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Pàrlamaid na h-Alba

Official Report

RURAL AFFAIRS, CLIMATE CHANGE AND ENVIRONMENT COMMITTEE

Wednesday 6 February 2013

Session 4

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RURAL AFFAIRS, CLIMATE CHANGE AND ENVIRONMENT COMMITTEE
5th Meeting 2013, Session 4

CONVENER

*Rob Gibson (Caithness, Sutherland and Ross) (SNP)

DEPUTY CONVENER

*Graeme Dey (Angus South) (SNP)

COMMITTEE MEMBERS

Jayne Baxter (Mid Scotland and Fife) (Lab)
*Claudia Beamish (South Scotland) (Lab)
*Nigel Don (Angus North and Mearns) (SNP)
*Alex Fergusson (Galloway and West Dumfries) (Con)
*Jim Hume (South Scotland) (LD)
*Richard Lyle (Central Scotland) (SNP)
*Angus MacDonald (Falkirk East) (SNP)

*attended

THE FOLLOWING ALSO PARTICIPATED:

Clifton Bain (International Union for Conservation of Nature)
Claire Baker (Mid Scotland and Fife) (Lab) (Committee Substitute)
Andrew Bauer (NFU Scotland)
Professor Mike Bonaventura (Crichton Carbon Centre)
Rory Crawford (Scottish Environment LINK)
James Curran (Scottish Environment Protection Agency)
Jim Densham (Scottish Environment LINK)
Jo Ellis (Forestry Commission Scotland)
Stuart Fraser (William Tracey Group)
Alan Hampson (Scottish Natural Heritage)
Dr Andy Kerr (University of Edinburgh)
Graham Kerr (Scotland's Rural College)
Professor Robin Matthews (James Hutton Institute)
Andrew Midgley (Scottish Land and Estates Ltd)
Linda Ovens (Chartered Institution of Wastes Management)
Simon Pepper
Mike Robinson (Royal Scottish Geographical Society)
Professor Pete Smith (University of Aberdeen)
Morag Watson (WWF Scotland)

CLERK TO THE COMMITTEE

Lynn Tullis

LOCATION

Committee Room 2

Scottish Parliament

Rural Affairs, Climate Change and Environment Committee

Wednesday 6 February 2013

[The Convener *opened the meeting at 09:31*]

Decision on Taking Business in Private

The Convener (Rob Gibson): Welcome to the fifth meeting in 2013 of the Rural Affairs, Climate Change and Environment Committee. Members and the public should turn off their mobile phones and BlackBerrys, as leaving them in flight mode or on silent will affect the broadcasting system.

We have received apologies from Jayne Baxter, who will be replaced after 10 o'clock by her substitute, Claire Baker.

Under agenda item 1, the committee will decide whether to take in private item 4, under which the committee will consider its work programme. Do members agree to take item 4 in private?

Members *indicated agreement.*

Subordinate Legislation

Welfare of Animals at the Time of Killing (Scotland) Amendment Regulations 2012 (SSI 2012/355)

Plant Health (Scotland) Amendment Order 2013 (SSI 2013/5)

Less Favoured Area Support Scheme (Scotland) Amendment Regulations 2013 (SSI 2013/9)

09:32

The Convener: Agenda item 2 is subordinate legislation. There are three negative instruments to consider, as listed on the agenda. Members should note that no motion to annul has been lodged in relation to the instruments. I refer members to the papers.

As members have no questions, do they agree that the instruments should proceed without comment?

Members *indicated agreement.*

"Low Carbon Scotland: Meeting our Emissions Reduction Targets 2013-2027"

09:33

The Convener: Agenda item 3 is "Low Carbon Scotland: Meeting our Emissions Reduction Targets 2013-2027—The Draft Second Report on Proposals and Policies". The committee will take evidence on the Scottish Government's RPP2 in a round-table format.

There will be two sessions. In the first session, we will concentrate on the themes of rural affairs issues and land use. In the second, we will concentrate on behaviour change, resource use and the scope for technical innovation across RPP2.

I am the committee convener. I ask people to introduce themselves around the table.

Clifton Bain (International Union for Conservation of Nature): I am the director of the International Union for Conservation of Nature United Kingdom peatland programme.

Professor Pete Smith (University of Aberdeen): I am from the University of Aberdeen and the science director for ClimateXChange.

Claudia Beamish (South Scotland) (Lab): I am an MSP for South Scotland and shadow minister for environment and climate change.

Professor Robin Matthews (James Hutton Institute): I am from the James Hutton Institute in Aberdeen and a nurturing vibrant and low-carbon communities theme leader there.

Jim Densham (Scottish Environment LINK): I am from RSPB Scotland. I am a senior land use policy officer, and I focus on climate change. I am representing Scottish Environment LINK here.

Richard Lyle (Central Scotland) (SNP): I am an MSP for Central Scotland.

Rory Crawford (Scottish Environment LINK): I am seabird policy officer at RSPB Scotland and I am here to represent Scottish Environment LINK's marine task force.

The Convener: We hope that Graham Kerr is going to miss us—I mean, to meet us and to be here. [*Laughter*.] We are missing him.

Nigel Don (Angus North and Mearns) (SNP): I am the MSP for Angus North and Mearns.

The Convener: Claire Baker will join us later.

Jo Ellis (Forestry Commission Scotland): I am land use and climate change policy adviser at the Forestry Commission Scotland and I was secretary to the woodland expansion advisory group.

Alex Fergusson (Galloway and West Dumfries) (Con): I am the MSP for Galloway and West Dumfries.

Andrew Bauer (NFU Scotland): I am from the National Farmers Union Scotland.

Jim Hume (South Scotland) (LD): I am an MSP for South Scotland.

Andrew Midgley (Scottish Land and Estates Ltd): I am from Scottish Land and Estates Ltd.

Angus MacDonald (Falkirk East) (SNP): I am the MSP for Falkirk East and parliamentary liaison officer to the Cabinet Secretary for Rural Affairs and the Environment and the Minister for Environment and Climate Change.

Alan Hampson (Scottish Natural Heritage): I am land and freshwater programme manager at Scottish Natural Heritage.

Graeme Dey (Angus South) (SNP): I am the MSP for Angus South and the deputy convener of the committee.

The Convener: Good morning, everybody, and welcome to this round-table session.

It is important to us to get what we are talking about in context. RPP2 is set against a situation in which, as paragraph 1.3.1 of the report states:

> "Scotland is at the top of the European league table for emissions reductions. Between 1990-2010, emissions in Scotland fell by 22.8%. This is the largest reduction among the EU-15 Member States, and higher than the EU-27 Member States average of 14.3%, when emissions from international aviation and shipping and land use, land use change and forestry sectors are factored in."

As Richard Dixon said at the discussion with stakeholder groups, this is probably the most serious attempt anywhere in Europe for a group of people, including the Government, to meet really tough climate targets.

In that context, we want to discuss the efforts that have been made since the passage of the Climate Change (Scotland) Act 2009 via RPP1 and leading into RPP2. I kick off by asking whether you believe that RPP1 has been effective and provided a satisfactory policy framework in the sectors that you represent to drive down emissions.

Clifton Bain: From the peatland perspective, RPP2 contains some clear and welcome signals on carbon abatement from peatland restoration. The fact that we have a clear policy to include peatland restoration in Scotland's greenhouse gas emission accounting is a positive step and one that shows leadership at a global level. A lot of my work through the IUCN is engaging countries around the world that are interested in peatlands.

The IUCN world conservation congress has made peatlands one of its priority themes for the next five years, and Scotland's clear signal on that issue is good and welcome.

On the ability of RPP2 to deliver, it is a shame that there are not more policies. If the proposals and even the illustrative target were made into firm commitments, that would give a clearer steer. The illustrative target of about 20,000 hectares a year of restoration is reasonable, although it is quite cautious and I think that we could do more with the right steer.

On the funding, it is particularly welcome that £1.7 million has been announced for peatland restoration over the next two or three years, but it is important to ensure that that funding is increased to a scale that will deliver the targets.

Finally, the level of carbon abatement that is identified in RPP2 is reasonable, but it is cautious. If we look at European climate exchange data on the carbon abatement potential, we see that it gives a range. The Government figures in RPP2 are mid-range. There is definitely an opportunity to go beyond that, but it depends on our being able to deliver more restoration than is provided for in the RPP2. As we have 1.7 million hectares of peatland, most of which is in a damaged state, we have an opportunity to at least double what has been given as an illustrative target.

The Convener: We are trying to tease out the links between RPP1 and RPP2, particularly at these early stages. We will touch on peatlands and other land uses in detail a little later. To what extent have panel members been involved in the development of RPP2? I have mentioned the stakeholder meetings that took place—a couple of them did, as far as we know. What has been your engagement? How do you view the relationship between RPP1 and RPP2, which is what we are trying to deal with at the moment?

Jim Densham: We have been involved a little bit in discussion with the Scottish Government about how the targets and the measures themselves are being developed. A number of us in this room sit on the Scottish Government's agriculture and climate change steering group, which examines some of the measures that are affecting agriculture.

Efforts have been made to engage with us and to inform us about how we can improve the abatement estimates under farming for a better climate, for example. Farming for a better climate is a flagship measure for reducing emissions from farming. As the RPP2 document says, the measure itself is not very well monitored, unfortunately, so we cannot really say how much uptake there is of certain individual measures, nor do we know what coverage there is of farmers across Scotland. We are therefore a little unsure how much abatement is actually happening as a result of farming for a better climate. We would like more monitoring to be done, so that we can get a clearer picture. At the moment, making estimates of abatement from that policy is guesswork, albeit—hopefully—good guesswork.

Another thing from RPP1 that has been effective is the forestry target, which I am sure others will discuss. We came in below the 10,000 hectares annual target some years ago, but we are now getting towards that level of tree planting every year. We are pleased about that, and we want that to continue. The woodland expansion advisory group has sat to try and agree with stakeholders on that sort of target up to 2022. That is a good thing, and we hope that it will continue to guide how tree planting happens.

Andrew Bauer: I agree that some things from RPP1 could be improved with regard to farming for a better climate and how it is monitored, but it has switched people on to the issue—it has switched on the farming community to the fact that it has responsibilities in this regard and shown how those responsibilities can be delivered without business being compromised. It has been important to get that through to the farming community, and we are learning a lot of lessons as we go. As recently as Friday, there was significant discussion at the agriculture and climate change stakeholder group about how RPP1 can be built on via farming for a better climate or some follow-on programme so as to mainstream it, for want of a better description.

Much of what farming can do with regard to climate change, which is touched on slightly in RPP1 and RPP2, involves nutrient budgeting. Farming for a better climate has built that into one of its five key themes. A lot of that is being driven via the diffuse pollution routes, through the Scottish Environment Protection Agency, the Scottish Government and Scottish Water. A lot is happening that the measure does not necessarily encompass, but it is all delivering on the same objectives.

Andrew Midgley: You asked how much involvement we have had, and what the difference has been. It is fair to say that there has not been a significant stakeholder process around RPP2 itself but, as has already been mentioned, there has been significant engagement on the discrete topics that are covered in RPP2. For example, there is the agriculture and climate change stakeholder group, in which many of us around the table are involved; there is the moorland forum's peatland working group, which is heavily involved in developing work in that area; and there has been the woodland expansion advisory group. There has been quite a lot of engagement, and the

Government has taken on board the outcome of those processes and has built it into RPP2.

RPP2 must be an evolution, because it is not long since RPP1 was produced. Some suggestions that were in the original report, such as putting climate measures in cross-compliance requirements, have come out because the context has changed. Common agricultural policy reform has moved on, and we must work with that. That is the reality. We are working in an evolving policy context, so we must deal with that.

09:45

Because of the significant engagement, a welcome approach has been taken. The Government has taken the stance that it wants to work with stakeholders from the farming community, to try to find an accommodation between farming and forestry. That is a good stance to take—the Government is trying to move forward while taking people with it.

The Convener: Thank you for that clear view.

Professor Matthews: Following Andrew Midgley's comment, I highlight the work of the Scottish Government's ClimateXChange programme—it has done a lot of work. A number of requests have come from policy teams in the Scottish Government, which members of the ClimateXChange have addressed.

In relation to RPP1 and RPP2, I am familiar with the peatlands work. In RPP1, there was a lot of uncertainty about the estimates of activity in the areas that were involved in peatland restoration. Through CXC, that has been narrowed down to an extent. There is an awful lot of work still to do—there is a lot of uncertainty in the figures—but we have made progress between RPP1 and RPP2, which is largely due to the CXC programme.

The Convener: Thank you for that illustration. I welcome Graham Kerr.

Graham Kerr (Scotland's Rural College): I apologise for being ever so slightly late. With colleagues, I manage the farming for a better climate programme, so I will make a couple of comments on that.

As the Andrews have said, we have managed to consolidate that programme in the agricultural community. However, it needs to be taken on to its next phase—phase 2 under the RPP2 framework. We have consolidated, and the programme has become known in the farming community. It has concentrated on win-wins and we have introduced other elements latterly, such as adaptation and resilience building. However, we need to ramp that up a bit. We need to focus on nutrient management and on bringing into the programme other multiple benefits that are associated with reducing diffuse pollution and so on.

We are introducing knowledge from the ClimateXChange programme, which Robin Matthews mentioned. We are trying to introduce some of the research into our programme, too. In the next phase of farming for a better climate, a key aspect will be behavioural change, so work under the ClimateXChange programme will change farmers' behaviours beyond just win-wins. We are looking at financial benefits and how we can introduce such mechanisms into the programme.

The Convener: We will come to some of the detail of changing behaviour in due course.

Professor Smith: I was going to make the comments that Robin Matthews eloquently expressed about the role that the ClimateXChange has played, mainly through call-down requests by policy teams. As part of assessing the efficacy and cost effectiveness of some measures that appear in RPP2, we received a number of call-down requests, which we put out in the ClimateXChange, to try to put together some of the numbers that are in the report.

The convener asked about the relationship of RPP1 to RPP2. Under RPP1, we are doing the easy stuff—we are picking the low-hanging fruit and getting the win-wins and the efficiency gains. As we move forward to RPP2 and as RPP2 evolves when we move further into the future, the low-hanging fruit will have been picked, so we will inevitably come across win-lose situations, rather than win-win situations. That is when stakeholder engagement will be ever-more critical.

Stakeholder engagement has ramped up between RPP1 and RPP2. However, there needs to be much more focus on the farming community, landowners and various other stakeholder communities so that we can work our way towards delivering that mitigation. The potential is out there, but it will become ever-more difficult to do that. We should not underestimate the size of that challenge.

The Convener: Okay. That is a good hint of a trajectory that may take us into a win-lose situation. We certainly need to adapt our behaviour much more fundamentally in future.

The policies and proposals in RPP2 should represent best value in the process of making them core to the activities of every sector of the economy. Can anyone comment on where the costs appear to fall in their sector, which would make achieving that more difficult?

Andrew Bauer: The arable sector in Scotland is pretty well switched on to the nutrient budgeting and optimising efficiency measures that are being

put out via farming for a better climate and lots of other people. We might start to have problems extracting further efficiencies.

There is much more scope for change in the livestock sector. However, that sector is probably less used to the messages that are being delivered and less well placed to meet those challenges. Delivering behaviour change in Scottish livestock farms en masse will be a time-consuming and resource-intensive process. If we want to do it, we have to put in the resources. I do not see it happening any other way.

The Convener: What kind of resources?

Andrew Bauer: I am not absolutely sure about the figures, but it is my understanding that farming for a better climate's budget is of the order of £100,000. I do not think that you can reasonably expect significant behaviour change on 20,000 Scottish farms for something like £5 a farm. I understand that this is a strategic priority for the Government, and that the Government has lots of other priorities, but at some point we need to make that commitment or look elsewhere. I do not think that it is achievable by any other means.

Clifton Bain: With regard to the peatlands, there is an interesting element with the costs. You have some initial, up-front funding because of the state of the peatlands. Many of them are damaged and require capital works to repair them. In a way, the land managers get that up-front payment. That is all well and good, but over the past few centuries we have failed to recognise the value of the natural services that the habitat provides.

It is all very well to repair a peatland but if it then has no on-going economic value that the land manager recognises, we are not paying for that economic service, so there is always pressure to turn the peatland into something else more profitable. However, the value of the peatlands—the carbon, water, wildlife and tourism—could be reflected. One of the areas of work that we are involved in is to look at how the downstream beneficiaries, which could be society or an individual water company, could help to invest in maintaining the peatland in a healthy condition. There is that element to the cost. Your initial up-front payment is good but we need to ensure that there is on-going recognition of the value of the peatlands so that the land manager sees that value.

My other point is about timing. With peatlands, the longer that they are left to decay, the more they deteriorate, the more costly the restoration is and the longer it takes to get the carbon benefit. You need to get in there quickly. A good analogy is repairing the loose tiles before a big hole appears in your roof. It is more cost effective to do that.

We need to ensure that the money that is made available for peatlands helps to repair them early. We are looking at a cost of £15 million a year to deliver the illustrative target in the RPP2. It is important to recognise that that is not an on-going cost, as once the peatland has been restored, it could lock up the carbon for thousands of years.

The costs can be shared across departments. I have said to the committee previously that opportunities exist for money to come from the CAP, the water companies and private businesses that are interested in carbon markets. We need to engage that sector more. A range of income is available, but the Scottish Government's money is vital as pump-priming funding to ensure that things happen.

The Convener: We are trying to deal with general issues, so I will come back to peatland later.

Claudia Beamish has a question. Is it a general one?

Claudia Beamish: It is, convener.

The Convener: Okay. We will hear from Claudia Beamish and then Jim Densham.

Claudia Beamish: The question that I want to put to the panel relates to the European Union target and the effectiveness of RPP2. If the EU's emissions reduction target is not changed from 20 to 30 per cent, will that have any implications for the sectors that the panellists represent? I add that into the mix of the general discussion.

Jim Densham: I will answer the convener's question before I come on to Claudia Beamish's question.

I agree with Andrew Bauer that farmers will have to pay for some of the costs of implementing the agriculture measures, but we know that with many of those measures, especially those on nutrient efficiency, the costs are paid back. Overall, they are zero-cost measures; in fact, it is possible to make money by using fewer nutrients and applying less of them. Even though people at the table know that, not every farmer knows that, so enough money needs to be put into initiatives such as farming for a better climate so that the necessary behavioural change can happen and people can break habits, do new things and see the benefits of the new technologies and new practices. I reiterate Andrew Bauer's point. We need significant money to make that happen across Scotland.

The other area that money can come from and which the Government has some control of is the Scotland rural development programme, which will fund many of the measures that are good for locking carbon into soil—Clifton Bain mentioned that—and agriculture landscapes. We know from

the current negotiations that the CAP budget might be cut and that, unfortunately, the majority of that cut might affect pillar 2 and rural development funds disproportionately. Therefore, we make a call for the Government to back up a future SRDP with sufficient funding and to provide agri-environment funding. Part funding such carbon-saving measures through the SRDP will help us to maximise the carbon benefits.

Turning to the question about the EU target and effectiveness, there has not yet been a move at EU level from a 20 per cent target to a 30 per cent target, although we hope that that will happen as soon as possible. That relates to the traded sector. As the UK Committee on Climate Change said, if Europe does not move to a target of 30 per cent, that will put greater pressure on the non-traded sectors, such as the rural land use and agriculture sectors, to achieve the extra and allow us to meet our target of a 42 per cent reduction in emissions. It will affect transport and homes, too. Without such a move, the sectors that people around the table represent will face greater pressure.

As is evident from the Stop Climate Chaos Scotland submission and from RPP2 itself, if the EU does not adopt a 30 per cent target, it will be hard to meet all the annual targets that the Parliament has set to enable us to meet our obligations. Without that, even if all the proposals and policies are implemented, we will hit only eight targets and will miss seven. We need Europe to adopt the 30 per cent target, and we need the UK Government to continue to exert pressure in Europe to ensure that the 30 per cent target is hit. Because we cannot rely on that happening, we need to maximise domestic policies to achieve the targets that we have control of.

10:00

Alan Hampson: We very much welcome the emphasis on peatland restoration and the £1.7 million that has been directed towards that. However, we must also start looking beyond peatland. There are other sectors to consider for sequestration—for example, blue carbon ideas are coming out in relation to the sea. We must also think about minimising losses to peatland through development—there is not necessarily a cost associated with that—and extraction.

Beyond that, we need to look at the bigger picture. What we talk about in relation to peatland is largely sequestration, which will take us so far towards the targets. However, we need to start tackling some of the big challenges around reduction and there is scope for a lot of synergy in that regard. From our point of view, active travel and encouraging more people to walk and cycle to work or for recreation provides plenty of scope to help people to meet the target of 30 minutes of exercise per day. Where people's places of work and residence are located in new developments can help with active travel. There are not necessarily big costs associated with that—in fact, there could be cost savings in some cases.

There are opportunities to strengthen links between agricultural emissions, food and the health agenda. For example, some high-carbon foods are also high in saturated fat, which is a health issue. That takes us into the food waste issue, which we hear is highly significant. There is a massive opportunity to reduce not just waste generally, but greenhouse gas emissions. Again, the cost of doing that may be less significant than costs in other areas.

On the EU targets, I think that we are starting to see the European Union take the climate change agenda to the heart of key policies. For the common agricultural policy, for example, there is a lot of debate about the extent to which the environmental benefits that are being sought through greening can help us to deliver on climate change. That is the case in terms of both greening the single farm payments in pillar 1 and the measures that can be supported under pillar 2, such as the SRDP, which was alluded to earlier.

There is a range of approaches, which have varying degrees of cost associated with them. However, it is important to have that bigger perspective rather than just to focus on the cost at individual sector level.

Rory Crawford: I welcome Alan Hampson's reference to blue carbon. I am a bit of an odd fish on this panel—quite literally—because everyone is very much on terra firma and I am a bit of a sea dog. However, the blue carbon issue is essential. Marine aspects are not particularly well covered in the RPP, which is possibly why the committee asked for some marine evidence. That request is welcome.

As human beings, we tend to focus on the terrestrial because that is where we are most comfortable, but Scotland has a vast marine area that is much larger than its land area, and blue carbon sinks are critical. They could be viewed and embraced in the same way as peatlands and peatland restoration. We should look at blue carbon in the same way. When we refer to blue carbon, we are talking about things such as kelp beds, sea grass beds and salt marshes. The latter are particularly interesting because they are hugely important for biodiversity. There are options to restore salt marshes that we have lost. Historically, there has been a huge decline in salt marshes around Scotland. There is potential there for a win-win situation.

I worked on the Marine (Scotland) Bill when it was going through Parliament. That is another

great piece of legislation that has come from the Scottish Parliament, alongside the Climate Change (Scotland) Act 2009. There is a duty in the Marine (Scotland) Act 2010 for mitigation and adaptation for climate change. That provides an opportunity to use marine protected areas and other measures in the 2010 act to do something about blue carbon and better account for it. Currently, that is not part of the scope of our discussions, but I think that it is important to bring in those elements. I think we will get on to marine matters later. There are a few other things to say about protected areas and their contribution to climate change mitigation and adaptation.

The Convener: Thank you for that, Mr Crawford. You will forgive us for not discussing the F word because we have been dealing with the Aquaculture and Fisheries (Scotland) Bill for quite some weeks now. That is the reason why you may be the sole sea dog.

I will try to stick to land for the moment. We must nail down the peat situation. Looking at the relationship between RPP1 and RPP2, it struck me that we have gained more information through research: the proposals that were laid out earlier are now being slightly firmed up.

I refer, for example, to paragraph 4.6.36 of the technical annex, which says that,

"Counteracting the emissions savings"

that can come from rewetting,

"there is an initial spike in methane emissions caused by anaerobic digestion of the re-wetted peat—this may offset the emissions savings by 10-20% in the early years; there is considerable uncertainty regarding these numbers."

That shows us that we cannot introduce absolutely firm policies until we have the research right. Scottish Natural Heritage proposes that we introduce a peatland plan. Perhaps Clifton Bain might want to comment on whether the pace of policy development is sufficient to achieve the 21,000 hectares per annum restoration target.

Clifton Bain: The IUCN commission of inquiry considered whether the policy development is fit for purpose. The key point that came out was that it is necessary to have a clear signal from Government that we want to go in the direction that you mention. We do not want our peatlands to be in a damaged state, causing problems; we want to start restoring, enhancing and protecting them.

Following the inquiry, environment ministers throughout the UK all stated their intention to protect and enhance peatland. That is a clear signal that we did not previously have. It is now clear to the variety of public bodies, as well as to private individuals and businesses, that that is the direction in which we need to go. We are no longer questioning whether it is good for climate change to restore peatlands. The quantification of the benefits still has a long way to go, but we have enough to give us ballpark figures. I am sure that Pete Smith and Robert Matthews will give some more information on that.

The methane issue is small within the potential gains. The timescales that we are looking at are between now and 2027, and the methane spike will have gone from most of the restoration projects within a few years. We are also finding that, the more we examine the peatlands, the less of an issue that methane spike becomes, because it is a particular type of peatland restoration that caused some of the high numbers.

We need to improve the research and the science, but we must not let that stop the steamroller of policy development. The policy development is needed to deliver our biodiversity objectives for peatlands anyway, so it is work that we should be doing. The restoration rate since 1990 has been quite small, so the biodiversity gains and carbon gains have been small. If we ramp up to 20,000 hectares a year, we can achieve our objectives.

The science will rapidly come to be good enough for international accounting. International advice is coming forward. The crucial thing is not to lose momentum.

Three things would make the policy development achieve our targets. The first is co-ordination across the different public bodies. Peatlands are affected by a wide range of sectors—forestry, environment, water and planning to name a few—and we need those public bodies to co-ordinate and agree to ramp up their efforts to achieve some targets.

The second is getting the funding right. It involves a combination of money from different departments and ensuring that the Scottish Government gives some clear pump priming.

The final element is partnerships. We have seen successes in peatland restoration of the largest scale—covering several thousand hectares—in places such as the flow country. There is evidence from England and Wales, where partnerships with a clear lead body have been successful. That could be an existing body such as Scottish Natural Heritage, the Cairngorms National Park Authority or the Tweed Forum.

Such partnerships have the capacity to co-ordinate activity among a large group of landowners. Often, big peatlands have several landowners or land managers. Therefore, it is important to have a body that can bring them together around a shared objective, introduce the money and draw down additional money. That way, we get progress on the ground. We know

how to do that. We now need a clear policy steer, and we need the agencies to work together.

The last bit is a feedback loop. Once people start doing peatland restoration not as a luxury but as an essential tool, we rapidly need to ensure that money is available to pay for monitoring, research and survey. We need to learn about the carbon science from the projects that we do; otherwise, we will have the problem of not having enough science to make progress. As we develop the restoration, let us see research and monitoring not as a luxury but as essential to improving our knowledge and speeding up the process of delivering more restoration.

The Convener: I am trying to highlight the issue by becoming a species champion for the rusty bog-moss, which is an important part of peat in the making. It will be important to draw people's attention to those things at a popular level.

I ask Robin Matthews whether he wants to add anything.

Professor Matthews: I will add something, although Clifton Bain has eloquently described the general situation. Through ClimateXChange, we have done a little bit of work to review the literature on the methane issue. Although there is some effect from methane, the main point is that it is fairly short lived, as Clifton Bain highlighted.

We have just appointed a researcher at the James Hutton Institute to look at greenhouse gas emissions from restoring peatlands and other land-use changes, but the emissions from peatlands will be one of his first jobs. He starts in two weeks, so we should have better data on that within the next year or so, I hope, which should help to make decisions on the issue a bit more solid.

The timeframe is important. When we talk about the changes in carbon as a result of restored peatlands, we are talking about thousands of years, as Clifton Bain mentioned, whereas the methane emission issue is really only in the first few years. Although there is an offset, in the long run it is not very significant at all. We must also take into account the co-benefits that are associated with peatland restoration, such as the impacts on biodiversity and other things.

Jim Densham: We welcome the inclusion of peatlands restoration as a policy and as a proposal in RPP2, which we see as an improvement on RPP1. Clifton Bain spoke well about what is needed to achieve the 21,000 hectares a year. As members know, RSPB Scotland has a peatland holding in the north of Scotland and we are keen to be part of the work, along with other Scottish Environment LINK members. It is important to mention that those organisations manage and try to restore not only blanket bog but lowland raised bogs.

The Convener: Committee members have visited raised bogs in the lowlands.

Jim Densham: You asked whether we are doing enough to achieve the target. We should be careful about the wording of the proposal, because it states that the 21,000 hectares per year of peatland restoration is "technically feasible". Therefore, that is not a formal target. It says that it is "feasible", which gives a bit of wriggle room and means that there could be less.

I would like the committee to recommend that the figure should be a formal minimum target so that we really try to achieve it every year and do not say, "Well, it wasn't technically feasible this year, but we are aiming for it." We should really aim for it and get all the players involved in trying to achieve it as soon as possible so that the carbon is locked up for ever.

10:15

Alan Hampson: Many of the points that have been raised are issues that the peatland plan will try to address. As Clifton Bain said, co-ordination across public bodies is important, but co-ordination across sectors is important, too. We have to think about the socioeconomic aspects.

The targeting of the available resource is crucial. The convener mentioned that in relation to best value, but we must also ensure that the effort is targeted at where it will deliver the best return in peatland restoration. There is a job to be done to ensure that we have the scale of restoration that will provide the best benefits. There is a risk that we take a scattergun approach with lots of small-scale restoration projects that do not necessarily address some of the bigger issues to do with hydrology and the integrity of the larger bog systems.

I stress the importance of a baseline. As part of the plan, we need to get a clear and established idea of where we are, with the best available science, so that we can demonstrate the progress that we make with the money that is invested.

The Convener: I will take Andrew Midgley first and then Pete Smith, so that we end the discussion with a scientific perspective rather than a land manager one.

Andrew Midgley: My point is about land management and delivery. I reinforce Clifton Bain's point about the importance of facilitation in getting delivery on the ground in large areas. That rang a bell with me in relation to a different issue, but it is one that illustrates the importance of facilitation and enabling people to deliver.

Some of our members tell us how much they appreciate the work of the land management advisers in the Loch Lomond and the Trossachs national park, who co-ordinate work on black grouse across large areas. Their engagement in that process has been entirely positive because, in effect, our members have been enabled to work together to deliver a positive outcome. Our members see their position in the park as positive and they value the role that the park has played. There is the potential for replicating that approach or having something like it to enable people to work together.

My other point is to do with best value, which was the initial issue that the convener raised. We have not touched greatly on the potential for other markets to be involved through corporate social responsibility. The relationship between public money and private investment in delivering the outcomes is difficult, but some public money could perhaps be used to unlock a much bigger potential avenue of funding, which would deliver a better outcome for public money than we would get if we tried to achieve everything through public money.

The Convener: Finally on this issue, we will hear from Pete Smith.

Professor Smith: The committee has had scientists appearing before it many times, so members will be well aware that you rarely get scientific certainty from scientists and that, if you wait for scientific certainty, you will be waiting a very long time. It is therefore good to see that the policy is moving ahead on the basis of the best available knowledge. We can rarely provide certainty, but we can put the bounds around it and we can quantify the uncertainty that is associated with some of the issues. Science is critical.

To add to the points that Alan Hampson and Clifton Bain made, I believe that, when we proceed with the planned restoration, it is essential that we monitor the progress and measure the emissions from the peatlands. That will come at a relatively small additional cost, but it has a number of benefits. First, it will establish the baseline, as Alan Hampson mentioned, so that we know where we are moving from and where we are moving to and so that we can evaluate the efficacy of the processes.

We call all these areas peatlands, but they are a diverse set of ecosystems. The monitoring will allow us to better target the areas where we will get the maximum return through mitigation and biodiversity enhancement. As we proceed, we might decide that certain types of peatland deserve more investment and that investment in other types of peatland at certain levels of degradation would be less beneficial. As a scientist, of course I will ask for more research, but that approach makes a whole bunch of sense for a number of reasons.

The last of those reasons is that, under the United Nations Framework Convention on Climate Change, we will need to report on the mitigation that we have achieved from the peatlands. Under the proposals that are coming forward in the Intergovernmental Panel on Climate Change guidance, there will be a set of fairly generic tier 1 emission factors that will be used for peatlands, but they might not cover all the diverse practices and peatland types in Scotland. Therefore, we will probably need to move towards what are called tier 2 estimates, which are nationally appropriate ones that we can use to better quantify and report on our emission reductions.

All the data that we collect during the early phases of peatland restoration will be important for putting together the package of science to develop the tier 2 methods. A relatively small investment will deliver quite a lot that will help us.

The Convener: That is excellent. I have no doubt that we will come back to the issue in more detail, but in the context of RPP2 you have given us a good steer.

We move seamlessly on to rural affairs and land use. I think that Claudia Beamish has a question.

Claudia Beamish: Sorry, convener, I was mesmerised by the peatlands issue.

The Convener: We brought forward the questions on peatlands, because there was so much interest.

Claudia Beamish: Is RPP2 clear and visionary enough in setting out—

The Convener: Sorry. We have moved on to rural affairs and land use—question 5.

Claudia Beamish: Apologies, everyone. Thank you for bearing with me, convener.

The Convener: Not at all.

Claudia Beamish: Will panel members say whether they think that the limited definition of rural land use is reasonable? Does the document satisfactorily read across to other sectors? Those are challenging questions.

Alan Hampson: The document flags up opportunities for carbon reduction in a broad range of sectors, but, as I said earlier, it perhaps needs to do more to draw out the synergies between sectors. There are a number of areas in which we could make stronger links. For example, we could make the link between active travel and opportunities for people to take holidays that involve cycling and walking without the risk of going on major roads. I mentioned the link between food and health and agricultural

emissions, and we could also include food waste. Considering all that, I think that a lot could be spelled out more clearly.

Professor Matthews: Alan Hampson talked about links and synergies. There could also be trade-offs between sectors. If we achieve reductions in one area, emissions could pop up somewhere else—and not just in Scotland; we should remember that we could export problems abroad. For example, we might reduce livestock numbers and make other land use changes, but we still consume meat, so are we not simply moving the problem somewhere else? I am not sure that RPP2 takes sufficient account of that. We need to look at the wider picture, nationally and globally.

Claudia Beamish: What technical abatements might the Government be talking about for 2025 to 2027? Why should they take so long?

Jim Densham: You are referring to a proposal in RPP2. As I said, we have had a few conversations, through the climate change and agriculture group, to clarify matters such as how certain abatement estimates are being changed and improved on. However, we had no notice of the proposal that has suddenly appeared. It heavily backloads abatement until 2025 to 2027. In the technical annex of RPP2 there is not sufficient explanation of the proposal—there is talk about modelling and how it relates to other policies, but the issue is certainly not clear. Given that it is estimated that a lot of abatement will be achieved, we think that the explanation should be a lot clearer.

There is a read-across to other sectors. It is suggested in the section on transport that there will be technical abatement later, and even in the section on homes it is suggested that there is potential for additional technical abatement. Again, colleagues who work in those sectors are saying that there is not sufficient detail for those who are scrutinising the report to understand what it is about. Perhaps if the amount of abatement was smaller it would be less worrying but, because a large amount of abatement is estimated to be needed to achieve the targets, we are concerned.

Andrew Bauer: I suppose that some of the technical abatement sounds very fancy to some people's ears. In our minds, some technical abatement options are available right now. Drainage and sediment management is an issue that is exercising a lot of people in the farming community at the moment. We are not advocating that we should drain our uplands or peatlands—definitely not—but we need to look at drainage and how it can optimise use of fertilisers and minimise emissions.

Looking further forward, there are some fairly thorny and contentious issues in RPP2, such as genetic modification. That is a broader issue, but we cannot ignore those kinds of challenging messages to society.

We are also looking at the land use strategy, to some extent, to deliver policies that are relevant to the context. If we really want to start delivering some of what is in RPP2, we need policies—be they environmental regulation policies or otherwise—that optimise the use of our most productive ground with some kind of baseline safeguards. At the same time, we need to accept that that kind of activity is not appropriate in large parts of the country, where there should be other priorities.

Technical abatement can be very technical, or it can be pretty simple and involve going back to doing what we have done in the past and have got out of the way of doing.

Professor Smith: If we look at it from the other side, the technical abatement that is mentioned seems to be the gap between what we know that we could achieve and what we need to achieve. It looks like a number has been put in that makes up the gap in the hope that something will come along. It looks more like wishful thinking than something that has a plan behind it. It needs to be fleshed out.

There are some technical options—actually, the options that we apply now are all technical. Giving something the name "technical" does not make it more credible. We need more detail behind it.

The Convener: That is a good point.

Nigel Don: Professor Smith's comments seem to be a fair interpretation of those numbers, raw from the page. How do the research institutes that are represented here feel about that, in the context of the history of research? Of course, it is a matter of definition that we do not know what we are going to discover later—we never have done. If we cannot put the detail in the plan, can we say that because we have been remarkably good at learning how to do things, which has enabled us to make abatements in the past, it is credible to say that that trajectory is reasonable?

Without being too optimistic, I would like folk to comment on the reasonableness of that kind of expectation.

Professor Smith: What looks fishy is that there is no technical abatement potential until 2025, when it pops up and then miraculously doubles in the first year by another 250 kilotonnes of CO_2.

The Convener: That has defined the point very well.

Andrew Bauer: One of the specific examples is anaerobic digestion, which is a thorny issue. Is the public happy with the idea of that process? We all have things from the past in our minds, such as foot and mouth and BSE. We feel that research is firming up and that anaerobic digestion is a safe way forward, but there has to be a discussion with the general public to say that it is an essential part of farming meeting its obligations.

There is also a practical issue. Anaerobic digestion has not received the focus here in Scotland that it has down south. Our view is that that is with good reason—it is a very labour-intensive process for a lot of farmers and is unlikely to be an attractive option at any kind of small scale. There might be a role for some kind of hub system of anaerobic digesters serving larger areas. They could be professionally managed, which might be an attractive way of delivering anaerobic digestion to some farmers.

10:30

The Convener: We will take that idea forward as well.

Professor Matthews: Following on from the earlier question, we could think of a number of potential interventions on the horizon, rather than just leave technical abatement as an amorphous gap, as Peter Smith said.

If we look at the work that SSE plc and the Macaulay Land Use Research Institute did on the MAC curves—the marginal abatement cost curves—we can see all the interventions below the line that farming for a better climate is targeting. They are all win-win situations. There are also a lot of interventions above the line that will cost money but will potentially deliver carbon savings. We need to focus on those interventions.

An example is the use of the legume and grass mixtures for biological nitrogen fixation. Work is being done at the James Hutton Institute on nitrification inhibitors. There is a heap of issues such as trying to expand bioenergy crops, agri-forestry systems and livestock management, and we could probably think of a lot more issues as well. All of those interventions are above the line because, essentially, they will cost money, but we will have to think about moving into that area if we are to achieve the reductions.

We can probably start to fill that amorphous gap with some specific things, while bearing in mind the potential costs that might be involved.

Jo Ellis: The forestry measures mention woodlands in and around towns. Some vacant and derelict land sites in particular can require costly mediation because, for example, there might be lots of different owners. That is not always cheap or easy, but if we had to fill the gap we could develop partnerships over time, put in investment and achieve reductions by twisting arms and making things happen that would not have happened without such a stretch.

The Convener: We will have to move on because we have two or three more questions. Graeme Dey has a point.

Graeme Dey: On the subject of twisting arms, according to Stop Climate Chaos Scotland,

"The Rural Land Use section of RPP2 lacks credibility because the policies and proposals affecting agriculture rely too heavily on voluntary uptake."

In light of that, to what extent can we trust the sector to do its bit without the Government becoming more prescriptive?

Andrew Bauer: We have a good example of how that could be done. It has a regulatory backstop, but the way in which SEPA is delivering its diffuse pollution priority catchment work in partnership with the agricultural community provides a good model and a fair bit of inspiration to us that we can achieve behaviour change and that farmers will respond to ideas that might in some cases be win-win but in others will cost them money and not give them anything back.

That approach has entailed massive expenditure of resources on SEPA's part but it is delivering results. Yes, it is backed up by a regulatory system but a farmer might not, during one of the inspections, feel like the big stick of regulation is being held over them. The feedback that we are getting from SEPA is that farmers are responding incredibly positively.

I will contrast that with the nitrate vulnerable zone situation. That very prescriptive and rigorous system is fairly universally loathed and it has caused all sorts of issues. On the one hand we have quite a nice example of how to do things, and on the other we have the old model of beating farmers with a stick until they submit to what you want them to do—although in reality they do not submit.

Jim Densham: I agree that there is too much of a focus on voluntary measures in the land use sector. I think that something like 64 per cent of savings come from voluntary measures. One proposal that has already been alluded to is the nitrogen efficiency measures and the idea, if farmers do not take up the farming for a better climate measures, of pushing them into doing so by threatening them with regulation.

Our concern is that no date has been set for that approach to come into play and that there is no suggestion that there will be any regulatory cut-off or trigger point. In effect, there could be a sort of threat to farmers that if they do not take up the

measures by a certain date, or if 70 per cent of them do not do so by that date, legislation will be prepared. However, there is no real threat at the moment, so the farmers can just carry on.

We would like to see a legislative measure put in place, with a clear process and a date for it to happen. Obviously, we would like the uptake to be voluntary, as Andrew Bauer said, and ultimately it would be better if everyone in a few years' time saw the benefit for themselves and their businesses of implementing nitrogen efficiency measures. However, we know that not everyone will do that, so they need to see that there is a process that will make it happen.

Graham Kerr: The issue of voluntary versus mandatory uptake is quite a difficult one. It is pleasing to hear that we are still talking about the industry having an opportunity to do it on a voluntary basis but with the potential for intervention to encourage change more forcibly.

The way in which farmers go about making decisions about change is pretty complicated. When we think about changing our broadband or energy supplier, all sorts of different factors are involved, beyond just finances. Farmers are being encouraged to make changes on the basis of win-wins. However, there has to be more to it than just change for financial reasons. Farmers have to realise that any change might have other benefits. What is successful about the SEPA initiatives is that farmers can see that the erosion of banks and animals going into water courses have an impact on water quality, but it is a bit more difficult to demonstrate that for action on climate change. We must inform and convince farmers about climate change and its impacts.

That point was well demonstrated by the interest that we had in a recent event on drainage and soil erosion. We have had three bad winters, so we put on an event to discuss drainage, and 300 farmers turned up to it. That was because it was about something that is real to them and they know that they can make changes in that area.

In order to make changes, however, they must have the capacity to change. In the short-term period of RPP2, with the nitrogen efficiency measures, there is still a high degree of capacity for change on farms in both the arable and livestock sectors. In the period 2013 to 2020, we need to give farmers the right information so that they understand the impacts, to build triggers around resilience into the programme, and to encourage change and ensure that farmers have the capacity to do it, particularly in nitrogen efficiency. If we do those things, we still have an opportunity to get some of the way towards 90 per cent uptake.

Alan Hampson: Graham Kerr has largely covered the points that I wanted to make. However, I want to add something on the need for a clear message and good quality guidance for farmers so that they know what they have to do. The land manager must feel confident that they can make the changes, but part of the message must be about the benefits of the changes to them—for example, the benefits for their business of moving to lower-carbon systems.

Andrew Bauer: The sector might accept that it has not embraced the climate change agenda as quickly or as fully as some other parts of the economy. We have to be honest with ourselves in that regard. The farming for a better climate initiative has done a great job in setting out the playing field. I have with me our membership magazine, which contains the first of six articles that are being produced for us by SAC Consulting. The NFUS, Scottish Land & Estates, SAC Consulting and others can start to communicate to people, but we are talking about 20,000 businesses. If you want to influence power generation, you go and talk to two companies. That is done quickly. The behaviour and the complexities around that are going to be the biggest challenge.

The Convener: That was well put. We now move on to deal with the agriculture sector.

Jim Hume: We heard from Professor Smith that we are perhaps picking the lower-hanging fruits, and there is some criticism of the detail in the RPP2 on how we are going to meet our climate change targets. Andrew Bauer mentioned that we are talking about 20,000 businesses and pointed out that the budget of the farming for a better climate programme breaks down to £5 per farm.

I would like to examine some of the figures in table 9.8 in the RPP2. There is a presumption that there will be a doubling of kilotonnes of CO_2 emissions from now until 2017. I think that that is mainly due to fertiliser efficiency measures, along with some other developments, perhaps. Under the proposals, by 2018 there will be 260 kilotonnes of CO_2 and by 2020 there will be a further 310 kilotonnes of CO_2, which would be twelve times the emissions reduced to what we have forecast for this year. Does the panel believe that the RPP2 is clear enough about how we are going to manage to do that and what proposals relating to agriculture will be needed for us to achieve those targets?

The Convener: Any takers? Andrew Bauer—there are 20,000 farming businesses to convince.

Andrew Bauer: I refer you to my earlier comments about the NVZ action programme. I am sure that it has limited input to a good proportion of Scottish farms. Has it won the hearts and minds

of those farmers on the issue of ground water and nitrates? No. Will some of those who deliver their annual paperwork to the Scottish Government be doing what it says on the tin, as it were? I have my doubts. Are those in the priority catchments that have been won round by SEPA already investing their own money, without public subsidy? Yes.

If we go for a 90 per cent uptake and make it mandatory, we might, on paper, drive up the emissions savings. However, if we went out and measured what was happening on the ground, would that translate into the same saving? I do not think so. It would be better if we went for the voluntary approach, although I would add caveats to that. SEPA is a regulatory backstop, but it is possible to win people round and secure actual change as opposed to change on paper.

Graham Kerr: We get voluntary change by showing rather than telling. A unique feature of the farming for a better climate programme is the fact that we have focus farms. We have only four at present, but there could well be an opportunity to extend the network by creating demonstration farms with a particular theme of commercial farms that can become more nitrogen efficient. We could encourage farmers in the locality to attend by using the press and other mechanisms by which we can encourage behavioural change.

Professor Matthews: This is not an answer to the question, but I would like clarification. My understanding is that the farming for a better climate programme already includes nitrogen efficiency measures. I believe that the adoption figure is 50 per cent of farmers. The calculation is for 90 per cent uptake, and presumably for the difference between 90 per cent and 50 per cent. I was not involved in the calculations, but we need to ensure that we are not double counting. If the measures are already included in FFBC, we should not count them in the other one.

10:45

The Convener: We can ask the minister about that.

Jim Hume: That is part of my point. How are we getting all the extra fertiliser efficiency measures and the 260 kilotonnes when there are currently 50 kilotonnes with the FFBC programme? It is reckoned that that will double to 100 kilotonnes. I struggle to see why that is the case and how we could achieve those figures. I am trying to eke out from the panel members whether they understand how that could be done. It seems that they are also struggling to understand that.

Professor Matthews: I have not been into the figures, but I presume that somebody has. I am quite happy to look at them outside the meeting.

Jim Densham: That goes back to my earlier point. We need to ensure that the farming for a better climate programme and the measure that we are discussing, when it is brought in, are monitored well so that we know what is happening on the ground for the benefit of not only those of us who scrutinise, but the Government, which needs to tell us what is happening so that we can be clear and it can make improvements.

The Convener: Those members who are waiting to ask about forestry and marine issues should keep waiting for a moment or two until we finish what we are discussing. We will get there.

Alex Fergusson: I am conscious that the demands on rural Scotland, and particularly the agriculture sector, will take place over a period in which there will be huge and increasing demand for food security and hugely increasing worldwide demand for food, given the rapidly increasing world population. Do panel members see those demands as an impediment to achieving the targets, or can they work successfully hand in hand with them?

Professor Smith: In terms of a real climate benefit, I see them working synergistically. If we want to cut our emissions from agriculture, we could close it down and get all our food from elsewhere, but in doing that we would simply displace abroad the emissions that we currently produce in this country. They would probably come from places with less stringent climate and fertiliser practice regulations. It would make no sense at all to try to source our food from elsewhere, so we need to maintain a thriving agriculture industry and ensure that it is as low carbon as possible.

From a global climate change point of view rather than just from Scotland's point of view, doing farming well in this country makes sense, and we should continue to do that. We should continue to provide food. That feeds into the food security agenda and will help to add domestic food security to global food security. Although reducing livestock numbers, for example, or contracting our agricultural activity would show up well in our national accounts, which are emissions based and are based on our land area, doing those things would not provide a net benefit to the world.

I agree that the two things need to be done together. We should aim for a thriving agriculture industry with low emissions.

Andrew Bauer: I do not want to sound like a broken record, but I return to the point that the two are not mutually exclusive. That takes us back to the point about having sustainable intensification where that is appropriate. It is not appropriate in every part of the country, but it is appropriate in some areas. We need to talk to the public, win

over hearts and minds, and help people to understand that they may have an idealised vision of how their milk is produced, but if they want us to meet our climate change targets and to have a profitable farming sector and various other things simultaneously, there must be trade-offs. People cannot always have everything.

The public are in denial, to some extent. They think that they can have farmers producing food halfway up a mountain at rock-bottom prices, but they cannot have everything. There is a set of conflicts, and the debate about the issues has to mature. That can happen, but we also need land use policy to step up and deliver policies that are spatially different.

The Convener: Perhaps we can finish up on this issue with comments from Alan Hampson and Graham Kerr.

Alan Hampson: I just want to flag up the importance of looking at consumption as well as production. That takes us back to the business of food waste and the health agenda.

Graham Kerr: To round up on the issue, I point out that three of the four climate change focus farms that are given as examples in RPP2 improved production following implementation of the programme. The reason why production improved in only three of the four is that, as the document states, the fourth was showcasing renewable energy, but there have been improvements in productivity on that farm as well.

The Convener: It is good to have that information. Thank you.

We move on to the issue of forestry, on which Alex Fergusson will lead.

Alex Fergusson: Woodlands and forestry are hugely important to reducing the effect of Scotland's emissions. In RPP2, the main policy on that remains the Government's planting target. As Jim Densham mentioned earlier, the current target is 10,000 hectares of planting per year, but RPP2 will replace that target with an overall target of 100,000 hectares over the 10-year period. I accept that that is still an average of 10,000 hectares a year, but my concern is that, whereas 10,000 hectares a year is reasonably easy to monitor, bulking up the target over 10 years will make it much harder to keep an eye on what is happening.

Also, given that young trees soak up far more carbon than older trees, a dearth of young trees will affect the impact of forestry. Can anyone comment on the rationale behind amending the planting target? Does RPP2 adequately address the lower proportion of young trees in Scotland's forests?

I guess that I am probably looking for an answer from Jo Ellis first.

Jo Ellis: The woodland expansion advisory group looked at the tree planting target in some detail. That is the reason why RPP2 explains:

"The WEAG also recommended that there should be a review ... in order to set targets beyond 2022."

The group was happy to sign up to a target of 10,000 hectares per year—the on-going target that is already Government policy—for the 10 years 2012 to 2022, but it did not like the idea that the target should just continue ad infinitum. Instead, the group wanted us to take stock in 2022 to see what the rate should be beyond that.

There is no real difference between a target of 10,000 hectares a year and the target of 100,000 hectares over 10 years. The change simply reflects the idea that if, for some reason, planting rates go down in one year, the forestry sector should ensure that the average is maintained over the period. There is no particular difference there, as the aim is to continue to plant 10,000 hectares a year. If the rate went down in one year, we would like to think that the difference could be made up a bit in the next year.

Alex Fergusson: Will the annual figures still be publicly available?

Jo Ellis: Absolutely—yes. Last year, the rate was 9,000 hectares. Over the past few years, the rates have been pushing up towards 10,000 hectares a year. The woodland expansion advisory group has really helped to bring the farming and forestry sectors together and to clear the way for a reasonable planting rate over the coming years, so it should be possible to carry on achieving that.

Jim Densham: Jo Ellis said that the Government did not want the planting targets to go on ad infinitum, but the table in annex A to RPP2 clearly shows that the Government is extending the abatement provided by the 10,000 hectares a year planting rate through to 2027. It seems from the abatement tables that the target will carry on, in policy terms. There is a disparity between what makes up the abatement figures to achieve an overall target and the Government saying—quite rightly—that we need to talk about the issue with stakeholders, reach agreement and get consensus. There is some confusion there.

Jo Ellis: The rate has been continued at 10,000 hectares per year for calculation purposes, but the draft report says that it does not include projections for increasing or decreasing that, because we do not know at this stage what the right thing to do will be from 2022 onwards.

Andrew Bauer pointed out that the RPP process has brought together the different land use sectors. Farming and forestry in particular are seen as part of rural land use and not as two

separate sectors that are working in isolation. When the rates beyond 2022 are reviewed, the farming and forestry sectors will have to work together to work out how we will achieve the ambitious and stretching targets. Continuing the woodland creation rate at 10,000 hectares per year could well be a possibility, but we do not want to commit to that at this stage, because who knows what life will be like in 2022?

One problem is that the Government's ambition has been for 25 per cent woodland cover by the latter half of the century. Such a long-term target is unhelpful as it alienates people. Breaking it down into shorter chunks would be more helpful.

Angus MacDonald: It is always good to have a high target. We need to meet the target of 100,000 hectares of planting by 2022, and we need to plant trees now if we are to do that. In the industry, what are the Forestry Commission and the private sector doing to ensure that the target is met? Is planting being done now to ensure that we get there by 2022?

The Convener: Are you talking about nurseries and things such as that?

Angus MacDonald: Yes—particularly nurseries.

Jo Ellis: The forestry industry is working hard to achieve more woodland creation. Grants are available, as is support from the Forestry Commission to help to achieve 10,000 hectares of woodland creation a year. That support goes from working with nurseries through to working with the processing sector, which is providing the pull for some of the planting.

Andrew Midgley: There is full buy-in from the sector to try to meet the targets. The key issue is the continuity of support. The SRDP plays a critical role in underpinning the meeting of planting targets. One artefact in how the SRDP works is that the funding is not stable—it goes through cycles. A critical problem in the immediate future is how to achieve funding between programmes. The commission is doing a lot to ensure that the impact of the funding cycles is limited and to achieve continuity. There is a great deal of demand. The issue is how to marry up the two elements.

The Convener: Do members have other questions on forestry?

Alex Fergusson: There are other issues, such as the number of young trees that are being felled for wind farm development, although I know that compensatory planting is meant to take place. To be fair, the committee has discussed that, so we had probably better stick to general points—the convener is giving me a look that confirms that.

The only forestry proposal in RPP2 is to investigate the amount of Scottish timber that is used in the construction sector. Can anybody tell me how that will be done? I am not terribly clear about it.

Jo Ellis: Timber is, of course, used in construction in Scotland. The proposal is intended to increase and account for abatement by using more Scottish timber in construction and refurbishment.

We are working with Edinburgh Napier University and other industry partners to develop innovative wood products that make the best use of Scottish timber, particularly in construction. We are also working with planners, building standards officials, architects and others who specify the use of timber, to try to increase the demand for it. We are working up to the aim that the proposal should make a significant contribution by the time that we get to RPP2.

Alex Fergusson: That is useful. Thank you.

11:00

The Convener: Very little is said about the marine sector in the draft RPP2. Given the timescales in the document, should it include references to concepts such as blue carbon? What would policy in that area look like, given that we would be talking about measuring things such as land use? Would it be agreed throughout the world? Is blue carbon ready to be measured? Rory Crawford, you mentioned seagrass beds and salt marshes. Will you give us a round-up on those sorts of areas?

Rory Crawford: Certainly. There are issues with measuring blue carbon, and the people who are working on it are trying to get to the bottom of those. There has been substantial progress against the background of the UN Framework Convention on Climate Change. Duke University has done some work on how blue carbon might be integrated into that programme and how we measure how much carbon is sequestered by marine habitats. The IUCN has done some excellent work on blue carbon as well, so there is a background and a starting point. Whether the work is at a stage at which it can be fully considered within RPP2 is another matter, but the area should at least be accounted for or recognised as something that requires further development and action.

You are right that there are obvious gaps in RPP2 when it comes to other marine matters. I looked through it, and although it mentions maritime transport and there is a little bit about marine renewable energy, that is it, really. That is quite unusual when we consider the impact of climate change. The reasons for doing any of this stuff in the first place are being most keenly felt in the marine environment.

I will not go into all that. I think that my colleague gave the committee an eloquent story when he discussed biodiversity with you last week. However, I can give you some figures on kittiwakes, which are at the top of the marine food chain and have been heavily impacted by climate change. At Noss cliffs in Shetland, there has been a 95 per cent decline in kittiwakes since 1980. Back then, there were 11,000 pairs; now there are 507 pairs. Climate change is catastrophic for such species. Climate change is having an effect now, and that creates renewed urgency around RPP2 being effective and concrete measures being put in place.

One of the areas that have had the most political drive and interest behind them thus far is energy generation and the decarbonisation of our energy supply. That is critical, and we support measures for a more renewable energy supply and the move into renewable energy. However, we need to focus on other areas such as housing, land use and energy efficiency, and get that drive behind those sectors as well.

We need to ensure that the roll-out of marine renewable energy happens sustainably. In fact, there is a duty to do that in the Climate Change (Scotland) Act 2009. We have the Marine (Scotland) Act 2010, which is fantastic as it created a duty to designate marine protected areas. There are the birds and habitats directives from Europe, which give us legal duties to designate protected areas at sea for habitats for birds and other species, and we also have environmental impact assessment directives and so on. Those are all critical to ensuring that marine renewable energy is rolled out sustainably.

Unfortunately, we do not have our guiding documents yet. We do not have the national marine plan, as there have been delays to that. It is critical that it is produced as soon as possible so that we have a strategic, plan-led process. That has largely happened on land, with the development of wind energy, and we have managed to avoid sensitive areas, but it is trickier at sea because, on top of not having a plan, we do not have protected areas for seabirds. There are no designated offshore foraging sites and no designation of sites for things such as harbour porpoise, for which we have had the legislation for some time. In our view, the marine protected area proposals are not ambitious enough. They do not go far enough to protect seabirds and so on or to address the recovery of marine habitats, which, according to "Scotland's Marine Atlas", are in a beleaguered state.

To give certainty to the marine renewable energy sector and allow the targets in the RPP to be achieved, we need to get environmental protection right. We need to ensure that the industry and others roll out sustainably. The plan is all about having a level footing across all those areas, including carbon capture and storage, which, if the ideas are correct, will involve storage at sea in some of the spent parts of the strata.

That is my main plea. There should be links to the 2010 act. I stress the importance of marine planning, having a plan-led approach and ensuring that we follow it, and ensuring that we get environmental protection right. There must be renewed urgency behind getting protected areas in place to ensure that we do not cause damage to the marine environment in the process of trying to save the environment.

The Convener: Thank you for that summary. We will add the issue to our questions for the minister.

I thank the panel for a highly informative session. We will have a five-minute break to allow a changeover of witnesses. I know that people like to chat after such discussions, but we would like to get on. Thank you all very much for your contributions.

11:05

Meeting suspended.

11:12

On resuming—

The Convener: I welcome to the meeting our second panel on "Low Carbon Scotland: Meeting our Emissions Reduction Targets 2013-2027—The Draft Second Report on Proposals and Policies". After the witnesses tell us who they are, we will take evidence on the themes of behaviour change, resource use and scope for technical innovation across RPP2.

Again, we will go round the table and introduce ourselves. I am the committee convener.

Morag Watson (WWF Scotland): I am senior policy officer with WWF Scotland and lead on our work on behaviour change and climate change.

Stuart Fraser (William Tracey Group): I am technical director of the William Tracey Group, a resource recovery and recycling company. I also sit on the waste and resources sub-committee of the 2020 climate group.

Claudia Beamish: I am an MSP for South Scotland and the shadow minister for environment and climate change.

Dr Andy Kerr (University of Edinburgh): I am an executive director of the Edinburgh centre for carbon innovation and a member of the 2020 climate group.

Linda Ovens (Chartered Institution of Wastes Management): I am representing the Chartered Institution of Wastes Management and am co-author of the carbon metric reporting system for recycling.

Richard Lyle: I am a Central Scotland MSP.

Nigel Don: I am the MSP for Angus North and Mearns.

Claire Baker (Mid Scotland and Fife) (Lab): I am a Mid Scotland and Fife MSP.

James Curran (Scottish Environment Protection Agency): I am the chief executive of SEPA and currently the sole external member of the emissions reduction programme board. I am also on the main board of the 2020 climate group.

Alex Fergusson: I am the MSP for Galloway and West Dumfries.

Simon Pepper: I am a member of Scotland's 2020 climate group and the retiring chairman of the climate challenge fund panel.

Jim Hume: I am a South Scotland MSP.

Mike Robinson (Royal Scottish Geographical Society): I am the chief executive of the Royal Scottish Geographical Society. I am also on the boards of Stop Climate Chaos Scotland and Scottish Environment LINK, I sit on the 2020 main group and I am a retiring panel member of the climate challenge fund.

Angus MacDonald: I am the MSP for Falkirk East and the parliamentary liaison officer to the Cabinet Secretary for Rural Affairs and the Environment and the Minister for Environment and Climate Change.

Professor Mike Bonaventura (Crichton Carbon Centre): I am chief executive of the Crichton Carbon Centre, which focuses on the non-traded sector and on climate justice.

Graeme Dey: I am the MSP for Angus South and the deputy convener of the committee.

11:15

The Convener: If our witnesses wish to comment, they should indicate as much to us. I will keep a list as we go through the session. The sound comes on automatically, so no one has to switch anything on or off.

We have been trying to tease out the comparison between RPP1 and RPP2 and the effectiveness of that link. Has RPP1 been effective to date and has it provided a satisfactory policy framework for driving down emissions in your sector? Who wants to start on that?

Okay, then—let us move to the next question. [*Laughter*.]

Mike Robinson: To get the ball rolling, I will say that I think that my response to your question is no, not really. Although RPP1 has had its moments and contains a number of positives, it has been difficult to translate it into something that groups can adopt and to understand some of the detail of what is required to deliver carbon reductions. That has been perpetuated in RPP2, certain parts of which actually put effort back further than RPP1 did.

The Convener: We will discuss recognition of the effort required in due course.

James Curran: One thing we can definitely say about RPP1 is that we missed the first annual target for 2010. That is not a great start, because we need to make up that ground and then try to meet future targets. As a result, we are kind of hindered as we move into the future.

The first lesson that we need to learn from RPP1 is that we need to develop surrogate measures to allow us to carry out real-time monitoring of our progress. I point out that the carbon assessment for Scotland is published almost two years after the period measured. That is not a very good way of running a programme, because you need to be able to monitor in real time to know how you are doing.

The second lesson is about future delivery. Although RPP2 is a good document and says a lot that is technically excellent, it says very little about how we go about putting in a governance package that ensures delivery.

Dr Kerr: I concur with those comments. RPP1 was very much a collection of policies and proposals for each sector, some of which were very good and others less so. You did not, however, get the sense that it would be translated into a delivery action plan and, with RPP2, I was looking for a bit more coherence on how we might turn some potentially very good ideas—and the fantastic amount of activity that is taking place—into a coherent framework within which we can manage and monitor what is going on. I was also looking for what the plan Bs might be if the plan As do not work, as they invariably will not in some cases.

The Convener: Given the existence of bodies such as ClimateXChange and so on, I presume that panel members' engagement with some of that activity has been considerable. Have you been directly involved in the development of RPP2?

Dr Kerr: I did not mention this, but I am also ClimateXChange's policy director and we have been heavily involved in RPP2's development through that forum. I am not sure whether it was mentioned in the previous evidence session, but ClimateXChange was very much an attempt by

the Scottish Government and the civil servants to ensure that they had the best access to the best information from across the research base, not just in Scotland but more broadly. We are doing a lot of work in that space to support policy development and an understanding of policy implementation.

Simon Pepper: I and others were consulted by Scottish Government officials on the behaviour change aspects of the document. That said, given that the addendum to RPP2 on behaviour change will not be published until the end of this month, it is difficult to report on whether our input has been adequately included.

Our concern—I say "our" concern; it is shared by several of the other consultees—about the behaviour side of things is that a strong effort needs to be made to integrate behaviour-change programmes and activities with the other aspects of RPP2, so that there is a line-up between the material changes that result from the pulling of the big policy levers and the efforts to engage the relevant audiences, such as the public and the market. Perhaps we will come on to that.

The Convener: We will deal with behaviour change as a specific topic. You have pointed us in that direction.

Morag Watson: I concur with Simon Pepper. Some good collaborative work has been done with the Scottish Government, particularly up until 30 August last year, when there was a large conference on the topic. What is in the RPP reflects that consultation, and we are all very supportive of it.

However, subsequent to that event, to my knowledge, WWF has not been involved in the development of the behaviour change section of the RPP and I am not aware of other people who have been particularly involved in the writing of it.

Professor Bonaventura: To pick up on some of the behaviour change aspects, we have been involved in consulting on various impact assessments associated with RPP2. I suppose that the best way to think about the issue is that there are three primary target groups: a household group, a private sector group and a public sector group. Across the piece, the impact of RPP2 on each of those target groups varies considerably. For example, the impact on households is very well understood, but the impact on the private sector is less well understood and, in our view, the impact on the public sector is even less well understood. That differential needs to be considered.

The Convener: Will RPP2 be effective, overall, in helping us to meet our annual emissions targets? In general, how appropriate are the timescales in the document?

James Curran: I want to comment on the back of the previous question about the level of engagement. In general, I think that it has been very good, but some of the debate has been set within parameters that, in retrospect, have perhaps not been helpful.

If we are lucky, the trajectory for the policies and proposals in RPP2 will just about allow us to meet the targets most years. In my view, however, there is no headroom built in. If we want to meet targets, we need to plan to have a bit of headroom, because we all know that things do not go quite as we expect. It seems to me that one way of building that headroom in would have been to have developed RPP2 with a longer timescale in mind. We know that we have an 80 per cent target further down the track. There might be actions and activities that we could begin to undertake in this period of RPP2 that would lead towards the meeting of the later target. I am talking about no-regrets activities that would take us in the right direction and would give us a bit of headroom. It is evident from the discussion with the first panel that some of those activities might be costly, but we must look at their cost in the context of the wider benefits. That is often not done, because they are hard to monetise.

Overall, the figure that I get for the Scottish Government spend under RPP2 comes to about 0.3 per cent of gross domestic product. That does not include private sector spend, of course. The Stern report indicated that we should spend about 1 per cent of GDP on addressing climate change; lately, that has been revised upwards to 2 per cent, because we have not been taking sufficient action in the interim.

If account had been taken of all those contextual issues, we might have developed a more robust RPP2 that had a longer-term focus and that embedded a bit of extra headroom, which would have meant that we would have been more likely to meet the targets every year into the future.

Claire Baker: My question follows on from James Curran's contribution. The panel seems to be positive about what engagement there has been in preparing the draft report, but are they concerned that the debate has not been broad enough? The continual criticism of the report is that, although it contains plenty of proposals, it has no policies. When I speak to stakeholders they are clear about the policy areas that they believe should be in the report. Is there any frustration that there has perhaps not been enough debate on some of the more difficult choices that must be made? The report has been criticised for being vague. Although stakeholders have contributed, is that contribution reflected in a proper framework for how the targets can be met?

Simon Pepper: I will add to my earlier point about involvement. Some of us were involved in the consultation about behaviour change. Some of us on the 2020 climate group were also involved in a one-day workshop consultation about the structure of RPP2. That was limited and, as far as I know, there has not been any consultation of wider networks, which is a little bit of a concern, especially in light of what Claire Baker has just said. The aspiration was for a considerable amount of consultation and involvement of wider interest groups in the construction of the report. It is important that that should happen, for reasons of wider engagement once the policies are being implemented.

Dr Kerr: I was hoping to see in RPP2 what Claire Baker described: a much more explicit delineation of responsibilities. For example, what bits will the EU deliver? What will the UK Government's policy deliver? What will the Scottish Government's policies do? Where do we need to rely on local authorities to deliver particular outcomes? Where is the private sector? That delineation of who will create the emissions reduction over the next few years was not as clear in the report as it could have been.

The overall context provided in the report—particularly in section 3—was good because it flagged up some of the different issues and pressures that make it difficult to measure, for example, the costs of what might happen in 2025. That is a stab in the dark at the best of times.

There are good parts to the report, but it has not pinned everything down as I would like to have seen it.

Claire Baker: Another concern is that there has not been enough front loading. A lot of the activity that will make real progress will happen in future, not in the next two, three, four or five years.

Dr Kerr: Absolutely. There are very general statements about what it is hoped will happen, rather than specific statements about what needs to be done to make something happen. We may not know the exact numbers or be able to quantify it or put it into cash terms, but at least we have a framework, whereas the report still looks like a set of policies and proposals that are being pushed out there without, if you like, a way of landing it. That is a concern.

Mike Robinson: It is true that there is concern that the activity is not front loaded and that not enough early action is being taken.

It is difficult to answer the question about consultation, because it is difficult to know who was consulted. My sense is that there is a little bit of wishful thinking in the report post-2020, rather than definitive action ahead of that time. Because of that, there is a lack of detail that makes the consultation process slightly difficult.

I agree with Andy Kerr that delineation of who can do what to achieve each of the areas is missing. Obviously, we need to look at the different facets of delivery, including delivery by the Scottish Government, the local authority, the community, the third sector and business. The 2020 climate group was involved in the pre-Christmas consultation exercise, but there is still a sense that, without the detail, businesses are not sure how they can deliver what is in the report. That is the danger in having things that are a little bit too vague.

11:30

The Convener: Okay. Given the limited powers that the Scottish Government has in a number of sectors, we must consider whether RPP2 represents best value. Where do the costs appear to fall? Best value is a concern of Government.

Dr Kerr: An issue that was flagged up earlier is that although a stab has been made at quantifying the financial, cash impact of proposals in RPP2, many proposals have broad social and economic impacts—some negative and some positive—which in many cases have not been captured.

Let us not kid ourselves that such impacts are easy to capture. However, we can relate transport issues to health in cities, for example. We know about air pollution in cities, but RPP2 does not really bring out the wider impact of the transformation that is expected in transport, with electric cars, hybrid cars and so on. That makes it difficult to judge, or to allow assessors to judge, the value of policies in a broader context of best value that is not just about financial input from the Scottish Government or businesses. There needs to be a broader assessment of the value to Scotland of delivering policies. The area is challenging, but the challenge needs to be met.

The Convener: I hope that the Infrastructure and Capital Investment Committee will dig into such issues. This committee has an overview, but we take a particular interest in land use and other specific areas of resource, which we will come on to.

James Curran: The issue takes us back to some of the earlier discussion. I am a great believer in telling individuals, the business sector or components of civic society precisely what their responsibilities should be in the area, and in giving them the tasks of delivering on those responsibilities and monitoring and reporting on activity, as well as working out the extreme level of detail that is being referred to, which verges on the impossible in a national document such as we are considering.

Andy Kerr gave the classic example of urban air pollution and the multiple benefits that are derived from improving city air quality. The solution is all about public transport, which reduces emissions and has knock-on effects on human health, amenity value, location of businesses and so on. It is very hard to capture those costs, but it is possible to attempt to do so.

The whole programme of RPP2 is costed at £1.6 billion and the benefits are noted as £1.2 billion, which seems to me to be completely unfair. The figure should not be considered at all, because it is not capturing many, very significant multiple benefits, which society in Scotland would want to pursue anyway.

It is about governance and giving the responsibility, authority and delivery targets to sectors of civic society, so that they can get on with it. On the back of that, those sectors can start doing the calculations.

Given that we have to meet an 80 per cent target in future, the issue is not so much cost as it is the scheduling of cost. What do we do early and what do we do late? We know that the change to reach the 80 per cent target is truly, deeply transformational.

Professor Bonaventura: The idea of benefits across Scottish society needs finer-grained analysis. Some of the economic benefits that will accrue to the east coast as a result of offshore wind will not accrue to the west coast. There are distributional impacts of policies, individually and cumulatively across the country. It is fine to think about benefits to Scottish society as a whole, but there needs to be a finer-grained understanding of the impact on local economic development plans.

Dr Kerr: There has been a tendency to think that because the RPP2 is a national Government document, the Government has to spend lots of money to deliver it. We have talked about this before, but it is very much about creating the conditions under which we can also encourage private investment, because there are huge opportunities to deliver fairly radical change. Markets in this space are growing around the world.

In Scotland we are looking to have an entrepreneurial set up. We already have a lot of the attributes that we need to encourage private investment so that money is not coming out of just the public purse. That is something to bear in mind when we are thinking about best value.

The Convener: There is a discussion around wellbeing as a more holistic measure. Can we get business to buy into such wellbeing measures that are not monetised?

Dr Kerr: I do not think that we can get businesses to invest for the sake of wellbeing, but businesses will locate in places that have wellbeing because they see the benefits to their staff and otherwise—it is the other way around. Businesses will want to be in locations that have a good quality of life and that will create a virtuous circle. Businesses can see the value in that, but I am sceptical about whether they will commit money to support it beyond saying that that is where they want to be. On the other hand, if we can create hubs of wellbeing—the cities are the major players here but there are also some fantastic examples in rural areas—and a virtuous circle, we could get a lot of support.

The Convener: This is an appropriate time to consider behaviour change to achieve some of those things.

Graeme Dey: What needs to be included in the Scottish Government's low-carbon Scotland behaviours framework, which is due to be published at the end of the month? Beyond that, in seeking to secure behavioural change, what should be the role of large membership organisations, such as WWF and Stop Climate Chaos? Should it simply be to seek to influence Government policy, or should they be proactive by helping to encourage behavioural change at the individual level, for example?

Mike Robinson: I feel that I have to answer that one.

This comes back to the previous question about best value. There are different ways of delivery. The vision needs to be better articulated so that people are absolutely clear about what they are buying into and what they are being asked to do. There are creative ways of bringing about behaviour change. I do not for a minute think that civil society thinks that it has no role to play in helping to articulate and communicate that. It is part of such organisations' responsible behaviour.

Equally, we have not quite managed to get all the different parts of society to work towards the same aims. Some communities are doing good things, but they are not very strategic. Some businesses show a lot of willingness but, to be honest, within the 2020 climate group, there is a sense of needing more direction and everyone seems to be looking to everyone else for a bit of direction.

We need some certainty around the key changes that we are seeking. Everyone has a role to play in that. The Scottish Government clearly has only so many levers, so local authorities have a big role to play. Businesses have a role to play, and they will do it for corporate social responsibility reasons and the goodwill and benefit of their staff as much as for any other reason. The

whole of the third sector also has a very important role to play and we should not overlook the fact that third sector organisations have vast networks of members and their own communication media. Their members trust them, and they are a very important aspect of the communication that we are talking about.

The Convener: That is not to say that MSPs are not trusted by the large numbers of people who voted for them. That is probably a greater number than memberships of some of the pressure groups. Between us, we should be able to get to quite a lot of people.

Morag Watson: You asked what we wanted to be included in the behaviour change framework. As Simon Pepper has mentioned, it is regrettable that we do not yet have it to look at, and that it will not be out for a month. It is hard to make a judgment on what might be in it. We would like it to contain some firm policies and proposals. Although the section of RPP2 about behaviour change is very good—it sets out some excellent principles, it reflects the latest behaviour change research and we are supportive of it—there is no detail about how that will be taken forward. We expect to see the detail in the framework.

Specifically, we want actions on home energy use and transport. We know from the research that if behaviour change activities are put in—for example, when it comes to infrastructure, there is the roll-out of smart meters—energy savings can be increased from about 5 per cent to 25 per cent.

We are looking for the Government to do some work of its own, on its own communications and documentation around climate change. The greener Scotland website is a very good example of a Government communication incorporating the latest behaviour change research. Unfortunately, the RPP2 document itself does not seem to have taken that research into account. The research indicates that the language in which the document is currently written is not helpful for supporting particular behaviour change and action on that.

I agree with what Mike Robinson has said regarding the role of the non-governmental organisation sector and the third sector. We have a collective partnership approach in Scotland, which has worked very well in this area. WWF has led a great deal on the development of research and practice around behaviour change. We have always sought to work in partnership with Government, other statutory bodies and other civil society organisations, and that is the approach that we have found to be most effective. Our role continues to involve partnership and innovation and the bringing of our collective strength together with that of others.

Linda Ovens: From a waste and resources point of view, we have seen significant change in recycling behaviour over the past 10 years, and that is likely to continue. We are working from the bottom up, rather than the other way round. The challenge for us now is in extending that behaviour change into business, especially small and medium-sized enterprises and the larger sectors. Significant effort is being put into those sectors at the moment, and that should continue. RPP2 supports other policies that are already progressing in this area, and it keeps the momentum of change going from the bottom-up approach.

Regarding the document as a whole from a waste and resources perspective, the change in the industry is towards reduction in consumption and resource management. The chapter on that is not as significant as it was; waste and resources are now supporting the other chapters in RPP2, rather than just being an item in their own right.

Simon Pepper: In answer to the question about what we would like to be included, I support the comments that have been made about the quality of what the report contains at present and how it articulates the principles and lessons that we have learned from the research about behaviour change—which, to the Scottish Government's credit, it has carried out in a very competent way.

I will make three points about what should be included—once we see more of the detail. First, it is a question of emphasis. Ten pages are allocated to the topic of behaviour change in RPP2, but the relative importance of this area of endeavour in relation to all the other things is not really conveyed. The point is that many of the other areas, to do with energy, food, transport and so on, will work in implementation terms only once the wider public—customers, voters and others—are properly engaged and committed to it in attitude terms.

There is a need for emphasis to be given to the integrative potential of behaviour change. One of the problems is the label "behaviour change", because it tends to focus the mind on individual action whereas, in strategic terms, we need to concentrate on societal attitudes and norms. I like to think of it more as culture change.

11:45

The challenge with culture change is to think about how we can change attitudes that some of us, shamefully, were quite comfortable with in our youths, such as attitudes to drink driving, smoking in aeroplanes or in close quarters with others who do not like it, or not wearing seat belts, all of which are quite shocking now. Behaviour is much more responsible these days, and the changes that

have taken place in relation to those issues have become the social norms. We need to create a situation, as soon as possible, whereby the prevailing attitude is that our current behaviour and habits are completely unacceptable and irresponsible. That is the level of ambition that needs to be in there, but I do not see it.

The second point—I will be quick, convener—involves integration. The very important thing in relation to behaviour change and culture change is that the signals must all be lined up. Where there are perversities—where Government is saying one thing and doing another—people lose trust and, if they see confusing signals, they will carry on doing what they were doing before. In order to get the signals lined up, as has been said by others, the various sectors must play to their strengths. Government is good at pulling big levers, but it is not good at influencing individual behaviour. There are other mechanisms in society—various social networks and so on—that are good at that but not good at pulling the big levers. I would like to see much more evidence of creative partnerships that can deliver by working together, using their different strengths. The example of recycling that Linda Ovens gave is a beautiful case study of how, by lining up all those different influences on people, you can achieve significant culture change within a generation.

Finally, we need to promote all that as an opportunity, not as a challenge that is likely to defeat us unless we try really hard. This is a change that needs to be led from the front, by ministers, with a vision of a better Scotland that is a better place in which to live and has a better environment in which people can enjoy better health and wellbeing. It should also be presented—let us face it—as an opportunity to save money. That should not be the leading issue, but it should be part of the whole argument. There are many opportunities to present arguments for all of those things and to present the change not as a challenge that will defeat us but as an opportunity that we must grasp now, because the window is quite small.

James Curran: Simon Pepper has been extremely eloquent. I am going to say very similar things, but I say them only to back up what he has said. Three elements occur to me, as well.

The Convener: Please do not cover the same ground.

James Curran: I will not.

I am proud to live in Scotland, a country that has the world's leading legislation on climate change. However, we have an obligation to deliver on that legislation; otherwise, we will be a poor exemplar to the rest of the world.

The effort that we are involved in needs to be presented as Scotland's challenge. I give credit to all members of the Scottish Parliament for what I perceive to be the strong cross-party support for the efforts that Scotland is making on climate change. To me, that demonstrates a high degree of leadership. We should be building on that. This is Scotland's challenge—it is a challenge to each and every one of us to contribute what we can and drive the multiple benefits, as Simon Pepper said. We should present ourselves as the world leader in delivery as well as in aspiration.

For me, an important aspect that has not come out much in other comments is the element of ethics and morality, which links the issue of climate change to that of the poor and the underprivileged in this country and around the world. WWF has done some exemplary work on behaviour change and has produced some persuasive evidence that you get lasting and significant behaviour change only if it is based on ethics and morality. As Government and public bodies, we need to start getting involved in that ethics and morality argument, which is sometimes difficult for us.

The final element is volunteering and it relates to some of the other elements. We should be getting everyone across the country to volunteer, particularly in environmental volunteering, by providing the information—SEPA calls it citizen science—and using Scotland's environment web to encourage people to understand the environment. Through that, people will become custodians and safeguarders of that environment. There is lots of evidence that that kind of volunteering stimulates entrepreneurial behaviour and stronger, more resilient communities. Again, it has multiple benefits all the way down the line.

Professor Bonaventura: The behaviour change framework that RPP2 alludes to includes, for example, engagement with values and frames that have common cause. That is fine, but there are personal preferences and styles of engaging, and I would like to see the behaviour change framework recognise that, for example, some differences are based on socioeconomic circumstances.

I recognise what Simon Pepper said about the link between the individual and broader culture change. It has always struck me as bizarre that engagement with and through the cultural sector seems to be missing. For example, I do not know how many people sitting around this table have a background in arts or humanities, but I suspect that very few of us do, because most of us have come at the issue from a social, natural or physical sciences point of view. That is an area that the bulk of the population disengage with at the age of 13, 14 or 15, when they are going through their

hormonal changes to adulthood, and never really pick it up again. There should be engagement that takes account of the fact that people can be rather more open to visual arts, performing arts, conceptual arts and music. All those things should be brought to bear as ways of improving public engagement.

Mike Robinson: I would like to have clarification of how behaviour change can help to underpin all the areas in which we are seeking change. I recognise that one or two areas of climate change delivery are more suited to behaviour change. The obvious ones are transport and housing, but there are others. Perhaps it should be recognised that those are key areas in which behaviour change, as opposed to more legislation, will be one of the bigger levers.

I would like there to be more milestones and policies in the RPP. There is also the issue of identifying and co-ordinating all the levers, while facilitating others to do some of that work. It should not be incumbent on the Scottish Government to go into a dark room and come up with an advert. A lot of different groups out there can be used to help to deliver.

Stuart Fraser: The point has been well made that recycling is successful in achieving behaviour change, and that needs to be maintained. We have picked the low-hanging fruit and we are now getting into the hard-to-reach areas.

There also needs to be a stronger message of support for energy from waste when we have recycled and recovered as many materials as possible. There is still a perception among the general public that energy recovery is a contentious and difficult issue, and that leads to a lot of opposition to the facilities that we will need to deliver our complete landfill diversion target. There needs to a stronger message on that. I do not want it to dilute the recycling message; it should be complementary.

The Convener: That is a contentious area for many people. Claudia Beamish has a supplementary question.

Claudia Beamish: In relation to the vision for behaviour change and the idea that it should be threaded through the different sectors, there is obviously a role for Scottish Government funding. Particularly in relation to people on low incomes, are there ways in which the Scottish Government can support behaviour change through new or additional funding that enables partners to work together in communities, businesses and the third sector?

Simon Pepper: There has been creditable investment in the climate challenge fund, through which more than £10 million a year goes into support for communities. There is a discriminatory search in relation to the fund's work, in that its opportunities are marketed in areas of multiple deprivation. That is one option, which should not stand alone, because lessons can be learned from that experience about how to engage people effectively, not just in applying to the fund but more widely, in other networks.

There is a role for communities of interest in that regard, which has been underplayed so far. Groupings such as churches, sports associations and all sorts of what we might call extra-curricular groups with special interests—at community and at national level—can be highly effective at encouraging people to adopt different behaviour patterns and lifestyles. There is undoubtedly potential in that regard, and we can learn from the experience of some community groups.

Dr Kerr: It is inevitable that much of RPP2 is focused on how we get the policy framework and the finance behind it. Over the past two, three or four years, we have realised that the bit that has often been missing is human capital or social capital, which is what glues everything together at community level or between businesses and communities. There is a sense that the Scottish Government could address that and is starting to do so. It does not involve a huge amount of money, because it is about leveraging the talent that is already there, but it needs something to glue it together. That is an important element, which the Government could run with.

It is fair to say that the Government recognises that and is considering the issue, because we have had a series of policies in relation to which the framework was set up and the money was made available but nothing happened. The question is why not, and the answer is because there was not necessarily the capacity in businesses and communities, whether they were urban or rural, to make things happen.

Claudia Beamish asked a good question about an important area, which does not involve a lot of money but should lead to positive outcomes.

Mike Robinson: This is another area in relation to which the lack of clarity in RPP2 does not help. Ideally, it would form the blueprint that would be presented to different sectors. The climate challenge fund has achieved a certain amount and has been a good source of income that has enabled some communities to develop schemes, but the reality is that there has not necessarily been a strategic approach. In a number of areas, more detail would help to inform the process and shape how funding is allocated. The funding should support bigger visions.

In some sectors, if money is put behind something, it will happen. The problem with climate change is that it affects everyone—

everyone has got it, but not many people have got it as their main thing. Climate change suffers a little because of that. It is critical that funding is put behind all the different sectoral groups—local authorities, third sector agencies and communities—but with a bit more logic behind it, so that it complements the wider strategic approach.

Claire Baker: Is there a general feeling that although the section on behaviour is quite strong, there are questions and challenges to do with how it relates to the rest of RPP2? For example, successful behaviour change in relation to waste, which members mentioned, seems to have been supported and driven by quite strong infrastructure. A behavioural challenge in transport and travel, for example, is in people using their cars less, and that is much more difficult to deliver. Is the document cohesive in saying in all the sections what behaviours we are trying to change and how that will be done? That is a reflection on the previous discussion.

12:00

Linda Ovens: Recycling is acceptable and behaviour change has happened in that respect but, as Stuart Fraser said, there is still opposition to facilities that manage recycling or any type of waste that requires infrastructure to return it into a resource and make it usable. There needs to be more support for all parts of the infrastructure and support for changing attitudes to the need for intermediate facilities. Material for recycling that is picked up at a person's door does not automatically become a glass bottle.

Morag Watson: The simple answer to Claire Baker's point is that there is a disconnect between the behaviour change section and the rest of the RPP, which is a shame. As we have said, the Government has done very good research, and it has answers and ways forward there, but we would have liked to have seen a much more joined-up approach.

All behaviour changes can sometimes be lumped together, but different aspects of our behaviour tend to be influenced by different factors to a greater or lesser extent. Transport and home energy use in particular tend to be quite dominated by infrastructure. If you look at how we begin to unpick behaviours in those areas, you will see that policy and infrastructure interventions are indicated to be the most successful interventions. Infrastructure has played a major part in recycling. There is the slightly more contentious issue that we now recycle more of our waste but the amount of waste that we generate is not going down quite as fast as we want it to. The amount of waste that we generate is generally not so much governed by infrastructure; it is much more governed by choice. A different approach is therefore needed there.

I want to pick up on what other people have said about the vision, particularly around people who are on low incomes. Generally, framing things around financial savings has not been found to be the best way of motivating behaviour change. There is a growing body of evidence on that, but some people struggle somewhat with that message. Research has just been published in the Netherlands, for example, on advertising campaigns that encouraged people to inflate their tyres properly, as that saves fuel. One campaign was framed around the fact that that saves money, and not a single person responded to it, whereas 27 people responded to a campaign that was framed around the contribution that that makes to the environment. That is a statistically significant result.

Money is a very big issue for people with low incomes, and there is a tendency to think that messages to them should be shaped around finances, but that is generally not helpful. We find that people's comfort and their health are of greater concern to them. They are simply concerned that they are cold and miserable in their own homes. That has a knock-off effect on people's physical and mental health. If we say in our messages that it is simply not acceptable in a democracy such as ours that people are cold and miserable in their own homes and are in situations in which they will never be able to make their homes warm and comfortable, and that we have an agenda to do something about that which will also have wider benefits, the research indicates that those messages are likely to be more effective.

The Convener: Behaviour change in housing is very interesting. Obviously, other committees are looking at various bits of that issue. I hope that issues are being raised in those committees, too.

Graeme Dey: I think that Morag Watson said that research has been done in Holland. I wonder whether we need to get better at joining up and getting the message across that, if individuals change their actions, the climate and the environment will gain, and so will they financially. Are we good enough at getting messages out about, for example, the impact of not leaving a light on overnight, walking rather than driving to work, and reducing top speeds over long journeys? Are we good enough at illustrating to people the emission and financial gains? Would putting together both those things not work to bring about culture or behaviour change?

Morag Watson: That is an interesting question, given what the research tells us. It seems counterintuitive, but what we have found is that financial appeals are not very effective and can in

certain circumstances be counterproductive. An interesting finding from WWF's behaviour, values and framing research, which I point out was carried out at a UK rather than specifically Scottish level, is that, when asked about their values and what they prioritise in life, people in the UK rate social justice, fairness, family time and being part of a community more highly than money and, when asked what they think other people value, they rate money very highly. As a result, people tend to frame messages in the way they think other people want to hear them rather than in the way they themselves want to hear. Framing messages in terms of social justice, fairness and so on seems to have a far more powerful effect.

The research has also shown that one of the most powerful motivators for individuals is their sense of the kind of person they are. As a trite example, shoplifting might seem to be a good strategy to get your grocery bill down and if you did a very cold statistical analysis of the number of shoplifting offences against the number of people who get prosecuted for it, you might conclude that you would probably get away with it. However, the vast majority of people do not shoplift because it violates their sense of the kind of person they are, and that is a far more powerful motivator than the legal consequences of such actions.

Going back to an example that was mentioned earlier, I think that anyone who knows anything about farming knows that it is a very hard job and that the financial rewards are not great. One could argue that the sensible thing to do would be to leave farming. However, 20,000 people are very committed to their farms. Something far more powerful than money is at work. As a result of the behaviour change research, we advocate more of a focus on those far more powerful motivators of human behaviour—and the research simply does not support the contention that money is a particularly powerful motivator.

The Convener: I will take a couple more comments on this issue and then we must move on to discuss resource use.

Professor Bonaventura: Although Morag Watson's points are well made as far as individuals and perhaps even households are concerned, our work with the SME community in the non-traded sector over the past six years or so suggests that the financial message is very important to those businesses and might in fact be more engaging than social justice or other such issues. There are different messages for different constituencies.

Richard Lyle: My question is actually about resource, convener. Is it okay for me to move into that area?

The Convener: I will have to ask you to wait for a moment, because I want to take one more comment on the issue under discussion. You will certainly get a chance to put your question.

Mike Robinson: Coming back to Claire Baker's comment about the behaviour change element of RPP2, I do not want to leave unchallenged the suggestion that it is great and we can move on. It is fine as far as it goes, but an awful lot of it is quite high level. Although it picks up some very positive issues such as the individual, social and material aspects of behaviour change, it also puts a great onus on the document that we are still awaiting. As a result, it is very difficult to judge the detail.

The critical issue is how the RPP2 integrates; at the moment, it is too stand-alone, and each of the sectors that it reports on should be challenged to include a behaviour change component. It also slightly misses the point that all behaviour change models should reiterate the absolute need for leadership. The clear sense is that something that presents leadership across the board would lift behaviour change at every level.

Finally, on the pounds versus morality argument, my experience is that the pounds can get you in the door but they do not bring about change in the long term. The minute the finances shift, people stop doing these things. If you want to embed change, you can get in the door by talking pounds and pence, but if you do not cite the other reasons, you will lose these things in the long term.

The Convener: We will now deal with resource use, starting with a question from Angus MacDonald.

Angus MacDonald: As panel members will be aware, significant progress has been made in reducing emissions from landfill through the zero waste plan. As Simon Pepper said, that is a good example of behaviour change or—as he suggested we call it—culture change.

RPP2 confirms that the measures that are set out in the zero waste plan remain the main policy framework for continued progress. Can the policies on waste in RPP2—which amount, basically, to the zero waste plan—be relied on to allow waste to contribute adequately to emissions reductions? What else might be required?

Stuart Fraser: There is a wee bit of an omission; there needs to be a stronger link to the proposed procurement reform bill, which will mention sustainable procurement. In today's financially difficult times, there is clearly a risk that some purchasing decisions that are made by public bodies will be based only on the monetary value of the services and will not take account of the carbon impact or community-benefit aspects.

The zero waste plan sets a good agenda and the Waste (Scotland) Regulations 2012 set a good framework: we have all the policies and just need to deliver them. However, unless there is clear recognition of what needs to be done in procurement terms, we might miss some of the opportunities that exist and we might not deliver the outcomes that we want.

Richard Lyle: There are numerous questions that I could ask on resource use. Some time ago, the committee took evidence on waste-to-heat plants. It was originally suggested that such plants would be set up throughout Scotland. However, I will leave that aside, for the moment.

I will ask two questions. In one of its reports, the Transport, Infrastructure and Climate Change Committee of the time recommended that

"in developing the RPP, and in advance of the next RPP, the Scottish Government should consider wider issues in relation to waste and incorporate proposals in relation to all aspects of the waste hierarchy and not just on the issue of waste treatment."

Does the panel believe that those wider issues have been adequately considered in the preparation of RPP2? The abatement figures assume a general reduction in the amount of waste that each person generates. Is there evidence to support that assumption?

James Curran: That is a huge question. I will respond—at least, partly—to the previous three questions by joining them up.

The progress that the waste sector in Scotland has made in waste handling and waste management is an interesting case study for how we might approach the wider issues of climate-change mitigation, because waste management is a fairly mature area—it is one in which action has been taken for at least 15 years. This relates to what I said in my opening remarks. Within waste management, there has been a clear specification of responsibilities among bodies such as the Scottish Government, SEPA, zero waste Scotland and the local authorities. A lot of the necessary action in managing waste better has been backed up by regulation—I do mean "backed up"; regulation has not often been resorted to—and by specific and focused funding in particular areas. Good progress has been made, and that has taken place on the back of significant analysis of behaviour change in certain aspects of the waste-management chain.

What has happened in waste management has demonstrated that if we allocate responsibility and accountability for a particular programme of work, all the detailed analysis, focused funding and everything else that will enable us to deliver against the targets that have been set will follow. However, as others have pointed out, it is at the upstream end—the consumer end, which is where the waste is generated—that there has been less activity, because that is not what the 15-year programme has been looking at.

12:15

There is an enormous amount that we can still do. There is activity around environmental and clean technologies. The Scottish Government has initiated a programme that spans work that is done by SEPA, Scottish Enterprise and Highlands and Islands Enterprise. There is a huge opportunity to enter the global market and to be a leader in development of environmental and clean technologies that provide the services and goods that are required in the global market, but with less waste and with generation of fewer downstream emissions and so on. That is an area in which we need to step up a gear and put in more effort.

We have argued, within the development of the national planning framework 3, that Scotland still has an opportunity to take a more national and strategic approach to the creation of zero waste infrastructure. If such an infrastructure were properly distributed across the country, it would remove some of the issues that we have around planning procedures and waste infrastructure and could deliver much more effectively on district heating and the creation of downstream industries, thereby building useful businesses on the back of recycled material.

The final area in which I think more could be done in terms of waste and resource reuse is advice to small and medium-sized enterprises. Zero waste Scotland is currently tendering Scotland's energy and resource efficiency advisory service to small and medium-sized enterprises. In itself, it is fine for public money to be going into that. However, as a regulator, I would say that there needs to be a quid pro quo and that, in the same way as we put our cars through MOTs every now and then, Scottish business should be required at some minor level to go through an MOT. In order to generate the referrals for that energy and resource efficiency advisory service, which is funded out of public money, companies should at least be expected to pick up the phone and ask for that advice, which means that we would get referrals into the advisory service.

Equally, at the back end, there is no way that that advisory service can ever give the necessary detailed technical information to every cafe that wants to put in more energy-efficient cooling or whatever. The supply industry needs to start providing decent-quality accredited advice to potential customers and to take them right through the specification, tendering and commissioning process to the sign-off of the end product.

We need to join up all the actors and activities around waste and resource use.

The Convener: I see Simon Pepper nodding in agreement.

Simon Pepper: Yes. I agree particularly with James Curran's interesting idea of businesses having an MOT in order to generate referrals.

Angus MacDonald: Earlier, Stuart Fraser made a point about energy from waste. Clearly, we have a way to go on that. Does RPP2 need to be more visionary with regard to encouraging more activity on energy from waste? Should it be going a wee bit further? We have just heard about district heating, which is clearly an option towards which we should be moving.

Stuart Fraser: RPP2 could be more explicit about the benefits that energy from waste can deliver once all the cost-effective recovery of recycling has been completed. It makes a brief mention of some of the positive aspects, but it does not go any further than endorsing it as an ultimate treatment method once all other avenues have been exhausted in terms of recycling. It could go a bit further towards explicitly endorsing energy from waste as a technology option.

The Convener: Linda Ovens. You are appropriately named.

Linda Ovens: I was quite surprised, on my first reading of the waste and resources chapter, by the focus on landfill gas emissions. It is not a topic that CIWM and the industry are talking about as much as they are talking about resource management and other areas. Other things that will come into play, such as food waste reduction and decreasing biodegradable waste, will make the target in the chapter quite challenging to meet in years to come because of the lower amount of waste that will go to landfill in general.

Should the chapter be more about the waste hierarchy in general areas of the plan? The reference to the zero waste plan and the main drivers within those documents are aimed at driving waste up the hierarchy, but they do not give that steer, which is where the industry is trying to head at the moment.

Is waste decreasing? Yes, according to the evidence that we have from data analysis. We do not have so much on commercial and industrial waste at the moment, but in local authority-collected waste we have seen a 3 per cent decrease in waste generation for about the past five or six years. There is concern about what we will do, if that trend continues, when we get to the point of no return.

There is reference in the waste and resources chapter to policies for minimising the requirement for residual waste infrastructure, such as energy from waste. That is in the context of the discussion on waste continuing to reduce. However, there is recognition that there will always be an element of waste—after recycling and other methods have been exhausted—that will be landfillable or will have the potential to be an alternative energy source. We would like to see more reference in other chapters, such as the one on heat and electricity, to the fact that that can provide, through combined heat and power and small plants, the outlet that we need.

Jim Hume: I want to explore resource use more. RPP2 states that

"using materials more efficiently and preventing waste is fundamental to addressing the carbon impacts."

However, there is little detail under "Supporting and Enabling Measures" and there is no detail on the new resource efficient Scotland service that the document mentions. What thinking on resource use and efficiency should have been included in RPP2?

Stuart Fraser: It is perhaps unfortunate timing for RPP2 in that consultations on the waste hierarchy and on the recyclate quality action plan have just closed, so we do not yet have that information to incorporate in RPP2. However, the direction of travel that was outlined in those consultation documents—assuming that there are no dramatic changes—would give the detail that is not in RPP2. The consultation document "Safeguarding Scotland's Resources: A Programme for the Efficient Use of Our Materials" talks about setting targets for reduction in waste generation and an action programme to try to achieve that. That consultation has recently closed and we have not seen the outcome yet. There is, in those areas, a lot of work going on that has not yet come to fruition.

Dr Kerr: I have a final point that feeds off what Stuart Fraser said a bit earlier, which is that the other area where there is a great deal of work is public procurement. In the private sector and the public sector there is a big drive in supply-chain management to drive resource efficiency right the way down the supply chain. Again, there are two sides to that. One is that small companies can get ahead of the game by being efficient and therefore more able to get bigger contracts. There is a real opportunity in that regard, which is mentioned in RPP2, but is not captured hugely. A lot of work is going on in the public sector to drive resource efficiency right through the supply chain.

Jim Hume: Perhaps RPP2 can be consolidated and take into account the two gentlemen's points.

The Convener: Yes. The point was well made, so I thank Dr Kerr.

We will move on to final questions on the scope for technical innovation. Claudia Beamish will lead on that.

Claudia Beamish: RPP2 states that the Government intends

"to choose the most cost effective mix of technologies and approaches in any sector, the reality is that, in many cases, we do not yet know how technologies will develop, or how their costs will change or what other disruptive technologies might emerge. We aim, where reasonable and practical, to encourage a portfolio of technologies and create competitive market conditions in which the most sustainable and cost effective succeed over time."

That appears to be fairly non-committal. Perhaps the reason why is—as I think we all acknowledge—that many of the technologies do not exist yet. Is the level of ambition reasonable? What else should RPP2 contain to firm up policy on emerging technologies?

Dr Kerr: This is a pet topic of mine. It is important that we in Scotland understand the key point that technology innovation in itself will not deliver the change that we want. We need to combine technology innovation with the social and business innovations that make it happen. A good example of that is the development of renewable electricity in Scotland, which has been delivered not because we are the leading wind technology developers in the world, but because we have set the regulatory framework and the financing and so on to make it happen.

The Government is therefore right not to specify in RPP2 exactly which technologies should happen. The Government's job is to create the framework within which appropriate technologies will work and succeed. That is about social capital, financing and the regulatory framework. We need to focus on what I call the social innovation bit as much as we do on technology innovation. It is fantastic that we have a lead on technology innovation, but that in itself will not determine exactly what happens.

I do not have a problem with the wording to which Claudia Beamish referred in RPP2, because it is a fair statement. We do not know whether battery technology will improve dramatically, such that we will all have electric cars, or whether we will go down the hydrogen route or some other route. Those things are unknown at the moment, but we can create a framework that will allow changes to come through and become embedded. That is as much about social, business and cultural innovation as it is about which black boxes we use. I think that the comment in RPP2 is fair enough.

James Curran: Andy Kerr's words strike me as being wise. I am sure, however, that it helps a country to become known for a particular area of expertise, and Scotland is in a prime position to become increasingly known globally as a low-carbon nation with great legislation that delivers on its annual targets. Any kind of entrepreneurial strategy for Scotland should recognise that as a marketing advantage and build on it. We have potential.

I have mentioned the work that is already going ahead on environmental and clean technologies; there are some genuinely interesting and groundbreaking proposals. An example is the hydro nation initiative, which is to be jointly taken forward by Scottish Water, the James Hutton Institute and SEPA—at least, they are the named lead partners. The development of themes around low-carbon water management is a great opportunity globally, and there is already the potential to do work out in Mali, Bangladesh and other countries. If, by combining our low-carbon skills with our water skills and targeting that huge potential market we can become known as a nation that can deliver on low-carbon water management, that is the path that we should follow, as a nation.

The only other technology that I will mention is carbon capture and storage, on which we have world-leading academic competency. As I understand it, we still have two possible prototypes of the four that might be taken forward at UK level. We should target specific areas that are related to low-carbon entrepreneurism.

Mike Robinson: The statement to which Claudia Beamish referred in RPP2 is slightly in danger of going into the wishful-thinking zone. A large part of delivering reductions now will be about adoption of existing technologies and not about development of new ones. Although technology will always improve and we do not want to miss the boat or back the wrong horse, for me a large part of the emphasis should be on wider adoption of the technologies that we already know about.

12:30

Professor Bonaventura: The availability of technologies and the reliance of RPP2 on their emergence is one example of broader risk in the policy that has not been addressed. We start off with some optimistic, general aspirational views of where we are going and we reap the benefits of picking the low-hanging fruit up front, but there is no recognition that it will get increasingly harder as we move towards the 2027 target.

Therefore, we need something that is rather more specific; we need a road map for specificity as we go forward. That, in turn, requires a better understanding of some of the underlying elements. Examples include a better linkage between environment, economy and society for sustainable

development, elements of which have come out today, and trade-offs between the mitigation proposals in RPP2 and some of the adaptation measures that are coming out of the Scottish adaptation programme.

We would do well to evaluate, in some form of risk register, a number of policy implementations and political risks to give us greater confidence about the extent to which the programme can deliver overall in the long term and what might need to be done to address incremental challenges and obstacles between now and 2027.

Claire Baker: Mike Robinson picked up on a few of the points that I was going to mention. We accept that new technologies have potential for the future, but that potential is still unknown. Are there concerns that some of the abatement figures from 2025 onwards, particularly those on transport and rural land use, are a bit overambitious, considering the high level of uncertainty about what will deliver them?

Dr Kerr: There is an element of sticking your finger in the air with some of the figures. That is a problem. Equally, the proposals on transport do not pick up on an opportunity that is coming up rapidly, which is the use of information technology to enable, for example, drivers to make much better use of information through personalised travel plans, which would allow them to avoid congestion and reduce fuel use. That is not touched on in the proposals, although it could lead to quite dramatic changes over the next 10 years.

It is difficult to forecast what will be important and what will not. Mike Bonaventura's idea of a risk register of what is more and less likely is very good. However, I concur that policies should not say that you "hope" that something will happen in 15 years. You should be able to deliver most targets with existing technologies or through the application of existing technologies in new markets. For example, in the use of information technology with transport, we are not developing new technologies—at least, they are not major new developments—but we are starting to make radical changes.

It is an issue and a challenge for RPP2 that as many things that need to be captured are missed out of it as are in it.

The Convener: That is interesting. We have heard news today about the setting up of charging points for electric vehicles. I presume that the witnesses would agree that we are talking about technical innovation. The idea that charging points will be available no further than 50 miles apart along trunk roads, at ferry ports and at places such as leisure centres is an incentive to drivers to think about moving to electric cars. That is the Government showing leadership, but it also concerns proposals that are not specifically mentioned in RPP2, although it is an example of measures that feed into it. I suspect that the witnesses would agree that that is a good example that has just cropped up.

Claire Baker: I apologise for being late this morning due to childcare responsibilities.

If anyone heard the "Call Kaye" phone-in this morning, they would know that there is a lot to do to change the public's behaviour and attitudes before they will accept electric cars to the extent that we need them to when we consider how important they are to RPP2.

The Convener: Some of us were at work. [*Laughter*.] You were in domestic work—I know that. I am not disparaging it at all. Childcare issues and so on—absolutely.

Mike Robinson: To respond to Claire Baker, if there were more policies relating to things that could be done now and if more of the things that we know we can do now were adopted more quickly, there would be less need to rely on hopeful future scenarios.

Transport is a particularly good example. RPP2 says that there will be fairly substantial delivery through transport in the long term by "Lower Emission Potential in Transport", which remains undefined. It seems unnecessary to put so many eggs in that particular vague basket when we could implement parts of that programme now.

The Convener: I presume that transport will be dealt with in another committee.

We have gone round the houses on quite a lot of issues, and that has provided us with a heck of a lot of information to analyse. Some of the stuff on behavioural change has been fascinating. It allows us to be much more focused in the report that we will draw up and present as the committee's view to the RPP debate when the matter comes to the chamber, as it will.

I thank all the witnesses for their efforts to enlighten and inform us. I believe that we will come back to them in the near future. I thank you very much.

That is the end of the public section of the meeting. We have a private section after this, to which we need to move fairly quickly, so I ask the witnesses not to linger too long in the room.

12:36

Meeting continued in private until 12:53.

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