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Pàrlamaid na h-Alba

Official Report

RURAL AFFAIRS, CLIMATE CHANGE AND ENVIRONMENT COMMITTEE

Wednesday 9 October 2013

Session 4

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RURAL AFFAIRS, CLIMATE CHANGE AND ENVIRONMENT COMMITTEE
29th 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:

Colin Cook (Scottish Government)
Kay Jenkinson (UK Climate Impact Programme)
Richard Lochhead (Cabinet Secretary for Rural Affairs and the Environment)
Jamie McGrigor (Highlands and Islands) (Con) (Committee Substitute)
Jonathan Pryce (Scottish Government)
Linda Rosborough (Scottish Government)
Professor John Rowan (University of Dundee)
David Thompson (Committee on Climate Change)

CLERK TO THE COMMITTEE

Lynn Tullis

LOCATION

Committee Room 5

Scottish Parliament

Rural Affairs, Climate Change and Environment Committee

Wednesday 9 October 2013

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

Subordinate Legislation

Common Agricultural Policy Single Farm Payment and Support Schemes (Scotland) Amendment Regulations 2013 (SSI 2013/265)

The Convener (Rob Gibson): Good morning and welcome to the 29th meeting this year of the Rural Affairs, Climate Change and Environment Committee. Members of the committee and members of the public should turn off their mobile phones et cetera, as they can interfere with the sound system. Apologies have been received from Alex Fergusson. We welcome Jamie McGrigor to the meeting as the substitute for Alex.

Agenda item 1 is subordinate legislation. The committee will consider a negative instrument. Members should note that no motion to annul the amendment regulations has been received. I refer members to the paper on the regulations.

Members have no questions to raise regarding the paper. I have a question about the regulations for the Cabinet Secretary for Rural Affairs and the Environment, since he is here. They show us that the rates of European modulation go from zero to a higher rate as we go through to the bigger income earners, and that you have changed the member state modulation so as to produce a flatter overall curve. That means that, in overall terms, there is a 9 per cent modulation for the lowest paid and 14 per cent for those receiving over €5,000, and that same overall rate will now apply right up to payments over €300,000. Is that just a continuation of the same practice as before?

The Cabinet Secretary for Rural Affairs and the Environment (Richard Lochhead): Good morning. Yes, it is. We set the rates back in 2007, if my memory serves me correctly. The rates before you are just repeats of the rates that have been in place through the whole of the rural development programme and the single farm payment regime.

The rate of modulation is largely dictated by the size of the pillar 2 budget. Needless to say, although modulation has been replaced by flexibility under the new common agricultural policy reforms, the extent to which we transfer from pillar 1, which is direct support to farms, to pillar 2, which is for rural development, will be dictated by the size of the pillar 2 budget that we get under the current budget negotiations.

The Convener: It sounds as though we could be strapped for cash once again, and perhaps more so than last time.

Richard Lochhead: As I have said publicly, it is very unlikely that we will be transferring from pillar 2 to pillar 1, and it is very likely that we will require a transfer from pillar 1 to pillar 2, because of the poor budget that we have in pillar 2. However, the extent to which we do that will probably be subject to a mini-consultation, because that is the first decision that we must take under the reforms. The decision about the extent to which we will transfer from pillar 1 to pillar 2 has to be taken before the end of this year.

The Convener: It occurred to me that it would be useful to get that explanation, as I hope members understand. However, there is no motion to annul the regulations, and no member wishes to make any recommendation.

Draft Budget Scrutiny 2014-15

09:34

The Convener: Agenda item 2 is scrutiny of the Scottish Government's draft budget for 2014-15. I am delighted to say that Richard Lochhead, the Cabinet Secretary for Rural Affairs and the Environment, is still with us, having already spoken in the meeting. I welcome Richard Lochhead and his officials: Jonathan Pryce, director, rural and environment; Linda Rosborough, director, Marine Scotland; and Colin Cook, deputy director, digital strategy and programmes. Is he here? Yes, he is—in the shadows but no doubt in the limelight very soon.

I will begin the questioning, and members will then ask questions on points of interest, as arranged. How was the performance of indicators in the national performance framework that are relevant to the rural affairs and environment budget taken into account in deciding the Scottish Government's overall draft budget for 2014-15?

Richard Lochhead: Thank you, convener, and good morning again to the committee. I am just taking a few seconds to compose myself and recover after being asked to discuss modulation with no notice at 9.30 in the morning. However, I am pleased to have the opportunity to be here before you to discuss the budget.

You have started by asking what is a good big-picture question as we look at the overall performance of the Scottish Government and how we link our performance indicators to our budget decisions. The committee will recall that, back in 2007, the Scottish Government's new approach was to have a national performance framework and use that to guide us in terms of the outcomes that we want to achieve for Scotland in the coming years.

Clearly, there are some performance indicators for my portfolios that show improvement, such as waste statistics; there are other indicators that show that existing performance is being maintained; and of course there are some indicators that show worsening performance. We have a number of environmental performance indicators, such as the abundance of terrestrial breeding birds and the number of fish stocks for which the catch limit is consistent with scientific advice.

I pay attention to the performance indicators when looking at our budgets. Because of the very tough financial situation that we are in, we have, unfortunately, not had the opportunity to make big changes to our budgets. Clearly, I would like to devote a lot more resource to some budget headings and address some indicators for which we have concerns, but I simply do not have the budgets available to do that and neither does the Scottish Government, because of the cuts that we are receiving at the moment from Westminster, as you will know. That said, it is important that I pay attention to the indicators.

We must understand the reasons why some indicators are changing. For example, if there is a decline in the breeding of terrestrial birds, we must understand the reasons for that and the extent to which changing the budgets would influence it. We have some species of bird whose populations are in decline, which has largely been put down to weather conditions, climate change and perhaps the availability of food, particularly in the case of seabirds. I take those performance indicators into account in making policy, so we now have the Marine (Scotland) Act 2010 and we are going to have marine protected areas. A big debate is taking place now on the extent to which a marine protected area should play a role in protecting bird populations. I am engaged in that debate, particularly with our non-governmental organisations and RSPB Scotland, as well as others. In terms of the budgets, Marine Scotland clearly has a big role to play. Over the past few years, its budgets have had to take into account the fact that we now have a marine act in Scotland, and a lot of scientific work is being undertaken to ensure that we are underpinning where the MPAs are located using good scientific evidence. I take such things into account.

The Convener: In your budget areas, what do you think your best performance has been against your performance indicators? In the part of the budget that you control, are there any really outstanding items that we should tell the world about?

Richard Lochhead: Okay—I will take up the next five hours discussing the various successes in my portfolios.

The Convener: Well, just the highlights.

Richard Lochhead: I have to look at the broad picture that is facing rural Scotland. A number of sectors are improving, and I would like to think that our budget allocations and Government policy are playing a role in that. A great deal more resource is going into a project that aims to reduce fish discards and put in place sustainable fisheries. As I said before, Marine Scotland has played a big role in that project, and many trials are now being undertaken of measures such as discard reduction projects and selectivity of fishing gear.

In terms of stand-out budgets, the food and drink budget that we established for the first time a few years ago has made a significant difference. A food and drink revolution is taking place in Scotland just now, not only in exports overseas,

which are breaking all records, but in the domestic consumption of our own larder. We are undertaking many initiatives in food policy to promote Scotland's larder, as well as schemes such as the think local initiative.

We are supporting local food projects around the country so that people can access local food networks and celebrate local food and drink in their own communities, and those are proving to be very worth while. Food education is another aspect that we are funding through our food and drink budgets for the first time. Those budgets are relatively new—they were established in the past few years—but they are paying big dividends, given the success of Scotland's food and drink industry.

During the past few years, we have protected and maintained the innovative climate challenge fund that was established a few years ago, despite the difficult budget situation. Engaging with communities to encourage them to reduce their carbon footprint has been a successful road to go down—it has had cross-party support, and is a highlight in the portfolio.

I could talk for a long time, but there are two or three relatively new budget areas that I feel are paying dividends.

The Convener: Excellent—thank you.

Claudia Beamish (South Scotland) (Lab): Good morning, cabinet secretary. Can you highlight the ways in which the links between the national performance framework—as it develops and is reviewed, including the next review—and the budget might be strengthened so that they become as transparent as possible? At the moment, those links are quite opaque.

Richard Lochhead: Yes, it is a learning process. As I said before, we are trying to link national performance to our budgets and their effectiveness, which is a new way of trying to achieve transparency. We are transparent, in that we publish the performance indicators so that the public and Parliament can look at them and hold the Government to account if certain areas are failing or there is a downward trend.

The performance indicators relate not only to budget decisions but to policy. The indicator on fish stocks shows a worsening performance, but the catch limit is consistent with scientific advice. The current well-documented international dispute over the mackerel stock means that our stock is not being fished within the internationally agreed management regime, and I am told that the mackerel stock accounts for 40 per cent of the indicator. That is a policy issue; it is not necessarily about changing the budget allocation but getting the international dispute resolved, as that is important.

In a wider sense, I am considering how we build carbon reduction measures into agricultural policy, because I am looking at the performance indicators with regard to Scotland's carbon footprint and the role that agriculture plays in producing emissions. In addition we have the climate change targets, so we have devoted some resource from our agriculture budget in the past few years to try to engage all farms in Scotland in the farming for a better climate initiative.

I like to think that the performance indicators play a role, but I do not have a simple answer to Claudia Beamish's question, because linking the performance indicators directly to our budget decisions is a learning process.

09:45

The Convener: There are ways in which the link between the budget and the outcomes could be more transparent for us, because it is the job of committees to try and see what is happening as a trend, and we often find it difficult to do that. Can you suggest ways in which we could do that more easily, so that we can link one budget with the next?

Richard Lochhead: It strikes me that you are highlighting a good issue and it would be useful to have your views, because I am keen to be as transparent as possible in linking back our budget decisions to the national performance indicators. I have given some examples of how those indicators are taken into account, and that is why we think that they are important, but we want that to be a style of government not just for our Administration but forevermore, so that all Governments link their budget decisions to national performance. If you have ideas for how that can be more transparent and better achieved, I certainly have an open mind.

One thing that I could give a commitment to look at is how we present the information under budget headings alongside the relevant indicators. There might be an opportunity to do that, and I would be willing to take that away and come back to the committee with some ideas on how it could be achieved.

The Convener: Thank you very much. We turn now to rural broadband issues.

Graeme Dey (Angus South) (SNP): Although the evidence that we received last week on rural broadband was quite positive, we were advised that achieving 95 per cent superfast broadband coverage by 2018 would require the allocation of additional sums to the project. Do you accept that assertion? If so, how much do you think will be needed and where might that money come from?

Richard Lochhead: It is heartening that we are now discussing rural broadband at committee sessions, because a few years ago it was not high enough up the agenda, and from a rural development perspective I have been keen, as the cabinet secretary, to push rural broadband much further up the agenda. The Scottish Government does not have responsibility for regulating broadband—as the committee will be aware, the issue is reserved to the United Kingdom Government—but we are quite far behind other countries in terms of rural connectivity, so I welcome the fact that the issue is higher up the agenda now. The Scottish Government is keen to step in with Scottish resources to ensure that we do all that we can to connect our more remote and rural communities to the 21st century.

There is now evidence of people leaving rural communities to live in urban areas due to a lack of connectivity. Although we have had traditional conversations about people leaving rural communities because of lack of access to higher education, affordable housing or employment, there is now an added factor, because poor digital connectivity can also lead to rural depopulation. Some rural research that I have seen in the past year or so is starting to show evidence of that, and it should concern us all.

That is why the Scottish Government is focusing on rural broadband and why we have a community broadband fund, to which Graeme Dey has referred. That is to help those communities that are far behind and need to take a big leap forward to find their own solutions. There are some pioneering projects across the country, including one in my constituency at Glenlivet and Tomintoul, which we hope will benefit from community broadband.

On the funding that needs to be made available, across the whole of government, £280 million has been allocated overall, which includes contributions from local government, the UK Government, European funds and enterprise funds as well as from the Scottish Government. It is very much a partnership approach. We have also had further consequentials from the UK Government in recent months, which currently sit with the infrastructure budgets—not my budget, although that may change as we are at the draft budget stage just now. You may have noticed that the budget heading line actually goes down from £40.8 million to £33.8 million. That is because the consequentials have not been added on to the 2014-15 draft budget yet, but there is actually an overall increase in the budget for rural broadband.

I am happy to bring in Colin Cook, who is our expert on digital broadband. It is very handy that he is here, as he can comment on how we estimate what resource is required to address the gap in rural broadband.

Colin Cook (Scottish Government): I will emerge from the shadows, if I am still in them.

In evidence to the committee, our partner and contractor on the next-generation step change fund—BT—expressed confidence that we would hit the target. It based that on its experience in Cornwall and elsewhere. I repeat that from my side of the table.

We have in place a team that has delivered the contract on time to date—it has negotiated it to the agreed timetable. We have huge and enthusiastic continuing support from local government. The money that local authorities have made available is important, but so is the support that they can provide on planning issues, which can delay such projects. Gavin Stevenson spoke enthusiastically about that to the committee.

We are confident that we can achieve the 95 per cent objective by the end of 2017-18. That said, current projections indicate that some regions of the country and some local authority areas will be beneath that target. That is why we continue to lobby and argue for more money. The biggest issue remains in the Highlands and Islands, which Alex Paterson talked about last week, where the percentage coverage will probably be somewhere in the low 80s by 2017-18. We are lobbying for more resources to try to deal with that.

Graeme Dey: When you talk about lobbying for more resources, are you talking about going to Europe or to the United Kingdom Government for them? What sort of additional resources will be required?

Colin Cook: There are two ways of going at it: we can extend the current contract that we have with BT—we will look to do that where it makes sense—and we can provide additional funding for community broadband Scotland so that it can facilitate more communities.

The Chancellor for the Exchequer announced that an additional £250 million was being made available for broadband throughout the UK over the next few years, and we are lobbying to ensure that Scotland gets its fair share of that. Our cabinet secretary, the Deputy First Minister, is making the case that Scotland needs to be included in that.

We also look to lever future European funds for investment in rural broadband. Local government is supporting that. There is a European regional development fund contribution of around £20 million to the current step change project. We look to increase that in future.

Jamie McGrigor (Highlands and Islands) (Con): BT suggests that 85 per cent of premises

will be covered by the end of 2015-16 and 95 per cent by the end of 2017-18. Is there a map showing which areas will not be covered?

Colin Cook: Yes. A high-level map will be published on our website within the next two weeks. A last checking process, if I can call it that, is taking place at the moment—I think that the committee covered that last week—and will carry on for the next couple of months. Once we get to January and the basis of the delivery schedule is agreed with BT, we will be extremely open about it and, on the digital Scotland pages on the Scottish Government website, people will be able to put their postcode into a checker, which will tell them when they are likely to get access to next-generation broadband under the current plan.

We will be completely open once we have data that is totally reliable.

Nigel Don (Angus North and Mearns) (SNP): I wonder if I can go past what is being talked about—forgive me, because this is not really about this year's budget. We would expect to get mains electricity in every household in Scotland, but at what point will we make the conceptual step change that everybody really should have access to broadband? At what point will somebody think about how we close the gap between the 90-whatever per cent and 100 per cent—or get close enough to 100 per cent that broadband is seen as normal?

Richard Lochhead: One of the reasons why we are keen on the community broadband Scotland approach is that it offers a way to tailor solutions to communities that might not be covered by the wider contracts. We have begun that process with the budget that is in place. There are a number of pioneer projects—one has been funded in Applecross, and I referred to another earlier—that will consider satellite and other solutions. Scotland suffers from that gap because of past policies—largely at the UK level, it must be said. We are trying to plug that through the new approach and additional resource.

However, there is a further gap that needs to be plugged, as parts of Scotland will not benefit from even the new approach because of their specific circumstances. Community broadband Scotland was created to try to plug that specific gap, and as a Government we are keen for it to be a success. We will have to build on it to make sure that it is a success and that we get the whole of Scotland covered. We want the whole of Scotland to be on a level playing field. This is not just about ensuring that everyone in Scotland has the same rights; it is about creating jobs and economic benefit. Broadband will help our rural economy greatly, which is why it is really important.

The Convener: During last week's oral evidence session, the committee heard that the £5 million for community broadband Scotland is the maximum allowed under European Union state aid rules. What is your understanding of the position?

Richard Lochhead: I will bring in Colin Cook to answer in a minute, but my understanding is that there is not necessarily a limit on what can go into community broadband Scotland, but there is a limit on how many times the same community can be funded from different funds under state aid rules. If a community was going to benefit from the large contract that has been rolled out across the Highlands and Islands, it could not also benefit from community broadband Scotland. That is my understanding, but I ask Colin Cook to confirm it.

Colin Cook: That is absolutely the case. Community broadband Scotland is a vehicle for facilitating community action. We have not sought an umbrella state aid notification or agreement for its actions; we approach state aid on a case-by-case basis. The projects that we are talking about are relatively small in financial terms. They typically require support of £20,000 to £80,000. We can continue to take that approach. I am not sure where the notion of the cap came from, because we take a case-by-case approach to getting state aid clearance where we need it.

The Convener: I want to pursue the issue. The cabinet secretary referred to communities. In my constituency, fibre will pass through Milton of Kildary, and people who live in Lamington, which is about 3 miles up the hill, are asking whether they are in the same community. Is there a recognition that there is no way that those people will get a signal through the existing exchanges and so on and that they will therefore need to approach community broadband Scotland? Will you be allowed to define "community" much more specifically?

Richard Lochhead: We have just appointed a manager for community broadband Scotland, who will be looking at all these issues. It might be worth inviting him to appear before the committee at some point if you want to discuss the matter further.

Colin Cook: It is almost trite to say this, but community broadband Scotland is about facilitating community action, and the community really defines itself. From January, we will be able to issue all the information that we have about who is going to get what and when they are likely to get access to the fibre to the cabinet project. Realistically, not all communities will get access to that, but communities will know whether they are in the current plans—whether they are in the 95 per cent or the 5 per cent. At that point, communities will be able to make decisions about the approach that they want to take. Of course,

there will be a grey area, as fibre may be extended to 96 or 97 per cent as a result of more money or improvements to the technology. We will be able to have that debate with communities from January.

The Convener: That is very helpful.

On a separate point, I understand that SSE is a major provider of broadband across the country via its pylon lines. Is that included in the overall potential? People have mixed views about pylons, but their views might be sweetened considerably if they thought that they could get access to broadband through them.

Richard Lochhead: We are exploring all innovative ways to try to extend broadband throughout the country. Colleagues in the infrastructure portfolio are in regular discussions with all the power companies about how we can use their assets, not just for broadband but for mobile phone reception. Various discussions are taking place at the moment. I would be happy to come back to you on that specific point.

The Convener: That would be helpful, as the issue is of interest to a number of communities that are close to pylon lines.

We will move on to questions from Angus MacDonald on climate change and the second report on proposals and policies.

10:00

Angus MacDonald (Falkirk East) (SNP): Good morning, cabinet secretary. You mentioned the farming for a better climate programme. The draft budget allocates £300,000 in 2014-15 and £300,000 in 2015-16 to support that programme. RPP2 attributes to that policy emissions abatement of 62 kilotonnes of CO_2 equivalent in 2014 and 75 kilotonnes of CO_2 equivalent in 2015. Are you confident that those emissions abatement levels can be achieved with the funding that will be made available to support the programme?

Richard Lochhead: I am confident that we will go in the right direction and make progress. The most recent data shows that emissions from agriculture are very much going in the right direction. I am happy to write to you after the meeting to give you more detail about the data and statistics.

We are tackling the contribution of agriculture on two or three levels. We are funding advisory services to help every farm business to understand the benefits of changing its fertiliser management and its energy profile. How farms manage their livestock can influence emissions—as we all know, that plays a crucial role in the dairy sector. That advisory activity is important, because farms benefit from adopting low-carbon practice by saving money and becoming much more efficient.

The farming for a better climate programme provides advice and involves four climate change demonstration farms, which build on the monitor farms concept that we established a few years ago. I think that a farmer from one of the climate change farms spoke to the committee recently, and sharing best practice, setting an example and having exemplars in the industry is a good approach.

Another aspect is the common agricultural policy reforms and the greening the CAP approach. As the committee knows, I have said—as recently as in last week's debate in Parliament—that we should take steps to ensure that every farm in Scotland becomes greener. In my book, that includes reducing farming's carbon footprint, as well as tackling a range of other green issues.

I was frustrated in the negotiations on CAP reform that we could not build that approach more explicitly into the greening measures. However, we are looking at how we can use measures that are available under greening to introduce carbon reduction initiatives. We can have equivalent measures: if farmers do not want to adopt what is on the table from Europe, they can qualify for the greening payments if we can show that we have alternative equivalent measures. We are looking at whether any carbon reduction measures would qualify under equivalence.

I am confident that we will change the profile of Scottish agriculture. As I said, the data shows that we are going in the right direction.

Angus MacDonald: You mentioned your frustration over the greening measures. Will you expand on how the CAP negotiations have impacted on the draft budget?

Richard Lochhead: I will explain the frustration that I referred to. There is a debate about greening the CAP to justify the CAP to the public, and to justify the public expenditure. I argued in Europe and with the UK—although the UK secretary of state does not believe that climate change is a problem and thinks that it is a positive thing, so such conversations are sometimes difficult—that, in greening the CAP, we should look at reducing the carbon footprint of agriculture across Europe. That involves the definition of "green"; it is about biodiversity and other issues such as water quality, but it should also be about reducing the carbon footprint.

Unfortunately, none of the measures that came forward under greening, which as you know accounts for 30 per cent of the budget, relates essentially to carbon reduction. There are some issues around permanent grass, which you could

argue is a way of storing carbon and therefore relates to but is not explicitly about carbon reduction. I was disappointed about that. I thought that we should have been adopting some carbon reduction measures as part of the measures to green the whole CAP. We will just have to look at what we can do here in Scotland.

The CAP budget negotiations clearly have a significant overall impact on our budgets here in Scotland. Let us look at pillar 2, which is the funding that is important for the rural development programme and wider rural development measures. Clearly, I will have to take decisions on a budget that is hundreds of millions of pounds less than it could have been, whereas other countries will face much easier decisions because they have much bigger budgets for rural development.

The committee is asking me questions about how we are responding to performance indicators. Many of the answers to those questions—answers that deal with biodiversity, agriculture's role in protecting bird populations and so on—lie within the rural development programme, but the available rural development budgets are much smaller than those in other countries, so I have less ability to respond to some of the challenges than some other countries have.

While 16 other countries negotiated an uplift in their pillar 2 budget, the UK Government decided not to ask for such an uplift. Therefore, Scotland went into the negotiations with the lowest pillar 2 allocation in the whole of Europe, and we have come out of the negotiations with the lowest pillar 2 allocation in the whole of Europe. That will cost rural communities hundreds of millions of pounds between now and 2020. Of course, that does not take into account the impact of the pillar 1 budget—the direct payments to farms. It looks as if we have come out with the lowest payments in the whole of Europe under that pillar, too. Potentially, there will be a potential cost to us of a billion euros between now and 2020 for the pillar 1 budget alone—never mind the pillar 2 budgets that we have just been discussing.

Claudia Beamish: I take the cabinet secretary back to the farming for a better climate initiative. As you said, we took evidence from Ross Paton from Torr farm in my region. Is it called a climate focus farm? I have lost track. However, it was very interesting for the committee and, I hope, for the wider agricultural community to hear from him. The budget has a focus on this, but to what degree do you think that good practice will be enough? Is it necessary to have more robust regulation in our farming community in the future?

Richard Lochhead: That is a good question, which again brings us back to whether the budget is the relevant factor in changing the carbon profile of agriculture in Scotland. I am keen to ensure that we allocate budgets to the advisory services and to the farming for a better climate initiative and support for our climate change focus farms—to give them their proper name—but we have to address the role of regulation, the CAP compliance conditions and so on. It is only right that, in return for public support, agriculture in Scotland should take steps to safeguard our environment and reduce our carbon footprint. I will therefore look at the possibilities from CAP reform and, as I said, at the equivalent measures that we might want to introduce in Scotland as part of greening the CAP.

For example, we must look at engaging all farms in using less nitrogen fertiliser—that would be one clear way in which we could reduce agriculture's carbon footprint. We have set targets in that regard, but there is a debate about whether those should be backed by regulation to ensure that we achieve them. We are looking at such issues.

The Convener: We move on to questions on EU support from Jim Hume.

Jim Hume (South Scotland) (LD): Good morning, cabinet secretary. On EU support and related services, I note that the new CAP will not be in place for 1 January 2014. The Scottish Government has made an announcement about transitional arrangements, but the change will perhaps result in fewer rural development measures being in place. Will the Scottish Government make a saving on its rural development budget spending in 2014?

Richard Lochhead: We are having to budget for circumstances that we cannot quite predict. I have said that, during the gap year between the existing Scotland rural development programme stopping and the new one beginning, I want certain schemes to continue and we will use domestic funding for them. That includes woodland grants, less-favoured area schemes and support for new entrants, and we are considering what else we are able to fund to plug the gap. Under the proposals from Europe, we are allowed to plug the gap for the things that I have just mentioned, but we are not allowed to continue support for food and drink budgets or, I understand, for LEADER.

The budget continues the budget lines for the areas that I mentioned on the assumption that, if we cannot use European funds, we will have to use domestic funds in some shape or form to support them. That is why the budget lines for those measures are not being reduced for the transition years. We recognise that we must, first, argue with Europe to allow us to continue those programmes and, secondly, look for alternative ways in which to support the communities that

might lose out if they cannot use the rural development programme or equivalent measures.

Jim Hume: I appreciate the complexities of the situation but—just to clarify—will your Government put in more or less than last year overall from its own budget rather than from the EU part?

Richard Lochhead: We will not make a saving. If anything, we will use additional resource because we will have no European funding. If we want to come remotely near the same level of support for certain projects, we will have to add in more domestic funding.

Jim Hume: That clarifies the point.

The Convener: Graeme Dey has a supplementary question on that issue.

Graeme Dey: Thank you for indulging me, convener. I have a layman's question. You talked about plugging the gap. Will you be able to recoup the funds retrospectively? Will you get them back from the EU eventually, or is it just that Scottish Government money has to be found from somewhere to plug the gap and that it will then be gone?

Richard Lochhead: We will have to use Scottish Government money. We do that in any case, but we usually get part of the funding from Europe and part from the domestic budget. In this case, we will have at least to keep the areas financially supported through our own domestic budgets.

Given the way in which the years work out and when we claim the European money back, we will be able to smoothly use European funding for less-favoured area support scheme payments, which are the biggest payments. I do not want to mislead the committee by saying that we will use purely domestic money for the year. Given the arrangements for the year in which we claim the money back from Europe compared with when we pay it out to our farmers, there is enough flexibility to allow us to continue LFASS through the gap year. In the big picture, those payments will still benefit from European funding, but for the other areas that I have discussed we will have to plug the gap from domestic funds—I guess wholly.

Graeme Dey: Thank you. That is helpful.

The Convener: We go back to Jim Hume.

Jim Hume: That was a useful question.

I would like to explore more deeply the EU support and related services budget. The business development budget line increases by £4.1 million in 2014-15, which is explained in the text as

"reflecting the pressure that may arise from less EU funding for SRDP during the 2014-15 transition year."

That is fine, but in 2015-16 there is a further £25 million increase. What is that to be spent on?

10:15

Richard Lochhead: To answer your initial point, that is an example of where we are budgeting in the expectation that we will require more domestic resource to meet some of the pressures. There is therefore an increase in the budget.

The £25 million budget increase is due to the financial transaction ability that we now have through the UK Government's financial transaction policy, which is effectively for loans. I have bid for part of that under my portfolios, although we have not yet decided how to use that funding. That comes from a new mechanism that has been made available by the UK Government, and we have the ability to use part of it in Scotland.

The bid that I have made is for around £30 million. The budget head that you see is plus £25 million. The £30 million is effectively sitting in the budget at the moment, because I bid for it. There will be an ability to loan to certain sectors but, as I say, we have not yet taken a decision on how to use the funding.

Jim Hume: Speaking through the chair—sorry: I should say "through the convener", as I do not want to call you an inanimate object—I think that sounds quite interesting. I realise that you do not have the exact detail for that, but could the funding be described as for soft loans for helping enterprises in the rural environment under your portfolio? Do you have any early thoughts as to what you may use the funding for on the ground?

Richard Lochhead: It could be used for a variety of things. We have to be careful how we intervene in any particular sector. It is certainly for loans and not grants—just to make that point clear. Be it in the food industry or in fisheries, for instance, we will have the ability to intervene where we feel that interventions are required to secure a reasonable resource to help a sector to adapt. Because we are in the early stages, I just had to bid for the money. Looking across some of my portfolios, I can see a need for the funding, but how and when we use it is still up in the air at the moment.

Jim Hume: Thank you.

The Convener: We return to the subject of zero waste.

Richard Lyle (Central Scotland) (SNP): Good morning, cabinet secretary. You have spoken about performance indicators and what your successes have been. One of the successes that you have had since 2007 has been an improvement in waste recycling. I am concerned,

however, about one point in the budget that is described as a technical adjustment. The funding for zero waste has been reduced from £26.4 million to £23 million. "Technical adjustment" is quite innovative terminology; I always thought that that was a cut. Can you give me the reason for that technical adjustment? Are you confident that the budget of £23 million for 2014-15 is sufficient to support the delivery of Scotland's zero waste plan, which you have been the main driver behind?

Richard Lochhead: I welcome your comments on our zero waste policy, which I believe is making a genuine difference. It is a very ambitious policy, which is setting a much higher standard. Other countries are now looking to do what Scotland is doing regarding waste regulations and our desire to understand how the whole concept of the circular economy can benefit Scotland.

I have great expectations about what the policy can deliver for Scotland's economy, as well as how it relates to our environmental footprint in the years ahead. The policy is on what is very much a medium to long-term path but, now that we are on that path, the policy is already paying dividends.

Did you know that I have commissioned a feasibility study into deposit-and-return schemes? We are also introducing a levy for carrier bags. There are a number of measures in the pipeline, which I think will help Scotland greatly.

As far as the budget is concerned, many of those measures are delivered for us through Zero Waste Scotland's programme. Its budget remains flat: £23 million from the budget goes to Zero Waste Scotland, and that will continue to be the case.

The reason for the change is a technical matter. It takes £3.4 million from that line, but there is a correspondent increase in the natural assets and flooding line, where that money is much more relevant. We have simply taken it from zero waste and put it into the natural assets and flooding line, which is where it really belongs. We thought that that made more sense. The figure has gone down in one budget and up in another budget.

Richard Lyle: That is commonly known as shifting it.

Richard Lochhead: "Shifting it"—or "technical adjustments", as we like to say in my colleagues' language.

Richard Lyle: I thought that that was really innovative.

I agree that we have too much waste from carrier bags. My wife now takes her own bags when we go shopping. It amazes me how many shops ask whether we want a bag for one item. I take great delight in saying "No. I want to save the planet." Do you know how much we will raise from the levy on plastic bags and where that money will go?

Richard Lochhead: A central part of the regime is that the money will go to environmental causes. Our bigger retailers will have to publish the details of where the funding goes in order to be transparent. I think that that is the right way to go forward.

The model is successful in other countries. Clearly, it is a win-win situation, because it will raise funds worth a few million pounds per year for environmental causes. Obviously, the more that people reuse their existing bags, the fewer bags they will buy, which means that less money will be raised over time for environmental causes. However, that will be a sign of success, as time goes on.

I am happy to send you the figures. There is a grid of estimated figures for the coming years of what sums could be raised for environmental causes.

Richard Lyle: Thank you.

Jayne Baxter (Mid Scotland and Fife) (Lab): Good morning, cabinet secretary. I am going to ask some questions about food and drink, to which you referred in your opening comments.

It is heartening to see the progress that has been made and the achievements in the food and drink sectors. I am interested in local food initiatives and how our budgets can be used to support food initiatives such as the think local project. You mentioned the circular economy in answer to a previous question, and I am interested in the issue of shorter supply chains. How are we going to develop and support such approaches, move away from just project-based activity and change the way in which the sector works? Is there any scope for looking at such issues?

Richard Lochhead: That is a very good topic and something that I am very interested in.

Again, I am proud of the fact that we have taken some measures over the past two years, by creating certain funding streams out of the food and drink budget line, that have never been taken before. The think local project, to which you referred, is one example. It is about supporting local food events and initiatives whereby there are, by definition, shorter supply chains, and encouraging people to eat more of the food that is on their own doorstep.

We are also looking at some industry initiatives as well. I recently visited a food business, which might be in my colleague Angus MacDonald's constituency, and I discussed with the management where the ingredients came from for the ready meals that the business makes for

Marks and Spencer. It is clear to me, having visited lots of other such companies in the past couple of years, that if we can urge our manufacturers to source more ingredients locally, there will be an economic benefit for local businesses.

We are now funding the Scottish Agricultural Organisation Society to consider how we can encourage food manufacturers to source locally, which they would often happily do. We might buy a locally prepared salad from a supermarket shelf, but I want the tatties, onions and carrots to be from Scotland as well. There is untapped potential in that regard.

We are investing in those sorts of initiative. If you are asking me whether we are investing enough, I say that I would like to have much bigger budgets available in the future for such initiatives, because I think that there are really big dividends to be captured from them for the Scottish economy and our food and drink sector, and for local food as well.

Jayne Baxter: That leads us nicely to my next question. A lot of funding is going into the food and drink sector. Do you think that there will come a point at which the cost benefit analysis indicates that the sector could continue to develop with less funding, or can you justify continuing to increase the funding on a never-ending basis?

Richard Lochhead: In the foreseeable future, given the success of our food and drink industry in Scotland—and I am utterly convinced that we are only scratching the surface—we should continue to invest and, if we can find the opportunity, to increase our investment.

I visit companies all the time whose orders are going through the roof. There is an increase in the cost of raw materials, so their profits are not always going through the roof, but the volume of sales is increasing and, in many cases, the profits are also going through the roof, especially in the whisky industry.

However, we are still scratching the surface, so we must seize the moment for the Scottish food and drink industry. The next few years will be as crucial as the past few have been in terms of continued investment. That is why I am keen to use the next rural development programme to support food businesses to develop and expand, as well as the food and drink industry budget line that you are looking at now.

Finally, where overall budget decisions are concerned, it is becoming increasingly clear to me that our food policy will need to be refreshed. We want to continue the good things, but we might want to find new dimensions. Food is not just about what we produce but about what we eat. Although food policy is about industry and about business being successful and developing, it is also about other things in society. I would therefore like to see food budget headings increased in the future.

Jayne Baxter: Thank you.

The Convener: Moving on to the subject of research, we have our own don here—Nigel Don.

Nigel Don: The first thing to say on the research budget is that I am pleased to see that it has more or less stood still, because it would be a relatively soft budget to have a go at if needs must. I note that the level 4 commentary suggests that the small reduction has been delivered through a combination of efficiency savings, completion of specific work and support of the main research providers through alternative sources of funding. Can the cabinet secretary expand on what alternative sources of funding might be available?

Richard Lochhead: As Nigel Don will be aware, we are lucky with our research institutions in Scotland at the moment. In virtually every case, they are building up an international reputation for excellence, and that reputation attracts funding from the private sector and from outside Scotland. When I meet the research providers, I am always fascinated by the great stories that I hear about the new contracts that they have won for research in animal health, climate change and other fields.

We are lucky with the expertise that we have, but the more external funding they can attract the less reliant they are on public funding. There is certainly a case for public funding, which I have always defended and protected. Over the past few years, despite the tough budget decisions that we have had to take, there has generally speaking been a flat budget for research providers in Scotland. They have not had to suffer the cuts that other agencies and sectors have had.

I have done my best to protect the research budgets, and the level 4 commentary to which Nigel Don referred makes that very point. However, we expect our research providers to continue to explore external sources of funding, and they are very good at doing that. They always make the point to Government that if it was not for our funding they would not be able to attract the external funding to match it, to establish the programmes in the first place or to attract external funding thereafter. We are protecting the budgets and there is a small decrease, but we expect the research providers to continue to source external funding.

Nigel Don: That eloquently expresses the dilemma. You have to support those institutions to be truly excellent if other people are going to invest their money in them. If at any point you allow that excellence to disappear, the other

funding goes with it. That applies not just to those institutions but also, of course, to our universities.

Richard Lochhead: Again, I agree with that. That is why I went out of my way to protect the research providers' budgets over the past few years of difficult budget negotiations and irrespective of the cuts to the Scottish block by the UK Government.

I will do my best to protect those budgets, but I do not want any institution—be it one of our fantastic research providers or any other institution—to rest on its laurels. Institutions must have a commercial dimension to what they do, as we want to attract as much external funding to Scotland as possible.

Members have the figures in front of them: the budget for research programmes is £56.7 million in 2013-14 and £55.7 million in 2014-15. In the past, such funding has attracted around £23 million of external funding, so—as members can see—every pound that we put in helps to attract external funding.

10:30

The Convener: Very good. Claudia Beamish has a supplementary on that.

Claudia Beamish: Yes—I wanted some reassurance on efficiency savings, as I find the idea that those could be made in research and analysis a bit perplexing. Can you shed any light on that?

Richard Lochhead: With regard to the research providers?

Claudia Beamish: Yes.

Richard Lochhead: We have been asking our research providers to find efficiency savings because, even though we are trying to protect the budgets, we are not in a position to offer increased budgets. There is no doubt that the providers' costs are increasing at the same time, and they have to attract the best staff, so they must ensure that they are being as efficient as possible with the budgets that they have.

In the past, we have engaged with research providers to work better together, and—as members will know—there have been some mergers. There are, therefore, successful examples of efficiency savings that I do not believe have compromised the research work that institutions are undertaking; there is certainly no evidence of that.

The research providers continue to go from strength to strength. The mergers and the closer working, which avoids duplication, mean that institutions can be more efficient, and I hope that we are still in a good place in that regard.

Claudia Beamish: Do the efficiency savings also apply to the Scottish Government?

Richard Lochhead: We have undertaken massive efficiency savings across the Scottish Government—one has only to look at how dramatically the Scottish Government's administration budget has been cut in the past few years to see how efficient our own staff and portfolios have had to become. It is fair to say that our own colleagues have taken on their fair share of efficiency savings.

Graeme Dey: When I have spoken to research providers, they have expressed frustration with not the funding from Government, but the extent to which their work is promoted by Government—not the Scottish Government, but the UK Government through the Department for Environment, Food and Rural Affairs. The good work that is done in Scotland is not always pushed across the European Union in a way that could lead to external funding.

Has that frustration been expressed to you?

Richard Lochhead: There is no doubt that our research providers are giving a lot more attention to European sources of funding. We have an international reputation and our providers want to capitalise on that by attracting European funding.

There have been some budget issues south of the border, and some of our institutions have raised with me the impact of the cuts. Many of the budgets that are affected are UK budgets that apply to institutions across the UK and not just south of the border, so our institutions suffer as a result of the cuts from down south. There is therefore a great incentive for our research providers not only to tell their Government how important that funding is, but to source—we hope—external funding from elsewhere in Europe. That is certainly an issue, but there is not much more that I can add as I am not a research provider.

The Convener: We come to marine issues and fisheries. Claudia Beamish will go first.

Claudia Beamish: Cabinet secretary, I draw your attention to page 98 of the Scottish draft budget, which states:

"The need for marine expertise and capability is growing, and will continue to grow with the development of renewable energy and ever increasing international obligations and requirements."

The following page states:

"In 2014-15 and 2015-16 we will"

—as the final bullet point notes—

"sustain our science base to provide robust evidence in support of policy developments and delivery."

Given the complexities of development interests and how they fit with the marine protected areas, which you highlighted in your earlier remarks, I am curious to know why Marine Scotland's funding is declining from £49 million in 2013-14 to £47.9 million in 2015-16. Will you comment on that, please?

Richard Lochhead: I recognise the additional pressures that Marine Scotland faces. In the past few years, in the context of cuts across Government, we have managed largely to protect the Marine Scotland budget and, indeed, increase it at times. However, at the same time, Marine Scotland has undertaken efficiency savings.

On the small budget cut to which you refer, which works out at 1.2 per cent, there was a transfer of £400,000, which simply went from the Marine Scotland budget into the Scottish Government's central administration budget because it is for information technology costs that it will pick up. That transfer accounts for £400,000 of the figure. A further reduction of £1 million will be delivered by reducing administration and operational costs and trying to increase receipts at the same time. That is just a case of efficiency savings.

It is worth saying that because of the significant responsibilities that Marine Scotland, as you rightly highlighted, has in respect of offshore renewables, marine protected areas and continuing fisheries science, it is recruiting more scientists and going to great efforts to ensure that it attracts great talent. I do not want the committee to have the impression that there is a decline of expertise in Marine Scotland because of efficiency savings. It is recruiting more talent into the service at the moment.

One issue with which we always wrestle is to what extent we should increase receipts for Marine Scotland. It carries out many licensing functions, from which there are receipts, but we should always keep such matters under review because we must ensure that Marine Scotland is equipped to deal with the industries that it serves. The industries should pick up part of the tab for doing that. I do not have a clear proposal yet in that regard but I am sure that, as part of the wider debate, the committee will want to be aware that we must ensure not only that we devote public funds to supporting industries but that successful industries put something back into the pot.

Claudia Beamish: In evidence that has come to the committee in the past few months, particular concerns have been expressed about the feeding grounds for seabirds, for instance. To go back to the RPP and future research, which will be important for blue carbon, I seek reassurance from you on the importance of helping to accommodate future conservation of the marine environment given the range of developers that are coming forward.

Richard Lochhead: Many of the issues you raise are new, 21st century agendas. We have been building up a lot of expertise on the future of our marine environments as well as how we underpin marine protected areas with scientific evidence.

I make the obvious point that, in every subject with which I deal, the answer is often that we need more research. There are only so many people in the world who can be top researchers in their chosen field and, although we always want to carry out more research into a range of activities, I can never fulfil the expectations of NGOs and the others who are always calling for more research.

I sympathise and agree with many of the calls that we receive for more research, because we want as much information at our fingertips as possible, but it is simply not possible to fulfil people's expectations for more and more research in every subject, so we must prioritise.

We have a research programme that is being followed by not only Marine Scotland but Scottish Natural Heritage and the Joint Nature Conservation Committee, which is a UK-wide body. Research on the issues that you mentioned, such as bird populations and the marine environment, is often carried out jointly by SNH and the JNCC, with a role for Marine Scotland as well in some cases. Some of the issues that you mentioned are therefore not just for this budget.

Jamie McGrigor: What additional responsibilities will Marine Scotland have at ports due to the common fisheries policy reforms, especially in relation to extra landings and unwanted species? Have those been accounted for in the budget?

Richard Lochhead: A lot of discussion is going on about that. We have a lot of detail to work out in considering how to implement the new common fisheries policy. The landing obligation for fish caught outwith quota, which is part of the discard bans, will be challenging to monitor and police, and a lot of thinking is going into how to do that on the ground. Clearly, Marine Scotland compliance officers are already in place and are doing their existing job, and they will have to build that into their responsibilities. They are based at the ports.

I ask Linda Rosborough to comment because she heads up Marine Scotland and is wrestling with all these new issues that are coming on to the agenda, so she can perhaps give you a bit of insight.

Linda Rosborough (Scottish Government): It will certainly be challenging to deliver a land-all obligation and we will need to work on that on a

regional basis with our partners. Work has started on setting up the structures for that to happen, and we have also started the pilots, which are looking at the technologies, behaviours and management regime that might work. We will study the implications carefully, and they will have to be worked through in terms of the European structures.

On your question about the money and the resources to do the work, a key element of that is the new European maritime and fisheries fund that is coming along. That is still under negotiation in Europe; it has been delayed from January next year, which might have been thought to be the start date. The original ambition was that the common fisheries policy reform and the new grant scheme would come in at the same time. Now, the earliest that we might expect it to be agreed is April next year. That is quite a challenging timetable.

There is an increase in the budget line in relation to European fisheries grants specifically to allow for the new programme coming in—it will be a key part of funding the new requirement under the common fisheries policy—at the same time as the European fisheries fund, with its existing responsibilities, finishes. That is why we have the uplift in the budget line.

Jamie McGrigor: There appears to be an inconsistency in the draft budget for 2014-15 as it states that there is a £1.8 million reduction rather than the actual £3.3 million reduction. The reason given for the reduction is that it reflects

"realistic levels of spend at the beginning of the next programme, which has been delayed until later in 2014."

What is the reason for that, and what might be the subsequent effect on the fishing sector?

Linda Rosborough: The difference between the figures that you mentioned in your first question is the difference between the net and the gross figures. The £1.8 million figure is the Scottish Government's contribution, and £3.3 million is the total, allowing for the European contribution.

Secondly, you asked about the delay. The reason for that is exactly the issue that I have already mentioned. The agreement on the measure at the European level was decoupled from the common fisheries policy negotiations and is taking place on a slightly slower timescale. Therefore, the programme will start not on 1 January 2014 but later in the year, on a date that we do not yet know.

10:45

Angus MacDonald: I will stick with marine issues. Linda Rosborough mentioned the European maritime and fisheries fund. I am keen to hear the cabinet secretary's views on that fund and its impact on the draft budget. In July, the cabinet secretary said that Scotland's fishing and aquaculture sectors deserve a fairer share of the EMFF, particularly given that Scotland has 61 per cent of the UK's fishing zone and 17 per cent of the EU's total employment in aquaculture. Has a fairer share of the EMFF been forthcoming? What has been the impact on the draft budget?

Richard Lochhead: Thank you for raising that issue, which follows on from the previous exchange. We have again put the case for a fairer share of an existing European budget, but I am disappointed that, just as our farmers and rural communities have lost out because of the UK Government's unwillingness to stand up for us in Europe and secure a fairer share of the agriculture and rural development budgets—from which other countries received uplifts, despite starting from a better place than Scotland was in—so the same situation applies to the fisheries funds. We get 40 per cent of the UK's allocation under fisheries funds, but we estimate that we are entitled to 60 per cent. We will continue to make the case for that.

In the wider European negotiations, the UK Government did not want to argue for a greater share of the fisheries funds for Scotland. The examples of what other countries received show in stark terms how much Scotland is losing out on. Under the current arrangements, our share is a third of what Denmark receives and less than half of the allocation to Latvia. Scotland—a coastal, fishing and marine nation—gets a poorer share by far of the marine and fisheries funds than is given to those countries, which are the same size as or smaller than Scotland, and although we are in a much better place to argue for a greater share of the funds because of the importance of coastal communities and fishing industries here.

That is what happens when the UK Government does not share our priorities. We were unsuccessful in persuading the UK Government to argue for a greater share of the fisheries budget for Scotland.

As with the agriculture funds, the debate has turned to how we split the UK budget under the fisheries funds. I assure you that I will continue to make the case that we deserve a greater share of those funds, which are used, for instance, to adapt to discard-free fisheries; to help fish processing and onshore sectors to expand and build new, better or more efficient units; and to help fishing vessels to become more energy efficient. The funds support an array of projects. Because we are getting less than our fair share, not as many projects will benefit the Scottish economy as could have benefited it.

Angus MacDonald: I presume that you will press the case with the new fisheries minister in the UK Government. Has the UK Government's justification for its stance been explained?

Richard Lochhead: You mention the new fisheries minister, whom I very much look forward to meeting. I wish the outgoing minister, Richard Benyon—with whom I worked well—all the best for the future. He was a good man to work with and I hope that he has a good future ahead of him. I thank him for working with me in the past three years or so.

I am disappointed that we face the prospect of having to educate the new minister who has been appointed and familiarise him with the situation. I think that he is the fifth such minister that I have had to deal with in the past few years. I will have to ensure that he is brought up to date as soon as possible with Scotland's priorities, the nature of Scotland's fishing communities, the big challenges that we face and the asks that we have, particularly as we are on the eve of the next round of talks to resolve the mackerel dispute. We are also on the eve of implementing the new common fisheries policy and of the end-of-year fishing negotiations.

Once again—for the fifth time, or it might even be the sixth time; I will have to calculate, as I have lost count—I will have to spend a great deal of time and effort to bring the UK fisheries minister up to speed on what really matters to Scotland.

The fact that there has been such a high turnover of fishing ministers in the UK Government perhaps illustrates a lack of commitment. The lack of continuity causes significant problems for other Administrations and, first and foremost, for our fishing industries and fishing communities, which have to get used to the new face and have lost the person with whom they were dealing closely.

I have got that off my chest. I very much look forward to working with the new minister and am very keen to meet him as soon as possible given the number of pressing matters on our agenda. I could say the same thing for agriculture ministers, because my agriculture counterpart from Whitehall has also been moved on, so I have another new face to get to know. I have a lot of introductions to do over the next few days.

The case that the UK Government makes for fisheries funds is clearly one issue to which I will ask the new fishing minister to take a refreshing approach that perhaps shows more sympathy for Scotland's case for a better share of those fisheries funds. As I said, we are in the middle of the debate about the allocation of the UK's fisheries funds, so I await with interest to hear how the UK Government defends the status quo.

The Convener: I have a couple of supplementary questions, but I will recommend to my committee colleagues that we invite Dan Rogerson, the agriculture minister, and George Eustice, the fisheries minister, to come and speak to the committee—as their predecessors did—at an early stage so that we, too, can get a handle on their approach to these urgent matters.

It was interesting to pick up concerns at the Scottish Fishermen's Federation dinner about whether the views of fishermen on the actual levels of stocks and so on, which are now sought, are being taken seriously in the process. Although they are collaborating with the science, how well are their views being taken into account when the quotas are being debated and agreed?

Richard Lochhead: First, we should highlight the good news that Scotland's fish stocks are recovering. That has largely been down to a huge effort from our fishing fleets, which have made significant sacrifices, have gone through constant change and adaptation, have had to adopt new technical gears and selective gears and have had to deal with a myriad of complex European regulations and sometimes also Scottish ones.

I pay tribute to the fishing industry for how far we have come, but clearly there are many diverse issues across Scotland's fisheries. The issues facing a Western Isles prawn fisherman are different from those facing the Clyde fishermen, which are different from those facing the north-east of Scotland fishermen. Vessels vary from the large vessels in the mackerel sector down to the small inshore vessels of Pittenweem or south-west Scotland. We have a diverse sector.

As you can imagine, I have many robust debates about the future of fishing policy with many different sectors on many different subjects as we face up to on-going significant challenges on certain fish stocks in many local areas in Scotland. Nevertheless, we should recognise that the general picture on the recovery of fish stocks is more positive than it has been for a long time.

As we address some of the challenges, I always want to explore new ways to involve the fishing industry at the heart of decision making and to help us collect the data that we require in the first place and work with our scientists to ensure that we have the best possible information. I was very pleased when I recently visited the University of Aberdeen to see a training session for skippers who had been invited to come along to work with the scientists. Once they have done that training, they can participate in some trials for us—for the Government and Marine Scotland—with their vessels. I want to engage our skippers and fishermen closely with the science and help them to help with the science when they are at sea by

collecting information and feeding it back into the process.

Indeed, the committee will be aware that we launched a £6 million package—out of this year's budget, so perhaps it is not really part of today's discussion of next year's budget—and half of that funding goes towards working with the fleets on scientific trials and employing the fleets to undertake some of the scientific work for us. That is partly why that training course took place.

I think that we are moving forward. It is a difficult policy area as there are many different views and it is a diverse sector, so I am not saying that regulators and fisheries ministers are always the most popular people with our fishing communities or our fishing industry. However, we are working well together in a number of key areas.

The Convener: I want to highlight the citizen science involved, which is an important concept. I hope that the fisheries labs will increasingly take on board the fishermen's views as they become involved in the process of working on the scientific trials.

On a technical matter, we talked about how fish are handled—how we are dealing with stocks at sea. Are we looking for stocks to be handled by being weighed at sea? If there are going to be issues related to discards or unwanted species, is it possible that all the amounts could be weighed at sea in future, rather than having to be weighed or sampled onshore?

Richard Lochhead: Clearly, we have the new weighing regulation from Europe, which had some teething issues and was causing some concern among our fishermen about how to implement it in Scotland. Of course, we sought some flexibility to help us with that. Weighing at sea is something that should be considered and I am happy to write to you on where we think we might go with that in the future.

Linda Rosborough: We are looking at some interesting trials of how the landing ban would be implemented. How we can account for everything that comes on to a ship is a key part of that, so we are actively working on that with skippers.

The Convener: It would be useful to get some more information about that, because there are ports and fishermen who would like to be up to speed on that.

We have a couple of questions about onshore matters next.

Jim Hume: Back in 2001, I was presiding over the Lothian and Borders National Farmers Union, so I remember well everything about the foot-and-mouth disease outbreak—God forbid we ever see such an outbreak again. One of the issues then was that, although animal health was a devolved matter, the budget was reserved, if I recall correctly. I believe that that was changed in the last parliamentary session. Do you have an identified contingency fund within your budget for any future outbreaks of diseases such as foot and mouth? As I said, God forbid that there are any.

Richard Lochhead: I am pleased that Scotland's animal health record is getting better all the time. I am grateful that we do not have to deal with some of the animal health issues that other countries do. I feel for them having to go through what they are going through just now—in particular, what they are going through south of the border with bovine tuberculosis and the eradication plan that they have in place, which is clearly very painful for all parts of the debate down south.

Clearly, my priority is to ensure that another foot-and-mouth outbreak does not happen in Scotland. If there is another outbreak, there is definitely a contingency plan, but there is no contingency fund. That is not Government practice.

Before the animal health budget was devolved from Westminster, the debate during previous outbreaks was to persuade the UK Government to access the UK Treasury contingency, which of course the UK ministers refused to do. As a result, we did not get UK funds to help us cope with the additional cost of dealing with those outbreaks in Scotland. The animal health budget has been devolved since then, as you rightly highlighted, but we do not keep a contingency fund and any requirement for such a fund would be a cross-Government issue. We would expect the Scottish Government to step in, and I would knock on John Swinney's door if that were the case.

11:00

Jim Hume: Are you saying that it is common practice for all Governments not to keep such a fund?

Richard Lochhead: It is not recommended as good practice for how I steward my finances across my portfolios. I think that you will find that the position was exemplified by the UK Government's recent refusal to access even its Treasury funds to help Scotland. I doubt that DEFRA has a contingency fund for a foot-and-mouth outbreak. All that I am saying is that, should such an occasion arise, the policy is that the wider Scottish Government would step in to help.

Graeme Dey: Can you outline the process for identifying and allocating carry forward from previous years' budgets? Can you advise us whether you have any carry forward to play with from last year?

Richard Lochhead: I will ask Jonathan Pryce, who deals with our finances and our financial colleagues elsewhere in the Scottish Government, to respond in a moment. However, in essence, the answer to your last question is no. Clearly, there is flexibility across the Government that takes into account the circumstances of each portfolio. For example, we have had a hardship fund for weather payments for agriculture and we have also recently delivered a £6 million package for the fishing industry, which I just referred to. For some of those circumstances, we have had to ask for help from outwith our portfolios and the Scottish Government has worked collectively on such issues. Jonathan might wish to add something.

Jonathan Pryce (Scottish Government): I will reinforce that point. We manage the Scottish Government finances across all the Scottish Government portfolios. If there were a question of a carry forward, it would not sit with the individual portfolio. As the cabinet secretary explained, we take advantage of that. As the year goes on, emerging underspends in some parts of the Scottish Government are offset against overspends in other parts. The rural and environment portfolio has made use of that.

There is a Treasury mechanism called the budget exchange mechanism, which enables resources to be carried forward in the overall Scottish Government budget from one year to the next. However, that is managed centrally by John Swinney and his finance team.

The Convener: We will move on to equalities issues.

Claudia Beamish: As you will know, cabinet secretary, all parliamentary committees have been asked by the Equal Opportunities Committee to look at the mainstreaming of equalities across the range of portfolios. As we all know, of course, an equalities statement is issued with the budget and this year, perhaps in synergy with the Equal Opportunities Committee, our committee agreed to focus its inquiries in this respect mainly, but not exclusively, on disability issues in rural areas. Obviously, some disability issues will come within your portfolio—for example, the assessment of disability in relation to rural broadband and the possibilities there. As well as working on equalities issues in your own portfolios, what discussions have you had with Cabinet colleagues and what work have you done with them to ensure that equalities issues in remote and rural areas are reflected in the development and delivery of policies in health, transport and education? That is a broad-ranging question.

Richard Lochhead: Yes, it is a very broad question. However, the reason why the Government publishes an equalities statement alongside the budget is because equalities is a very important issue and we are conscious that we must be mindful of testing all our policies to ensure that people who are disadvantaged or who face difficult circumstances are not precluded from benefiting from our policies. For example, the Forestry Commission has high up its agenda the need to ensure that people with disabilities can access forest estates for leisure and health reasons. Likewise, the national parks authorities factor the issue into their work.

You mentioned broadband and transport. My colleagues have primary responsibility for those portfolios and we coordinate with them on the rural dimensions. Equalities issues are largely driven by the relevant minister—so the transport minister would drive equalities issues in relation to transport, and Nicola Sturgeon, who has responsibility for infrastructure, would drive issues in relation to rural broadband. Of course, I interject so that there is rural-proofing, to ensure that there is a rural dimension across all Government policy. We are very conscious of the matter in relation to our portfolios—the issue is largely about access to the outdoors in that regard.

Claudia Beamish: Thank you. Can you reassure me that, in discussions about the budget with Cabinet colleagues in other portfolio areas, equalities issues will continue to be raised? For example, I am thinking about the accessibility of modes of transport in rural areas.

Richard Lochhead: Yes. I will make a point of giving the matter attention, to ensure that we can give you comfort on that point.

Claudia Beamish: Thank you.

The Convener: We have a number of questions about how equalities issues fit in, but first I will bring in Jamie McGrigor, who has a supplementary question.

Jamie McGrigor: Cabinet secretary, on increasing the number of people who can use the outdoors, are you aware of Highland Disabled Ramblers, which is based in the Black Isle? I have to admit that I am honorary president of the organisation, which uses scooters to get people on outdoor rambles. It is a very good model, which could be followed in other parts of Scotland.

Richard Lochhead: Thank you for the information. I cannot profess to be familiar with the organisation, so it is interesting to hear your comments. There is an initiative that is funded through the climate challenge fund, through which electric bikes have been introduced in areas around Scotland, including Aviemore, to enable people to get out who might not otherwise be able to cycle long distances.

As I said, we are keen to help in any way we can. We build in support for the national parks

authorities and the Forestry Commission to ensure that there is access for people of all abilities.

The Convener: Let us get into policy. It says on page 58 of the equality statement:

> "EU programmes run on a seven-year cycle ... The opportunity to design these programmes to impact positively on equality groups in the future is an ongoing task".

In relation to the rural portfolio, how can we find out what steps are being taken to design programmes that impact positively on equality groups?

Richard Lochhead: I will be happy to write to you about current work with the rural development programme. We are in the middle of a consultation and we will have a further consultation on the SRDP—in November, I think. As part of the consultation process and as we rebuild the seven-year programmes, we will take the matter into account. I can write back to you on how that will be done.

The Convener: That would be helpful, thank you. Did Jayne Baxter have a question?

Jayne Baxter: I think that it has been answered, convener.

The Convener: I think that we have covered most of the houses. I thank the cabinet secretary and his officials for their answers, which give us a chance to make as constructive as possible a contribution to the budget debate.

11:09

Meeting suspended.

11:16

On resuming—

Draft Scottish Climate Change Adaptation Programme

The Convener: Our final item is on the Scottish Government's draft Scottish climate change adaptation programme. Our panel of witnesses consists of Kay Jenkinson, a communications specialist with the UK climate impacts programme; Professor John Rowan, professor of physical geography at the University of Dundee; and David Thompson, senior analyst at the Committee on Climate Change. I welcome you all.

There are a number of themes that we wish to examine. They are broad ranging, so questions will flow from the initial points on each theme. As regards the impacts on Scotland, can you summarise the scale of the challenge that Scotland faces in adapting to the climate change that we are currently expecting?

David Thompson (Committee on Climate Change): I do not know whether you are aware of the report that the Committee on Climate Change published a couple of years ago, "How well is Scotland preparing for climate change?" In that report, which was published in November 2011, we summarised at quite a high level some of the key threats, and indeed opportunities, that face Scotland with a changing climate. Without going into all the detail, we highlighted the potential opportunities that come with higher average temperatures. That is not just for Scotland—it is UK-wide. There could be fewer winter deaths and lower demand for heating. There are potential positive implications for energy bills. There is also the potential for new crops or new types of crops, and for an expansion of the area that is currently suitable for agriculture. We need to be careful there, as there may be some negative implications if that results in soil carbon being lost from the cultivation of peat soils, but there is still an opportunity. The melting of the Arctic ice sheet will have negative consequences in many ways, but it could result in new or enhanced trade opportunities. There may, however, also be risks from expanded shipping. We should not be blind to the fact that there may well be some opportunities with the change in climate, although there will be a number of threats.

One thing that our committee highlighted in its 2011 report illustrates the approach that it tends to take when assessing risk, using an understanding of the scale of vulnerability to current climate and weather conditions. We noted that a number of social, economic and environmental characteristics are likely to increase the

vulnerability of Scotland to climate hazards. At a high level, they include the uneven spread of population. There are pockets of densely built-up areas that are at risk from flooding, particularly surface-water flooding, and some very remote communities are vulnerable to disruption of transport links and critical services from any increase in the frequency and magnitude of storms.

There is an ageing population. That is not unique to Scotland, but it is a particular issue. There are also health challenges, particularly among communities with deprivation, which means that the vulnerability to climate hazards, particularly flooding, is generally higher.

A number of economic sectors, such as food and drink, tourism and energy, are sensitive to climate. Indeed, the global nature of Scotland's economy, which has large export businesses—in 2011, the value of exports to the Scottish economy was in the region of £21 billion a year—means that there is the potential for exposure to international impacts of climate change, which need to be considered.

A number of the critical national infrastructure networks—transport, energy and information and communication technology—are concentrated in strategic corridors. That means that they are exposed to severe weather events such as landslips. A number of ports are also potentially at risk.

Of course, Scotland has a wealth of natural resources, such as forest area, moorlands and peatlands. I think that Scotland contains more than half of the UK's deep peat soil resources, which are not only important culturally and economically but highly sensitive to any changes in climatic conditions.

A range of vulnerabilities could be of increasing significance with a changing climate and need to be considered in any response to climate change.

Kay Jenkinson (UK Climate Impact Programme): I endorse everything that David Thompson said. That gives the physical framework, but alongside the physical impacts of a changing climate are the demands that it puts on our society to accommodate the change in attitudes and behaviours. We really need to take citizens with us on the journey to adaptation.

In the research in which we have been involved, we also found that there are many interdependencies in the impacts on infrastructure. It is challenging to unpick those interdependencies, but it is also necessary to do so to ensure that a failure in one sector does not cascade and create failures in other areas.

The Convener: Will you expand on that a little?

Kay Jenkinson: One example that we have quoted is that, when there are lots of school closures because of heavy snow, the national health service suffers because many of its staff have to stay at home to look after their kids. We need to unpick interdependencies that, like that one, are not obvious, but others are a bit clearer. For example, a water pumping station is dependent on energy supply so, if that energy supply is under threat, the station may have problems if it does not have sufficient back-up power. There are interdependencies like that, but it is also important to think about ones like the link between school closures and the NHS.

The Convener: Thank you for the examples.

Professor John Rowan (University of Dundee): Both my colleagues gave a clear summary. The other classic example of cascade concerns a power station or emergency services facilities in a flood plain. If a flood hits a police or fire station, the emergency response is consequently compromised thereafter.

Jamie McGrigor: Regarding the most significant threats and opportunities for Scotland, we have already seen examples in marine fisheries, which are important for Scotland. For instance, the mackerel and herring stocks are moving further north. It is considered that they are following their food, and their movement has caused problems with Iceland and the Faroes over fishing in certain areas. If the seawater temperatures continue to rise, what further impact will that have on fish stocks that are important to Scotland now? Will there be any movement of fish stocks from southern seas into the Scottish areas?

Professor Rowan: I must confess that I am not an expert on marine matters, but one of the obvious consequences of climate change is the migration of species into new climate spaces. As the cold water species move north and move into the territorial domain around Iceland, other warmer water dwelling species move north. For example, we see the movement of bass further up the coast than has hitherto been the case. I think that that is an inevitable consequence.

Jamie McGrigor: Could the introduction of those species be commercially viable for the Scottish fleet?

David Thompson: Potentially, but it raises issues about whether the current regulatory framework and trade agreements are flexible enough to cope with changes that could be driven in part by climate. We do not necessarily know that changes in fish distribution are solely due to climatic changes; they could be due to fishing practices. I, too, am not an expert in fisheries or marine matters, but I would like to highlight the fact that, whatever the cause, changes in fish

stocks mean that there needs to be a more flexible approach to the regulatory framework for managing fish stocks.

Graeme Dey: I want to be clear on something. Taking account of the impact of climate change not just domestically but beyond these islands as it would impact on Scotland, do you think it fair to say that the negative aspects of climate change greatly outweigh the positive opportunities that you have touched on?

Kay Jenkinson: I am thinking about the stuff that I have seen in academic literature and other grey literature in the media. For many communities, wherever you are, the negative consequences are the ones that we have seen most widely reported. There will clearly be some opportunities but, from where we are now, most of it looks pretty negative.

David Thompson: On a global scale, the overall picture is more negative. Let us take agriculture as an example. There will certainly be some parts of the world—including, perhaps, north-west Europe—that in the shortish term, over the next 20 or 30 years, may benefit from an increase in temperatures by 1° or 2°, and the CO_2 concentration of the atmosphere could also increase yields. Other parts of the world that are heavily reliant on rainwater for irrigation clearly will not benefit, so there could be shifts in global food production as a result. However, even in areas that could benefit from increased temperatures and CO_2 concentrations, there may be other issues that make it harder to exploit those opportunities, such as the availability of water. It is never a straightforward picture, but most experts and academics would suggest that, on balance, the risks and threats outweigh the opportunities.

Kay Jenkinson: A lot also depends on our response to the change. If we are able to minimise the change by reducing greenhouse gas emissions and if we can adapt to accommodate the changes, the negative impacts may be minimised. If we are not good at doing either or both of those things, clearly the consequences will be more severe.

Graeme Dey: So if we adopt a wait-and-see approach, as opposed to being extremely proactive now, we will be storing up considerable problems for ourselves.

Professor Rowan: That is unquestionable. There are clearly opportunities to increase production in agriculture and forestry, and it is often said that there could be positive benefits for tourism, and those are to be grasped. Similarly, there are major opportunities in embracing the low-carbon economy and in creating business and enterprise around enabling technologies and cultural practices to make that happen. However, the risks of inaction or delayed action are universally agreed to far outweigh the benefits.

11:30

David Thompson: That does not mean that a do-nothing or wait-and-see approach is always wrong. It may sometimes be appropriate and proportionate not to take a great deal of action as long as we are continually thinking about and monitoring the impacts over the long term.

As long as the decision makers are explicitly considering the risks and not turning a blind eye, a wait-and-see approach could be an option, so I would not discount it completely. There are measures that can be taken now across almost all the sectors that are vulnerable to climate change and its impacts in order to build resilience. The key issue—which our committee is always trying to understand in assessing progress on adaptation—is whether the level of uptake of those measures is where we would expect it to be, given the risks from climate change.

We found in our analysis in England that some measures had not attracted the uptake that we expected. Property-level flood protection measures are one example, as there was a very low uptake in England despite the flood risk to more than 1 million houses. In a well-adapting society, we would perhaps see greater uptake of such measures now as well as in the future.

Jim Hume: The witnesses mentioned that places such as ports are at risk, as is anything that has been built on a flood plain, which is not surprising. Have any geographical areas in Scotland been identified as more vulnerable than others?

David Thompson: I will answer that first. When we did our report in 2011, we tried to answer that question as far as possible and to understand spatially where the highest levels of vulnerability and risk were located. However, we struggled to find much of the data. That was two years ago, so perhaps things have improved—I know that the Scottish Environment Protection Agency has done more work on flood-risk mapping since our report was published.

Generally, however, we found it difficult to quantify risk in specific locations. We said in our report that improvements could be made to enable us to better understand and quantify risk.

Professor Rowan: There are particularities of Scottish geography, such as the significant upland ranges and the coastal and island maritime areas in the west and the northern isles, that increase susceptibility to such issues. For example, one major concern might be the ferry communications with the Western Isles and the northern isles, and

there are major issues that are critical to the stability of the deep peat in the Cairngorms in the Highlands.

As David Thompson mentioned with regard to infrastructure and communications, we have a dense population that is concentrated in the central belt, with major arterial connections between centres of population that are particularly susceptible to problems such as landslides that block power lines and damage roads and railway communications.

Kay Jenkinson: This may not answer the question that you are asking, but the groups in a community that would be severely affected by climate change are those who have been identified as vulnerable, such as the elderly, the very young and the sick. Climate change just adds to their vulnerability. The Joseph Rowntree Foundation has done quite a lot of work on climate justice, which is the idea that the impacts of climate change are not felt uniformly throughout society but are felt disproportionately among the most vulnerable. That approach is about the characteristics of communities and groups in society, not just the physical landscape.

Jim Hume: It would be interesting for the committee to see the Joseph Rowntree Foundation's work on that.

The Convener: Indeed. I am thinking about the Intergovernmental Panel on Climate Change's approach in its report. One scenario that has been discussed involves the gulf stream and the north Atlantic drift weakening, Scotland getting colder and the pelagic fish that have gone north coming back down south, which is entirely possible. As the climate would be colder, we would need to produce more electricity if we do not insulate our houses. We would need to adapt to various aspects of that scenario.

Do the IPCC's estimates and calculations allow us to plan for specific policies that would enable us to cope with those potentials between now and the end of the century?

Kay Jenkinson: My colleagues are probably better qualified than I am to talk about this, but I think that there has always been an envelope of risk and probability with climate projections. There is also natural variability, which always throws in, say, an unusually warm winter, a very cool summer or whatever. It is not that temperatures are moving up and things are getting warmer, but that our kind of personal envelope of risk is getting broader. Because of natural variability, we will still have cold winters—indeed, we have seen as much recently—but I think that, as far as risk is concerned, we will just have to be better prepared.

David Thompson: I agree. With regard to decision making, particularly in the long term, there is a huge amount of uncertainty about the precise nature of future climate projections. Even if we did not see the weakening of the north Atlantic drift that the convener referred to, there is still uncertainty about the range of temperature rise and, in fact, a lot more uncertainty about what that would mean for rainfall. When making decisions in the face of such uncertainty, particularly decisions that will have long-lasting consequences—for example, the provision of infrastructure that will last 100 years—decision makers must as far as possible consider the different range of climate futures in any decisions that they make today. That might sound straightforward, but it is not often easy to do in practice.

I also point out that only one of the three IPCC reports—the science report—has been published so far. The next report, which is, I think, due at the end of March next year, will look more at impacts and vulnerabilities. Although it will not be on a nation scale, it will give a better idea of what, according to scientists and their modelling, the update of the science that was published last month will mean for actual impacts. That is where I think more information will emerge about the potential weakening of not just the north Atlantic drift but global ocean currents and what that might mean. It is a good example of the need to plan for a range of futures as much as possible.

Professor Rowan: There are also accepted ways in which organisations can look forward at and have foresight of such issues. For example, in the adaptation workstream of ClimateXChange, which is the centre of climate change expertise that the Scottish Government has set up, research is under way on scenarios on futures to allow us to look at possible climate projections from the UK climate impacts programme—UKCIP—the IPCC and others and put together an envelope of climatic futures. We can superimpose on that an understanding of socioeconomic futures through scenario analysis and then bring the two domains together to see how, say, a nature@work, command-and-control or business-as-usual socioeconomic environment would play against those climate futures. By examining the interplay of both, we will be able to look at the range of possibilities and take on board the flexible adaptation pathway principle that will allow us to make some response. As long as we are monitoring and keeping an eye on what is going on, we will, I hope, be able to anticipate short-term shocks or longer-term chronic changes.

Indeed, the flip-flopping associated with the relocation of the north Atlantic drift is a classic example. As that might happen, we need to ensure that we are at a certain level of preparedness and have thought through some response options.

Graeme Dey: I would like to develop the discussion a little bit. In recent years, we seem to have moved away from stating with absolute certainty that things will happen to saying that things are highly likely or just likely to occur; indeed, in some cases, we talk about percentages of probability. The UK climate projections for Scotland, which are broken down into three geographical areas, predict an annual temperature increase by 2050 of between 1.9 and 2.2°C, and we even have figures for sea-level rises at various coastal locations, including a pretty specific increase of up to 24cm at Lerwick. What is the percentage of likelihood that such figures are accurate in real terms?

David Thompson: I cannot give you a percentage figure in that respect, but I know that the idea behind the UK climate projections 2009—UKCP09—exercise was to give a range, which it does. It is modelling, so the modelling process will come up with quite a precise number. I think that the modelling for the rise in sea levels is generally more certain than that for temperature or rainfall—precipitation. The model can be quite precise in its projections for rising sea levels.

The Met Office is currently examining the most up-to-date climate models that were used or referenced in the most recent IPCC report. It is doing a project for DEFRA in which it is looking at whether there is a need to update UKCP09. I do not have the details of or timescale for that, but if there is a need to update the projections, the idea is that those will feed into the next climate change risk assessment, which is due in 2017. There is therefore an on-going process of improving the modelling.

To be fair, there has always been—but particularly more recently—the language of uncertainty, as it were, in which people try not to be too precise in the language that they use in order to ensure a general awareness that there is a range of possibilities. However, the modelling comes up with some quite precise numbers, and I can understand how that can sometimes be a bit counterintuitive.

Graeme Dey: I asked the question more from a point of view that recognises that there are still a number—although it is a smaller number—of people out there who deny that there is a climate change issue. However, there are some pretty scary climate change figures and I think that most of us understand that there is a big problem. I am just trying, for the benefit of that smaller number of people, to get a handle on whether it is likely or highly likely that the figures to which I referred are accurate.

Professor Rowan: The consensus is that the evidence is pretty unequivocal. The other issue about models is that modelling is a whole culture, with particular applications and a group of people who have particular skill sets. One of the characteristics of the modern modelling approach is that it does not rely on a single model that has its own particular data assumptions and data inputs and its own boundary conditions that set it up. In the big international collaborations, we increasingly see what is called an ensemble approach, in which we run multiple models, which often have conflicting principles built in, and then we generate uncertainty envelopes. For example, we might run 50 different models over a range of timescales with different inputs of data, which would generate a cloud of maximum and minimum responses from which we would then take a median line. In the case of UKCIP, for example, we get 90 per cent and 10 per cent limits that indicate the best and worst cases and what we probably have to plan for, on the basis that it is the most likely case.

One can enter into that through an act of scientific faith, because some of the finest minds on the planet are doing things to the best of their ability—some of the climate modelling is, in fact, rocket science in some respects. Ultimately, however, the policy implications are about taking the precautionary principle because we see what is likely to happen.

A lot of work has been going on to look at the sea-level response in Scotland, which involves quite complicated stuff that is not only about the oceanic response and thermal expansion, but about the local conditions that exist because the Scottish crust—the land mass itself—is still rebounding from ice loading, so we have an isostatic uplift. For the most part, the Scottish land mass is rising and oceanic sea levels are rising, so we have a sort of dynamic equilibrium in Scotland. However, that is not necessarily the case in every other part of the world, so we need models that are locally calibrated and take into account the best science to give us a framework within which we can set our policies and plans.

11:45

Kay Jenkinson: I was involved in the communications around UKCP09. We spent many hours discussing internally how we would present the information. The idea behind presenting a range of probabilities is that that allows decision makers to take a flexible approach.

For instance, if a local authority is thinking about the gritting of icy roads—this is probably not the best example, but let us go with it anyway—it would want to ensure that it protects the roads that lead to, say, the hospital's accident and emergency department. It would be most cautious about gritting those roads. Even if the risk of ice was only slight, it would still grit those roads

because its attitude would be not to take many risks. However, it might not really care about the road that goes to the swimming pool, so it might not grit that road. In some ways, a range of options is provided to try to help people to make flexible decisions, so there is not a one-size-fits-all response.

I do not know whether that helps to address your question.

Graeme Dey: It does indeed.

Further to David Thompson's earlier point about planning for 100 years ahead, what would you say to local authorities that, when issuing planning consents for major developments, accept road drainage standards that meet only current demands, despite the fact that rainfall may potentially increase in the east of Scotland by 10 per cent by 2050? Should the message be that local authorities need to think further ahead about what is coming down the track, rather than just cater for the now?

David Thompson: Certainly, yes. When we did an analysis of how local development plans in England deal with decisions on whether to locate new developments in areas of flood risk, we found that there was, to be fair, a mixed picture. We looked at around 50 plans in total so, although we did not examine the plans of all local authorities in England, we covered a fair sample. We found that around 10 or so had clearly and transparently decided that, where a development needed to be located in an area of high flood risk because there was no alternative—which is often the case—they would ensure that the development was built to high standards of resilience, such as by incorporating sustainable urban drainage systems and other measures.

However, we also found examples where we could not find evidence of that decision-making process. To us, that suggested that, even though the policy framework rightly requires local authorities in England to think about the long-term costs and benefits of locating in areas of high flood risk and to apply climate scenarios or projections to that, actual implementation on the ground was mixed. I do not know whether that is the case in Scotland, as that example comes from England.

Professor Rowan: David Thompson also used the interesting word "proportionate", which should apply to the response. You are absolutely right that any new major infrastructure development needs to take into account what the possible climate futures will look like, so people need to think about the development's functionality under the anticipated changes. Obviously, the precautionary principle suggests that it is always better to err on the side of safety, but we should add a little caveat about the concept of maladaptation and ensure that the measures that we put in place are cost effective.

To take a classic example, when providing new hard flood defences such as flood embankments in a river valley, you might anticipate that, due to climate change, there will be more frequent high-magnitude flood events, which will increase the local flood risk. Consequently, you might build a flood wall that is designed to the current standard—that is, for a once-in-200-year flood. However, given that we can see that the risk will increase, in anticipation of that change and to provide flexibility downstream, you might put in a bigger foundation at the beginning that would allow the wall to be built a little bit higher. As that involves more up-front capital cost, there needs to be quite a nuanced set of thinking, and we need to ensure that, in anticipating such actions, the response is proportionate.

Jamie McGrigor: You mentioned the need to calibrate local models, which is an important point. As well as the causeways that have been built more recently in the Western Isles, there are the Churchill barriers that go between North Uist, Benbecula and South Uist. Fairly recently, five people lost their lives in a storm surge, so I believe that people are already looking at access to higher ground. An increase in sea levels of 18cm around the Western Isles is surely a worrying feature, particularly in relation to those causeways and barriers, which I imagine must be very vulnerable to a rise in sea levels.

Professor Rowan: I have been involved in research on the issue in the Western Isles, which looked at the south ford basin between North Uist and Benbecula, particularly in the context of the incident in 2005, when the family that you mentioned unfortunately lost their lives. One of the big questions was whether the construction of the causeway had led to a change in the tidal dynamics of the bay, changing the wave environment and causing larger waves to propagate on to the shore.

Superimposed on that is the issue of climate change, which means that extreme events are more frequent, and superimposed on that is the issue of sea-level rise. There are therefore multiple conflicting factors at play, which might explain whether risk is going up or down in a particular location. In the example that I am talking about, Western Isles Council invested a significant sum of money in undertaking the fundamental research that is needed to calibrate local models and understand the risk. Of course, it is incredibly challenging to do that for every location, so it is important that we try to extract the general principles of the work that is done and think things through in terms of national risks.

In its most recent report, the Intergovernmental Panel on Climate Change said that sea-level rise will probably be higher than it anticipated in the previous report. The eustatic or global sea-level response is now estimated to be somewhere between 28 and 82 cm—approaching a meter—towards the end of the century. Of course, that is a global response. We have to put that into the context of the Scottish response, which is conditioned by—I hesitate to say this—Scotland's dynamic land surface, which is still responding to the legacy of glaciation.

Jamie McGrigor: Surely such a rise would take in an enormous acreage of flat land.

Professor Rowan: It very much depends on the configuration of the coastal zone, the shoreline and, fundamentally, local exposure in terms of how waves generate a coastal flooding problem.

The Convener: I was a member for the Highlands and Islands, as was Jamie McGrigor, at the time of the flood that you mentioned. The bit that you are talking about is between Benbecula and South Uist.

Professor Rowan: Yes.

The Convener: You said, "North Uist".

Professor Rowan: Sorry. Forgive me—

The Convener: No, no, it is all right. I am just making sure that we are talking about the same place. However, everywhere is affected. We have islands that are punched out by the ocean, and causeways were put between them with only a narrow outlet to enable the water to get through. That is the adaptation issue par excellence in that area.

Professor Rowan: That is a classic example. I suspect that when that particular causeway was put in place we had not properly thought through some of the issues.

The Convener: That is interesting.

Jamie McGrigor: I believe that the causeways were put in place during the war, for defence purposes.

Professor Rowan: The ones further south were, as were the Churchill barriers in Orkney.

The Convener: Yes, those too. Wartime activity led to that work. We have learned since then, to our cost.

We will move on. Dick Lyle will ask about approaches to date.

Richard Lyle: Good morning to the panel—it is still morning. Our summary of UKCP09 makes for grim reading. It talks about drier summers and changes in soil conditions, climate, coastal evolution and water temperature—I could go on and on. What are panel members' views on Scotland's approach to date to preparing for the impacts that are associated with climate change? What more could we be doing now?

David Thompson: We looked at the issue two years ago and assessed what was then Scotland's adaptation framework, which is evolving into the climate change programme. We talked to a lot of key people in Scotland, including leads in the Scottish Government, agencies such as SEPA and SNH, local government, businesses and water companies. At the time—this was in 2011—we found that there had been good progress, particularly in raising awareness of adaptation and the need to build key organisations' capacity to think about long-term climate issues, which has not been on people's radars until fairly recently—the past five or 10 years or so.

We saw evidence that, as we talked about earlier, the policy frameworks in a number of areas such as land-use planning, building regulations, marine planning and forestry are thinking long term and about the uncertainties around climate change as part of their planning processes, particularly long-term planning. It is good news that the issue is being thought about in many sectors. However, we did not see that in all sectors. We did not see much evidence of thinking about the uncertainties of climate change in the provision of infrastructure, particularly the renewable energy programme and broadband roll-out. It could be argued that those are on shorter timescales but, even so, we did not see much evidence of such consideration, even of the implications of climate change for the siting of new developments and new infrastructure, which we thought was concerning.

We felt that the framework at the time did not give sufficient weight to the important contribution that Scotland makes to global efforts to safeguard peat carbon stores, and that the need for peatland restoration was somewhat underrepresented. That is a key issue when it comes to adaptation to climate change because if peatlands are in poor condition, for a variety of reasons, they will not be resilient to changes in the climate and they are more likely to haemorrhage carbon rather than lose it gradually.

As in England, we saw a mixed picture on the uptake of resilience measures. For example, as in England, there was low uptake of property-level flood protection measures, although there was high uptake of drainage in urban areas, which was encouraging.

One of the key issues—although it never sounds that exciting—is that it was not clear what is being put in place to monitor and evaluate the effectiveness of adaptation, the adaptation framework and the programme in helping to build

a more resilient Scotland. There is more work to be done in thinking about the ways in which to monitor and evaluate whether the adaptation policies are effective. That could be through developing the sort of indicators that we in the Committee on Climate Change and ClimateXChange are working on, which can really tell us what is happening on vulnerability in key sectors. Are decisions being made that are increasing vulnerability to climate risks in future, or, as I mentioned, are we seeing uptake of the sorts of measures that we would expect to see to reduce vulnerability? It is difficult to know, because in many cases we do not have the data or the indicators—or we cannot populate the indicators—to tell us what is happening.

That is a key gap, and it exists not just in Scotland but in England and, I am sure, elsewhere. In fact, many countries across the world such as Germany, Canada and the European Commission—that is not a country, I know—are looking at ways of developing adaptation indicators. The Organisation for Economic Co-operation and Development is considering the issue for its member countries. So in many respects, it is a hot topic. Any country's climate change programme needs to think about it at the outset. Monitoring and evaluation should not be added on once a policy is in place; they should be built into the programme at the outset. That is important.

Kay Jenkinson: I echo David Thompson's comments on monitoring and evaluation. UKCIP sees a lot of the work that is going on at ClimateXChange and adaptation Scotland. There is a good research resource in Scotland. UKCIP is host to the adaptation and resilience to a changing climate network, which is a network of research projects that is funded by the research councils. There is a lot of activity. Many of the projects are across the UK, but a lot of them include research that is going on at Heriot-Watt University, the University of Edinburgh and many other institutions.

There is a huge resource of knowledge in Scotland on adaptation generally, but we really need to embed the monitoring into the programme to have an understanding of the progress that is being made and to learn the lessons. It is important that there is on-going evaluation so that if we undertake a particular activity or policy in one direction and suddenly it is not quite working, there is an opportunity to change it, to start again or to shift something. It is important to be flexible. As David Thompson said, globally, the UK as a whole is perhaps further ahead than other countries, but we are still finding our way. We have to be brave and embrace that.

12:00

Professor Rowan: That idea of bravery is an important thing, to my mind. Politically, Scotland and the UK have bold and ambitious targets for mitigation, so there has been a tremendous political drive around carbon reduction and the move to the low-carbon economy. In some respects, adaptation has been not necessarily a Cinderella but a little bit left behind because the political priorities have been around the targets for mitigation. Adaptation is much more at the beginning of its journey in Scotland. It is a journey that goes on indefinitely, as it does not have an end point but is constantly under review, reflection and evolution.

Both of my colleagues spoke about the various frameworks that brought us to where we are. The adaptation programme that is in front of us could do with being set on some firmer foundations and principles, and I think that it could have a bit more ambition and vision within it.

Richard Lyle: Thank you for that. Graeme Dey said that there are a lot of sceptics out there. Scotland is leading, and the UK is looking at the issues. We are admitting it, but other countries are not, such as China and America. From a humble politician's point of view, I ask what the scientists are doing to convince the politicians in other parts of the world that we need to change and had better change now or we will not be able to change in 50 or 100 years' time.

David Thompson: I guess that the scientists are trying to do it through the IPCC process and the United Nations Framework Convention on Climate Change, with mixed success. I mentioned the IPCC report earlier. We have only seen a third of it so far, but more will be coming out in the next six months or so. The next report, in March, will highlight even more than has been done so far the risks, impacts and threats, as well as some of the opportunities that we have talked about.

The science is telling us what the world faces. I suppose that scientists can only do so much. They are there to put the information out, and they are doing the best that they can in many respects. Let us see what more comes out from the IPCC over the next six months.

Richard Lyle: Thank you.

Nigel Don: I am very interested in all that you have said. Returning to the idea of modelling, which Professor Rowan mentioned, it seems to me—I declare a chemical engineering background—that if we want to model what happens to water in flooding, we can do that. Water is something that we understand pretty well. It does not go away, we know its density and viscosity and we can do lots of things to model it pretty accurately. There are some second-order

effects about temperature, to which you alluded, but we can get pretty accurate numbers out of that work.

However, you also mentioned socioeconomic modelling and the responses of societies. I have to say that I know nothing about that. It sounds interesting, but it sounds virtually impossible to do in the same way as we model water. Will you explain the fundamental theory behind that? How accurate can it be and what can it tell us?

Professor Rowan: I will start with an example that is based on my experience. I have been involved with the national ecosystem assessment, which is a UK-wide initiative to try to understand the value of natural capital. It says that environmental processes are the foundation of our lives. Where water moves through a drainage basin, if we slow down the flow, it will perhaps prevent flooding, or if we put the water through a wetland, that will perhaps detoxify any pollutants that are in it, and so on. Multiple benefits flow from good environmental management, including increased biodiversity and amenity value.

The NEA was charged with trying to understand the value of natural capital in the UK and, specifically, to think about how we might respond to changes and the different drivers of pressures on the natural environment and mitigate them to allow these natural functions to thrive. Part of that comes into the whole socioeconomic realm.

Members will have to forgive me; as a physical geographer, I do not have particular expertise in socioeconomic situations. However, what characterises socioeconomic narratives and scenarios is their description of a possible future or a series of possible worlds built on certain banking, welfare state or international trade relationship principles; you can characterise societies depending on their functions and forms, develop multiple societal pictures and look at them again, say, in 2050 or at the end of the century to see where you have reached. In short, you use future scenarios of how people might live their lives to find out how we make the journey from where we are now towards where we should be going, and the scenario analysis and climate projection add complexity with regard to how that journey might be made.

Have I made that clear?

Nigel Don: I see the drift of where you are going but what intrigues me is the idea that you—not you personally, but anyone—can say anything terribly precise about this. There are lots of precise things that we can say about water, for example, but surely we do not have terribly good models for the behaviour of societies—or do we? Are there people who really know how these things work?

Kay Jenkinson: I, too, am not an expert on this but an analogy is sometimes drawn with the Treasury's economic models, which cover what people are going to buy and so on. In the same way that we cannot predict what the climate is going to be like in future but we have lots of information to help us take out some of the outliers, socioeconomic scenarios and models help us to envision a certain pattern for the future. I have to say that I do not how well used they are.

Professor Rowan: I think that they are well used. Questions of levels of precision and uncertainty are not appropriate here; instead, you are trying to characterise what the world might look like. In fact, the two polar examples in the national ecosystem assessment are labelled that way. In the "Green and Pleasant Land" scenario, there is an emphasis on localism and local food production; it is very much in the low-carbon spirit and features very strong community relationships and good relationships with Government. In short, the environment is working for us and people are living in harmony with it. The "World Markets" scenario, however, features an entirely capitalist framework in which everything is driven by the minimum cost. The market is completely global and connected, and we do not necessarily care about the consequences of our taking goods, services or human resources from other parts of the world to fuel our local economic need.

In one respect, you might characterise the second scenario as market-driven and very much optimised around money, while the first is about harmony, good governance, fairness and equality, education and greenness. In that sense, when we talk about a fairer, smarter, happier and greener Scotland, we can see the way we want to go and the future that we want for the population, and what we have to do is to examine that path and understand how the different climate projections play into our journey towards that future.

Does that make sense?

Nigel Don: Yes. Thank you.

Graeme Dey: I have a question to ask in passing. Professor Rowan talked about the need for bravery and ambition with regard to adaptation, but would those things not flow if we had the means of measuring the adaptation in place? We measure CO_2 emissions and set ourselves targets on them, and we beat ourselves up if we fail to hit those targets, which is great. However, we do not have targets for, or measures of, adaptation, so it is harder to show the ambition. If we were better able to say, "We've done X and Y; these are the reasons why we did them and this has been the impact," that would suddenly provide the driver for the ambition. Am I wrong about that?

Professor Rowan: I accept entirely what you have said. An issue with the draft programme that needs to be resolved is that a much clearer understanding is required of the need to measure and monitor. A much stronger focus on the importance of targets—aspirational or fixed—is also needed. The enabling mechanisms and resources must be put in place to ensure that that happens.

I will draw a contrast. On the mitigation side—in RPP2 and the carbon reduction targets—we can see that, in the second phase, a lot of enabling structures are put in place. We are still at the beginning of adaptation, so monitoring and reporting need to be fleshed out.

David Thompson: It is the job of the Committee on Climate Change to monitor the national adaptation programme in England; we are likely also to be required to do that in Scotland, although that is up for debate. If the Scottish ministers ask us to do that, we will have a role to play in both countries in making the tricky assessment of progress and measuring progress. Our committee's view is that that is doable, because the indicators that we develop will show us trends. We can then make a judgment on how well—or not—we are preparing.

It would help if the objectives that are set out in the programmes for England and Scotland were as outcome focused as possible. That can be difficult, but they should give clear outcomes for what they seek to achieve, and they should give timescales. A number of objectives in the draft programme are laudable—it uses terms such as "increased resilience", so we could measure whether resilience is being increased—but there could be more specific outcomes.

For example, an objective might be to ensure that flood risk does not increase, even with climate change. We can measure whether flood risk is increasing over time with climate change and whether there are factors that increase or decrease flood risk. As I mentioned, we could consider whether there is the expected level of uptake of flood resilience measures, and whether decisions are being made that are likely to increase flood risk by, for example, developing in areas of high flood risk.

It could be argued that some outcomes could be more measurable; either way, the CCC feels that we could still come to a judgment. We would report to the Westminster Parliament and the Scottish Parliament on progress. That would be as objective an assessment as possible, which would use the indicators that we are looking to develop.

The Convener: We have had quite a number of bites at the cherry of the draft Scottish adaptation programme.

Claudia Beamish: I am interested to hear about the monitoring and evaluation and about looking at outcomes on things such as resilience. As our convener said, you have covered a lot of issues that relate to the draft adaptation programme. Do you have further comments on whether it reflects the impacts that Scotland faces as a result of climate change? I do not dare to use the word "accurately" after the discussions today, but are the impacts broadly reflected?

Professor Rowan: The ClimateXChange—the centre of expertise on climate change—was given the task of working on baselines and indicators. The approach that has been taken in the work that has been done has looked at the major risks, as identified by the climate change risk assessment as it pertains to Scotland. The aim has been to develop a set of indicators on risk exposure and local vulnerability, and to put that in the context of possible and real examples of impacts. Further to that, process indicators are being looked at, which concerns how effective, tailored, appropriate and proportionate are the response measures.

As part of the ClimateXChange, people at the Royal Botanic Garden Edinburgh and at my institution—the University of Dundee—have been doing that work for a couple of years with the James Hutton Institute, and I think that we are making significant progress. Initially, a sectoral approach was taken, whereby an attempt was made to look at the levels of adaptive behaviour and response in each of the 12 sectors of the economy in the original framework, but following dialogue with the policy teams, we are now looking much more thematically at the natural infrastructure and society framing the key themes that are coming through in the adaptation programme.

12:15

We have a prototype set of indicators in place, and we are working closely with the adaptations sub-committee to ensure that they are appropriate. Ensuring that we can get timely access to data is an on-going issue. We want to be as parsimonious as possible—as light an approach as possible makes for the most effective means of communication.

Work is continuing. We have a target to deliver the indicators for the natural environment section in the form of an annual report by the end of this year. Next year, we will move on to look at transport, infrastructure and the built environment.

Claudia Beamish: Do you foresee any budgetary implications? You used the word "parsimonious". I am not quite sure whether you were using it in relation to budgetary constraints.

Professor Rowan: I was using it in relation to simplicity of communication. It is clear that I did not succeed in using simplicity of communication in that instance.

Claudia Beamish: I have a further question about the budgetary implications for research. I am not asking for numbers, but will there be a future need to carry out more research?

Kay Jenkinson: The whole area of monitoring and evaluation is extremely dynamic at the moment. This morning, UKCIP launched a report, which we co-wrote, on monitoring and evaluation. It is a live area. My colleagues will correct me if I am wrong, but it feels as if there is no "This is how you do it" sort of thing available at the moment. Many people have carried out monitoring and evaluation, and tools and models are available, so I believe that it will be an area of continuing research for some time.

Professor Rowan: As an academic, I would always say that we need more money for research. You would expect me to say that.

More resources will help to deliver the right tools as quickly as possible. A process of dialogue is going on, which involves David Thompson's group and Kay Jenkinson's organisations. International dialogue is going on, too; there have been discussions with Canada, Australia and Finland about their approaches to indicators and monitoring. I think that we are homing in on the answers, so I hope that we will be able to deliver something useful.

David Thompson: I support that. There are costs involved in development of indicators, because the data are often not available in the format that would be ideal for us to use as indicators. In England, we have found that there has been a cost—I am not talking about huge amounts of money, in the scale of things—of developing and populating the indicators that the CCC will use in 2015, when we will report to the Westminster Parliament. I envision the situation being similar in Scotland.

I would like to touch on how the draft Scottish programme has been set out. The fact that it involves three themes and nine objectives is very neat; the ordering is extremely logical. The English programme has seven themes, 31 objectives and 374 individual actions—I know that, because I have been through all of them. What I like about the draft Scottish programme is that it is clear and well ordered. For each of the three themes, there is a similar objective on improving understanding of the effects of climate change, which involves research into impacts.

We could certainly do some evaluation on just how effective research is in terms of our understanding and improving our knowledge of impacts. Even though objectives are not always outcome specific, there are ways to monitor progress on implementation and on whether the programme is doing what it needs to do, which is basically to enable the building of resilience in Scotland.

I would say of one or two climate threats that it is not immediately clear how they are being picked up, although that is a personal view. I do not see, in how the objectives have been set out, how issues around resilience of businesses and supply chains are dealt with. The issue that we touched on earlier, around social vulnerability and equity issues, is, I presume, in the society theme, but at the moment it is not completely clear how those threats and potential opportunities are picked up.

Claudia Beamish: I am interested to hear you raise that point, because I was about to ask about it. In the adaptation programme, there are references on page 51 to communities and on page 52 to businesses, but it seems to be quite thin, in the climate-ready society theme, in relation to communities or families on low incomes. I do not see very much about that in terms of resilience, although I was quite heartened when you talked about your

"green and pleasant land"

in Scotland. I was concerned when I looked at the programme that there is not much identification of the problem that some people might face. Do you have comments on that?

Professor Rowan: As I understand it, in the evolution of the adaptation programme, there was at one time to be a separate section on economics and business, but I think that it did not gain sufficient traction in terms of the process and has been folded into the society section.

I also thought that the threats with respect to business could be developed more fully, and that social dimensions of environmental change and the vulnerability issues with respect to communities and individuals, which Claudia Beamish spoke of, could have attached to them more weight within a revised version of the programme.

The Convener: Very good.

I would like to come back to a point that David Thompson made earlier. We want in the adaptation programme to ensure that we have resilient low-carbon power. You remarked earlier—I did not want to go into detail at the time—on your concerns about siting of renewable energy projects. What is that about?

David Thompson: In our 2011 report we considered sectors that make decisions on long time frames. Generally, decisions about siting and design of infrastructure and their associated

networks are quite long-term decisions. Some are more long-term than others; for example, the construction of a rail bridge has a 150-year time frame, whereas—arguably, perhaps—ICT and some forms of renewable energy are not based on such timescales, and are more like 20 or 30 years. We could not find much evidence to suggest that decisions that are made about siting and design of some types of infrastructure assets—low-carbon renewable energy and ICT—explicitly considered how the risks of climate change may impact on them. In other sectors—land use planning, building regulations and forestry—it is clear that the long-term climate impacts are being explicitly considered and accounted for.

The Convener: I am concerned about siting. We talk about offshore wind, onshore wind and wave and tidal power. Which are you concerned about?

David Thompson: We did not go into that level of specificity.

The Convener: It would be helpful to know.

David Thompson: One of the problems is that some climate projections are very uncertain. They are all uncertain, as we said earlier, but they are very uncertain when it comes to implications for wind speed, and to some degree in forecasting the magnitude and frequency of extreme weather events such as storms. It is harder to apply such projections in long-term decision-making than it is to project other climate impacts. We did not see any explicit evidence that that was even considered in the first place. It was an issue that we raised in our report in 2011. We feel that the Scottish Government and relevant actors—Ofgem and others—need to consider in more detail and depth than we were able to do, in what was quite a high level report, those issues in their decisions.

The Convener: We will reflect on that. Thank you very much. It is quite useful to use this round-table approach. Your evidence has been very valuable. We have a series of panels to welcome here before we write to the minister about what we think of his adaptation programmes. Your work on that is very welcome.

Our next meeting is tomorrow, 10 October, when we will hear from the Minister for Environment and Climate Change on the draft budget.

Meeting closed at 12:26.

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