provide an excellent foundation for our evidence sessions in the coming weeks, which I will say a little bit about now.

The committee intends to hear from witnesses from other countries that are setting emissions targets and responding to the commitments that were made in Paris. We will consider the behaviour changes that are required on the part of individuals and communities in order to achieve the targets that are proposed in the bill, and we will hear about the governance arrangements that are in place to support and motivate the public and private sectors.

In turning our attention to specific sectors, we will hear from panels on agriculture and transport—two sectors in which most progress is still to be made. Innovation and creativity will be important parts of developing the technologies that will be required to achieve climate change targets, so we will hear from a panel about what is already happening in Scotland to progress that.

We will also consider the detail of the bill with two panels of stakeholders who represent people working in environmental and climate change fields, as well as with representatives of different sectors. We will conclude by hearing from the

Cabinet Secretary for Environment, Climate Change and Land Reform.

The committee will consider its draft report in December and January, and anticipates publishing the report in January 2019.

We have a busy but fascinating few weeks ahead of us. Anyone who is interested in the committee's work on the bill and would like details of our evidence sessions can visit our website or contact the clerks. Although we hosted a call for views throughout the summer, if people wish to make further contributions ahead of specific evidence sessions, they should contact the clerks, who will let them know when those would be most usefully received.

On behalf of the committee, I thank everyone who took the time to send us submissions on the bill. We received more than 90; they will be invaluable to our scrutiny. We also invited our Twitter followers to let us know what changes they would make to their lives in order to help in achieving more challenging targets, and we received lots of helpful insights. People can still join in and let us know what they would do by tweeting us using #myclimatechanges.

On our first panel this morning, we have Andy Kerr, who is a co-director of ClimateXChange, and Jim Skea, who is a co-chair of the IPCC working group 3, who joins us via videolink from London.

We will start with some questions on the IPCC's recent special report entitled "Global Warming of 1.5°C", which will mainly be for Jim Skea.

Finlay Carson (Galloway and West Dumfries) (Con): The IPCC expresses levels of confidence—high, medium and low—when explaining its evaluation of underlying evidence and agreement. How does the IPCC quantify levels of certainty, and how certain is it about the science behind its predictions?

Professor Jim Skea (Intergovernmental Panel on Climate Change): When we say that we have a high level of confidence in something, that means that there is a lot of scientifically robust literature that addresses the issue, and that there is a high degree of agreement in the conclusions in that literature. Correspondingly, we say that we have a low or medium level of confidence in order to reflect circumstances in which there is not so much literature, or where there are differences of opinion. When we say that we have high confidence, we really mean that.

Finlay Carson: The IPCC refers to "agreement" in relation to levels of confidence. Does that relate to scientific or political agreement?

Professor Skea: That relates entirely to scientific agreement. The IPCC's job is to assess the scientific literature, so that is what we do. It is

not a political body at the level at which we put together the underlying report.

Finlay Carson: The report states:

“Global warming is likely to reach 1.5°C between 2030 and 2052 if it continues to increase at the current rate”.

Does that mean that sufficient action prior to 2030 could mitigate a rise of 1.5°C?

Professor Skea: That 2030 to 2052 range refers to what will happen if the world continues to warm at about a fifth of a degree per decade, which is the centre of the range for current warming. If emissions were to be reduced from the current levels, the warming rate would be reduced, which would mean that you could either limit warming to 1.5° or you could push the date at which you would reach 1.5° further into the future. Action is possible. The position that Finlay Carson mentioned is likely only if we carry on warming as we are at the moment. It is very much a “business as usual” perspective on when we would hit the 1.5° threshold.

The Convener: Chapter 3 of the report is significant because it sets out the impacts of the 1.5°C rise on natural and human systems. Can you outline the headline impacts for northern Europe and the United Kingdom, and for Scotland in particular?

Professor Skea: Before the IPCC started on the report, there was no scientific literature that was targeted at warming of 1.5°, although there was some that was relevant. During the course of producing the report, new literature has been published that is targeted at the 1.5° threshold. In the time that was available, and given the need for science to produce new evidence over a very short period—two years—and get it into the literature, the IPCC report did not go into detail even on northern Europe, never mind the UK and Scotland. That would require a lot of follow-up work.

The report identified generic trends that would be relevant and it targeted particular hotspots around the world. In Europe, the hotspot is the Mediterranean region, which is at significant risk of desertification and drought. Some of the generic conclusions apply to Britain and Scotland. For example, the conclusions on sea-level rise are robust, because that is a global phenomenon. The conclusions about more intense and greater-frequency extreme weather events, such as storms, are also robust. As things warm up, we expect also to see threats to species and biodiversity. Those generic conclusions apply to Scotland.

Given the level of detail at which the work was carried out and its global focus, it was not possible to go into that depth in the report and to produce

robust conclusions that would be very specific to a country of Scotland’s size. We did not answer that question, but it is one for us to follow up.

Maurice Golden (West Scotland) (Con): What would be the implications for the planet in the scenario in which by 2100 we reach levels below 1.5°C, but in the intervening mid-century we overshoot?

Professor Skea: A group of countries that are engaged with the IPCC are very concerned about overshoot issues. The challenge with overshoot is that some climate impacts are irreversible. If we lose a species or a coral reef, we cannot get it back. The question of irreversibility in respect of overshoot is critical. Getting to 2100 having overshoot 1.5° would clearly be far worse than keeping below 1.5° throughout the 21st century.

Many scenarios involve an overshoot. We divided them into two groups: limited-overshoot scenarios that go as high as 1.6° warming during the 21st century, and high-overshoot scenarios that go to levels between 1.6° and 2°. We have distinguished between the two and the robust conclusion is that overshoot scenarios have worse outcomes than those in which there is no, or limited, overshoot.

The Convener: Do the targets that are set out in the Scottish Government’s Climate Change (Emissions Reduction Targets) (Scotland) Bill represent an appropriate contribution to keeping below 1.5°C?

Professor Skea: I know that the committee will speak later to Lord Deben, who is the chair of the UK Committee on Climate Change, which has already been invited by the Scottish Government, the UK Government and the Welsh Government to consider that question.

The IPCC report came to the conclusion that carbon dioxide emissions specifically need globally to reach net zero sometime between 2040 and 2070, given the uncertainties around climate and the possibility of different pathways being followed. That is the global bracket for net zero.

09:30

The Paris agreement says that developed countries should aspire to hit net zero before developing countries. Combining the Paris agreement and the IPCC conclusions, it would be suggested that a country such as Scotland should probably aim for something a little earlier than the 2040 to 2070 bracket in order to make a reasonable and fair contribution to the global aim of net zero.

The Convener: The Cabinet Secretary for Environment, Climate Change and Land Reform recently said that we have an aim to reach net

zero when doing so becomes scientifically possible. There are interim targets until then. Is that drive for net zero a wise move, given that, with science and innovation as they are now, it might not be achievable? Should we just make the target net zero and assume that the rest will follow? That seems to be the on-going debate at the moment.

Professor Skea: The question of the feasibility of targets such as net zero vexed us during production of the report. We deliberately did not try to answer yes or no to that question. Our approach was to identify six sets of conditions that would need to be fulfilled if net zero was to be achieved. The first was whether that would be geophysically possible. We answered that question unambiguously: it is geophysically possible to keep global warming below 1.5°.

We then went on to consider factors including technical and economic feasibility. It is technically feasible to achieve net zero, but in order to reach that level it would probably be necessary to address stranded assets and existing investments that would have to be written off early, which would have economic implications.

Our last set of conditions related to social acceptability and the right political conditions. Those are questions that I do not think the scientists can answer—that is up to Governments. Looking at the history of the report, we see that the 1.5° idea did not come from the scientists; it came from the Governments when the Paris agreement was signed. They then invited the IPCC to answer the homework questions, “What are the impacts?” and “What would need to be done to get there?” We have answered those questions in a scientifically honest way. The question of political feasibility is not one that we can answer. That question has to go back to Parliaments and Governments for them to decide whether they are up to the very great challenges that the report sets out.

Stewart Stevenson (Banffshire and Buchan Coast) (SNP): Did the IPCC consider the differential effects? Carbon dioxide is at the top of our list, then there are six other gases, starting with methane. Carbon dioxide will naturally disperse in 30 to 50 years, but others disperse very much more rapidly. To what extent has the research considered the differential effects of the non-CO₂ gases on climate change?

Professor Skea: Research has considered that point fully. Carbon dioxide stays in the atmosphere for hundreds of years: it is, effectively, permanent. Nitrous oxide is also a long-lived gas. The scenarios that were covered in the IPCC report also cover the short-lived climate forcers including methane, which Stewart Stevenson mentioned.

One of the figures in the “Summary for Policymakers” shows the trajectories through the 21st century for gases other than carbon dioxide. Basically, the message is that they would all have to go down, but none of them gets to net zero, as is the case with carbon dioxide.

It is worth saying that the IPCC is now considering things beyond the six gases that are covered by the Kyoto protocol. For example, we are considering black carbon, which is basically soot emissions, and which we now think is one of the forcers. Because the Paris agreement is bottom-up, the pledges that countries have made are going beyond the Kyoto six-gas basket, and the countries are starting to consider different ways of weighting the greenhouse gases. There is a very open scientific agenda about how to weigh the different gases in scenarios in which there are substantial reductions in emissions.

Claudia Beamish (South Scotland) (Lab): You have highlighted that the report is a global one and that it is difficult to be specific about Scotland, but will you expand on the comment in it that warns of the need for “rapid, far-reaching ... changes” if we are to stay within the Paris agreement, and for significant emissions reductions by 2030? How might that relate to Scotland?

Professor Skea: The full phrase is “rapid, far-reaching and unprecedented changes”,

and those words were carefully chosen. The message is that, frankly, the scale of the changes that would be needed in the emissions pathways has no precedent in human history. There is no precedent for the rate of emissions reductions and the changes in social and technical systems that would be required—they really are extremely demanding.

However, one area in which the rate of change is not unprecedented is electricity systems. In the past, investments in new electricity generating capacity have taken place at the speed and scale needed if we are to make the changes. The changes in the uptake of renewable energy globally over the past decade or so give us a lot of cause for hope—they are an optimistic sign. Costs are falling and deployment has gone up exponentially, including in Scotland. The kind of progress that has been made in electricity systems and renewables needs to be replicated in other sectors such as transport, the built environment and heavy industry. There are signs of progress in some areas, but at the moment it is not far-reaching enough.

Claudia Beamish: That is helpful. You have highlighted the sets of conditions that are set out in the report and you talked about stranded assets. I appreciate that it is a scientific report but, to look at the issue more positively, would setting

a target of net zero emissions by 2050 in our bill—and acting sooner rather than later—send a clear message about getting our act together to investors, those who develop skills for the future and the whole broad spectrum of sectors?

Professor Skea: Since the report came out, there has been intense interest from Governments and the media. We feel that it has changed the conversation a bit, regardless of optimism or pessimism about whether any specific target can be met. There is evidence that setting ambitious targets changes the conversation. In the same way, the Paris agreement changed things globally and we saw the global oil and gas industry suddenly waking up to things. A net zero target would do the job. It would send a strong signal and wake people up. However, it would probably need to be backed up by more specific policies and measures that gave effect to that long-term ambition. We are clear in the report about the need for near-term action to leave open the option of keeping to 1.5° warming. If a long-term target is backed up by short-term ambition and a sense of urgency in moving forward across all sectors, that could be quite effective in moving the agenda on.

Mark Ruskell (Mid Scotland and Fife) (Green): You talked about near-term action. What are you looking for Governments to do as they look at their current action plans for the next 10 years and their interim targets? I was in Iceland at the weekend listening to the Icelandic Prime Minister say that, on the back of the IPCC advice, the Government there will look again at its action plans to reach its target of net zero by 2040. Is that the kind of action that you are looking for Governments to take? Should they be looking at near-term changes, or is setting a long-term target enough?

Professor Skea: I do not think that setting a long-term target is enough. Nor is it enough to look at an action plan. Looking at an action plan, reformulating it and implementing it are what is needed if you are to move yourselves forward.

I know a bit about the Scottish situation, of course. There has been great progress on renewable energy and electricity. However, getting movement on electrification of transport, changing transport patterns and upping the ante on energy efficiency and renewable heat are the kinds of action that are needed in the short term to move yourselves forward.

There is an important point about the net zero target. We have said that there are no scenarios out there that achieve net zero globally that do not have some form of carbon dioxide removal. Scotland will probably need to consider that issue as well if it is to move towards net zero, because there will always be some sectors in which there are residual carbon dioxide emissions. You might

need negative emissions in order to offset those more difficult sectors.

Sustainable land management, bio-energy with carbon capture and storage, and keeping up afforestation rates are all examples of things that would help to take carbon dioxide out of the atmosphere. Even if some of those things cannot be done immediately, because the technologies and techniques are not mature, there is a real need for research and development demonstration projects to set you in the right direction for the longer term, so that you are preparing for the more difficult things that might need to be done a few decades down the line.

Mark Ruskell: Should the Scottish Government be requesting that the UK Committee on Climate Change look at the 2032 target and the actions that are required to meet the target in light of your report?

Professor Skea: I recall the letter that came from ministers to the Committee on Climate Change, which excluded the third, fourth and fifth carbon budgets; there might be legal niceties in that regard that I am not qualified to address. However, given the statement about the need for urgent action to keep the option of 1.5° of warming, I cannot see how anyone who is doing a scientific consideration of what net zero in the middle of the century might imply would not also be able to think about shorter-term and more medium-term targets and what kind of pathway you need to put yourselves on if you are to get there. We should recall that carbon dioxide emissions accumulate in the atmosphere, so everything that you do now will buy you benefits further down the line.

The Convener: You mentioned the economic impact of the transition and the changes that will have to be made if we are to reach the targets. Is there a cost saving to be made in the long term from acting more quickly to meet interim targets?

Professor Skea: Yes. Again, the models that the IPCC assessed are strongly techno-economic models, which assess the value of acting now versus acting later and trade off one against the other. The pathways that the models came up with, within the centre of the range—a 45 per cent reduction in global CO₂ emissions by 2030—were based on least-cost considerations. If you were to delay any more, the costs would be higher in the long term.

The fairly clear message that is coming out of the models is that immediate action is needed, and that in the long term, that is the least-cost way of doing things, because otherwise you will incur greater costs further down the line.

The other thing to flag up about the models is that they do not include the benefits of early action

in terms of avoided impacts. They look purely at carbon dioxide pathways and the least-cost way of getting to a pathway; they do not include the avoided-impacts element, which is very important to think about, in the wider sense.

09:45

The Convener: To illustrate what you have just said for the benefit of people who are watching the meeting, can you give me an example of a scenario in which there would be a huge cost implication if we did not act?

Professor Skea: As we highlight strongly in our “Summary for Policymakers”, there is more than one way of keeping global warming to 1.5°. The trade-off is between taking action now in what we might call the more conventional areas—for example, system changes in energy, transportation and buildings—and postponing action and relying instead on the development of carbon dioxide removal techniques in the second half of the 21st century. However, there are so many unknowns around many of the carbon dioxide removal techniques that there could be significant costs associated with them. Those costs may not be captured in a conventional economic analysis; they may relate to issues such as global food security, biodiversity and the health of ecosystems. We may pay costs for all those things if we do not take more immediate action.

The Convener: Thank you. We will move to questions that are directed specifically to Andy Kerr. I know that Jim Skea may have to leave at some point, so I thank him very much for his contribution today. We move first to questions from Alex Rowley.

Alex Rowley (Mid Scotland and Fife) (Lab): Good morning. I will begin by looking at international comparisons. How does Scotland’s approach compare with that of other countries? Where are we in terms of what we are achieving?

Professor Andy Kerr (ClimateXChange): Scotland has been at the leading edge in setting targets. Other countries that have tried to adopt targets over the past few years have taken a wider range of approaches. Because Scotland is not a European Union member state and is not a party to the United Nations framework convention on climate change, we have not been using the frameworks that exist in that convention. Different countries are taking different approaches that are not directly comparable. I will give you an example. Sweden has set a net zero target for 2045, which looks great. However, it has said that only 85 per cent of the reduction will need to come from domestic action—in other words, it is expecting 15 per cent to come from flexible mechanisms such as buying in credits or similar

methods. That is comparable to Scotland setting a target of 80 or 90 per cent by 2050. We have to be quite careful, therefore, about trying to make direct comparisons with countries that say that they will be carbon neutral or net zero by a particular date, because they are using very different mechanisms that are not always directly comparable.

Alex Rowley: I note that some countries have set targets simply as policy—they have not been put into legislation. Is it important that we are legislating to achieve our targets?

Professor Kerr: Yes. We have seen a lot of what we might call virtue signalling by different countries that say that they intend to do something. What distinguishes the UK, and Scotland specifically, is the very tight monitoring and evaluation framework that has been set up by legislation; we will hear shortly from the Committee on Climate Change. We have a much more robust framework within which to operate than many countries do. We know that a number of other countries are looking specifically at the UK and Scotland because our monitoring and evaluation framework is much more robust than what they have in place.

Alex Rowley: Sometimes I get the impression that there is a view among the general population that climate change is something that happens over there, someplace else, and that it is not really anything to do with us, so there is not much that we can do about it. Are there good international examples of how countries have engaged with and involved communities in trying to tackle these issues? Greater awareness is perhaps what is needed.

Professor Kerr: We have seen outstanding examples in some countries of much more effective engagement at city, city state, and city region levels—not necessarily at a countrywide level.

Jim Skea talked about the change in narrative with the report. I would argue that we are also seeing a change in narrative because, until now, climate change has always been something that required an additional cost—if you wanted to do the right thing about climate change, it was going to cost you a bit; you would have to subsidise renewables or add a carbon tax. The focus has always been that we needed to pay more in order to deliver the benefits. Now, even in Scotland, with the rapid changes in technology costs, we are seeing opportunities to deliver cost savings and social and economic co-benefits at the same time as hitting environmental targets. That is the crucial change in terms of how we deliver changes over the next five, 10 and 15 years.

Let me give you an example. If I put solar panels on a building or in a business here in

Edinburgh, it is cheaper than buying grid electricity. As long as I am not trying to sell electricity into the grid but I am self-generating and using it for myself, it is cheaper, so I can get a financial return on that.

If you start to tie that in with the introduction of electric vehicles, the reduction in healthcare costs from air pollution in cities and much improved energy efficiency in buildings, and you reduce the social costs and health costs that are associated with poor-quality buildings, you can start to see how you can build a very effective system, where you are delivering local jobs and a reduced cost base for society as a whole and you are hitting environmental targets. That is very different from the narrative that we have had over the past few years.

We are just at the point where we can start to have conversations about some really interesting opportunities in cities, towns and villages across Scotland, the UK and Europe, which are fundamentally different from the conversations that we have had in the past.

Alex Rowley: So you would agree that government at every level has a role and that local government has a particular role to play.

Are there international sanctions for failing to meet the emissions reduction target and, if so, what are they?

Professor Kerr: The Paris agreement was explicitly designed as a bottom-up agreement. People have put forward nationally determined contributions, or NDCs. These are essentially self-regulated by the countries. Because the Kyoto protocol was not accepted by certain countries, we have moved away from the situation where an overarching body would check on and oversee those targets and then try to apply penalties if countries did not meet them.

We have a bottom-up system; we can monitor, but we do not have a formal way of saying that if a country does not meet its target, we will impose some sort of sanction on it. In Europe, with the European sharing framework for emissions, we have a stronger framework that is tied to wider governance, but it is not the same internationally.

Mark Ruskell: You said that the Swedish Government has a provision to meet up to 15 per cent of its emissions reduction through credits, but I have heard that the Swedish Deputy Prime Minister has explicitly ruled out using credits, so although it has that backstop mechanism—as indeed we do in our current legislation—the policy intention is not to use it. Have you heard anything about that?

Also, you spoke about virtue signalling, but to what extent should Governments be innovation

signalling? There is a gap—we do not have a complete pathway to get to 2050—but we know that technological developments will come, and we can take a mission-based approach to bring together academia, industry and others to try to meet that gap and to develop innovation. What have you seen around the world in terms of that kind of development?

In some ways, we are in the same position as we were when we were trying to put someone on the moon. We do not know entirely how to get there yet but we have some very good brains and people who can work out how to do it if they are given enough time, impetus and support by Government.

Professor Kerr: It is a question about political boldness, I guess, in the sense that we have good energy system models that we can rely on to ask what the costs and benefits are—as Jim Skea flagged up, we know that, technically, we can do it—so the issue is far more around the social and economic costs and benefits that come with that.

Perhaps the best example—and we do not even need to go abroad to find it—is the 100 per cent renewable electricity target that Scotland has set. If you remember back to when we set the 20 per cent target, you will remember that a lot of people said, “Ooh, 20 per cent renewable electricity, that’s going to be tough.” Then the target went up to 40 per cent, then 50 per cent and then 100 per cent and, at each point, people said, “I’m not sure that’s technically possible.” Nevertheless, although we might not hit the target exactly in 2020, we will not be far off.

Therefore, if we embrace the notion of making a bold statement and seeing whether we can achieve it by having a political target, that has real value, as long as it is backed up with some serious action below the line, which is the point about deliverability. We will see a very competitive space in target setting by countries in the next five to 10 years, and the question is whether we try to compete in that space or actually deliver real outcomes. The sort of infrastructure investments that we will make in the next 10 years will largely determine whether we are able to hit long-term targets.

We have some work to do here in Scotland. For example, a nearby school was finished last year and its energy costs are higher than those of the old school, which was 100 years old. That puts a carbon and a cost implication on the city for the next 25 years, so we cannot build those sorts of buildings going forward. What happens now really does affect what happens in the next 10, 20 or 30 years. Ensuring that targets are set with practical outcomes that can be delivered—in terms of transport infrastructure and building infrastructure—over the next five or 10 years will

be absolutely critical. That is more important than worrying too much about whether the net figure is zero by 2040, 2045 or 2050.

The Convener: You did not mention one sector for which the target is a real challenge, and that is agriculture, which is very important to Scotland's economy. What are your thoughts on that? There might be people from the agriculture sector watching us now and thinking that targets are all very well but there needs to be some justice around the transition. How are we going to manage that?

Professor Kerr: The response that Quality Meat Scotland sent to the committee flagged up the fact that, at the moment, the target is seen as a crude way of saying that we want less livestock and less arable. Clearly, we are not saying that we want to get rid of all our arable or livestock farmers. The Paris agreement talked about balancing emissions and removals in the second half of the century, so that is what we are actually talking about. We are not saying that we want to get all agriculture to zero, but we need to make it as efficient as possible, and then we need to balance whatever emissions come from agriculture with greenhouse gas removals, which could involve strong afforestation, biomass, carbon capture and storage or other things. In other words, we are not trying to stop the sector having any economic value—we want it to continue—but we need to balance it with other outcomes.

Sectors such as agriculture and chemicals are tricky ones to deal with in terms of reaching zero carbon, but we are not trying to get everything to zero carbon. We are trying to get to net zero, which means that you can still have emissions as long as you have removals that balance them off.

Stewart Stevenson: I would like to close off the discussion on agriculture. Jim Skea pointed out that nitrous oxides are the big thing, and they come primarily from agriculture, specifically from fertiliser production. He suggested that methane is less important, because it disperses quite rapidly. Is that also your understanding?

Professor Kerr: I would defer to Jim Skea on that.

Stewart Stevenson: I shall move on to the subject of targets, then. You used the phrase "competitive space" in one of your previous answers on targets. We have set targets in primary legislation for various decades, but through secondary legislation we are also setting targets for each year on a rolling programme. How does that compare with the approach of other countries?

10:00

Professor Kerr: Again, internationally we see a complete variety. Some countries have set fixed, single-point targets without a glide path towards them. Others have talked about budgets, which is where we are coming from.

From the scientific perspective, the key thing is the area under the curve: the entire carbon budget. Rather than setting a target for an individual year and saying that that is what they are aiming for, all countries ought to be following what the UK has done, which is to set carbon budgets, which are defined by annual or five-year targets on a glide path towards a particular target. Different countries have taken slightly different approaches, and many countries have come up with very different approaches. Some do not include international aviation or shipping, and some include land use while others do not. We are seeing different countries or states setting all sorts of different targets, which is why comparison is so difficult.

From our perspective, we need to be clear about what the science is telling us, so we need to have those budgets and the clarity of the glide path to demonstrate what we are doing.

Stewart Stevenson: So, in a sense, with the UK having five-year targets, and Scotland having annual targets, there is no practical difference between the two approaches that should concern us one way or another.

Professor Kerr: My experience is that the annual targets have forced Parliament to address the issue every year in a way that has not happened to the same degree in the UK Parliament. There is political benefit in having the issue at the forefront of the conversation because the targets are annual, even if it makes little difference in an overall sense. So, from a political perspective, having annual targets has been more useful.

Clearly, we are dependent on factors such as whether we have a cold winter, when our emissions go up; also, we have had changes in the baseline because of changes in the way in which we measure and account for land use—the baseline has jumped around, which makes annual targets difficult. However, from a political perspective, the benefit of having annual targets is that the minister has to come to Parliament and explain where we are as a country, and that is more useful on an annual basis than on a five-year basis.

Stewart Stevenson: The science being available and reported to Parliament frequently helps to drive the political decision makers and investment to deal with the problem.

Professor Kerr: Yes, as long as there is a virtuous circle, which comes back to action. I come back to the point about deliverability. Public bodies report on climate change but the danger that we have seen with that is that reporting can become simply a tick-box exercise; organisations do not bring it back to the virtuous circle and say what they are going to do to drive further change. That is the challenge. It is not just about public bodies reporting well; they have to ensure that they go back and deliver the outcomes.

Stewart Stevenson: Are you suggesting that one of the things that we need to address in Scotland is target setting at the level of individual bodies, because they are reporting but not acting?

Professor Kerr: The work that we do with public bodies suggests that they already have a plethora of targets. The issue is not around having another target; it is around turning that into positive action, which is different from having yet another target. It is about the body deciding how it delivers effective outcomes.

For example, in a city authority, at the moment, sustainability reporting might be top-down. Someone will be given the task of reporting through the Scottish Government portal, and what we need to ask is whether that public body's chief executive and senior management team are reading that report. Is it read by councillors? Are they then talking about the opportunities to move forward as a result of the report? At the moment, that is not happening; it is at the bottom of a pile.

The issue is not about whether to set a new target but about how we start to deliver action. That goes back to my earlier point. We are now starting to see efforts on place making and how cities and city regions can deal with mobility and tie in issues around buildings, healthcare and so on. By bringing in that place-based approach and looking at where the opportunities are, we can start to hit some of the bigger targets, but based on what a city, a town or a region wants and not on a Scottish Government climate change target.

The Convener: We have time for short supplementary questions from Claudia Beamish and Finlay Carson before we move on.

Claudia Beamish: I want to push that a little further. There are now mandatory targets for public bodies under the climate change duties. Is there any place for developing within the mandatory targets details of the action that will follow? I appreciate that a balance has to be struck. You have highlighted the issue of place making and the need to involve rural and urban communities across Scotland. Should there be an expectation that if targets are not met, we will get information on how they will be met? Should that be reported?

Professor Kerr: Yes. We have a lot of the tools, but they are not being used particularly well at the moment. That is partly because, as I have said, we see climate change as something that is happening over there or as something that will happen some time in the future, rather than say that if we deliver the outcomes that we seek—such as effective mobility systems with electric vehicles, warm affordable homes and reducing energy costs—we will hit a bunch of the core targets that local authorities and other public bodies seek to deliver in a way that hits all the climate targets as a co-benefit. While we keep the two issues completely in parallel, that is a real challenge, so we have to bring them together.

The Convener: We will have to move on to Richard Lyle.

Richard Lyle (Uddingston and Bellshill) (SNP): Numerous countries are taking action on climate change. How do Scotland's emissions accounting framework and the proposed changes in the bill compare with those international examples?

Professor Kerr: Much of what Scotland is trying to achieve through the changes in the bill makes sense, in that the bill tries to simplify the reporting of emissions. To give one example, the reporting of countries in Europe will include European emissions trading scheme credits and debits. The bill says that although we will continue to be part of the European emissions trading scheme—notwithstanding the B word—for clarity, we will remove reporting on it from the way in which we report, so we are reporting national emissions from our land area rather than including debits and credits under the scheme. Countries such as Sweden, Finland and Norway will include European trading scheme credits and debits in their accounting. We have chosen to go down a route that provides more clarity in the discussions that we can have internally with the citizens of this country, but that means that we will not have quite the same framework as other countries across Europe will have, because they use the EU ETS framework.

Richard Lyle: A number of countries have set statutory sectoral targets for transport, energy and agriculture. How do you feel about that?

Professor Kerr: When other countries have set sectoral targets, a lot of them have focused on how to support a particular sector to deliver an outcome, just as we did with renewable electricity. We set a high renewable electricity target, which we are on the way to delivering. Some countries have set targets on electric vehicles and, as you say, others have set sectoral targets for agriculture and so on.

Each of those targets tends to be set in a way that supports the country's particular political conversation at the time. Countries try to use them as a way to have a conversation with their respective sectors. I cannot speak about New Zealand, but people in Norway and Ireland, for example, have discussed things more widely, not just in relation to sectors but with a view to delivering a low-carbon economy by 2050—they have not even included a formal target for emissions reductions. Other countries have done different things. It is difficult to say that Scotland should do something because other countries are doing it. Different countries have chosen different approaches.

I am sorry if that is not a very good answer. However, there are things that we can do—particularly with the intermediate targets for energy efficiency in buildings and renewable heat—that can incentivise and provide clarity to investors and public bodies on the direction of travel, which would be very useful, and we can draw on examples from other countries there. We can look at what Norway is doing on electric vehicles, for example, or what other countries are doing on other things.

Where the targets provide a clear structure for incentives and that helps with that internal conversation, they have real value but, overall, we are not worried so much about exactly which sector emissions reductions come from; the issue is more about whether we are delivering them overall.

The Convener: We are running out of time, but we have a final question from Angus MacDonald.

Angus MacDonald (Falkirk East) (SNP): I will turn to the subject of carbon taxes. I want to explore the emissions trading scheme a wee bit further. You already gave us some examples from Norway and Sweden in response to the previous question. We know that Denmark has imposed carbon taxes on the fossil fuel industries since 1992. France imposes a tax of €22 per tonne of CO₂ on certain industries. Sweden expects to meet up to 15 per cent of its commitments that way, although it would be good to get some clarification from the Scottish Parliament information centre on what the Swedish Deputy Prime Minister has actually said.

The UK will be excluded from participating in the EU emissions trading scheme in the event of the looming no-deal scenario. In the event of no deal, should the UK develop a new comprehensive carbon taxation system, with an equivalent or greater burden than the current ETS? If so, should it be based on energy consumption or on greenhouse gas emissions?

Professor Kerr: That is a big question. If we were to crash out without a deal, we can still negotiate. Norway is not part of the European Union, but its factories and sites are part of the EU ETS. We do not have to be a member of the European Union to be part of the EU ETS.

If we come out of the EU ETS, I suspect that there will be an issue around the trading of the materials and products that we produce in our country, and there will be the equivalent of a border tax to sell those things into Europe. We will not be allowed to produce product without a carbon tax—without the carbon cost associated with the EU ETS—such that we are not undercutting producers within Europe.

I think that the question of the most appropriate future framework for delivering the current benefits of the EU ETS by way of burden sharing around all the different sites across Europe and finding the least-cost producer of carbon—and therefore delivering the lowest-cost way of reducing emissions—will be tied much more to the trade negotiations with Europe; it is not just tied to the withdrawal agreement. If we come out with no deal, how we frame our response to the regulation that applies to the main industrial sites will be tied far more to the trade agreement that we end up with.

Angus MacDonald: Okay. What—

The Convener: We do not have much time, so make it a very short question, please.

Angus MacDonald: I just wanted to get Mr Kerr's view on whether the power to develop and set such a scheme should be devolved or maintained at UK level.

10:15

Professor Kerr: The benefit of the EU scheme was that it shared emissions reduction effort across all member states. If it was cheaper to reduce emissions in southern Germany or in Spain rather than in Scotland, that was where it was done, through buying credit; and that produced an economic benefit to everyone. The danger of creating a smaller scheme lies in losing that ability to share the burden across multiple sites, so the cost will tend to go up. If the costs go up, the measures will not look as effective as tying into the existing scheme looks. That is why so many schemes want to tie into the existing one. In that sense, from an economic perspective, the bigger the scheme, the more cost effective the emissions reductions are likely to be.

The Convener: I thank Andy Kerr for giving evidence today—and Jim Skea, though he is no longer with us via video link.

10:16

Meeting suspended.

10:21

On resuming—

The Convener: We will now take evidence on the Climate Change (Emissions Reductions Targets) (Scotland) Bill from our second panel this morning. I welcome Lord Deben, who is chair of the Committee on Climate Change. The committee has a number of questions on the Scottish Government's climate change plan; the document "Reducing emissions in Scotland: 2018 Progress Report to Parliament"; and the advice that the Committee on Climate Change provided to the Scottish Government on the bill.

I will start. How compatible is Scotland's final climate change plan with the Committee on Climate Change scenarios and with the proposals in the bill to move to a 90 per cent emissions reduction target?

Lord Deben (Committee on Climate Change): We think that it is compatible. It is not our job to lay down the detailed arrangements by which you achieve ends, but the targets that you have set are very much in line with what we think is necessary. One has to say that Scotland continues to be in advance of the rest of the United Kingdom in the way in which it is setting its targets.

The Convener: At present, if all the climate change plans and policies are fulfilled, Scotland will still miss the 2032 target by 5.7 per cent. What more needs to be done to ensure that the Scottish Government meets the target that it has set itself?

Lord Deben: The situation is universal: one sets targets and the mechanisms by which those targets may be met but, when everything is added up, those mechanisms do not quite fit in with where the targets are. It is perfectly possible to have a series of different ways to reach the targets. Two targets in particular seem to us to be really important. One relates to tightening up on transport emissions, which is clearly very important. The other relates to agriculture, which I think was discussed with the previous panel. Agriculture has a considerable amount to offer, but it is no easier than any other area, and in social terms it can be even more difficult, especially if we leave the European Union and have in place an entirely different type of agricultural support system.

The Convener: We move to questions from Finlay Carson.

Finlay Carson: I will stay with agriculture. Lord Deben, your most recent report suggested that more could be done to reduce emissions in transport and agriculture, and that Scotland's

progress had been somewhat masked by the successes in the energy sector. You gave advice to the Scottish Government with regard to how it could make better progress on some targets. Why do you think that the Scottish Government has not adopted those recommendations?

Lord Deben: I am not sure that I am qualified to investigate motives, so I cannot answer the question why. I accept that some of the things that we have to do are enormously difficult, particularly at a time when we do not really know the terms within which we will be operating—that is certainly true for agriculture. That means that we should concentrate on the things that we can do something about. There is a series of things that one could do even in the circumstances of total chaos as regards our relationships with our nearest neighbours, and I would look to do those things immediately.

For example, I would look to see whether we can feed animals differently or improve the way in which we think about precision farming and the use of fertilisers. We can do a great deal more on disease prevention—we could get better productivity without having more animals if we did a great deal more to eradicate certain endemic diseases. A series of such measures can be taken, not because they will solve the problem but because they are capable of being done outwith parameters that are so uncertain.

When we have a better understanding—if that blessed day arrives in the near future—it seems to me that there is an urgent need to deal with agriculture. Given my background and interest in agriculture, I am very aware of the social impacts of what we do. The issue of what we do and how we do it does not get any easier because we have to do it. Therefore, a great deal more discussion is demanded. If I were a Scots politician, I would want there to be a great deal more discussion about how we deal with, for example, improving our tree planting. I would want to give impetus to the process of having a proper discussion about where trees should be planted and so on. There is a series of issues on which we ought to get into the whole argument. I am disappointed that that argument is not going on. I would prefer the discussion to be a little sharper, rather than non-existent; at the moment, I do not think that there is enough of it.

Finlay Carson: On achieving a better understanding, do you believe that enough funding is being put into support for science and research and development in that area? As a supplementary to that, what areas do you think that we should be prioritising? I am thinking of areas such as soil testing and fertility, and reducing mortality from animal disease, which you mentioned.

Lord Deben: I do not think that enough money is going into one of the areas of very great concern, which—to answer your second question—is soil fertility. I think that soil fertility is the crucial issue. It is a matter of stewardship. Over the past decades, we have allowed the degradation of our soils—that is a very serious issue. There is also the issue of climate change. Unless we have fertile soils, the ability of the soil to sequester is very much reduced. For those two reasons, I would put soil fertility and the work on that at the top of the list.

I should add that improving soil fertility is extremely difficult. It might well demand changes of a sort that we have not thought through, such as a greater degree of mixed farming—in other words, less monoculture. What does that mean from the point of view of animal numbers? Would other areas of animal husbandry have to reduce? Those issues must be discussed. At the moment, I am afraid that we tend to say, “It’s all very difficult.” We do not want to discuss it. I want to get the discussion going.

Finlay Carson: Given that little progress has been made in agriculture in relation to climate change, what impact do you think that the CCP scenarios will have on achieving the 90 per cent emissions reduction target?

Lord Deben: I think that there has been a gathering of pressures. There was no doubt that the amazing result of the Paris summit was hugely important, because it gave all of us a clear indication of the direction in which the whole world is moving. We know perfectly well that some people will not move as fast as they said that they would and that other people will do a bit better. We know, too, that there will be arguments about ratcheting and that the shipping industry will not do what it said and will have to be helped. We know all that, but we know which direction we are heading in. There are not many areas of life in which the direction is as clear as that.

It seems to me that a mixture of the Paris agreement, the clear warning that is contained in the report that the IPCC has just published and the detailed work that the CCC and the Scottish and UK Governments have done have at least put a kind of pressure on all these areas, not least agriculture, to act with some speed.

10:30

The most important outcome has been that we now have some baselines against which we can measure. Previously, I was unhappy about giving any comments about how successful we were because we did not know what we were measuring things against. We now know that to a much greater degree.

Stewart Stevenson: I will keep the focus on agriculture. What the CCC has brought forward implies that Scotland will be carbon neutral by 2050. However, because of its untapped tidal energy potential and so on, Scotland has the capacity to be substantially better than carbon neutral in relation to electricity generation. Is that an approach that could be pursued instead of tackling the difficult problem of nitrous oxides that come from agriculture, or are there other, broader reasons why we need to address NO₂ apart from simply making the numbers balance up?

Lord Deben: The numbers argument is a difficult one because you need numbers if you are going to get people to do something that is real. The anecdotal mechanism for measuring things is no good at all. Numbers are vital. However, numbers should not hide the pluralistic situation that we have. It is not just about saying that Scotland must get the balance right; it is also about the kind of future that you want. Do you really want a future that puts up with nitrous oxides to a degree that is actually unnecessary and which could be overcome, simply because you could make the numbers work out somewhere else? I am not sure that that is a worthy demand for Scotland. It seems to me that we are all going to have to find things that we do better in order to make up for people who do not have the chance to do that.

When you look at the capacity of some countries to meet the targets that they are prepared to sign up to, it is clear that we in the richer countries have to do more. This is the kind of area in which we should be doing more. We should be saying that there is a little bit extra that we can contribute to the general good. The same is true in the rest of the United Kingdom, and one of my frustrations with what is being done in England is that we are not pushing hard enough to have that margin. That is a really serious issue.

Mark Ruskell: The actions that we need to be taking around agricultural land use are quite clear. Perhaps the sharper bit of the debate is about how we get there and whether that involves a statutory or a voluntary approach to driving some of those actions, particularly around soil health and soil testing. Are there ways in which we can use the bill to sharpen the ambition and the statutory backstop around agriculture and land use? At the moment, we have an action plan that is very much based on voluntary knowledge sharing and on encouraging people to do things.

Lord Deben: Like most of life, this is not an either/or situation but a both/and one. I do not think that there is an all-voluntary future; on the other hand, you cannot launch into statutory arrangements unless you have really sought to find the basis on which those statutory

arrangements should be made. The best way to do that is to try to work out as much as you can on a voluntary basis, recognising the urgency that is involved, which means that you must move faster than you might want to. It is not easy to be prescriptive before you have at least tried to see what it is that you need to do.

I remember that when I was minister for agriculture I was very questioning of some prescriptive arrangements over an environmentally sensitive area; I thought that the civil servants who were drawing them up thought that they knew too much about the issue. It is absolutely true that, after two years, we discovered that the civil servants had got all the dates wrong. Had we done things on a voluntary basis to start with, we would have found that the dates were different—it just needed that sort of approach. That was a very small thing.

I do not despise voluntary arrangements, but I do not believe that we will solve our problems unless we have a pretty tough statutory background for people to operate against. That is partly because this is tough in any case, and partly because there is no doubt that if we operate on a voluntary basis, many people will not do their part. That will mean that people who do their part will feel that others are getting away with it, which, in the end, will create an atmosphere and relationship in agriculture that none of us wants.

Alex Rowley: There is a danger of patting ourselves on the back and saying that we are doing great in Scotland, when all that we have done is pick the low-hanging fruit. The closure of Longannet power station no doubt made a big contribution to achievements to date.

Are data available that allow us effectively to estimate emissions from agriculture? Is there knowledge in that regard? This committee has heard farmers say that the information, support and knowledge that would enable them to start to take the necessary action and comply are not being made available to them. What is your view?

Lord Deben: It is always true that practitioners tend to believe that their immediate understanding is much better than that of the Government or the scientists. I was fisheries minister for seven years; you will understand that fishermen are always aware of there being more fish in the sea than the scientists have managed to calculate. There is an issue there, to start with, but there is a truth there, too, because someone who is doing something on the ground very often understands things that people who have never done it and who merely look at the science and the information can misunderstand. There is therefore a balance for us to strike.

There are two other things to say in response to your question. Although our science is better than it was and our baselines are more accurate than they were, as I said, those baselines must be improved all the time, and there is a great need for co-operation from the doers—the farmers—to make sure that we get ever-more accurate baselines. When we have got things wrong, we must be prepared to admit it and improve. That is not always easy; people do not like admitting that they are wrong, but we have to do that.

The other side is right, too: we have to always find better ways—comprehensible ways—of informing farmers of all kinds. One of the most worrying things about British farming as a whole is the gap between the best farmers and the worst. There is an enormous difference in that regard. If we can do something about that, it will make a huge difference. At one end, we are internationally comparable—although we are not at the top; it is funny how farmers in the United Kingdom as a whole always believe that they are more productive than their neighbours, although the productivity figures are not all that good. What is more worrying is the huge gap; how we approach that will be one of our biggest issues.

Alex Rowley: We are talking about taking a sectoral approach. The point was made earlier that the bill is very much about figures—numbers—and targets, but do we need more of a policy drive? Will such an approach require us to resource sectors such as farming and transport, if we are to reduce emissions significantly and meet the targets for which the bill provides?

Lord Deben: We certainly need the resources to be able to interpret the targets in such a way that people can actually meet them and that there is a graduated route to them. I am cynical about targets that are set for a date beyond the lifetime of the politicians who set them, because it is easy to say that in 2050 we are going to do X, Y and Z, when not many of us here will be around to take responsibility. That is why the climate change legislation is so good, because the concept of budgets and of having a cost-effective way of getting to those targets is crucial. It means that you cannot put off to beyond your electoral cycle the things that have to be done.

What is so important about the targets in legislation is the careful consideration of the steps that you have to take to get to those targets. The target in 2031 is valuable only if you know what you are doing in 2020 towards dealing with it, not just because that makes it credible but for the reason that Jim Skea put forward, which is that the more we do now, the bigger the effect will be, and the more we put off now, the more expensive and the less effective it will be. Both mean that you should be front loading this end of the

arrangements for meeting those targets. To me, having a clear trajectory is the most important thing, not just because I want the end to be achieved, but because it is only fair on the people who are trying to achieve it. It seems to me that, if the farmer does not know what he ought to be doing now, but is told where he has to get to in 2030, that is an unfair relationship.

Mark Ruskell: I want to turn to the request for advice that you received from the UK Government, the Scottish Government and the Welsh Government. The letter said that you were not being asked for advice in relation to the carbon budgets for 2018 to 2032, and your chief executive said that he was quite surprised that that was the case. What is your interpretation of what you have been asked to do on the back of the IPCC report? What kind of reports will you be making back to the devolved Administrations and the UK Government, and to what timescales will you be making them?

Lord Deben: The first thing is that the powers that the Climate Change Act 2008 gives to the Climate Change Committee mean that we could have decided to do that work without being asked, if we thought that that was right. In that sense, how we approach it is in our hands. Indeed, we certainly feel that our independent position is such that we would have to decide what would be best in the circumstances to give the best advice. I am not presaging anything; I am merely saying that that is how we approach it.

It is perfectly reasonable to say that the Government had already received advice from the Climate Change Committee that there was no immediate need to change the targets for the fourth and fifth carbon budgets, because the trajectories that were envisaged gave it enough room, as long as it moved towards the left-hand side of those trajectories, to be online for what seemed to be necessary to meet a higher target.

It is not necessary to have much of an argument. One can be surprised by what was in the letter, but one does not need to have an argument about it. We shall seek to achieve the real purpose, which is to say what we have to do as a United Kingdom—and with reference to both Wales and Scotland, which have asked in the same terms for that advice—to meet the commitments that we have made in Paris.

That is the question and that is the question that we are going to answer. My view is that it is likely that as long as you tighten the approach to the fourth and fifth carbon budgets so that you do better than the least that you can do, it will be going in the right direction to deliver what we need.

You cannot do the work without going through and achieving those budgets—it is a logical impossibility. You have to think that through and work out what result from carbon budgets 4 and 5 you need in order to go beyond that. You have to make that assessment. The question is whether that assessment would be outside those carbon budgets. We have already suggested that it probably would not be. However, we are revisiting all that and we have until April to do so. It is a short period, but that is what we will do.

10:45

Mark Ruskell: The letter talks about the UK carbon budgets, so it does not specifically relate to the budget and provisions in the Scottish bill. There seems to be a lack of clarity. Would you have preferred a letter from the Scottish Government to say what it would like the CCC to consider in the context of the Scottish legislation and the legislation that is scrutinised by the Environment, Climate Change and Land Reform Committee?

Lord Deben: We take the view that we will be as helpful as possible. After all, we know what is in the Scottish bill and what Scotland's aspirations are. As you will have seen, we have been complimentary about what Scotland has been trying to do. Given that it is a joint request from the different nations, we will seek to ensure that we give indications that will be helpful to the Scottish Government in thinking about how its bill should work. We are talking about reporting in April; given the timetable for the Scottish bill, that should enable the Scottish Parliament to make any alterations that would be helpful.

Mark Ruskell: Will that advice be given before we conclude consideration of the bill?

Lord Deben: Under the timetable that we are working to, we will issue advice in April 2019.

Richard Lyle: Can you give the committee a brief outline of the process of compiling the evidence on which the CCC's advice to ministers is based?

Lord Deben: In addition to me, the committee consists of the most senior scientists with an interest in the field and economists. We begin with an expert committee, which is very unusual: other countries that have copied us have tended to have a committee that is less expert and more representative. In the 10 years that we have existed, we have sought to uphold very specific scientific accuracy. We have a team of some 30 specially chosen people who work on various aspects in house. When considering the issues, we have to decide where we do not have in-house information, and when we need more material, we go out and net contract to major universities and

research institutions to compile answers. We bring that together and, through a very detailed system, we create a report.

There are two stages: first, each area of a report has one of our members as a champion who works through it very closely with the people who are writing it; secondly, we, as a committee, go through the report line by line, adding or being critical. My job is to ensure that the report is always accessible.

One of the problems is that, as well as being accurate, scientific reports need to be comprehensible to people who have no more than a smattering of O-level or GCSE science. I try hard to carry through that responsibility and ensure that all of us can understand the issue.

Richard Lyle: You have touched on this, but is the evidence on which the advice to ministers is based still relevant? When does it date from and has it subsequently been superseded?

Lord Deben: We have a responsibility under the Climate Change Act 2008 to keep very close to the development of scientific evidence. That is why, for example, we encouraged the Government not to ask us to do this latest piece of work until we had the full IPCC report, which has opened up to us a body of information that was not there previously. I was concerned that we should not start on the work using the bits of information that had come out of the IPCC, because you never know how true those are—you must wait until you have the full report. We believe that we have the best evidence that is available. The people whom we go out to are those whom we recognise as being at the forefront of the science. Were we to find some aspect that we had not covered, we would return to it. We are recognised internationally as being absolutely at the front on where the science is.

Richard Lyle: Given that the IPCC has recently published further evidence and given the imperatives that are outlined in its report, has the Committee on Climate Change changed its view on the advice that has been given on the bill? I know of your long and distinguished career and record in politics—I am old enough to remember your actual name—but I have to ask this question because it has not been asked: the sceptics say that global average temperatures have risen over the centuries and that it is only the earth adjusting itself, so why should we bother acting? Do you agree with me that we have to bother and we must act now?

Lord Deben: It would be much more convenient for us not to bother. The fact that one is so passionate that we should bother is the result of understanding the science. I have taken that view since I was deputy agriculture minister in the

1980s, when I was one of the first to do so. I remember having a discussion with the other person in the Government who took that view, Mrs Thatcher, who said to me, “If you and I are the only two people who believe this, we are in a majority,” which was a typical example of her attitude to such things. She came to the issue as a scientist, and I came to it as a non-scientist who was looking at the science. I had learned that, as I am sure you all know, if you are working in a science-based industry such as agriculture, you have to learn how to listen to scientists and how to apply that. Although you might not be a scientist, you have to understand how to question them, what to say and how to ensure that you are sure of the science. By the mid-1980s, I was clear that climate change was happening and that human beings were causing it.

I say to the sceptics very simply—I am sure that you would do the same—that, if you go down into the ice for a million years, you cannot see a moment in which the temperature has risen so far and so fast as it has in the past 200 years. In those little globules, you can also find how the carbon has gone up. If you want to tease the sceptics, it is always worth reminding them that the earth was too hot for animals and human beings until gradually the carbon was pulled out of the atmosphere into trees and bushes, and that was laid down as oil, gas and coal. What have we been doing over the past 200 years? We have been reversing the process. Frankly, if we reverse the process, we should not be surprised if that reverses what has happened, and if we think that it does not, we would need a jolly good reason to explain why it does not.

If I produce a wonderful new cancer medicine for the market, I will be asked to prove that it is safe. I cannot say, “No—you prove whether it’s safe or unsafe. It is a good medicine.” That is not how the National Institute for Health and Care Excellence works. I have never understood why we do not stand up to the sceptics and say very simply, “You prove that it is safe to do something that we have never done before,” which is to pour vast quantities of pollution into the atmosphere and pretend that it does not have any effect.

Stewart Stevenson: I am merely a humble mathematician, rather than a scientist—and with an arts degree: it is a philosophy, rather than anything else.

I want to return to the numbers. The Committee on Climate Change is essentially recommending a zero-carbon future for us and a 90 per cent reduction overall by 2050. We should make provision for a 100 per cent reduction across the different gases, but should legislate only once the evidence base has been strengthened. What does

the evidence base being strengthened actually mean?

Lord Deben: I am a practical man, and I do not think that one should set targets unless one has a very clear route to achieving them. For me, the strength of the Climate Change Act 2008 is that it has a very clear practicality. Laying on our shoulders is the question of what the most cost-effective way is of reaching our current statutory requirement, which is an 80 per cent reduction by 2050. Until we have done the work that we are about to do, I cannot, hand on heart, say that we have looked at everything, that we know the best way of achieving that requirement and that we could achieve it by a certain date.

I could make a general suggestion—and some political parties have done so. However, it seems to me, as I said earlier, that that is not very helpful, because that does not mean anything unless a route to reach the requirement has been created that impinges on you now. Otherwise, it is merely something that you leave to your successors. If you have a route, you have to start doing things now. Even if we say that, in the fourth carbon budget, we have to get to the top end of the requirement, rather than lower down, that still means that we must operate in a different way and commit ourselves to delivering that. However, until I have done the work, I cannot say to you what the date should sensibly be, nor can I describe the sensible route to reach it.

Stewart Stevenson: Turning that on its head, is it therefore proper that we should be driving the requirement based on need, rather than practicality?

Lord Deben: Yes. The need is why we are driving it. We are doing that because, if we do not do it, we will leave a planet for our children that will be extremely unpleasant, and perhaps impossible to live in. Yes, of course we are driven by the need. When people say, “It’s all very difficult. Why can’t we take more time to do it?”, I have to say to them, “Because climate change doesn’t wait for you to make it convenient.” That is absolutely true. On the practicalities, it is not that I think that you measure what is practical in the sense of doing the things that you think you can do and fix the dates on that basis—that is not what I am saying. I am saying that we need to show the practical means of reaching the target at a point that is sufficiently soon to deliver what Paris has asked for.

Yes, that is about the need. After all, Paris set the figure—staying below 2°C and going as far down towards 1.5°C as possible—as a political figure. It is now for us to make it a practicality. That does not mean to say that we ignore the need. Paris has given us the need, and it was right to have done so—I accept that. We must put in place the practical means to achieve the target

without allowing the difficulty to drive us off course. You are quite right to raise the two bits that it is necessary to have the intention to seek to do.

11:00

Stewart Stevenson: You used the phrase “practical means”. Is what is missing from our understanding of getting to net zero emissions by 2050 a technological development? In other words, is it the case that we do not yet recognise that there are technologies that it is reasonable to expect can be developed that will deliver that, or is there a financial inhibition that means that we cannot yet see how we can afford to do that? Are we talking about a combination of both factors, or is there an entirely different reason?

Lord Deben: From our point of view, the reason is primarily that we have not done the work. Previously, we have been constrained by law to deliver an 80 per cent reduction by 2050. That is what the law has said, so that is what we have sought to do. The prime reason for not immediately saying, “That’s the date,” and all the rest of it is that we have not operated on that basis. The only bit of work that we have done is the work that we did for the Government immediately after the Paris summit, which we did of our own volition. We said that if the Government kept to the budgets, there was sufficient opportunity within those budgets to keep on target to achieve a significant reduction beyond the 80 per cent. That is all that we have done.

The first obstacle is the fact that we have not done the work. We have a reputation for being very effectively science based. In 10 years—it will be our anniversary on 26 November—people have not been able to suggest that any of our work has been other than based on the very best science. I must keep to that. I suspect that there will be significant problems as far as technology is concerned, because the UK Government has been dilatory in dealing with carbon capture and storage, which will be crucial—for industry, in particular—in delivering what we need. It is not just crucial but necessary. If we cannot capture and store carbon, the alternatives are extremely expensive and extremely difficult. I think that the Government has now more or less caught on to the importance of CCS, but we have wasted time that we should have used for that purpose.

We must also be careful about the George W Bush technique, which is to say, “It’ll all be all right, because we’ll invent something.” In that sense, it will not be all right. We must set very demanding targets, not because we want them to be demanding but because they need to be demanding, and then create the atmosphere in which people will develop the technology that enables us to address the issue more easily than

we thought. After all, that is what has happened. The offshore wind revolution has shown that we can deliver electricity at a price at which we never thought that we could. We can clearly say—although I was attacked by *The Daily Telegraph* for saying so and the BBC has been attacked for upholding my saying it—that it is now true that onshore wind is a cheaper way of producing electricity than all the old-fashioned ways. It is genuinely the case that that has come about through a mixture of setting the targets and providing the means for technology to achieve them. That is the approach that we must take.

The Convener: I want to follow up on what you said about onshore wind and carbon capture and storage, which are two areas from which research funding has been taken away. The removal of research funding from CCS has had an impact on Stewart Stevenson's constituency. Subsidies for investment in onshore wind being taken away has also acted as a disincentive. Am I sensing a change in mood towards those two technologies? Will they be given the funding that they deserve?

Lord Deben: There is no change in mood in the Climate Change Committee: we have consistently said that we need CCS and we have consistently criticised the United Kingdom Government for not continuing the work on that.

It is not our job to say that this or that project should go ahead; rather, it is our job to say that we have to go ahead with sufficient projects to deliver what we need to deliver. The Government is the democratically elected body to decide in that regard. What it cannot do is opt out.

I will repeat what I have said on onshore wind—I am interested in how you phrased the question, convener—because the BBC criticised me when I said that the Government makes it impossible for people to have onshore wind, even when the locality wants it. Of course, the Government has said that it has devolved planning permission to the locality. That is absolutely true, but when a locality decides that it would like to have onshore wind power, none of the support systems that localities used to get, and which they need, are there. In effect, therefore, the Government has said that there will not be more onshore wind: indeed, ministers have made that point.

The issue is simple: if we do not have onshore wind where people want it, the Government should tell the public what the cost of that is to the taxpayer. If it is the cheapest approach, something else must be more expensive, so the Government needs to tell people that some of their green taxes are unnecessary because they are politically motivated, in that the Government does not want onshore wind, for reasons that I have always found difficult to follow. That should be the case, even if we think—as I do—that onshore wind

cannot be forced on localities, which must be prepared to have it.

It would be much better to allow onshore wind wherever the local community will accept it. There is onshore wind generation just up the road from me in Suffolk, which was hugely opposed before it went up but is now a lovely part of the whole picture. It is amazing how things have changed now that it is there.

We have to be very frank: we must say that it will be expensive enough and tough enough to deliver what we need to deliver, and we really must not exclude things that are necessary. CCS and onshore wind are two of those things.

Mark Ruskell: I am interested in how you view innovation in that regard. You said that the US approach is, "We'll just go and build something." It could be said that some of your analysis around innovation is a little conservative. You assume that in 2050 we will still be extracting oil and gas at the same level, and that about 28 per cent of our electricity generation mix will still be from fossil fuels. There has been huge innovation in renewables in the past 10 to 15 years—the whole system is changing. Are not your assumptions, particularly in your analysis of the 2050 target, a little conservative? Could we go a lot further a lot quicker if we factored in the kind of system change that is needed?

Lord Deben: I am not sure that I agree with your assessment of our assumptions, but let us not go through those in detail, because we might start an argument that will not get us anywhere. Let us accept, for the moment, that you think that we are conservative in our assumptions.

I am a passionate supporter of innovation and believe that innovation will make a major contribution to our ability to meet our requirements. I am also always worried about the assumption that innovation will deliver being used as an excuse for not making changes in what we have, while we have it. It is really important not to assume that innovation will deliver, partly because doing so is a jolly good excuse for getting out of doing what we ought to be doing, and partly because we have not been all that good at timing innovation.

For example, offshore wind has moved much faster than we thought it would. However, we have been entirely wrong about how big a part ground-source and air-source heat pumps play; we have found it much more difficult than expected to involve those technologies.

I would be happy to talk to members after the meeting, or at some stage, about the things that they think we have got wrong.

It is about trying to get the balance right. On fossil-fuel generation, we are not saying quite what Mark Ruskell suggested. We are saying that, without carbon capture and storage, we will have to get all gas off the generation load by somewhere in the middle of the 2030s. That is a pretty tough statement.

In talking, for example, about whether fracking is acceptable, we have made it absolutely clear that it is acceptable only if we do not create an infrastructure that means that there is a reason for keeping it on the grid and on the generation load after the dates that we have laid down.

I hope that we have been as much in favour of innovation as one can be without distorting what we have to do now. If it turns out, when innovation comes, that we have done more than we really needed to do, we can move faster at that point. If we do less than we need to do because we overestimate how quickly innovation will arise, we will have a mess. I would prefer to be on the first trajectory.

Angus MacDonald: I will go back to the net zero and 90 per cent targets, and the two options. You will recall that the CCC, in its March 2017 advice, said:

“a reduction in GHG emissions of 90% would require strong progress in every sector and is at the limit of the pathways currently identified to reduce Scottish emissions. By adopting a more ambitious 2050 target than currently exists for Scotland, or for the UK as a whole, it would be important to identify the areas in which Scotland will go further than the rest of the UK.”

Has the CCC identified the areas in which Scotland will go further than the rest of the UK? Is the CCC's current caution about suggesting a net zero target partly because progress has not been made in some sectors?

Lord Deben: I do not think that the caution is just for that reason; it is as much for the wider reason that we have to explain to people that this is not an easy thing to do. It is not sensible to espouse a target without being clear about what it really means. You can have any old target, but it will not work if you cannot come down to the terms for how you will get there. That seems to me to be the fundamental reason for setting a target.

I am extremely gratified that Scotland wishes to move to a point, as we have said, at the edge of what it can do, given the range of policies that it has adumbrated. I am very pleased by that, because I think that we are all going to have to do that. Scotland is setting an example in the United Kingdom; I think that I annoy people elsewhere quite a lot by reminding them that Scotland is doing much better than they are—and very good for them it is. I am very happy about that.

It is not for the CCC to lay down the precise details. We know that, although the target is at the edge of what is possible, it can be met. We have to help the Government to see what policy changes are necessary if it is to deliver what it needs to deliver; that is why we have emphasised the role of agriculture and transport. A huge amount has to be done—and can be done—in those areas, but it needs to be done now if the targets are to be achieved. It is always easier to advise than to deliver.

It is also always easier to be green in opposition, because you do not have to do the things that must be done at the time when they must be done. Our job is to try to help Scotland to deliver, particularly as you have set such a tough target.

11:15

Angus MacDonald: I apologise for bringing the committee back to agriculture. However, under the option 2 scenario, the CCC's advice notes that

“a 90% reduction in GHG emissions in 2050 does so by reducing CO2 emissions to around zero, with the residual net positive emissions comprising non-CO2 greenhouse gases (primarily methane and nitrous oxide from farming)”.

The CCC has consistently stated that agriculture needs to do more—as we all know. If more ambitious reductions were realised in the agricultural sector, would it be possible to recommend that a net zero target be set now?

Lord Deben: Given what I currently know, I do not believe that a net zero target would be possible unless agriculture were to play an important part in reaching it. I cannot conceive of a way of doing it that would exclude what needs to be done by the agricultural sector because agriculture is such an important part of the emissions. We can think of agriculture as both positive and negative—negative because it has to reduce its emissions, but positive when we think of forestry, ways of using the land and improvement in fertility, which was the point that I discussed with Mr Carson. If we get better fertility, we get better sequestration. If we grow more trees, particularly in the right places, not only will we get more sequestration, but we will be doing something about immediate adaptation for flooding and the like.

We cannot deliver unless agriculture plays a part.

Angus MacDonald: As you said earlier, the agriculture sector needs as much help as it can get in order to do that.

Claudia Beamish: Many of the questions that I was going to ask have been answered, so I will not reiterate them.

You have highlighted that you still have work to do, and I appreciate that, but are there scenarios that will require changes to the interim targets? Can you give us more detail about practical implications? In the first evidence session, I highlighted the IPPC report's warning of the need for "rapid far-reaching change" in order to stay within the Paris limits. We would like to explore interim targets a little more.

Lord Deben: First, the Government of the United Kingdom must take on board the fact that the interim targets—the fourth and fifth carbon budgets—have been written on the basis that they will be met from our own action and not by carrying over banked arrangements from the past. It is absolutely clear that such a carry-over cannot happen. If we were to do that, we would have to change the targets, because they were written on the basis that we would do it through our own domestic abilities. We did that because the Government had said previously that that was what it did and why it did not bank the overperformance from the first carbon budget to the second. There can be no question of going back on that, or we will be unable to do what we have said we need to do.

Secondly, any dependency on the ability to buy credits from outside the UK must be thought of only in an emergency. In other words, one can imagine circumstances in which, for a short period, that would be necessary, but it cannot be put into the programme, partly because that would undermine the system and, more important, because it would, according to any assessment, be an expensive way forward.

If all the countries of the world are signed up to the Paris agreement—even if some of them do not achieve what they say they will achieve—there will not be a lot of freebies around. There will be a lot of countries wanting to buy, which will mean that there will be considerable competition and, inevitably, that the price will rise. It is bad husbandry to think that we could depend on that.

Thirdly, we will have to confirm this, but I think that I am able to stand by what we said in our initial work—in which, because it was so short, we could do only what we did—which was that we need not alter the targets for the fourth and fifth carbon budgets, as long as we accept that we have to perform at the top end of expectations rather than at the lower end. As with all such things, the possible outcomes of what we do take on a "V" shape. On one side, there are the outcomes that would result from less reduction, so clearly we have to get to the other side. That will produce not a new target but a different way of looking at the existing target, in recognition of the fact that it has to be hit at the top end and not

lower down, in order that we get the right trajectory.

Claudia Beamish: Are the sectors on which the CCC offers specific advice—as I understand it, they are energy efficiency and generation, land use and transport—sufficient to give a complete view? Does the requirement to offer advice on the contributions that are to be made by sectors of the Scottish economy give adequate scope to cover all relevant emitters?

Lord Deben: At the moment, yes—but we keep a very close eye on the matter. The committee can be assured that if we felt that our advice was not complete or as accurate as we want it to be, we would ask to be able to give more advice—or, indeed, to give the committee advice. Again, the 2008 act is sufficiently open to allow us to decide for ourselves whether we really ought to give advice on something on which we have not given advice before, because we had seen something happening.

For example, there is no statutory requirement for us to give advice on bitcoin. Although it uses a very considerable amount of energy, it did not occur as an issue when the 2008 act was drafted. That is just a small example, but the point is that we do not feel that we should not give advice just because the issue in question does not seem to fit under any of the other areas that we are supposed to deal with.

Claudia Beamish: Thank you.

Stewart Stevenson: We are on target to go ahead of the 56 per cent target—*[Interruption.]* I am sorry—I was getting confused there. Has the Committee on Climate Change had any input into the target-setting criteria?

Lord Deben: I am sorry—I am not really sure what you mean.

Stewart Stevenson: You provide the scientific advice, and the Government makes its choices based on that advice. However, in deciding on the targets that it is going to set on the basis of that advice, does it have a feedback loop that allows it to check with you what it is doing before it makes those decisions?

Lord Deben: We set the primary target. As you have rightly said, the Government then decides how it is going to reach it; for example, it might set subsidiary targets, saying, "This, that or the other must reach this or that target, because it will all add up."

In our annual report, which we have by law to produce every June, we constantly look to see whether the primary target is being met, whether it is feasible for it to be met and whether there should be a different way of doing it. There are of course internal discussions when one begins to

question these things. We have a wider range of scientific and technological tentacles than the Government will have, so that will be the on-going position. However, we assess that every June, and then the Government has to answer before the end of October. It has just produced its October answer to our pretty tough statement in June. To be frank, it does not go far enough, and we will be making the point very clearly that it has a lot more to do.

We see in the Government a Government that wants to meet the target, so we do not have the problem of trying to deal with something that does not want to deliver, but we have to keep the feet to the fire. As Jim Skea says, and to quote Tesco, "Every little helps." We have to get the work on its way, and every extra bit that we do this year will make a big difference next year and the year after that. As the IPCC report says, we have the crucial 12-year period and, if we do not get things in line, we will find it incredibly difficult to get back on track.

Stewart Stevenson: The Scottish saying might be, "Many a mickle maks a muckle."

Lord Deben: It might be, but as a non-Scot I would hesitate to quote something like that.

Stewart Stevenson: Indeed. The final issue, which has already come up to some extent, is whether we should be disaggregating the overall targets in order to help agriculture and transport to get a tighter focus on the things that they need to do.

Lord Deben: We should be making clear to the sectors what they are supposed to do. In that sense, a certain disaggregation of the targets is required. Finlay Carson made the point—it was important to remind us of this—that the United Kingdom's overall success in decarbonising the electricity supply has tended to hide our overall failures to improve in agriculture, transport and home heating. We also need to be very much tougher on obvious examples of nonsense.

I really wish that Scotland would set sensible standards for house building instead of those that we have at present, which are not sensible. Devolution gives you an enormous ability to do something of that sort. You could do to house builders what should be done throughout the United Kingdom and say, "I'm sorry, but if you want to build a house, you cannot build it on the basis that it will be retrofitted later. It's got to be built more or less to Passivhaus standards." If you did that, you would find that it did not increase the cost of houses in any real sense. In so far as it is more expensive, that would be reduced by the fact that such building would become mass production rather than niche production, and also because the cost goes into the cost of the land; it actually

lowers the price of land, because that is how the price of land is fixed.

For me, there are real, individual issues that are not about sectors so much as about activities, and one thing that we should surely be saying is that no house may be built today that will make our problem more difficult in 20 years' time. That seems obvious to me. How have we got ourselves into a position where I have to argue that everywhere? I have enough faith in the Scots to believe that you could force the rest of the United Kingdom to do it by doing it yourselves first, and you would not have one fewer house built, although Mr Persimmon may not be entirely happy.

Stewart Stevenson: A mere £50 million bonus next year, rather than the £75 million he got this year, perhaps.

11:30

Richard Lyle: Lord Deben, I agree with you entirely. I have been pushing for more houses to be built with solar panels on their roofs. My son's house has only two panels, but his next-door neighbour has put on an extra 10.

Lord Deben: It is called competition.

Richard Lyle: I have also been calling for houses to be built with charging points for electric cars, rather than cluttering the streets with them. You mentioned Tesco; Asda has put in electric charging points. Do you agree that houses should be built to that standard? I think that you do.

Lord Deben: I try to use slightly vague terms, because there are various ways of doing it. Roughly speaking, the Passivhaus standard—the sort of standard that Hastoe Housing Association has now reached, which it can do in the present situation—is the standard that we should have. We should be looking at all the things that stop it. There are technical issues about rents, for example. If you reduce somebody's energy bill dramatically, which you can do by introducing such measures, there is no reason why the local housing association or the local authority should not share some of that reduction and put it into the extra cost of building, if there is an extra cost. There are ways in which that can be done and the law ought to be changed in order to encourage that, rather than to make it almost impossible.

There is a whole series of institutional things that could be done that would make a huge difference. We are seeking to build 300,000 houses a year in the United Kingdom. The idea of adding 300,000 to the houses that we have already got that do not come up to standard seems frankly barmy to me.

Mark Ruskell: Listening to that discussion makes me think that a net zero carbon target is potentially achievable, but how do you define achievable? What is the key test? It seems to me that we have lots of policy prescriptions and possible pathways, but what is the key test that allows you to say that it is now achievable?

Lord Deben: There is, of course, always a degree of judgment. We seek to ask whether it is financially possible. In other words, if we really put our minds to it, is it something that we could afford? Is the technology there to do it, is it likely that it will be there to do it, or is there a way of bringing the technology forward so that it can do it? That might be the case for carbon capture and storage. Can we put together a succession of scenarios over the years that are clearly credible to people and do not demand leaps in the dark about which you have no real answer?

That is the kind of picture that we have. Could I stand up and defend the scenarios and go through them in detail with someone without them noticing a hole and asking, "How on earth are you going to bridge that?" That is a question that I ask myself and it is one of the things that I am determined to be able to do. All that one can do about what is achievable is to say that, taking everything into account, it is by no means impossible, but it is hard. That is as it should be, because we have a big job to do.

Finlay Carson: On emissions accounting, the CCC recommended that the overall accounting framework should shift to one based on actual emissions rather than net accounting. You have covered that somewhat but, other than there obviously being more transparency, what are the advantages and disadvantages of emissions accounting, rather than looking at net emissions?

Lord Deben: The first thing is transparency. I listened with great care and interest to the witness who answered your questions on the issue earlier. He talked about the annual system in Scotland compared to the five yearly one that we have for the United Kingdom as a whole. I understand precisely what he meant about having an annual discussion in Parliament and the issue therefore being at the head of the political agenda. My problem with that approach is that one of our difficulties is to give people a target that they can hang on to and that does not constantly change. The fundamental reason for doing what we suggested is that it would give coherence, consistency and comprehensibility to the target in a way that previous and alternative ways would not do.

What do we want a target for? We want it to do two things. First, we want it actually to make people reduce their emissions. The other thing is that we want to make it possible for people to

recognise that and see what they are trying to do. That is difficult, because so many things alter the situation. You will have to explain that, in a year in which you have a brutal winter, it will not be so easy to meet the targets, and similarly you must not get too excited if you have had the most wonderful winter and have not used any heating at all. That is difficult enough, so we attempted to give you a system that was as accurate as it could be but that did not confuse.

Finlay Carson: I should have declared an interest earlier as a former farmer and a member of the National Farmers Union of Scotland.

Do we need additional policy measures so that sectors get credit for what they are doing? For example, negative emissions will be important to achieve a 90 per cent reduction or net zero, and farmers and land managers can make a large contribution to negative emissions. Do we need more policy measures to encourage that by giving sectors, whether it is the transport, agriculture or forestry sector, credit for the benefits that they are bringing?

Lord Deben: I am a great believer in gratitude. If we say thank you and recognise work, people are more likely to go on doing it than if we just beat them about the ears when they do not do it. Instinctively, I am a believer in that. In Scotland, peat restoration is a crucial part of what we have to do. On forestry, we have not been successful in meeting our targets in any part of the United Kingdom, and that is another really important part of what we have to do. As we have said before, it is important that we recreate fertility in soils that have become less fertile. All those things require real effort. Measuring is important to ensure that that work happens and that it is not just anecdotal, but it is also important to recognise it. It is really for the Scottish Government to decide whether that means paying people money, finding another way of recompense or some other policy. However, it is important to make people feel that, when they have done things, that will be recognised and understood and they will get credit for it.

Finlay Carson: Finally, convener—

The Convener: Actually, we do not have time. We have to move on.

Maurice Golden: Will you articulate the advantages and disadvantages of setting annual targets, as the bill does, rather than the multi-year carbon budgets that are contained in the UK Climate Change Act 2008?

Lord Deben: Annual targets obviously concentrate the mind on a regular basis and ensure that, politically, people cannot forget about them for long because they are going to come up again. There is an obvious advantage.

As I have said publicly before, the disadvantage is that an annual target can be very much affected by, say, the weather, the closure of one particular installation or some slight change in the inventory. All those things can make a huge difference to an annual target; over five years, it can be much easier to make comparisons and to ensure less confusion for people, whereas the fundamental trouble with annual targets is that you have to explain them every year. The plus is that there will be a proper debate in Parliament and all the rest of it, but the minus is that you have to do that every year and, every year, there will be some people saying, “No, you’re just making excuses. You could’ve done better.”

That wearies the ministers who have to do this sort of thing. It is hard for a minister who has done their best and has achieved something really worth while in an underlying way to have to announce that they have not hit the target. That is what Scotland has had to do year after year, and it has not been very helpful.

Those are the balances that have to be struck. Scotland has made a choice, and we try to work with its choice and make it as effective as it can be.

Maurice Golden: Will the proposed changes to emissions accounting in section 15 of the bill reduce the level of risk attached to inventory revisions as far as the accuracy of targets is concerned?

Lord Deben: Clearly, they will not eliminate the issue. Our advice set out what we thought was the best system for reducing the arbitrary effects of recalibration as a result of new information bringing into the system things that it had not covered before. In fact, peat is a very good example in that respect. We tried to set out the least distorting way of doing that; after all, the role of targets is to encourage people to reach them and to make them see what the aim is, and moving the goalposts will have a damaging effect in that respect. As a result, we went through the various possibilities and tried to choose the one that most gave accuracy and consistency. However, it will not do both things all the time—that is the nature of life.

Maurice Golden: Thank you.

The Convener: Mark Ruskell will ask the final question, which is on the bill’s financial memorandum.

Mark Ruskell: I think that, in your advice last year, you stated that you had not costed the 90 per cent reduction target. What are the barriers to that? Will you conduct a study on that or indeed any other target that the Parliament decides on?

Lord Deben: In doing the work that we have been asked to do, we will have to do a lot of scenario planning to show that our proposals—and this brings me back to your earlier question—are attainable. In doing so, we will include costings, because you have to show such things in order to make things sensible.

With regard to the 90 per cent reduction, that will become clearer in the context of that work. After all, it is to some if not every extent the same policy—in other words, it is what you are already having to do, only more so—and we will include costings that I hope will be of use to Parliament and to the Government.

The Convener: Thank you for your evidence, Lord Deben. Do you wish to say anything else about the bill that you feel you have not said already? I note that you have already given 90 minutes of evidence.

Lord Deben: You have been very kind. All I would say is that we should be absolutely clear in our minds that what we are doing is really important. There is nothing else in a material sense that could be as important as helping people solve this problem.

Let me leave you with this thought. My son wrote what has become the standard book on the black death, and any of you who have been in the same position will know that, if you have a son writing a book, you are expected to read each chapter as it comes off the machine. I was busy reading my son’s book while I was doing fundamental work on climate change, and I was struck by a really frightening thing: although one in three of the population died in the black death, they had no idea why it was happening. As a result, they had no responsibility. Our problem is that we know what is happening, and therefore, we have absolute responsibility. Not only have we caused this, we know how to stop it—or at least how to pull it back and then reverse it. Because we know that, the responsibility is ours. All of us should recognise what a high calling we have and that we have to do this.

The Convener: That is an excellent note on which to end. Thank you very much for coming along and giving evidence.

11:45

Meeting suspended.

11:57

On resuming—

Subordinate Legislation

Land Reform (Scotland) Act 2016 (Register of Persons Holding a Controlled Interest in Land) (Scotland) Regulations 2021 [Draft]

The Convener: I welcome to the committee, for the second item on the agenda, Roseanna Cunningham, the Cabinet Secretary for Environment, Climate Change and Land Reform, and her officials. They are Pauline Davidson, who is the head of land reform policy team; Andrew Ruxton, from the Scottish Government legal directorate; and Dr Simon Cuthbert-Kerr, who is the head of the land reform unit in the Scottish Government.

Can we have an update on the development and integration of the 20 registers in Scotland's land information service?

The Cabinet Secretary for Environment, Climate Change and Land Reform (Roseanna Cunningham): The most important registers for my purposes are those that are related to land reform. I understand that ScotLIS will not provide access to all 20 registers. It will include the land register, the register of sasines and the register of inhibitions—which are already available through ScotLIS—as well as a crofting register. The register of deeds and the register of judgments will be available imminently through ScotLIS. The register of persons holding a controlled interest will also be available through ScotLIS when it goes live. Registers of Scotland is currently planning how best to do that.

The Convener: What work has been done to publicise ScotLIS to ensure that our citizens are aware of the availability of all that information?

12:00

Roseanna Cunningham: Officials are currently working closely with Registers of Scotland. An awareness-raising exercise is being planned for before the new register becomes operational, in order to ensure that people are aware of the information that will be available on the new register. It will also ensure that people who ought to register do so. The awareness-raising exercise will therefore cover both sides. It will happen close to the register going live, which we expect will be in 2021. I am not sure that raising awareness this far in advance would be particularly helpful. I suspect that people would have forgotten about it by the time the register went live, so the idea is to push it towards the point at which the register becomes live.

Alex Rowley: In evidence, several organisations talked about the difficulties in being able to access information on the register and described it as being potentially “onerous”. What work is planned or being carried out to develop a user guide? Will stakeholders be involved in that?

Roseanna Cunningham: Officials have up to this point been working closely with stakeholders on developing the regulations and will continue to work closely on the revised regulations and on guidance. I intend to publish guidance for users, to be available when the regulations come into force. That work is being undertaken; the conversation between officials and stakeholders will continue until that point.

We will also work with Registers of Scotland on its end of things. It will do user-testing with its stakeholders, who are customers and potential users of the register, in relation to access and making the system as simple as possible to use. There will be guidance for those who will be trying to navigate their way through the system, just as there will be help for those who have to register. That guidance will be ready when the register goes live.

Alex Rowley: Do you have a timetable for laying and commencement of the regulations and publication of the guidance?

Roseanna Cunningham: The expectation is that the register will go live in 2021, so we are not under enormous time pressure. Our consultation does not close for another couple of weeks. We will consider the results of that consultation. I am not hugely familiar with the procedure, because it is unusual. When we have analysed the consultation, we will publish revised draft regulations and will, no doubt, come back to the committee, when the committee will be able to see any changes that result from the consultation exercise. The regulations are still in draft form, and we are working on the basis that we will reach that point by autumn 2019. A year from now, the revised draft statutory instrument will be ready for the committee's perusal.

Our expectation is that the final regulations—we are much more familiar with that bit of the process—will be laid early in 2020. Of course, the expectation is that the register will not go live until 2021, so there is quite an extended timescale.

The Convener: Several members have questions on the recorded address.

Richard Lyle: People in some sections of society, for example candidates who stand for election as MPs, can ask that their home address be withheld for security reasons. People can also ask that their home address not appear on the electoral roll. Furthermore, there are data

protection laws that relate to withholding of such information. What is your view on what

“recorded person’s name and address”

means in practice? Do you agree with the keeper of the registers of Scotland that it does not matter whether it is a service address or residential address? Would an email address be appropriate?

Roseanna Cunningham: I am not sure that I agree that an email address would be appropriate. I understand why people think that that is an easy option, but we probably all have a number of email addresses that we have forgotten about or which just sit unused and unchecked. There are issues around email addresses that mean that they are not a particularly useful option. I agree with the keeper of the registers that a physical real-world address is preferable, because that gives us more certainty about notification.

I understand from the keeper’s evidence that there are pros and cons for use of service addresses versus official residential addresses. It is really just an issue of balance. There is a conversation to be had about that, but I do not think that the issues should push us towards use of email addresses, which would not be appropriate.

Richard Lyle: We all agree that we need a contact address, but there are issues—for example, when someone is fleeing a violent partner and needs their address to be kept private in order for them to be safe. I might be straying into an area that someone else wants to ask about, but there is an issue around the fact that the keeper has discretion about what she will allow. Do you agree that it might be preferable to use the address of a lawyer or a business, rather than a person’s personal address?

Roseanna Cunningham: I mentioned that there are pros and cons. On the issue of safety that Richard Lyle has raised, there would be pros for use of a business or service address. The most obvious service address would be a lawyer’s office—that is not an unusual concept. Of course, our allowing service addresses to be used could allow people to spread their interests across numerous addresses. There are issues that would need to be unpacked and thought about quite carefully if we were to go in that direction. For example, we might say that, if a person uses a service address, they will be expected to use that same service address for everything, rather than use different service addresses for different properties.

There are questions about managing the process. The register is intended to make ownership more transparent, so we are trying to strike a reasonable balance. There are still issues to be bottomed out in that regard.

Richard Lyle: So, you have not yet made up your mind.

Roseanna Cunningham: I am looking at all the evidence. The committee has asked me to come and give evidence while the consultation is ongoing. I assume that that is because the committee wishes to be part of the consultation.

I need to see the responses to the consultation. I do not want to terrify officials by making up policy on the hoof without having discussed it with them, but one way to manage the service address issue would be to insist that a single service address be used for multiple registrations, rather than trying to have one set of solicitors dealing with one registration and a different set dealing with another. Other addresses that might be used include those of accountants and land agents. One can imagine how many potential service addresses there might be if we were to just open it up. There are still issues to be considered.

Claudia Beamish: I want to explore those issues in a little more detail. Do you agree that by not recording a home or permanent address there is a risk that it would be easier for the recorded person to avoid identification? For example, would it be acceptable for an absentee landlord who visits only a couple of times a year—if that—to record an address in Scotland at which to contact them?

Roseanna Cunningham: As I understand it, the register will be searchable by a person’s name and date of birth. That would help to get round the issue, because then we could see the various interests that were held by any single associate. Were you talking about a recorded address?

Claudia Beamish: I was talking about there having to be an address in Scotland at which the person can be contacted.

Roseanna Cunningham: I do not know what the current position on that is.

Claudia Beamish: Perhaps the question was about the issue of absenteeism and the transparency of ownership in the context of the dialogue that we are having.

Roseanna Cunningham: The difficulty is in thinking through the potential implications. This is about people who own land in Scotland, regardless of where they live.

Claudia Beamish: Yes.

Andrew Ruxton (Scottish Government): The recorded person is the person who is providing the information about their associates and who should be on the land register in some form, because they are registered as the owner. The new register is trying to capture the people who do not appear on the land register, including associates. As the

cabinet secretary said, we are trying to strike the balance between what is appropriate and finding the right address for people who might often be absent.

Claudia Beamish: That is helpful. I also want to highlight the issue of commercial confidentiality, on which we have received different views. In evidence, the keeper said that she does not think that commercial confidentiality is a justification for exemption. Do you have any comment to make on that?

Roseanna Cunningham: I would be inclined to agree with that. I do not know how commercially confidential ownership should be. There might be issues about management details being commercially confidential, but I struggle to see why there should be anything commercially confidential about the physical act of ownership. That is probably what the keeper means.

Andrew Ruxton: The register would not disclose a person's financial status or anything like that. It will be basically just name details that will be disclosed.

Roseanna Cunningham: We must remember that the register comes directly off the back of explicit provisions in land reform legislation that we will not be able to go beyond, which will protect issues of commercial confidentiality.

Claudia Beamish: Finally, on the security declaration, there has been mention of the appropriate degree of anonymity and protection for those who could be regarded as being at risk, and it was proposed that use of a unique reference number could be considered. Do you have any thoughts on that?

12:15

Roseanna Cunningham: That is part and parcel of trying to decide on the pros and cons of various approaches, in order to ensure that we capture the maximum amount of the information that the register is expected to capture without the consequences for some individuals being so adverse as to be perverse. We need to maintain that balance. We will keep all that under consideration.

Angus MacDonald: On part 3, on the duties to provide information, you mentioned awareness raising. To ensure compliance, it is imperative that there is significant publicity in the run-up to the register going live. When the keeper gave evidence to the committee, she mentioned the possibility that someone could, inadvertently, fail to comply through ignorance of the rules. Do you agree with the keeper that there should be a grace period to allow for inadvertent non-compliance to be rectified? If so, how long should that period be?

Roseanna Cunningham: We could not really argue against a grace period. Such a period would not be unusual. There are other circumstances in which a similar approach has been taken and it would be reasonable in this case. It is obvious that a big awareness-raising exercise will have to be undertaken. It might just not dawn on some people that the register is appropriate to them and, in some cases, people will make a genuine mistake.

I do not think that anyone wants to be in the business of hounding people who have made a genuine mistake and who have no real intent to try to fly under the radar. If I am right, the keeper said that if she came across people under those circumstances she would prod them by writing to remind them, which would allow them to rectify the situation before any criminal proceedings were begun.

We will work closely with the keeper on that, although we cannot have an open-ended timescale for the grace period. Whatever that grace period is, we would want it to be quite clear. We can have further discussion on whether the grace period should be around six months, but the period must be time limited.

If the awareness-raising exercise in the run-up to the register going live is successful, we should have got it down to only a very small number of people who might accidentally or inadvertently fail to comply.

The current proposition of a grace period of six months feels about right. As we are already raising awareness of our plans for the register, we hope that by the point that it goes live, we will not have many folk who are unaware of it.

Finlay Carson: My two questions are linked. There is a duty to provide information and the keeper can carry out some level of validation with regard to addresses that are inputted, such as a check that a postcode exists or that the date of birth is feasible. However, it is less easy to verify information and so, for example, find out whether an address is false or the date of birth is incorrect. The regulations are clear that the legal responsibility lies with the person who is registering the information.

What guidance and training will be given to the police, who, ultimately, will be enforcing the regulations?

Roseanna Cunningham: I am sure that the police will be delighted to be advised of the purpose of the regulations, what constitutes non-compliance and so on, and officials have already been in contact with Police Scotland and the Crown Office in respect of this to ensure that the police are involved at an early stage and understand the process. We will continue to work

with them as the regulations are further developed.

As I said in response to an earlier question, we are consulting on and will continue to talk to stakeholders about guidance, and that work will obviously include the police and the Crown Office. There is a job to be done in that respect, but the process gives us the time to do it. We expect that, by the time the register goes live, the police will be well aware of what is and is not required and what their responsibilities are.

Finlay Carson: I want to jump back to the question of what addresses are suitable, whether it be a home address, an agent's address or whatever. With regard to your earlier comments, I have to wonder whether it is not all that forward looking to exclude the possibility of identifying or verifying individuals through email addresses. After all, individuals can be verified through many methods such as links and so on. Given the legal responsibility to provide valid information, there would be no point in me using, say, Mickey.Mouse@scottish.parliament as an address, because nothing would get to me and I would not be able to verify my identity. Has any thought been given to using emails to verify a registration? Moreover, could one add to the verification process by sending a recorded letter to an agent or home address, requiring a response within a set time? Would that not ensure that we got to the individual to whom the registration applied?

Roseanna Cunningham: I hear what you say about emails, but I am still not confident that they give us the kind of confidence that we are looking for. As I have indicated, people have a multiplicity of emails, some of which are not checked and can go into disuse. We do not feel at this stage that an email has enough security—

Finlay Carson: I am sorry to interrupt, but I am talking about the public-facing side of the register. As Claudia Beamish suggested, there might be some reference back to an actual physical address, but that information would not need to be in the public domain.

Roseanna Cunningham: At the moment, I am not convinced that email is the way forward. I know that it seems a bit retro, but as far as everyone's confidence in the system is concerned, I do not think that it is quite the right direction to go in. That is not to say that it might not become more so in future.

You mentioned the use of recorded letters. With a letter, it would certainly be possible to require a response within a set time, but with an email, you would not even know whether it had reached the person whom it was meant to reach. That is an issue. There is no doubt that validating addresses

is also an issue, but it might be extremely difficult to apply that to absolutely everyone. It could make the whole process incredibly unwieldy. There is a certain amount that we will be taking on trust, because there is really no other way of doing this. If we had to validate every contact address, the cost of operating the register would probably spiral out of practical management. This is all about maintaining the balance between what is appropriate and practical and what is effective.

The Convener: Finally, we have a couple of questions on non-compliance sanctions, starting with Mark Ruskell.

Mark Ruskell: Is the five-grand fine an appropriate deterrent for non-compliance, or is there a danger that it will become the price of anonymity?

Roseanna Cunningham: That is based on the assumption that everyone on the register would be so wealthy that a potential £5,000 fine would not be a huge issue. However, such an assumption is itself based on a misunderstanding: this penalty is actually about the nature of the crime, not the financial interests of the person who has committed it. That is how these penalties are arrived at across a whole range of criminal activities. The fine is up to £5,000—that is the normal way of expressing it—and it remains to be seen whether there are people who think that that is a price well worth paying. I do not think that there is any evidence of that at the moment.

We should not forget that it is a criminal matter. Non-compliance, even if it is not considered a huge issue financially, would nevertheless leave someone with a criminal record.

Mark Ruskell: What would be the practical implications for a landowner of having a criminal record in such cases?

Roseanna Cunningham: It would depend on the individual owner's circumstances. It would be different depending on what the owner did and did not do, and so on. I could not really answer that question in the absence of an individual criminal case and an individual accused. For some accused, that would be a pretty serious issue, regardless of the matter involved. I would expect that most people do not want a criminal record.

Mark Ruskell: So, if somebody was a director of a company, for instance, and needed to be a fit and proper person—

Roseanna Cunningham: All those things come into account, yes.

Mark Ruskell: That would compromise them.

Stewart Stevenson: Given that the prosecution would take place against a backdrop of somebody seeking to maintain the anonymity of their

connection to a particular property, would the prosecution itself not reveal that connection?

Roseanna Cunningham: That is a very good question.

Stewart Stevenson: That would thus remove the privacy that the individual sought and would therefore remove any reason for them not to register. However, that could be obviated if the court decided to hold the case in private, which I could imagine it might do.

Nonetheless, would you expect that the verdict of the court, if someone was found guilty, would be put on the record, thus removing the anonymity that was being sought?

Roseanna Cunningham: That is not a question that I can answer, for obvious reasons. I may be wrong—I do not know whether anybody wants to chip in on the justice side of things—but I would be surprised if a prosecution proceeded on the basis of anonymity in those circumstances. I would certainly be surprised if a conviction proceeded on the basis of anonymity.

It may be, depending on the circumstances of the individual person, that lawyers could argue that there were reasons why anonymity should continue to apply, but I am not in a position to answer with a definitive yes or no regarding those circumstances, because that would probably be a matter for the court at the time.

Stewart Stevenson: Would the Government consider amending its proposals so that, upon conviction, the interest would then be recorded on the register, whether the person concerned wished that to happen or not?

Roseanna Cunningham: We will take that question on board and have a think about it. It is a fair point. The discussions with the Crown Office in particular could perhaps be extended to include that particular aspect. In the normal course of events, that would be a matter for the court at the time. Whether or not we would be in a position to bind that in advance is a question that we will need to have a think about.

Stewart Stevenson: Or at least empower the court so to do.

Roseanna Cunningham: Yes. It is an interesting point, and we will take it on board.

The Convener: I believe that we have asked all our questions. I thank the cabinet secretary and her officials for coming to give us evidence.

At its next meeting, on 24 October, the committee will take evidence from the Minister for Rural Affairs and the Natural Environment on the Scottish Government's proposal to consent to the UK Government legislating using powers under the European Union (Withdrawal) Act 2018 in

relation to the UK statutory instrument proposals for the Greenhouse Gas Emissions Trading Scheme (Amendment) Regulations 2018.

I request that the public gallery be vacated as the public part of the meeting is now closed.

12:30

Meeting continued in private until 12:54.

This is the final edition of the *Official Report* of this meeting. It is part of the Scottish Parliament *Official Report* archive and has been sent for legal deposit.

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