



**OFFICIAL REPORT**  
AITHISG OIFIGEIL

# Environment, Climate Change and Land Reform Committee

**Tuesday 6 November 2018**

**Session 5**



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**ENVIRONMENT, CLIMATE CHANGE AND LAND REFORM COMMITTEE**  
**31<sup>st</sup> Meeting 2018, Session 5**

**CONVENER**

\*Gillian Martin (Aberdeenshire East) (SNP)

**DEPUTY CONVENER**

\*John Scott (Ayr) (Con)

**COMMITTEE MEMBERS**

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

\*attended

**THE FOLLOWING ALSO PARTICIPATED:**

Shane Donnellan (Changeworks)  
Paul Gray (NHS Scotland)  
Dr Rachel Howell (University of Edinburgh)  
Mai Muhammad (Aberdeen City Council)  
Jamie Stewart (Citizens Advice Scotland)  
Mary Sweetland (Eco-Congregation Scotland)  
Tom Thackray (Confederation of British Industry Scotland)  
Chris Wood-Gee (Sustainable Scotland Network)

**CLERK TO THE COMMITTEE**

Lynn Tullis

**LOCATION**

The Robert Burns Room (CR1)



## Scottish Parliament

### Environment, Climate Change and Land Reform Committee

*Tuesday 6 November 2018*

*[The Convener opened the meeting at 09:16]*

### Decision on Taking Business in Private

**The Convener (Gillian Martin):** Welcome to the 31st meeting in 2018 of the Environment, Climate Change and Land Reform Committee. I remind everyone present to switch off their mobile phones, because they might affect the broadcasting system.

We have apologies from Finlay Carson.

Under agenda item 1, do members agree to take item 4 in private?

**Members indicated agreement.**

## Interests

09:17

**The Convener:** I welcome Rhoda Grant, who is joining the committee for the first time today, and invite her to declare any relevant interests.

**Rhoda Grant (Highlands and Islands) (Lab):** I do not think that any of my entries in the register of members' interests is relevant. I am, however, a member of the trade union Unison and of the Co-operative Party, both of which have a record of work on environmental issues.

**The Convener:** I am sure that all committee members will join me in welcoming Rhoda to the committee and in thanking her predecessor, Alex Rowley, for his contribution to the committee's work.

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

09:18

**The Convener:** Under item 3, the committee will take evidence on the Climate Change (Emissions Reduction Targets) (Scotland) Bill. This is the third of the committee's evidence sessions with stakeholders. We will hear from two panels today, one on behaviour change and one on governance.

I am delighted to welcome our first panel, who will look at the behaviour change that is required to achieve the targets that are set out in the bill. Joining us are Shane Donnellan, senior behaviour change specialist at Changeworks; Dr Rachel Howell, lecturer in sustainable development at University of Edinburgh's school of social and political science; Mary Sweetland, chair of Eco-Congregation Scotland; and Jamie Stewart, policy officer with Citizens Advice Scotland.

We move straight to questions, and the first is from John Scott.

**John Scott (Ayr) (Con):** Good morning and welcome. My question is for all panel members. How well has the Scottish Government's approach to encouraging low-carbon behaviour change, including through the climate change plan, worked so far? Are there examples or success stories from other policy areas that it would be worth telling the committee about or which could be adopted?

**The Convener:** Panel members should indicate to me when they want to speak.

**Shane Donnellan (Changeworks):** Whether the approach has worked so far brings us back to the question of how much behaviour has been included in the policy in the first place. There was some criticism that behaviour might not have been front and centre in the climate change plan and that its inclusion was something of an add-on. When it is not the driving force behind some of the policy, it can be difficult to say exactly how much it has or has not worked.

There have been really good examples of behaviour being front and centre with some intermediaries. There has been work with Scottish Water, for example, and I know that the Energy Saving Trust has had a pilot to try to change behaviour. There have been some learning and successes with regard to reducing energy use and making people more aware of the issue, but in the greater scheme of things, probably not enough work has been done in that respect.

**Mary Sweetland (Eco-Congregation Scotland):** For the past eight or nine years, Eco-Congregation Scotland has been working on the issue, supporting congregations in bringing about change and encouraging them to look after God's earth. With the different congregations that are part of our work, we have had a lot of success with recycling and looking at energy use in churches, for example. The European Christian Environmental Network gave us an award for a project in mid-Argyll that looked at which energy sources other than oil the churches in the area could use to heat the buildings.

That said, although the agenda with regard to the different behaviours that need to be taken forward is well known, things are always being done in a different way, and there is something of a spin-off effect. For example, the other week, I heard about what is happening in Orkney. They have no gas there, but instead of people being pushed towards installing renewable energy measures such as air-source heat pumps or redoing their home in ways that would reduce carbon use, they were installing oil boilers. All the energy in Orkney comes from renewables but the fact is that, even if they use that kind of electricity in their homes, they still cannot get their energy efficiency certification above band C, because electricity is very heavily weighted in the calculations.

I live in a Passivhaus, and I can achieve band A; however, the Passivhaus certification still requires you to say whether you have a boiler and whether it is gas or whatever. I do not have any of that. It is great when people phone you, trying to sell gas, and you can tell them, "I don't have a boiler." The issue is the way in which the commercial side has adapted these things and tried to turn them into a box that they can just tick and say, "We've achieved that," without actually achieving the move to zero carbon.

**Jamie Stewart (Citizens Advice Scotland):** There have been some really successful trials of energy-saving behaviours, and the Scottish Government has quite a good platform for looking at how those trials work and what the barriers might be for householders. However, there is no across-the-board recognition in Scottish households that this is the kind of behaviour that is needed. It is not high up their agenda.

As recent surveys have shown, there is growing recognition and awareness of the need to take action on climate change now. When we did a survey of a representative sample of people in 2017, although 73 per cent said that action needed to be taken now, they still perceived recycling and waste reduction as being the best things that they could do to save energy. There have been small pockets of success where

households have been very much targeted, have received advice on how to save energy and have been given free measures. However, they are only pockets, and we need to look at how we can expand such approaches to ensure that there is effective action across the nation.

**Dr Rachel Howell (University of Edinburgh):** Recycling and the plastic bag tax are two really good examples of policy having changed behaviour. It is interesting to think about why those policies have worked. With recycling, it is all about making it easy. We have easy kerbside recycling—people no longer have to get into a car and take things to a big bank in a supermarket car park. Because it is easy and noticeable—people put out a box or whatever in front of their house—it has changed social norms. Unfortunately, there has been a slightly negative effect, in that people feel that they are doing their bit and recycling is seen as a big part of what is required. Recycling is important, but it is a relatively small behaviour change in climate change terms.

The plastic bag tax has also changed norms. It has worked because it is such an easy behaviour to change. Putting a price on something that was previously free is, again, extremely noticeable. It was a simple change, and there is not really anything to be annoyed about.

I turn to some of the other bigger areas for change, such as transport, where emissions have not decreased since we started this approach. Transport is still a big problem. However, I was interested to discover from an excellent master's dissertation that was submitted this summer that Edinburgh has a well-kept secret—the city has the largest proportion of public transport users and the lowest proportion of private car drivers in the United Kingdom outside London. Why is that? It is due not so much to a lot of integrated policy making but to a whole lot of structural factors—and it does come down to structures. It is about Edinburgh having an excellent bus service that is run by a local authority and is noticeably cheaper than most other bus services. It is also about density of living: it is difficult to own two cars—in some places, it is difficult to own one car—because there are no places to put them. Edinburgh is a very walkable city, too.

I am sure that we will come on to this, but we need to look more at how structures change behaviour, rather than just looking at the public engagement policies that are often part of the behaviour change agenda.

**John Scott:** I have often thought that the situation in Edinburgh may be something to do with its size. It is big enough to be a city but it also has an intimacy and a town feel about it. There may be an optimum size of towns and cities in future.

**Dr Howell:** Possibly. A lot of the cities that have high rates of active travel and public transport, such as Oxford, Cambridge and York, are relatively small, too. However, London is the prime example—there is no bigger city in the UK, yet it has the lowest rates of car ownership. I think that such rates can be achieved in different ways in most sizes of city. It might be as much to do with density of living as the size of a city.

**John Scott:** How fascinating. That leads me nicely to my next question. Can the panel provide examples of international best practice in achieving low-carbon behaviour change? What can Scotland learn from those, whether as a desktop exercise or in other ways?

**Dr Howell:** Again, I draw on examples of cities in which, in the Netherlands in particular, cycling is completely the norm. That is all about infrastructure, but how much is to do with deliberate policy or how those cities have developed? Indeed, the Netherlands is flat, so how much is to do with geography? It is not impossible to overcome things. Cycling is just one example of a low-carbon transport behaviour. We must look at places where the structures have made a big difference to behaviour.

In my 10 years of looking at the issues, I have done a lot of research on the behaviour change agenda in terms of persuasion, values and all the things that are the individual factors in the individual, social, material—ISM—model. I have come to the conclusion that, although the individual factors need to be right so that they do not inhibit change, the structural factors—the “S” and the “M” factors in the ISM model that the Government uses—do the most to promote positive change, and my whole research agenda is changing more towards looking at structural factors because of that. I have given up on the hope that we will make the huge strides that we need to make by focusing mostly on the individual factors, persuasion and the small nudges that encourage people to make choices to change their behaviour.

09:30

**Jamie Stewart:** I echo what Rachel Howell said. Let us take the example of the take-up of electric vehicles in Norway. There is a tax incentive that encourages people to buy electric vehicles, but there is also the infrastructure—there is a good charging network. The approach might not be replicable in Scotland but, as a result, more electric vehicles are sold in Norway than diesel or petrol cars. Buying an electric car has almost become the social norm, but it is a result of having the structural support in place.

**The Convener:** I presume that it is important that that support is consistent. In London, people were incentivised to have an electric vehicle because it was very cheap to charge such vehicles, but then the contract changed. Now, there is a new provider and it is more expensive. Do you agree that consistency is important?

**Jamie Stewart:** Yes, consistency is important when it comes to things such as tax incentives. In the UK, the grants for low-carbon vehicles, electric vehicles and ultra-low-emission vehicles have reduced slightly. Although a grant cannot be guaranteed for ever, it is important for there to be some consistency so that households and consumers have confidence in the system.

**The Convener:** We have some other questions on the same theme.

**Mark Ruskell (Mid Scotland and Fife) (Green):** It is interesting that you are talking about system change to tackle climate change; it is difficult to unpack the different elements.

On pricing and financing, how effective would a measure such as free public transport within cities be? Are there complexities to do with making things free that could lead to consumption increasing? Are there good approaches involving a system that works from the point of view of decarbonising transport and providing effective service that is competitive with use of the private car?

**Shane Donnellan:** You have hit on an extremely important issue. Price, finance and costs are hugely important to people. People tend to think, "How will this affect me? How will it affect my pocket or my family's income?" That is the single biggest factor in many situations, whether we are talking about transport, the retrofitting of houses or upgrading the efficiency of properties.

It is admirable when people express a wish to cut down on the number of domestic flights that they take, but when a flight to London costs a third of the price of going by train, it is difficult to expect people to make that change. They can have the best will in the world, but such a simple action can deprive them of a lot of money.

There is no straightforward formula for what an incentive should be. If there was free transport, as you suggested, people could abuse that or take it for granted. That could be one side effect. Consumer research needs to be carried out into any proposed incentivisation measure. Unfortunately, cost or the financial value that people attribute to what they will get is one of the biggest motivators.

**Jamie Stewart:** Finance is a key factor. If, say, public transport in Edinburgh was free, I think that the use of it would increase. However, there are

other factors that might almost be more important. How often the buses run and whether they go to the right places—I am thinking of places such as general practitioner surgeries, hospitals and schools—are important considerations. How useful the service is is an important factor, especially in rural areas, where there is a lack of bus services.

**Dr Howell:** With public transport, it is necessary to consider not only whether making it free or much cheaper would work but what alternatives people might choose. There is the alternative of the private car, for example. We need to work on both sides of the equation. Encouraging people on to buses is not just about price and ease of use, although ease of use as well as price is very important. It has also got to be made more expensive and less attractive to use a car.

To avoid the potential drawbacks of incentives, it is important that the policy is consistent. If people are hooked into behaviours using the financial motive, other motives can be crowded out. If the financial motive is no longer there, people's reactions can change. For example, at the University of Edinburgh, 50p is taken off the price of a coffee if the customer uses what is called a keep cup. I worry that, if people have become hooked into the idea that they ought to get money off if they use a keep cup and also use coffee houses near the university that do not offer that incentive, they will ask themselves why should they have the inconvenience of carrying and cleaning out the cup. If there is to be a financial incentive, it has to be consistent and able to be kept up for a while.

**Stewart Stevenson (Banffshire and Buchan Coast) (SNP):** We are talking about individual behaviour and I want to make it very personal. I live in a remote rural area. We burn 4,000 litres of oil per year. It was 6,000 before the Government put 400mm of insulation in our loft. That cut 2,000 litres off the total, which was great.

The boiler is quite old. If we replaced it with a new oil boiler, it would cut our consumption by about 25 per cent or 1,000 litres. That represents about £600 per year at the moment. The new boiler would cost £2,000, so we would make our money back in about three years.

We would like to go for an air-source heat pump, which is £15,000 to £20,000. That would mean a 10-year payback period. However, the service engineer for the oil boiler is a 15-minute drive away, whereas the service engineer for the air-source heat pump is a two-and-a-half-hour drive away. Why would I not continue to burn oil?

**Mary Sweetland:** The answer is because you are committed to reducing your carbon footprint, rather than focused on the funding.



What you describe is an issue. There was a big gear-up in Scotland of companies that would support air-source heat pumps when there were incentives. The demand did not develop because of the costs, and therefore the manufacturers of the pumps have gone out of business. Farmers in particular have great difficulty in getting engineers to come. My cousin has an air-source heat pump. It broke down because it had been installed poorly. It is about making sure that the industry is prepared and ready to go, and that the industry is supported. The price for air-source heat pumps has dropped.

**Stewart Stevenson:** It is worth saying that my wife has the money. It is the engineer that is the reason she is not doing it. She knows from neighbours of similar experiences to your cousin's.

**Mary Sweetland:** The experience of putting in plug points for electric cars in Orkney is the same. Someone had to be sent from Cheltenham—now Stirling—to install them. Someone had to drive all that way in a diesel van. The point is to incentivise the shift so that people really want to do it.

**Stewart Stevenson:** Forgive me, but we understand the problem and have all defined it; what we are trying to explore here is what the Government can do to move my wife and others to that different position. How do we do that?

**Shane Donnellan:** As has been mentioned already, there is a need for both a bottom-up and a top-down approach—regulation along with some of the softer stuff such as public engagement. Right now, what is missing in Mr Stevenson's situation is not the motivation; the problem is that the cost benefits are not weighing up.

One of the things that is missing is the feeling of responsibility. In a sense, it should not just be up to Mr Stevenson. Everyone in Scotland has a responsibility. Some policies say that lifestyle changes will affect everyone in Scotland over the next couple of years. If we believe that, we need to get people buying into the message that the responsibility sits with you and me to make bigger changes. It is no longer just about LED light bulbs. That will not get us to the 2050 targets. There is a need for investment, hand in hand with a systemic approach to support.

**Stewart Stevenson:** Forgive me, but I am really looking at the rural versus urban issue. I would not own a car if I lived in Edinburgh, but the fact is that, from where I live, it is a two-hour walk to the nearest bus stop. Also, the current generation of electric cars will not get me to Aberdeen and back on one charge. What am I going to do?

**The Convener:** I will take a very short supplementary from Richard Lyle before we move on to Claudia Beamish.

**Richard Lyle (Uddingston and Bellshill) (SNP):** Dr Rachel Howell mentioned Holland. My mother-in-law was Dutch; I first went to the country in 1973, and I have subsequently visited quite a lot, so I know that its transport system is fantastic and very cheap. For example, a bus will come along every five or 10 minutes. Should we in Scotland have a more reliable bus service? Should we promote park-and-ride schemes more? When you go past some park-and-ride areas, you can see that they are just lying empty.

**Mary Sweetland:** The park and ride at Ingliston is not empty; it is full, and its charging places for electric cars are always full, too. Perhaps in some cases the location of the park and ride is the problem, but I know some that are being very well used.

**Jamie Stewart:** I certainly agree that we need a cheap and reliable bus service. Some of the targets for emissions reductions in the transport sector possibly rely on the use of electric or hydrogen vehicles, but the costs of them are prohibitive at the moment. Furthermore, a big section of society cannot afford private transport. Those people need to be supported and, in that respect, it is essential that we have a good and reliable bus service.

**Dr Howell:** A reliable and affordable bus service is very important, but I want to suggest other measures that might make using the car less convenient and not so cheap.

We can, for example, look at certain co-benefits. In Edinburgh, we are seeing more and more schemes in which the roads near schools are closed at pick-up and drop-off time for children, and parents and children are behind such a move, because of concerns about air pollution. That is the kind of scheme that can be rolled out and joined up with other things. After all, the issue is not just air pollution right by the school gates; children live in the streets near schools, and you could have driving bans in whole areas rather than individual streets at particular times. We could close more streets to private vehicles and make them places where only cyclists, walkers, taxis and buses can go.

**The Convener:** Before I move on to Claudia Beamish, I want to draw your attention to a point that was made by two Swedish experts from whom we heard last week. They said that, in rural areas, we are never going to be able to have the bus services that you are talking about. It is just not going to happen. That sort of thing might work as we move towards the cities, but certainly not where I, Stewart Stevenson and Rhoda Grant as a Highlands and Islands MSP come from. As a result, we are going to have to incentivise electric cars as the way forward. In that case, might there need to be almost a dual policy of incentivisation

of electric vehicles in rural areas and something else more structural in urban centres?

**Dr Howell:** Absolutely. Indeed, the First Minister has said that fossil-fuelled cars are going to be phased out by 2032. Therefore, there will need to be some help for people, and we are going to have to set up the charging infrastructure for people who live in rural areas. It will become the norm, but that whole system will certainly need to be set up.

Rural and urban areas need to be treated differently. In response to an earlier question, I think that the Government will have to not only think strategically about very large-scale roll-outs of structural changes but target where such moves will work first. For example, even though air-source heat pumps are the best replacement for oil-fired boilers, it might not be best to target them at very rural areas, because the engineers who will install them probably live a long distance away. Instead, some of the smaller towns close to those areas could be targeted so that the network of engineers can get bigger and spread out. Once those engineers are in place, the most rural areas can be targeted.

09:45

**The Convener:** Does it not disadvantage rural areas that they do not get the opportunity to access new technologies because of that? We have a situation where, yet again, it is more expensive to live in a rural area. We are almost being penalised for populating such areas. We have a drive for people to live in the cities because they have better bus services, access to all the new technology, cheaper fuel bills and so on.

**Dr Howell:** Yes. I am afraid that there is no perfect policy here. What we need to work out is where we have to get to and what we are trying to avoid. We always have to keep in mind that all policies will have some downsides for some people, but the biggest downside will be if we do not tackle climate change, because that will create an inhospitable world. We have to do the next best thing we can do to avoid that huge problem, rather than say that we cannot do this, that or the other because it is not perfect. We cannot allow the perfect to be the enemy of the good, or the good enough.

**Claudia Beamish (South Scotland) (Lab):** I have a quick supplementary question. Do the panellists agree that one issue is the development of skills for smaller towns and rural areas so that rural dwellers such as Stewart Stevenson and me can benefit from technologies? I put my hand up in shame and say that I am another person who has an oil boiler and has kept wanting to change but, even on my salary, has wondered about that. Are

skills an area that we should be developing everywhere from Eyemouth to Orkney? I see a lot of heads nodding.

**Jamie Stewart:** Having skills and the appropriate resources to provide support services to rural areas is really important. We can look at the smart meter roll-out as an example. At present, it is generally being focused on urban areas. We know that smart meters will bring lots of advantages, with people being more aware of their energy use, and they will also facilitate lots of different smart technologies. However, the roll-out is quite slow in rural areas, and—

**Claudia Beamish:** It might be encouraging to know that mine is being installed tomorrow, following a phone call to me.

**Jamie Stewart:** I hope that it works. *[Laughter.]* It is always going to be a difficult issue when we have isolated areas, but it is important to ensure that companies and Government support programmes are well resourced enough to ensure that people in rural and remote communities have that advice and support.

**Mary Sweetland:** I am an inhabitant of a rural village that is 22 miles from Glasgow and is in the Loch Lomond and the Trossachs national park but does not have superfast broadband yet. The infrastructure is an issue, and so is its reliability. I have an electric car, but how often do I go to a rapid charger and discover that it is not working? Chargers have been installed, but the engineers are not in place to keep them up to date, and when there is a storm such as Ali, they suddenly go off because they are not getting the broadband signal.

We need to consider such things from a skills perspective. We need to develop a circular economy, and in order to meet the targets, we have got to become more thrifty. That is a good old Scottish word. Actually, the expanding growth in the economy has got to move to environmental topics rather than being in big commercial projects.

Going back to the subject of international best practice, I add that climate justice is a major concern for the churches, because the communities that are suffering the most are the ones that have done least to increase their carbon use. They want Scotland to share its knowledge and experience, rather than selling it to them for profit. We have examples involving solar ovens in Bolivia, how solar panels work, the use of wind and so on. The developing world is looking for Scotland to share its skill sets. We have been doing some superb work on that, but we need the industry to change to a focus on development work.

When I built my Passivhaus, there were very few people around who knew how to build one, and they had only single skill sets. I needed a joiner and an electrician, so I was waiting about. We need to bring about a big change in the building sector.

**Claudia Beamish:** I want to follow up on the international issue with Mary Sweetland before I put a question to the whole panel. The Eco-Congregation Scotland submission says:

“One of the principal drivers of climate action in churches is the impact of stories from ... around the world.”

As I understand it, those stories are from places where the impacts of climate change are being experienced. To what degree is it, do you think, appropriate or useful for those stories to be told beyond the churches to effect behaviour change in the developed world?

**Mary Sweetland:** I think that that is essential—we see that with the work of the Disasters Emergency Committee. The churches work with all the big charities, including Christian Aid, the Scottish Catholic International Aid Fund and Tearfund. The telling of such stories is a key part of our supporting international development. That is one of the roles for which eco-congregations take responsibility.

Technology is great—it means that we can share stories and they can have an impact. We have all enjoyed finding out, through David Attenborough, about the impact of plastics. We can use the media to communicate what is happening and to share knowledge and experience of what we can do. The millennial generation is having the biggest impact in that regard. The churches have always said that those who are responsible for high use of carbon need to make a change for the sake of their grandchildren, but now there is a realisation that we might, in our generation, see the impact of climate change on Scotland.

**Claudia Beamish:** This question is for the whole panel. The committee has scrutinised the Scottish Government’s climate change plan. As I am sure you will know, it focuses on seven key sectors. For the record, those sectors are electricity, buildings, transport, industry, waste, land-use change and forestry, and agriculture. The plan is to be updated to reflect the bill’s new emissions reduction trajectory to 2050.

Should additional sectors be included? Last week, Swedish experts mentioned the fashion industry and said that reuse of the materials in mobile phones is difficult because components are glued together, which corrupts the plastic. Are there particular sectors in which it is important to develop further behaviour change? If so, what are they and what can be done? Perhaps the

witnesses could comment on the sectors that they have most knowledge and experience of, or those that are the heaviest emitters.

**Jamie Stewart:** People have been highlighting the importance of emissions reductions from the residential sector, from which a third of our emissions come. There is an opportunity to reduce emissions there. I will come back to my earlier point: the problem is that people do not realise that the energy that they use in the home makes a big contribution to overall emissions. To an extent, people feel that what they do in the home is tokenistic. We need to provide people with more information and education to make them realise that turning down the thermostat can have quite a big impact if people throughout the country do it. That relates to the need for an aspirational awareness-raising campaign instead of telling people that they must do things such as turn down their thermostats. We need to help people to realise that they can have a positive impact. It is important to focus on positives. Small actions can facilitate change and a reduction in emissions.

**Shane Donnellan:** I will chip in here, and hope that I do not cover anything that Jamie Stewart has already said.

Buildings are a hugely important sector—they have been described as the low-hanging fruit. A huge amount of progress has been made there; for example, the Scottish Government’s great internal wall insulation programme, with its aim of upgrading existing stock, has been running for many years now.

However, if that sort of thing happens in isolation from behavioural advice, you might find that some people take the savings from their houses being warmer while others open the windows to cool their houses down a little. We are seeing that time and again; what you might call the rebound effect is a common problem in some of the large-scale retrofits. It has been known about since the industrial revolution; it is the equivalent of someone buying low-fat ice cream but eating twice as much of it, simply because it is low fat. We are seeing a lot of that happening in the approach that is being taken to buildings.

There is no point in doing things like giving interest-free loans or making full-on investment in upgrading properties if people and their behaviour are not put front and centre, and if the inhabitants of properties are simply ignored. They need to be given the skills and shown how to work their thermostats if their houses are too warm, for example. Not tying all that together has been a missed opportunity.

Finally, aviation is absent from the climate change plan. It has a huge impact on the environment—much more than some of the

smaller things that have been included in the plan and which could be seen just as tinkering at the edges. Its omission is notable, but I am sure that there are reasons for it.

**Dr Howell:** As far as behaviours are concerned, we need to focus on food, because I think that one of the least-understood aspects is the link between diet and climate change. In that, again, there are fantastic co-benefits. We do not have to rely on a narrative that is all about climate change, which not everyone is connected to, because the need to change behaviour by reducing meat and dairy intake is exactly the same as the advice for a healthy lifestyle. There are ways of tackling that issue that do not have to involve climate change legislation. For example, really stringent animal welfare legislation, which would be very popular with a lot of people, would drive up the cost of meat and change the balance when it comes to people choosing their main source of protein.

You could also work with general practitioners and hospitals on ensuring that there was plenty of advice on healthy eating, which needs to include advice on how to find and cook alternatives. I am always astonished to hear my students saying that it is more expensive not to eat meat. I can only think that they are substituting meat with expensive processed alternatives such as Quorn, or are using recipes that involve very expensive ingredients such as cashews and pine nuts, and that they do not realise just how plentiful and cheap pulses and so on are.

As we have already talked a lot about transport, I will not go into that, but we have not seen the progress that we need in that area. We really need to focus on getting transport emissions down, because they have been static for a long time. As for land use, a nitrogen budget needs to be established in the bill to drive changes in farming.

The last comments that I made may have sounded rather harsh, but I want to make it clear that the level of change that we need will have significant impacts that will be different in urban and rural areas, and different in various sectors, in terms of jobs. That is why attention needs to be paid, in the bill, to ensuring a just transition, with some kind of commission having oversight of the matter to ensure that and to work out how to mitigate problems for people in rural areas. I certainly do not want people just to say, "Well—tough luck."

**John Scott:** I am sorry, but I am quite exercised by your essentially having said that rural areas should be disadvantaged—

**Dr Howell:** Well—

**John Scott:** You said it earlier. I appreciate that you have now corrected it.

**Dr Howell:** "Should" is not the word that I used.

**John Scott:** The reality of what you are saying is that rural areas would be disadvantaged for the benefit of the majority.

It is not progress to benefit the many by disadvantaging the few. If that is what you are saying, something has to be done.

You are painting a fairly grim picture of a meat-free, livestock-free landscape where we are encouraged—if not forced—to eat pulses. That is not a future that I would welcome.

10:00

**Dr Howell:** You are putting words in my mouth. I did not say that everybody needs to have a meat-free diet; I said that we need to reduce the amount of meat and dairy that people eat. People do not have to eat pulses at every meal. However, I suggest that people would be healthier: they would be eating a healthy diet that would cut down heart disease, for example. I am certainly not imagining a scenario in which everybody has to turn vegan—which is one of the very unhelpful messages that is coming out. This is not about extremes; it is about very large numbers of people making reductions, rather than about very small numbers of people going to extremes.

I am very sorry if I did not express myself clearly enough on rural areas. I certainly do not feel that rural areas should be disadvantaged, but no policy can be brought in without some disadvantage to some people. We have to try to mitigate that disadvantage, but we cannot simply say that we cannot do anything because there will be some disadvantage to some people. We have to consider how to offset that. There are ways in which we might be able to do that.

If we simply say that we cannot bring in the policies that we need in order to change behaviour at the required level, we are accepting 3°C to 4°C warming by the end of this century, which will be a tremendous disadvantage for everybody.

**The Convener:** There is another aspect to what we are talking about: people who are on low incomes are not thinking that they will eat this, that or the next thing because they want to change the environment; rather, they are thinking about how they can get through the week. We have to make things work for everybody. A just transition must not disadvantage people who are on low incomes. The idea of getting a new boiler will not cross a person's mind if they cannot pay their electricity bill or put food on the table. How do we deal with that? The majority of people are not in a position to talk about getting a heat pump installed.

**Shane Donnellan:** You spoke earlier about the two-tiered approach. That is where the people who

can afford air-source heat pumps need to be encouraged to do so, so that funding can be directed to those who cannot afford them, which is the approach that is practised. The self-funded body of people who may not have been prioritised over the years are more difficult to engage with. Lots of people do not know what the hook is, and I do not think that that has been fully cracked yet.

The term “self-funded” has gone through different iterations. We did internal research. Initially, we referred to people as “able to pay”—that is, anyone who was not at risk of fuel poverty was able to pay. When we completed the research, we found that people do not see themselves as being able to pay, they do not see themselves as sitting on a huge pile of money just because they are on a higher income, and they do not see themselves as squandering money and opening windows when the heat is on. Their threshold is a little bit higher.

I will use a coffee machine as an example. Some people say, “I like good coffee, so I’ve got a coffee machine. I’ve got a 50-inch TV, but I don’t waste energy. I just like my quality of life.” The threshold is raised and, through their lifestyles, people use a little bit more energy. Those are the people who really need to be engaged with so that they get air-source heat pumps and invest in energy efficiency—that is, the people that initiatives such as the home energy efficiency programmes cannot fund, because they fund people who are in fuel poverty. That would be the approach to take.

**Jamie Stewart:** The convener made a really important point. Through the citizens advice bureau network, we see people coming in from stressed and chaotic environments who might be in debt, including energy debt. Their having the financial capability, the time or the engagement levels to invest in a new boiler is a big risk for the Scottish Government. Where targets rely on people in those situations making such decisions, there is a big risk that targets will be missed.

On solutions, it is important that we provide holistic advice and support—and advice should be holistic through including benefits checks in order to maximise income. Alongside that, and perhaps further down the line, people might look at what grants and incentives are available to upgrade property.

Issues should be tackled in priority order—the most pressing issues should be tackled first. Once a relationship is built up through face-to-face advice, people can be provided with support, including Scottish Government grants that are available to some people to install boilers.

**Mark Ruskell:** There are some interesting examples from Nordic countries of services and

the economy being focused on rural areas. What impact will broadband and the new economy have on rural areas? There is a tendency to think of everyone going to the city to work and access services. To what extent will the cultural shift around relocalisation make a difference?

**Mary Sweetland:** Scotland could do more on green tourism. If we want to stop visitors to the national parks using cars, there needs to be infrastructure to get them there and there is a need for reliable broadband. That would develop rural jobs, as well. It is quite a shift, even to encourage visitors to Scotland to do without their cars, which would reduce congestion at weekends at, for example, Balmaha, when there is no parking available. We have to think about a complete economic shift.

I will go back to the community effect of mitigation for energy. In some areas, there is the potential for community hydro schemes to bring in an enormous amount of funding to communities. The cost of developing them and putting in a turbine is considerable, however.

Apparently, 100 years ago most big old rural houses had their own hydro schemes, but they have fallen into disrepair. Those could be recommissioned, as has happened near Taynuilt, to produce community energy, instead of £10 million having to be paid to put in a new hydro scheme. Perhaps there is a way that Scotland could, in rural areas, be pushing to find these old schemes, and to re-establish them to generate electricity locally that could be used to charge electric cars and so on. If we put the infrastructure in place, we could attract green tourism.

**The Convener:** Claudia Beamish has a last question before we move on.

**Claudia Beamish:** I am going to try asking a kind of vision question. If anyone knows the answer, we will all sigh with relief.

What would need to change in behaviour to go beyond the 2050 target that the Scottish Government has in the bill—of reducing emissions by 90 per cent—to a net zero target? It is a probing question; if anyone has thoughts on behaviour change, we would value them.

**The Convener:** Who would like to go first?

**Shane Donnellan:** It is difficult to see where behaviour change fits in relation to 90 per cent or 100 per cent targets, given that behavioural targets have not been put forward. That was the thinking behind my opening comment.

The climate change plan refers to widespread uptake of EVs, but how widespread is widespread? It also refers to societal shifts in how we work and live, but how many is that and what

are they? If we do not know what the targets are, it is difficult to add 10 per cent on to them.

**Jamie Stewart:** I apologise for focusing on the domestic sector again, but it is the one that I know most about. If we are looking at ensuring that all properties have a band C energy performance certificate by 2040—which is a target that will have to be met if we are moving towards even a 90 per cent target—we will have to rely on the owner-occupier sector and what are potentially quite expensive measures. Again, we have to make this aspirational for people and ensure that the right grants and incentives are in place to encourage them to upgrade their properties to be energy efficient.

**Dr Howell:** As you have recognised, there is no nice, neat answer to your question, so I cannot give you one. Nevertheless, I am feeling uncomfortable about our perhaps focusing too much on the issue of the individual and choice, which is what I hear when I hear questions about behaviour. Again, I want to point out that, in order to meet the targets that we need to aim for—which I should say is net zero, not 90 per cent by 2050—we will need huge structural roll-outs and an urgent phased closure of the oil and gas industry with a just transition to a huge programme of renewables. After all, Scotland has the best wave and tidal resources in the whole of Europe, and it could be a tremendous leader on the issue. We therefore need to be looking at going quite a long way beyond what we are doing at the moment. That does not mean that we are just going to ignore individuals—after all, we need engagement with new technologies and this programme of change—but we certainly cannot put all the responsibility on individuals to get us as far as we need to go. It will require much more than persuasion and voluntarism.

With regard to behaviours, we basically need to make, say, travelling or heating one's home in ways that do not require fossil fuels, eating a lower-carbon diet and so on the cheapest, the easiest or the most normal thing to do. That brings us back to the issue of people on lower incomes. Given the very strong correlation between income and greenhouse gas emissions, we do not want to target lower-income people with messages about air-source heat pumps. People can end up feeling guilty and stressed about what they cannot do, and that is why we need a structural change that is aimed at the landlords and social landlords who can make a difference and which will, in turn, provide benefits for lower-income people. After all, it is the lower-income people in inner cities who are suffering most from air pollution, and part of the message that we need to get out is that the changes that we need will benefit them.

**Mary Sweetland:** The answer is to reduce consumption, but that does not fit well into macroeconomic models. We need to get back to a culture of make do and mend instead of a throwaway culture. Of course, that will mean bringing up people's skill sets to ensure that they can repair things. Those are the kinds of drastic changes that we need; we need to bring it all back to thrift, but I think that economics people might struggle with such a suggestion.

**The Convener:** It might be good to follow up that question when we have businesses in front of us.

**Richard Lyle:** Dr Howell and Mary Sweetland are going to agree with me, but the fact is that we all need to change, because if we do not, we will be letting our children, our grandchildren and our planet down. However, are we just kidding ourselves on here? Are we just tinkering at the edges and doing the easy fixes? Do we need to get real? What barriers exist to achieving the required behavioural changes, how can they be overcome and who should be responsible for that? I am sure that you will have plenty to say about that.

10:15

**Shane Donnellan:** Are we kidding ourselves? That is a question for the Scottish Government and the wider public. The ambitions have been globally recognised as being particularly ambitious, both at the time of the Climate Change (Scotland) Act 2009 and since then. There have been some really good targets, but we cannot celebrate the ambitions and congratulate ourselves if we do not then try to achieve them and really try to drive that change. There are some barriers to the acceptance that we will do that. The work will not be comfortable for everyone. There is going to be a need for some tough political decisions and a need for members of the community to step up and do more than they are doing. Business-as-usual approaches will lead to business-as-usual solutions. The targets are ambitious and we need to step up to them.

On other barriers, Jamie Stewart mentioned people not recognising the impacts of their individual behaviours. That needs to be emphasised, but we also need good leadership. People say, "I can turn my thermostat down by a degree, but there's an industrial plant on the outskirts of town that belches out CO<sub>2</sub>." There needs to be some regulation so that we have a systemic approach and not just the carrot and stick of Mrs Jones on the street having to change. This needs to be done across society, with businesses, industry and local authorities having roles.

That leads me to the point that there is a strong role not only for local authorities but for community groups. It is not necessarily the case that people always want what is best for their community. In my experience, they want what is best for them within their community. The community organisations are great at being in between individuals and local authorities and engaging with people who are concerned about how things will affect their families and what changes they will have to make.

**Mary Sweetland:** You will know that, nowadays, most of our members of churches are in the grey-haired arena. At the beginning, their view was, "What's the point? We're not going to be here." However, we have seen a change, and with the communications and other things, they now accept that we need to do this work for our children and grandchildren. That is a big shift that we have managed to bring about through the 450-odd churches that are involved in the eco-congregation Scotland network.

However, the churches are also the main source of volunteers in Scotland. Through individual action and the things that they do, they talk to the community groups that use the church buildings and they see what they do, so they can make sure that polystyrene is not used anywhere and educate the people who come to the churches. We are beginning to roll that work out through different networks. It is a bit like the community asset model.

There are ministers and priests in Scotland who say, "Climate change isn't happening. What's it to do with us?" Part of the role of our environmental chaplain is to make sure that nobody from any of the Christian faiths—and they also work with other faiths in Scotland—questions whether they have a responsibility to bring about the behaviour change that looks after the world.

**Dr Howell:** I partly agree with Mr Lyle, but the Scottish Government is genuinely trying to lead here, and that is excellent. There is a real attempt to make changes, so in that sense I do not think that we are just kidding ourselves.

However, we will, unfortunately, be kidding ourselves if we just stick with the targets in the bill. We are kidding ourselves if we think that reaching 90 per cent by 2050 and 66 per cent by 2030, which does not represent significant change from what we already have, will be enough for where we need to get to, or in terms of justice. That is important in relation to psychologically engaging people, because we are going to be looking at very significant changes. Why would people make changes if they would perhaps get us nearly to where we want to be, but not quite there? It will not encourage people if they hear from organisations such as Stop Climate Chaos and

academics such as Kevin Anderson that the targets that have been put in place are not going to be good enough. That is not an engaging narrative. That is one important point.

On whose responsibility it is, I have a lot of sympathy with policy makers. You are between a rock and a hard place. I was saying this to Jamie Stewart outside the meeting room. A few years ago, there was quite a strong narrative from the public about how people really want us to do something about climate change but they do not want us to do anything that really affects them. That narrative is changing now. People are looking for strong leadership and Scotland is in a fantastic place to offer leadership and a positive and aspirational narrative about leadership on climate change within the UK and the international community.

The Government has a huge responsibility, but we share it. We—me, as a teacher, my colleagues here—as public engagers all share the responsibility and it is ours, now, in this moment. Our generation has to do this. We have to make the changes now. The policy makers, teachers and so on of today have to change things. It is our moment.

**Jamie Stewart:** To reiterate what Rachel Howell has said, the Scottish Government is leading in this area. It has a low carbon behaviours team and the ISM tool, which is a good tool for looking at how behaviour should be incorporated into public policy.

However, it is important to have a bit more clarity about what is expected of people. That does not necessarily need to be communicated immediately to individual households, but the climate change plan has set targets for one-off behaviour changes, such as installing energy efficiency measures and, beyond that, people and organisations do not know what is expected of individuals and whether individual change is required. The Scottish Government should perhaps try to make that clearer so that the delivery organisations on the ground and the grassroots organisations know what behaviours they are striving for.

**The Convener:** As I mentioned earlier, we took evidence from two individuals in Sweden. They said that, until now, climate change has been incremental but transformational change is now required. Where do you see that transformation happening? Is it really going to be incumbent on Government to put things in place for such a transformational change to take place? If you were going to lead such transformational change, and were going to do X because it would make the biggest difference, what do you think should be tackled first to drive this transformational change that is not going to disadvantage ordinary Scots? I

am sorry; I know that is a very difficult question but it is the big question: what is the transformation and how do we bring people with us?

**Mary Sweetland:** Part of what we do through the eco-congregation networks involves the early adopters. Yesterday, somebody asked me why I had an electric car and why I did not get a hybrid. My answer to that was there was an interest-free loan from the Scottish Government, and I wanted to show that we could travel from Gartocharn to Edinburgh using an electric car, that it worked and that it was reliable.

Three or four other people have now followed that lead. That is one of the things that networks can do. We had someone from the plastic free West Dunbartonshire campaign talking to our local network yesterday. People were sharing ideas, and we need to have communities who can do that. That is how we see bringing about that transformational change.

We need leadership that says that we have to go there and gives out clear messages and it has to come from the whole Scottish Government, not just the environment department. Sometimes, the approach is not joined up. There needs to be a straightforward approach to tackling the issue. Every department needs to think about which of its policies could have an impact on the environment.

**Jamie Stewart:** It is almost a cause of anxiety that people feel that a big transformational change needs to be made but they are not quite sure what they need to do. There needs to be recognition that a lot of that transformational change will be made by various sectors. I am thinking of sectors in which emissions have not reduced, such as the agricultural sector and the transport sector. I feel that all the emphasis should not be put on making the individual change through the use of a guilt-driven agenda. There needs to be agreement that the transformational change that is required will be made by all sectors and that individuals can play their part. Buying an electric vehicle is a way for individuals to reduce their transport emissions. Beyond that, we should encourage simple changes, such as changes in how we heat our homes and insulate our properties. We should not give people the idea that they have to make big scary changes; people should be encouraged to make simple changes that they want to make, such as reducing their meat consumption. I think that we should steer away from building up fear among people that, as individuals, they ought to make really big changes.

**Stewart Stevenson:** We are trying to tease out the barriers that exist to behaviour change. I want to briefly explore the issue of perception versus reality. The context for that is something that Shane Donnellan said earlier—that it is cheaper to fly to London than it is to get the train. I have just

done a check. On 10 December, leaving at 8 o'clock in the morning, a train ticket costs £34, whereas the cheapest flight costs £58. On top of that, people who fly arrive at an airport; they do not arrive in the city. The cost of the additional surface travel for getting to the city centre is a further £21.60. Therefore, the train costs £34 and flying costs a total of £79.60, if you book a month ahead.

Is it not the case that there is a perception problem, whereby people think that, if they are going to fly, they must plan ahead, but when they want to catch the train, they can just get the walk-up fare? If people do that, flying looks cheap. How do we tackle that? In a sense, I am gently accusing Shane Donnellan of perpetuating a myth. Personally, I have never found it to be cheaper to fly between Edinburgh and London—except on one occasion—and it is certainly not quicker. It is also much more hassle. How do we tackle the issue of perception and reality, of which that is one example?

**The Convener:** Does anyone want to answer Stewart Stevenson's question?

**Stewart Stevenson:** Shane Donnellan might want to.

**The Convener:** As you were mentioned, Shane—

**Dr Howell:** Shane wants time to think.

In some ways, you are right, but that is not always the case. There is definitely an issue with perception and reality. For example, research shows that people underestimate how long it takes to get somewhere by car and that they overestimate how long it would take to make the same journey by walking or cycling. We also have very different ideas about delays. If a train is delayed by 10 minutes, everyone complains about how poor the train service is. If someone was making the same journey by car, they would never say to the people whom they were visiting, "I'm going to arrive at three minutes past 12," and consider themselves late if they arrived at 13 minutes past 12. They would say, "I'll probably be with you around lunch time," or, "I'll be there somewhere between 12 and 1." How people approach such decisions is an interesting issue.

One of the things that we can do is make people aware of that. People can sometimes change the way that they think simply by being aware of what they do. The bystander effect—the effect whereby, if several people witness an event in response to which action needs to be taken, all of them wait for someone else to do something—can be reduced or eliminated by telling people that that is what happens, so that they know that they need to take action in such circumstances. If we tell people and get them to think about the issue—in this case, if



we get them to think about how long in advance they plan for a flight and how long in advance they plan for a train journey—that might help to change people's behaviour.

10:30

I do not think that it is always the case that it is cheaper to travel by train, so we need to tackle the real barriers that prevent people travelling by train. It is often cheaper to fly if people are taking a flight to London to go further on. Someone can buy a through ticket if they are flying down to London in order to get to Singapore. If they want to make a long-distance journey by train, they can go to a wonderful website—the man in seat 61—that will tell them about a load of different train companies, but they will not be able to buy a through ticket and there will be all sorts of different deadlines by which they need to book a cheap ticket in advance. For example, they could book from Edinburgh to London for £34 or whatever for one date, but they cannot be certain that they will get a follow-on ticket from London to Paris or wherever, because the booking window for that will not be open. We need to think about the different ways in which people are undertaking journeys and ensure that everything is much more joined up.

**Stewart Stevenson:** I use the man in seat 61 website. I had to fly from Krakow to Budapest and it was 11 times more expensive than Budapest to Bratislava, which was further.

**The Convener:** I am sorry, but we have to move on rather than talk about how to get to Budapest, as we have other questions that need answered. I will move on to Angus MacDonald.

**Angus MacDonald (Falkirk East) (SNP):** Good morning, panel. In the evidence that we took from Sweden last week, Stefan Nyström and Anders Wijkman spoke about how much easier it would be to communicate a net zero target to the general public than to speak about lesser targets or percentages, which can make it difficult for the general public to comprehend fully. We have already explored this to some extent, but can you expand on how policy makers can secure popular support and, more important, buy-in for Scotland's climate change targets?

**Shane Donnellan:** Something that has been mentioned before—it is a bit of a shock phrase—is war effort. A lot of people who are still with us refer back to the war and to how it was a case of everyone getting on board, doing their bit and playing their part. Everyone was part of the war effort. I will stop the war analogy, because I do not think that doom and gloom will be helpful and motivating for people. However, it is about telling people that they have a role and that it is up to them. It is not a case of people just doing one or

two clearly visible behaviours; it is about a way of living their life, a new approach and building a momentum.

This week, a survey found that 600,000 Britons identify as vegan, which is a fourfold increase in four years. That is because it is now okay to be vegan. I am not saying that we all need to go vegan. However, being vegan has been normalised and better vegan options are available in supermarkets and restaurants; it is no longer just the pursuit of the elite who do not have to worry about where their next meal is coming from, but is now an option. There is also vegetarianism and—because everything needs a label—flexitarianism, which is about people reducing the amount of meat that they eat. In the national survey, two thirds of Britons reported that within the past couple of years they have reduced the amount of meat that they consume, largely for environmental reasons and because other people are doing it.

We do not need to refer to the idea of a war effort, but we need to bring everyone on board—that will be key.

**Mary Sweetland:** Media coverage of the Intergovernmental Panel on Climate Change's recent report suggests that people are very keen on doing their bit and that a net zero target would be well accepted across Scotland, because it would make people realise that they need to take some action.

**Jamie Stewart:** Gaining public support for a net zero 2050 target is the easy part; getting public support for the programmes that will come into place next year is the more difficult bit. If we look at the owner-occupier sector, is there a regulation that says that people will have to do something with their homes? Public support is needed for the short-term programmes that facilitate the long-term targets, which are the important part.

Research, including research on consumers, is important to understanding what makes people want to participate in short-term targets rather than just thinking that we should be net zero by 2050. It is important to think about what takes place in the next few years.

**Dr Howell:** The justice narrative is attractive and engaging—it is about taking a just approach in Scotland and across the world. Framing it as something that is about our playing a just part is very attractive to people, and all sorts of organisations will help to push that narrative. For example, Scotland has ties with Malawi, so lots of organisations will be interested in doing that as part of their work.

**The Convener:** Should the economics be an argument? Sometimes, the economic opportunity for people does not get talked about as much.

**Dr Howell:** My suggested structural changes would lead to a huge job-building programme, so long as we did it properly and with proper thought. As I mentioned, with a just transition you do not just allow people's jobs to drop away; you bring in jobs, too.

**The Convener:** The tendency is to talk about giving stuff up and to say that things will change in a negative way. We need to reverse that and talk about the changes in a positive way.

**Dr Howell:** It is about gaining healthier lifestyles, safer streets and cleaner ways of living, and about our being looked up to as a leader—there are a load of positive narratives. I keep using the word “co-benefits”, which is very important. This does not have to be all about climate change legislation; it can be about all sorts of other concerns that people feel strongly about, such as air pollution and healthy lifestyles.

**Rhoda Grant:** Citizens Advice Scotland has identified four areas that are likely to influence how certain policies will impact consumers differently. We have spoken about two of those areas: those who live in urban and rural areas and the socioeconomic status of consumers. The other two areas are people's local authority area and consumers' housing tenure. Given what we have heard this morning—I say this with a degree of disappointment—it looks as though the policies could build in huge disadvantage in already disadvantaged communities, especially for those in rural areas and maybe for those of a lower socioeconomic status. How should those considerations be built into future climate policy and a just transition in a way that will not leave people behind or damage their interests? Those issues have concerned me this morning.

**Jamie Stewart:** Thank you for raising those points. Again, it is about looking at the potential co-benefits and opportunities rather than the negative impacts.

There are risks; there are negative impacts. However, let us take fuel poverty as an example. In Scotland, 26.5 per cent of people are in fuel poverty, and a lot of them live in energy inefficient homes. Programmes that have appropriate Government financial support to help people to insulate their homes would not, I hope, impact negatively on the household. If the grants are there to help, there will be positive health impacts from insulation. We have to look at such programmes in terms of their not only reducing emissions, but having the co-benefit of improving health and wellbeing. It is important to look at programmes that focus on co-benefits.

**Mary Sweetland:** I wonder whether the challenge is in setting targets that include a rural focus. The roll-out of superfast broadband has a

great target, but any company will pick the low-hanging fruit and it is the final 5 per cent—which are the rural communities—that do not have broadband. We must ensure that there is a specific rural target, so that those communities are up front and are not left until the end. That might be something for you to focus on, in order to ensure that they are not left disadvantaged by climate change policy.

If people can work from home, they do not need to travel as much. They could videoconference in to meetings, rather than travel for two hours to Edinburgh for today's meeting. The societal change that needs to happen is about not having meetings for meetings' sake. We will have other ways of communicating and people will be able to stay in rural areas and do that.

**Rhoda Grant:** That works if people have broadband.

**Mary Sweetland:** Exactly. Do not talk to me about that at the moment.

**John Scott:** I should have declared an interest as a farmer and a one-time rural dweller in my previous exchange with Dr Howell.

Much has been said about what needs to be done, particularly in rural areas, which, as Rhoda Grant has said, are already disadvantaged through lack of services, lack of broadband and fuel poverty. If a two-tier society is envisaged, and de facto that is what is being said, what are the practical things that can be done?

To throw the challenge back to the panel, what is academia doing about knowledge transfer? You appear to have given up on the voluntary approach. Perhaps you should look at whether you are entirely satisfied that you have done all that you can in advising rural businesses on how to proceed in what they should be doing in the future. I am not certain that that work is being done by the Government. I am not sure that it is being done by academia. I would be interested in what you have to say about that.

**Dr Howell:** No academic is ever satisfied that they have done enough in terms of research or transferring knowledge. The job is never finished.

The pressures on my work mean that my main avenue of knowledge transfer is to students. It is becoming harder to do the job of going beyond the university, because of the pressure of the number of students. Partly because I am in the job because I love teaching and facilitating learning, I see my main sphere of influence as with students.

I have not done enough about talking to rural businesses, because that is not my area of expertise. I am sorry that I have been misunderstood in terms of my expertise and what I was trying to say. I was not envisaging a two-tier

society. I was envisaging that there might be different speeds at which things are rolled out, and that there should not be penalties on people who live in rural areas if things cannot be rolled out at the same speed. For example, I am anti the idea of having a huge carbon tax, precisely because it would have a disproportionate impact on poorer people and people who live in more rural areas.

There definitely needs to be a whole load more research, and more people doing it. That is what any academic will always say.

**John Scott:** I do not mean it badly, but would it be fair to say that we are long on analysis today about what the problems are but short on solutions. Maybe others, such as Claudia Beamish, disagree with me, but that is what the debate is about. I would like to hear more about the solutions. I am not certain that we are being told about the practical solutions. I agree with the panel that there is a willingness to change that is manifest across every aspect of life in Scotland, but there is uncertainty about what needs to be done to put one's shoulder to the wheel.

**Dr Howell:** I do not think that we are short on solutions. We are short on a very detailed road map of exactly how to get there and how to do it justly.

That is not entirely the fault of researchers. When you do research, you cannot be certain what the outcome is going to be. For example, Cancer Research UK has not yet managed to eliminate cancer, but that does not mean that it is not doing important work. Every time something is published that finds that a treatment does not work, that is just as valuable as finding a treatment that does work.

10:45

As I said earlier, I am sorry to say that, in 10 years of research, I have learned a lot about what does not work, what does not work very well or what works only incrementally as far as persuasion, focusing on values and so on are concerned. However, that work is not useless, because it points us in the direction that we have to go in. That is why I am changing my research programme. All I can do is be honest about what I have learned and how that has led me to change my thinking.

I share Mr Scott's frustration on this matter. I read academic papers that contain a lot of critique of Governments for focusing too much on psychological and economic levers and not enough on structures, and I want them to say exactly how it would work. Some papers do, and they talk about whole-system change, of which the congestion charge in London is a good example. There are just not enough good examples, but that

is not necessarily because people are not trying to find them; it is because this is a really difficult problem.

Having an analysis of the problem is very important if we are to find solutions, but there are still some people in society and the policy world who do not accept what the problem is or exactly how serious it is. Last week, I attended Kevin Anderson's public talk—I am sure that many of you were at his private event—and, although his analysis was rather short on very detailed solutions, he gave some broad-picture solutions and it was still valuable to hear exactly where he thinks we are at with regard to a fair carbon budget for Scotland and the overall picture.

**Mark Ruskell:** In my final question, I want to come back to the bill, its targets and the scale of its ambition. The United Kingdom Committee on Climate Change has offered its view by saying that the current targets in the bill are

"at the limit of feasibility",

but what do you consider to be feasible? Do you, too, believe that we are at the limits of feasibility, or do you think that there are ways in which we could go further? What does feasibility mean in terms of behaviour change? Are we at that limit yet?

**Mary Sweetland:** I will tackle that question, given my experience of setting targets in the health service. I have always said that there should be goals, not targets. We should set a goal of being at zero carbon. We are talking about a long time from now, and the predictions that people are making will be adjusted over the next 30 to 40 years. I know that politicians get concerned about setting targets that they know will not be met. If the aim is to change behaviour, we might miss the target at the end of things and reach only 95 per cent, but at least we will know what we are trying to get to. That might help to bring about the change in a better way.

**Jamie Stewart:** I agree that it seems like a long-term target and like we have lots of time to change. However, if we are thinking about more structural behaviours such as the buying of new boilers, the fact is that people keep boilers for 30 or 40 years, which means that we are relying on programmes such as energy efficient Scotland being successful. We do not have the time to risk another green deal—in other words, a programme that might look really good on paper, but that is as far as it goes.

The targets feel relatively feasible if the programmes are designed well and work well. If they do not work with this opportunity, we will not have that much time to try again.

**Mark Ruskell:** What is your consideration of the UKCCC's advice on the opportunities for structural change through technical innovation? Are we still very much reliant on people making the right choice, because they have seen an electric vehicle on a forecourt or whatever?

**Shane Donnellan:** There is perhaps a tendency to do that, but people need to think that electric vehicles and so on are more efficient. We need to stop tweaking and start changing things.

To go back to your earlier question, change is inevitable. Society will change, but what that change looks like can be shaped. In Scotland, things are different from how they were in the 1980s and in the 1960s. Any number of factors can be at play, but strong leadership can shift what the change involves. If people really think about how they consume and how they contribute to emissions, that focus can be capitalised on.

**Dr Howell:** The UKCCC is thinking about feasibility in terms of what it can see a complete road map to, which I think is a mistake, because the landscape will change as we move. In my life, things that I thought would be unfeasible for me to do have become perfectly feasible because, as I have made changes, that has changed the landscape in which I make choices.

There are two different ideas about what feasibility means. There is what seems to be economically, psychologically or politically feasible and then there are the immutable laws of physics, which involve a totally different level of feasibility. It is infeasible to imagine that we will solve the problem of climate change if we do not set strong enough targets. That wall has a different quality of hardness and a different quality of impenetrability from the economic and political stuff. That is an absolute, whereas the economics and the politics will change.

If we have a strong enough narrative about why the end is net zero emissions by 2050 or whenever, we do not have to know the absolute and total detail of how we will get to the end. That will make things more feasible as we go.

**The Convener:** The green deal was mentioned. Did the fact that some companies that do cold calling jumped on the green deal affect people's behaviour? I remember a good six months of not answering my home phone because of such calls. A well-meaning aspiration to have solar panels or whatever was hijacked, which affected public confidence. How should the Government improve public confidence in any new incentives to drive behaviour change so that they do not end up having the opposite effect?

**Shane Donnellan:** Joined-up thinking between local authorities and community organisations and strong leadership from the Government are

needed. No one ever intends a big infrastructure project to fail. The green deal did not work, but that was no one's intention—it was the result of systemic issues, such as things that had not been considered in the planning phase or aspects of the change that had not been prioritised.

We spoke about incentives. The green deal is an example of an incentive, but it did not work, because it was not considered in the wider context of all the other factors that contribute to someone's decision. When things such as cold calling happen, the situation can run away and lose its purpose. Instead of being associated with accessing finance, the green deal was suddenly associated with cold calls, and that became its meaning.

A holistic approach is needed from day 1 that involves local authorities as well as the Government in creating a holistic plan. The word "holistic" can be a buzzword that is thrown around, but that is what we must come back to.

**The Convener:** People need to know that they can trust an initiative and that they will not be ripped off, which is what happened in a lot of cases. Does Citizens Advice have thoughts on that?

**Jamie Stewart:** Public trust in any programme that seems to be Government led is important. Consumer protection might be on the drier side of things, but it is important. If a company that is involved in a scheme does not treat a household right or provides a poor service, and if public confidence in the programme drops, the huge risk is that the message that the programme is not a good thing to do will spread by word of mouth. As I said, we do not have many opportunities to implement such changes. Having a body that is well trusted and having appropriate consumer protections is important.

**The Convener:** We have reached the end of our questions. I thank everyone on the panel for their time.

10:55

*Meeting suspended.*

11:00

*On resuming—*

**The Convener:** I am delighted to welcome our second panel of witnesses today, with whom we will look at governance in the context of the Climate Change (Emissions Reduction Targets) (Scotland) Bill. I welcome Paul Gray, chief executive of NHS Scotland; Mai Muhammad, energy manager at Aberdeen City Council; Tom Thackray, director of infrastructure and energy at the Confederation of British Industry Scotland; and Chris Wood-Gee, chair of the sustainable Scotland network.

I have a general question about the role of the public and private sectors in driving the changes that it is incumbent on our society to make. What role can the public and private sectors play in supporting a wider range of low-carbon behaviour? I will take the public sector first and start with Paul Gray.

**Paul Gray (NHS Scotland):** Thank you, convener. Before I respond to your question, if I do not have the facts that the committee wants to know, I am happy to provide a swift response after today's meeting. I just wanted to make that offer.

The public sector has to demonstrate a degree of leadership, although that is not to say that the responsibility rests exclusively with the public sector. For example, when we procure new build or refurbishment, we have to be exemplary in our design and specification. The way that we use our public health initiatives to prompt people to take more exercise is not just about public health and improving the health of the population; it is also about reducing the use of motorised transport.

We need to help our staff understand what terms such as "climate change" and "reducing emissions", which often sound like umbrella terms, really mean in practice. If the committee wishes to hear them, I have some examples of what we are doing in those areas. Would that be helpful?

**The Convener:** It would be very helpful.

**Paul Gray:** You mentioned governance, and we have established an NHS Scotland national energy forum and a national sustainability steering group. Those governance bodies are intended to review and manage national health service board requirements. The steering group, in particular, provides oversight and governance of sustainability issues, including public sector climate change reporting responsibilities. It also provides guidance to NHS boards on the production of reports so that we are reporting to a common standard.

We are also doing a lot with procurement. When our capital investment group reviews business cases and investment appraisals, it takes advice

from Architecture and Design Scotland on any build or refurbishment elements of procurement. Unless and until the architects are satisfied that the sustainability elements of that procurement are sufficient, the business case will not be signed off, even if it meets other value-for-money or deliverability criteria. The sustainability elements of procurement are critical to getting to sign-off.

In September this year, we launched sustainability action branding and a campaign. Again, I can provide the committee with more detail but, in principle, that work highlights that all NHS staff, whether they are clinical, public health, management or estates, have a part to play in acting sustainably. Anyone who is working on a sustainability-related topic or wants to promote change can use the sustainability action toolkit that we have developed to promote their activities. Examples will be shared more widely as they are gathered.

Would you like more detail, or shall I pause there?

**The Convener:** It would be good to hear from Mai Muhammad on what Aberdeen City Council is doing, and what she feels local authorities have to offer in leading the charge.

**Mai Muhammad (Aberdeen City Council):** I feel that Aberdeen is well placed, as far as local authorities are concerned, as we have several strategies running. For a start, we are piloting the Scottish Government-funded low-carbon heat and energy efficiency strategy, and we are looking at a pilot area where we can deliver low-carbon heat and energy efficiency on an area-wide basis. That very current example brings in the private sector as well as the local authority.

Internally, we have introduced a building energy performance policy that covers new build, especially new schools, where we are building for the next 40 years and are thinking about not only the children who are being taught today but those who will be taught in future. We are future proofing our buildings with regard to energy efficiency and the use of technology in that respect. As a result of the internal policies that we have introduced, every project has to go through a building performance checklist.

As part of our sustainable energy action plan, we have the city-wide powering Aberdeen strategy, in which we bring in the private sector in Aberdeen—which has not only a large oil and gas sector but small and medium-sized enterprises and other larger-scale businesses and investments—and ask what it can do about climate change and how the council can work with it on the matter. That is a key issue.

It is one thing to show that we are leading things, but it is also important that we take a

partnership approach. I think that Aberdeen is doing well in that respect by doing a lot of engagement and having a lot of meetings that look at sustainability, low carbon and energy efficiency. It is a constant theme for us. We also have a well-established energy services company, Aberdeen Heat and Power, which delivers a district heating network. We are growing that business in the city.

We are already doing a lot with regard to putting climate change plans in place, but obviously we will have a lot more to do as a result of the bill. As with most of the public sector in Scotland, the public sector in the city owns a large portfolio of buildings, and we have a duty of care in ensuring that they are fit for the future in terms of not only energy performance but how they might be used. We need to think ahead about whether buildings will be used in the same way and, indeed, what they will be like in future.

We are one of the city's largest employers, and one of our local outcome improvement plans focuses on "prosperous people". The issue in that respect is how we develop a climate change strategy that benefits the people in the city of Aberdeen.

Finally, for the past two years, we have been reporting on carbon emissions through public bodies duties reporting, and we have been able to track our emissions profile over that time.

**The Convener:** Both of you lead large organisations that engage with the general public in a significant way. Are you encouraging or incentivising behaviour change in everything that can help us meet our targets? After all, you have contact with the majority of the populace as well as your employees.

**Paul Gray:** As the committee might be aware, we are in the process of establishing a new public health body that will bring together some of the responsibilities of NHS Health Scotland and NHS National Services Scotland, partly to improve our impact on and influence over population-level behaviour change.

However, there are also small things that we can do. For example, one health board—and, unless you press me, I would rather not say which, because I am sure that this is happening in more than one—has a sign in its bicycle park that says, more or less, "You bring your bike at your own risk, and if anything happens to it, that's not our fault." I am paraphrasing, of course, but we could encourage people to use bikes by providing a place where they can leave them in safety, giving them an opportunity to padlock them and so on instead of adopting what I would describe as quite a defensive attitude.

Something else that we have sought to do—with rather limited success so far, I have to say, but

that does not mean that we will not keep trying—is to provide access to public transport so that people do not have to use their cars to get to hospitals and other facilities. I accept here and now that that has not yet been a resounding success, but we need to get better at it.

We also need to maximise the use of technology so that people do not have to travel to get access to health and care services. For example, people in Cumnock with chronic obstructive pulmonary disease—or heart and lung disease—have been provided with facilities that allow them to be treated from a distance. That means that they do not have to come to hospital, which not only is good for them but saves on travel and emissions.

As I said, our sustainability action plan has just been launched. Part of it is about providing people with supporting tools and programmes that allow boards to baseline themselves in terms of not just what they are doing with their buildings and the other infrastructure elements that I have mentioned but our overall progress with regard to the Scottish national performance framework and the United Nations sustainable development goals. That matters; NHS Scotland employs approximately 163,000 people in Scotland, which means that we have a huge reach with regard to both the people whom we treat and the people whom we employ, and if we are not demonstrating exemplary behaviours ourselves, it is quite hard for us to persuade the rest of the population when we say that they should take more exercise.

This is about being not only an exemplar employer but an exemplar in how we design and build things, and we could say more about how we are saving public funds by adopting more sustainable approaches to delivering services. For example, Girvan community hospital in the NHS Ayrshire and Arran area was designed to minimise environmental impact. Without going into too much detail—although I can, if the committee so wishes—I can tell you that there will be a 3 per cent reduction in Ayrshire and Arran's CO<sub>2</sub> emissions, simply because of what we have done in that one hospital. It is really important that the public understands that we are taking this seriously in the services that we provide and in the way that we design and build things.

**The Convener:** Of course, it is incumbent on not just the public sector to lead the charge on this, and I wonder what Tom Thackray has to say about what can be done to encourage behavioural change in the private sector and how it can work in partnership with the public sector to help the country meet its climate change targets.

**Tom Thackray (Confederation of British Industry Scotland):** You have hit the nail on the head by saying that this is about partnership. The

challenge of climate change is bigger than anything that can be met by either the public sector or the private sector on its own.

What are the mechanisms that we have put in place to enable businesses to invest in tackling climate change and in green initiatives? At the outset, I make it clear that the CBI members to whom we speak are instinctively positive about the climate change agenda and the need for ambitious targets. In that sense, the bill's proposals for more ambitious targets are being met with enthusiasm, with businesses seeing an opportunity in that respect. Alongside Westminster, Scotland can play an important leadership role in driving that change.

However, CBI members would stress that the targets must be accompanied by a systems-wide policy regime that makes them achievable and affordable. At the moment, businesses see policy gaps that in some instances prevent them from playing that leadership role.

**The Convener:** Can you be more specific about that?

**Tom Thackray:** Absolutely. We have seen massive cuts in carbon emissions from the power sector over the past five years—indeed, even further back than that—whereas the emissions from the wider economy, including industry, buildings and transport, have largely been flat.

The policy agenda that has driven emissions reductions in the power sector has not been quite so evident elsewhere in the economy. There are still opportunities in the power sector. For example, providing a route to market for onshore wind and solar technologies through contracts for difference is one quick win that most businesses would be aligned in supporting. There is also an opportunity to provide certainty on the carbon price in the context of Brexit and the European Union emissions trading scheme. Those are the types of policy frameworks that really matter to businesses if they are to make investments that enable them to play a leadership role and bring their customers with them.

11:15

**The Convener:** We heard from the previous panel about the need for consistency in incentives. Obviously, that is an issue for anyone who makes investments in the private or public sector. People need consistency in policies so that, for example, if they are investing in a wind turbine, they know that they will not be disadvantaged in a couple of years by a policy change. Do you agree with that?

**Tom Thackray:** That is absolutely fundamental. The time horizon for the targets is up to 2050, so policy certainty is needed. For example, the

moment at which we transition towards electric vehicles must be set out far enough in advance to enable the companies that manufacture those vehicles to invest accordingly. That is a prime example of the importance of such certainty.

We have seen a lot of chopping and changing in the policy environment in recent years. I will give just one case in point. If we are looking to establish a more ambitious target for emissions reduction, as is proposed in the bill, carbon capture and storage will be absolutely fundamental to meeting that target. The support from the Westminster Government was withdrawn a few years ago and has not been rebuilt with the scale that is necessary if there is to be real progress in the area. As we look forward to policy decisions over the next few years, that is a gap that business would like to be addressed.

**The Convener:** Obviously, Chris Wood-Gee's organisation has an overview and does not look at the public and private sectors in silos.

**Chris Wood-Gee (Sustainable Scotland Network):** Yes. The SSN leads on the public sector climate change duties reporting. To reiterate Tom Thackray's comment, the word that I scribbled down when you asked about the public and private sectors was "partnership". If we want to build a building, we always have private sector partners in there. The relationship between the public and private sectors is crucial. The examples that we can garner and pull together through the climate change duties reporting help to build an evidence base that private and public sector bodies can dip into to understand what is possible in order to achieve the targets that we are heading towards.

The convener commented on consistency of support, which is crucial. We are on a long-term journey so, although support for doing things over a couple of years is really useful and we will do our level best to buy into that, with the best will in the world, some of the projects and activities that the public sector needs to achieve might take several years to set up. If only short-term support is available, you do not have the wherewithal to take forward those activities. You get part way through and think, "I can't carry on with that." We need long-term consistent support. We need to have good examples of what works and we need to know what does not work so that we can work in the right direction.

**John Scott:** I hear what you say about consistency of approach, and, coming from a business sector, I well understand that. However, given the vagaries of life, climate change, Government and political events that are not yet foreseen, should the phrase "consistency of approach" be substituted by "a consistent direction of travel" because, not unreasonably, things might

change over time? Could that point about a consistent direction of travel and the possibility that things might change be factored into the targets? I do not know—I am slightly playing devil's advocate.

**Chris Wood-Gee:** They are perhaps two sides of the same coin, to some extent. If we know where we are heading, we will have that consistency of approach, although the technology that goes with that will change as time goes on. Better carbon capture and storage is a prime example of that. I was always very sceptical about CCS, but having read a bit more about it, I think that it is a sensible approach: we have some big holes in the ground so we can put the carbon underground and get rid of it.

A direction of travel or strategic policy that people can follow is really important, regardless of whether they are in the public or private sector. I suspect that the private sector would like to be able to understand the consistent direction of travel as much as the public sector.

**Tom Thackray:** Setting the strategic direction in the long term, ensuring that it does not change and is consistent, regardless of political colour or perspective, with more granularity in the expectations for each sector, would go a long way towards providing a bit more certainty for business.

**John Scott:** I agree.

**Mark Ruskell:** To what extent is the planning system delivering that strategic focus on carbon reduction, particularly in the way in which we plan our places? For example, if Paul Gray is planning a new hospital or a CBI member is planning a new industrial estate, are you building in opportunities for low-carbon transport, district heating and so on? To what extent are such things embedded in the planning system and is that delivering the certainty that we need around how we create low-carbon places for the future? Are you engaging with that?

**Mai Muhammad:** I can respond from the perspective of Aberdeen City Council. Planning has a huge role to play in influencing infrastructure, whether buildings or services. I find it frustrating that we are not given enough power to be able to say to a developer that it must put in, for example, district heating network infrastructure and that before anything else is built, it must consider the carbon value of the services that it will provide. We do not ask those questions; the only questions we ask are: "What does your building look like?", "What is the footprint?" and "What buses will you put on?" That does not take it to the next level, which is where we need to be.

We need to consider digital infrastructure and future proofing how we service it. We do not want

to keep digging up roads over and over again—we have that a lot in the council. We also need to consider the type of homes that we allow people to build. The current planning guidelines do not make space for innovation. The powers that we have are quite limited.

I hope that in the next 10 to 20 years, a transformational change will happen in how we deliver health, education and business services and how we think about people living in the same space, whether in an urban, rural or community environment. Today, that is not cohesive. A step change is required for us to get to where we want to be in 2050. There is still a lot of work to do.

Planning has a big role to play and I would love to engage with that. Putting energy infrastructure into the design early doors is key, whether for a hospital or any other development. If the building is up, it is already too late. We are always trying to retrofit, and it costs a lot more money to retrofit any type of business—manufacturing, industry, hotels, services, hospitals—than it would cost to put money into the design today.

It would be helpful if the Government could support us—whether through funding or other means—to get that message across.

**Tom Thackray:** When public bodies commission services from the private sector, one of the things that prevents such innovative dialogue and the coming together of more partners is the tendency of some of those bodies to procure on the basis of lowest cost, rather than to take a long-term view and look for innovation. For many of our members, that is the major bugbear in relation to public sector bodies.

Inconsistency of approach is also an issue. We accept that different areas have different priorities and that businesses can respond to that, but if public bodies use different processes and approaches, it takes time for businesses to learn the unique features of each area.

**Claudia Beamish:** I have a brief question for Mai Muhammad, but others are welcome to comment.

The Planning (Scotland) Bill is going through Parliament at the moment, and some of us have lodged probing amendments about future proofing the planning structures for large infrastructure projects. I am not asking you to design an amendment right now, but what would be a robust and good way of setting those at the Scottish Government level to enable that to happen while, at the same time, we give local authorities the respect that they deserve and enable them to shape the future of their communities?

**Mai Muhammad:** The statutory obligations that local authorities will have with regard to the local



heat energy efficiency strategy, which is part of the energy efficiency route map, should be taken into account in any future planning legislation. It is important to understand how the council and its partner communities can make a place better—in terms of living space, service provision, transport and so on. Things are not linked up well at the moment; everything seems to be in silos, with different strategies dealing with different things separately. For example, planning deals with green space, transport and so on but does not deal so much with energy efficiency and how a low-carbon approach might impact on the future use of an area. For example, when I engage with colleagues on flooding risk, I try to promote an understanding of the importance of the way in which we build our buildings for their ability to take on the impacts of climate change—I might ask what they are doing about that, given that the climate is getting warmer. I do that because I have not yet seen a newly built school whose design considered that.

Such issues are not taken into account at the early stages, and they are not included in any of the planning requirements. If the bill took all of those impacts into account, we would be in a better place from which to move forward than we are just now.

**Angus MacDonald:** Both the Rural Affairs, Climate Change and Environment Committee in the previous session of Parliament and this committee have placed a strong emphasis on public sector reporting. The majority of our reporting bodies agree that mandatory climate change reporting is welcome, and they say that it has helped them to build on climate change action. To what extent is public sector reporting effecting real change across the public sector and beyond?

**Chris Wood-Gee:** It is starting to work. Local authorities have been going through the climate change declaration report since about 2007, and the mandatory report is now into its third full year. Getting the information together takes quite a lot of work, but it helps us to understand what we are doing across the whole of the public sector, which is crucial.

The process will need tweaking. We have worked with it for long enough to understand what the good bits are and where there are opportunities to improve it. It might be good for the Scottish Government to consider that.

It is important that we continue to report so that we can continue to develop an understanding of where we are going. In the past, there was the carbon reduction commitment, but it involved only gas and electricity and did not look at the whole picture. What is really good about the climate change reports is that they look at what individual

organisations are doing in terms of emissions in buildings and wider emissions and how the governance works in various organisations. That enables us to learn from the people who are doing it best, so that we can all head in the same direction.

It is quite a lot of work, but I think that it is worth while and that you will get a lot more out of it as our datasets develop and we start to interrogate them, find the best things that are happening and make best use of the information that we secure.

11:30

**Paul Gray:** I hold strongly to the view that public services are publicly accountable and therefore there should be no resistance to reporting. It might be difficult and complicated and we might not have all the data, but there should not be resistance to reporting, because we are accountable to the public whom you are elected to serve.

However, there are also positive advantages to reporting. We can baseline and see the differences between different bodies. Some differences can be explained, but some cannot, and if one body's energy efficiency is 25 per cent better than another's and they have roughly the same estate and footprint, that exposes something that we can quickly begin to look at and tackle. If one public body is far ahead of many others, we can look at whether there are examples that we could follow. Clearly, we cannot begin to knock down buildings and replace them with new ones ad hoc, but it means that we have a basis for looking at best practice when we are planning.

The points that have been made about partnership with the private sector are important in that context because, in respect of capital infrastructure, we are more likely to be engaging with different parts of the private sector on civil engineering, implementing digital services or whatever, and it would be good to have some baselines that show the best of the best. However, as Mr Scott said earlier, it is also about forward trajectories and using our baseline not just for what we are doing now but to plan ahead for where we would like to be in five, 10, 15 or 20 years.

Therefore, there are probably areas in which reporting will be difficult and might expose people like me to criticism, but I do not think that that makes it wrong. It is essential that we do reporting thoroughly and in a public way so that it is meaningful and we can compare.

**Claudia Beamish:** I want to follow up on what Paul Gray and Chris Wood-Gee have highlighted in relation to the public sector climate change duties, which we all know are now mandatory. The process was difficult, but that is where we are and

I believe that it is the right place to be. It has been difficult for some smaller organisations and, indeed, some larger ones—without naming and shaming—to get to where they should be, although there has been a lot of progress. To what degree does Paul Gray, Chris Wood-Gee or anyone else on the panel think that there is a place for penalties once the process has bedded in? Paul Gray gave the example of bodies with similar building estates doing different things. We can have warnings, but is there a place for penalties?

**Paul Gray:** Maybe, but let me say what I think.

**Claudia Beamish:** I am asking it neutrally.

**Paul Gray:** Absolutely. I entirely accept the question, which is a fair and reasonable one. Let me put it like this: we have been retrofitting some of our energy centres to take advantage of the latest energy efficiency technologies. A recent example is what we did with our three main acute sites in Tayside. The work was procured under an energy performance contract, so there was no up-front cost to the board, and we put in the latest combined heat and power technology at Ninewells and two other sites. We have saved over 12,700 tonnes of CO<sub>2</sub>, which is equivalent to almost 30 per cent of Tayside's total energy emissions.

What does that have to do with penalties? In my mind, the point is that we are saving CO<sub>2</sub> emissions and also saving money, and I can give a similar example from NHS Lothian, where the savings have been quantified at £2.7 million in addition to the efficiency savings and so forth. Therefore, I would start with the positive advantages and say, "Look, here are some examples of health boards that have been able to reduce their carbon emissions and save money."

However, there comes a point at which I might say to health boards, "You know what? You've had five years to think about this, so we're going to set your budgets on the basis that you will make these savings." Is that a penalty? Let me put it this way: there is a big incentive to make the saving, but there has to come a point at which there is no incentive to avoid making it. That is how I would look at the matter.

**Richard Lyle:** There are 32 councils in Scotland and many other public bodies—indeed, too many to mention. In its submission, Aberdeen City Council calls for stronger public body duties with a desire to see strengthened frameworks for and expectations on leadership, accountability, target setting, action planning and reporting across other tiers of the public sector. What would that mean in practice? Perhaps Aberdeen can answer the question first.

**Mai Muhammad:** I will try to answer it as best I can. Having mandatory duties is well and good—

they help to establish a baseline and allow you either to see how you are performing in a standalone way or to compare your performance—but what do the information and data mean for improvement? We have already talked about penalties, but perhaps we should look at why other authorities are not making reductions and give them the necessary assistance to improve things. Penalties might not help with that, because they arise as a result of monitoring and might well not resolve the issue.

We believe that accountability and leadership are very important in anything to do with climate change and energy efficiency. We need clear direction and consistency across the different council departments, with everyone understanding where the issue sits. If one department, whether planning or another, takes on the delivery of climate change reporting, you can get almost a silo effect, and if others are simply feeding in numbers, there is no accountability. We do not have the answers to these questions yet—they need some development—but who should have ultimate responsibility for the information that is submitted and who should monitor whether improvement is being made? Should it be up to, say, the sustainable Scotland network to assess what happens to those who are underperforming? That is where we are coming from.

Therefore, we see the issue slightly differently. With the carbon reduction commitment, a lot of people make their reports and pay for the carbon—and that is it for the year. Because there are no incentives, penalties or whatever, the scheme has not delivered what it initially set out to deliver, and what is proposed might go down the same route. I know that the CRC is changing, but we just do not want the proposal in the bill to be in the same situation as the CRC.

**Chris Wood-Gee:** We need to improve the governance side of things. There are examples of good political leadership, and there is good leadership from senior management, but sometimes delivery sits so far down the organisation that that leadership does not get the whole way through, and it is really important that that happens. One of the key benefits of reporting is that we can pick up and share good examples that people can learn from; or, where there are weaknesses, we can speak to people who are doing the job right and find out what does and does not work. Disseminating the information and ensuring that everyone understands what works and what does not work are as big a job as putting the numbers down.

It is clear that some organisations have not done so well at delivering the reports, but there has been some good experience of sharing—indeed, I think that the NHS has helped another

organisation get up to speed. There has been a natural inclination across the public sector to share experience, to find out what does and does not work and—I hope—to use the best examples to go forward as effectively as we can.

**Richard Lyle:** What is your view of leadership structures, the commitment to delivery across the public sector and communicating a vision through strategic planning in organisations? Do we have clear route maps for what is required of the public and private sector and are those translated for all areas of organisations?

**Chris Wood-Gee:** We probably do not have those yet. We are on a journey. Mai Muhammad mentioned local heat energy efficiency strategies, which will be a mechanism that we use to get an understanding across local authorities of where we need to go and how different partners in those areas tie into the process. We are heading in the right direction, but we are not quite there yet; it is a learning experience. However, reporting gives us a means of recording where we are and where we need to get to in the future.

**Richard Lyle:** What is the panel's view of the governance body model that is proposed by the climate change plan?

**Paul Gray:** I will give the committee some credit. One of the things that being invited to appear before the committee prompted me to do was to go back and look at the extent to which the issues that we are discussing today have been discussed at chief executive level in the NHS. The simple fact is that these issues are not discussed very often—but that is not never and does not mean that such issues are not discussed at the boards at chief executive level.

I have a monthly meeting with the chief executives of all the health boards, and I have asked that, at this month's meeting, on 14 November, the *Official Report* of today's meeting, the background papers and ancillary documentation be put on the agenda.

To respond to Mr Lyle's point, I would say that we have reasonably sound governance in the NHS—it is not something that will come in the future; it is happening now and has been in place since 2015. Our sustainability action campaign and branding was launched in September. We are taking action and we can point to some of the benefits of that.

However, I want to assure myself that the health boards, collectively, are taking action that is consistent and that they are considering the partnership options available, so that we are not taking a silo approach. The very fact that the Environment, Climate Change and Land Reform Committee is taking an interest is useful in prompting leadership action.

**The Convener:** Does anyone have any points to make in response to Dick Lyle's other question on the governance arrangements?

**Tom Thackray:** I have one point to make, not on the public reporting side but on the private sector practice. We buy into the idea that what gets measured gets changed. In the spirit of reporting, that is a positive direction of travel, particularly if that conversation is being held at board level rather than just at the delivery function level in a business.

When it comes to reporting, the business experience is that sometimes we can become less transparent by reporting on more things. There is a question about the profligacy of things that businesses are asked to report on, whether it gives more transparency and accountability for consumers and whether we are reporting in a way that enables consumers to interact with that conversation. That question is as much for the public sector reporting side as it is for the private sector.

Finally, as I said previously, we need to consider whether we are incentivising the behaviours in different parts of industries that will deliver on those plans at the level of the strategic, long-term targets. The bill goes further than before in making that clear. However, the granular plans for what is required of industry, year to year, on a sector-by-sector basis, have not yet been drawn up. A dialogue needs to take place between the Government and industry to make that happen.

**Richard Lyle:** Before I ask you this question, Tom, I point out that I am not having a pop at you. Do CBI members have any concerns about climate change having an effect on their profits?

**Tom Thackray:** It depends on which members you are talking about. By the way, the question does not feel like a pop—it seems perfectly valid. The most common response that we get from people who want to talk to the CBI about climate change is that they recognise that becoming more innovative in green technology is a business opportunity rather than a business risk.

11:45

**Richard Lyle:** Climate change and new technology could mean more profit.

**Tom Thackray:** They could, although there are obvious caveats to that. Businesses operate in a global marketplace. If they are in an energy-intensive industry, for example, and operate on a global basis and their competition is in China or India, which are not subject to the same regulatory regimes as we are, and that kind of enterprise is very mobile, there are immediate challenges with some climate change initiatives. However, those

are not insurmountable. If there is a long-term policy framework that enables businesses to adjust and if we couple the domestic ambition with international diplomacy that helps other countries to meet those standards, we have a good chance of appealing to that segment of the business community as well.

**Richard Lyle:** Thank you.

**Mark Ruskell:** Going back to public sector governance, there is mandatory reporting, sharing of good practice and nudging each other along, but what about carbon budgeting? Aberdeenshire Council sets a carbon budget and links actions to targets and the reduction of carbon emissions from its assets and services. That is reported against each year and is linked to the financial budget, so what the council is spending and commissioning is linked to that. Is anything done in the organisations that you represent, beyond seeing how they are doing, that feeds into the budgeting and explicit financial planning?

**Mai Muhammad:** As you say, Aberdeenshire Council has been carbon budgeting for a few years, whereas Aberdeen City Council felt that we did not have adequate resources to do that. We looked at presentations, but we felt that we did not have the skills or resourcing to deliver proper carbon budgeting that linked to our financial reports. That, in itself, is quite resource intensive—I have spoken to some of those who are doing that—because it is almost like another piece of financial reporting that has to link, as you say, to different budget lines and so on.

We decided to approach the matter in a more traditional way. We felt that, if we could forecast well, set a budget for energy and reduce our energy spend, our carbon spend should also reduce. The remit for monitoring that work falls to my team. We ensure that it happens and that it is reported—that the governance is there—and I need to explain any increases. That is where the climate change reporting sometimes fails to pick things up. For instance, the absolute figures do not reflect how we use a building, weather patterns, occupational changes and that kind of thing. We feel that it is sometimes difficult to put that information in a financial report because it does not take all those numbers into account; it deals with absolute figures and asks, for example, why we are up 3 per cent for whatever it is.

Although carbon budgeting is good, it sometimes might not capture the reasons why we are not meeting our targets and why our consumption has gone up that year, or whatever, as well as the actions that need to be taken to manage that. That is why Aberdeen City Council has decided to focus on reducing energy consumption through specific measures or actions, or on delivering projects that do that. Of

course, we have to report on that through the existing governance route.

**Paul Gray:** The issue falls into the category of “Just because it’s hard, that doesn’t mean you shouldn’t think about it”. We would never do anything hard if we did not want to think about it.

I will make two offers to the committee, if I may. First, the Cabinet Secretary for Health and Sport has committed to publishing a capital investment strategy by the end of this financial year, and I think we should reflect on that in thinking about how we might describe our strategy and how that might relate to carbon budgeting.

Secondly, although in principle I am here in my role as NHS Scotland’s chief executive, I would be happy as a member of the Scottish Government’s corporate board to get a brief note to the committee on the Scottish Government’s current position on carbon budgeting, if that would be helpful.

**The Convener:** That would be helpful.

**Claudia Beamish:** Are there any views on the public sector governance body model that is proposed in the climate change plan? Has that come across any of the panellists’ desks? Perhaps it is too early to say, because it has just been reported for the first time that the stakeholder engagement has raised a significant number of questions. We do not have time to go into those questions today, but I wonder about your comments more broadly.

**Paul Gray:** I should have been clearer in my response to Mr Lyle. I intend to discuss with NHS board chief executives how that governance body aligns—or not—with our governance arrangements, the merits of the proposal and how it would work with what we have. I confess to being keen not to dismantle something that we have had in place only since 2015 unless there is clear evidence that we could be doing something better. Again, I would be happy after that meeting—which will be fairly soon—to come back to the committee with better-formed views, having had an opportunity to discuss the issue.

**Claudia Beamish:** The Scottish Government responded to our committee by saying that “the final Plan”—that is, the climate change plan—

“sets out the key functions of the Governance Body which will oversee the implementation and monitoring of the ... Plan”.

It is important that we will have a monitoring body and that there is buy-in to that. I perhaps should have said that the body will go beyond the public sector, to the private sector and all sectors. Have the panellists any further comments to make about whether that has come to their attention?

**Chris Wood-Gee:** I am probably not sufficiently up to speed to make a meaningful and detailed comment, but it makes sense to have a governance body that is formally tied in. I have read about the issue, but I cannot pull it to the front of my mind. It will be useful to have the governance that we need at the appropriate levels.

**Mai Muhammad:** I have not read the proposal fully, so I cannot comment on it in its totality. I agree that governance should overarch the private and public sectors and that there must be some consistency in reporting, with clear definition that defines clearly what we monitor and evaluate and what the output is from that.

A lot of responsibility for reporting is being put on the public sector at the moment. I am not saying that the private sector is behind, but there is a lot of catching up to do. A proper governance route with a level playing field would be fairer for us. Even in the public sector and the NHS, the functions may be slightly different from those of local government. Therefore, I would like to see overarching governance with a level playing field.

**John Scott:** I was interested to hear Paul Gray say that he will be meeting chief executives to discuss the matter further, not having discussed it hugely until now. That was a candid and welcome statement. In that context, does he think that there is more room to achieve targets voluntarily rather than by regulation? We have heard people propose that the only future is for everything to be legislated for and driven in that way, because a voluntary approach will not deliver.

**Paul Gray:** Since 1990, the energy consumption of NHS Scotland's estate has reduced by over 38 per cent and its greenhouse gas emissions have reduced by over 49 per cent. Those figures are well ahead of the national targets. Therefore, it is possible to make good progress and not simply aim at the targets as though they are a limit. They can be exceeded.

There remains considerable willingness to do better, but it is equally the case that the future is more challenging and many of the quick wins have already been taken into account.

You asked whether we ought to go for more mandation. My safe answer to that is that it is clearly a matter for the Parliament. However, my other answer, which has partly been given to other committee members, is that there is evidence that more is possible, that change has happened and that savings have been secured when boards have invested meaningfully. The most recent example from NHS Lothian—among many others—has been delivered at no net cost to the board. In other words, NHS Lothian has improved its performance on emissions and efficiency with no net cost to it from doing so.

For me, the path must be ensuring that the best practice is clear and exemplified. As I said in a previous response, there should be an incentive in the system to follow best practice and a disincentive not to do so. However, because some of our buildings were designed for 25-year and 30-year use, the capacity to retrofit is limited. Therefore, we also have to ask ourselves what mandation would produce. For example, if an improvement in energy efficiency was mandated, that would be delivered most readily in newer buildings or new builds, so there would be a disproportionate skewing. That said, Girvan community hospital—which I gave as an example—has delivered a 3 per cent reduction in NHS Ayrshire and Arran's overall CO<sub>2</sub> emissions through actions on one site.

Before I gave a view, I would want to understand what mandation would really mean and what it would produce. If it produced simply a lot of perverse incentives, it could take us off the trajectory that we are on and on to something else. We would also need to engage closely with our partners in the private sector to understand what they could deliver, because there would be no point in mandating something that could not be delivered.

**John Scott:** I am interested in hearing from Tom Thackray, as well.

**Tom Thackray:** I would go along with that entirely. My comments at the outset were about how we could make targets affordable and achievable. A strict regulatory approach at the headline level is probably not the way to secure the investment that is needed to make those swift gains.

On a more granular, case-by-case basis, the private sector is very much up for a dialogue with public sector partners on how we can improve the regulatory landscape so that it encourages investment. A good example of that is in building standards in Germany. The German house building industry has partnered with the German Government to set standards. Basically, they are writing the building standards for the BRICS countries—Brazil, Russia, India, China and South Africa. That is a massive export opportunity born out of a regulatory approach in which the private sector and the public sector work together.

That approach is also evident in things such as disruptive technology—for example, drone maintenance of wind turbines. Currently, the regulatory approach does not enable businesses to invest in such areas, but with the right partnership with the public sector that could become possible.

**John Scott:** I have a related but different question about the targets. To what extent does

the 90 per cent by 2050 target in the bill provide a clear long-term marker for driving investment, innovation and change? Would making the target net zero emissions increase that drive? Is it easier to communicate and achieve buy-in for a target of net zero? Should we be going for net zero, or are you happy with the 90 per cent target? Which is easier to sell?

12:00

**Tom Thackray:** I repeat the same answer—we are after achievability and affordability. There is a lot of talk about net zero at the moment, and businesses want to be in that dialogue. If the climate science says that we should go for a net zero target, let us have a conversation about what policies we need to put in place to reach that. However, would we not rather set things that we will achieve than set things for which we do not at this stage have the scientific backing of the Committee on Climate Change, although it is looking at that now? That is the first point of call, so let us wait until we get the evidence back from it. Then, let us acknowledge that, as I said in my opening remarks, there are significant policy gaps in achieving current targets. We need to fill those gaps to meet 90 per cent, and we will need to go even further to meet net zero. There needs to be some realism along with ambition.

**John Scott:** Do others want to comment on that?

**Paul Gray:** I agree whole-heartedly that we should go where the evidence points us, but there is also an important point about our ability to be internationally influential. We spoke about how other countries have different regulatory frameworks that could be disadvantageous for some of our commercial activities. If we wish to be influential, it will be hugely important that we are pursuing targets that are demonstrably world leading. I do not have the scientific knowledge to opine whether that should be a 90 per cent reduction or net zero emissions.

However, the more we do that can be exemplified publicly—by which I mean not just by the public sector but by the private sector—the more influential we will be elsewhere in the world when we are talking about the trade terms that we might want. There is a clear diplomatic advantage in thinking carefully about what stance we want to take and what position we want to represent.

**Stewart Stevenson:** One approach would be to start today and aim for 2050 with a straight-line reduction, which is kind of what we are doing. Alternatively, if we did nothing until one day before the target in 2050, we would still meet the target but we would emit twice the amount of greenhouse gas in that period. The two triangles

on the graph are the same. The intermediate targets are, therefore, designed to take us on the line, rather than to postpone.

However, there is a huge advantage to the agenda of early action that reduces the amount of carbon and other greenhouse gases that are emitted. Carbon, in particular, endures in the atmosphere for hundreds of years, so the less we put out there, the better. What are we doing to help that agenda, or is that too difficult? Chris Wood-Gee is nodding.

**Chris Wood-Gee:** It is very difficult. It will be hugely challenging. In the new targets that are coming out of the climate change bill, the public sector was looking at something like 96 per cent decarbonisation in the first iteration—it was ambitious, challenging and probably impossible. Where we are now at 53 per cent is still ambitious and challenging, but it gives us something to work towards. It is working from live figures, as well, rather than baselines, although those are useful. It is—

**Stewart Stevenson:** I am sorry—we will probably come back to this, but I am asking a very narrow question so that we can make progress. Is there scope for your organisations to do better than the line that is currently being sought?

**Chris Wood-Gee:** Potentially. It depends on how far along the organisation is. A lot of organisations have hit all the low-hanging fruit; others have further to go on that. There are still good opportunities to take, but we need to take those opportunities and work on it.

**Stewart Stevenson:** Let us rattle along and see whether others say the same thing.

**Mai Muhammad:** Although the private sector is concerned about the cost of going towards net zero and a 90 per cent reduction by 2050, it is important to understand that the financial modelling that we are doing looks purely at the cost of it; the modelling is not putting a value on the benefits. How do you quantify the health benefits, for instance, and how do you project the value of those to 2050? How do you measure the health implication and the savings that can be achieved in health services? It is unfair just to ask whether it is financially viable today. We need to include in the financial modelling other sectors that can benefit, particularly health. That is a key point.

The cost of technology today may be prohibitive for whatever reason and that may inhibit innovation. This is where Government has a role to play. For the early adopters, there has been the low-carbon infrastructure transition programme—LCITP—and so on, but we need to have more of these programmes that encourage innovation and we need industry to be excited to be part of it. If the Government puts out very small pots of money

for innovation schemes that may be limited to the public sector, I think that it limits innovation. If there is more encouragement of the early adopters to try to push and accelerate innovation in the next 10 years, the technology that we thought would be too expensive may be viable. That is key. Today, there is just enough being done to encourage that innovation. If we encourage more, we can get the benefits of that innovation in 2040 and 2050.

The other key point is digitalisation. A lot more work can be done on how we deliver services that way and there are huge opportunities there that will help us to achieve our targets. It is about how we deliver services differently and that step change I spoke about earlier. It is key to do that. To make sure that it is transformational change, we need to think differently about how we do things. I think that we can achieve that change by doing these things.

**Mark Ruskell:** We have had tranches of private finance initiatives and public-private partnerships in the past and we have had new public sector financing models since then, such as the hubco model. Do those models incentivise the reduction of carbon, energy efficiency, the best technology and the best solutions? Are there issues in how we procure assets and contracts and deliver buildings and other services in a way that perhaps does not deliver the best carbon value for society?

**Paul Gray:** That is a good question. I do not know the whole answer to it, but I will say this. Before our capital investment group, which I mentioned earlier, signs off a business case or investment appraisal, certain standards need to be made, and it has not been put to me in any of the things that I have been asked to sign off that the non-profit-distributing model or the hubco model is somehow inimical to meeting the targets. The question that I do not have a sufficient answer to, although I am happy to get the information for the committee, is to what extent those models are driving innovation. In other words, I am saying that they are not getting in the way of innovation, but you are asking whether they are driving it. I will check on that so that I can give a factual answer to the committee.

**Mai Muhammad:** Councils across Scotland have looked at the NDEEF, which is the non-domestic energy efficiency framework. It is a way of procuring energy efficiency works in retrofits as well as potentially new builds. We find that, because there is a monitoring and verification duty placed on the contractors, there is a good learning curve. Such a responsibility after the completion of the build was never put in place in previous PFI and PPP contracts—basically, the contractor designed, built and walked away. There were different contracts, such as design, build, finance and maintain, or just design and build.

Having a monitoring and verification process as part of the non-domestic energy efficiency framework is important, because the contractor has to prove over 12 or 24 months, that it has delivered on the calculations for the carbon saving and energy efficiency measures that it has installed—whether that is innovation or technology led. That is a huge improvement for local authorities. It gives us a method and governance route. We can use the contract to say, “Mr Contractor, you haven’t delivered.” The contractor needs to prove that it has delivered. That verification and monitoring process needs to be part of the contract, rather than an add-on at the end.

**Tom Thackray:** I would like to repeat a point that I made earlier. The broad perception of industry when engaging in PPPs is that, more often than not, businesses are competing on cost, rather than value. We did a survey over the summer that bears that out, showing that 60 to 65 per cent feel that that is the case. I would be happy to share the results of that with the committee.

When we speak to public authorities, a lot of blame is shifted towards European public procurement regulations but, in reality, contracting authorities have a lot more flexibility than they realise. Brexit might give us an opportunity to examine that in greater depth and start to tackle some of those challenges for business.

**John Scott:** Unsurprisingly, I want to deal with the costs of the bill. The financial memorandum suggests that additional costs of around £13 billion will be faced between 2030 and 2050. However, it does not outline on whom those costs fall, who should meet them, or the timescales in which they will be incurred. What economic modelling of the costs and benefits of mitigating and adapting to climate change has been carried out by your organisations? How much investment by the private sector could be expected to accompany the costs? What do you think about your share of the £13 billion of costs?

**Chris Wood-Gee:** One of the challenges that we all face is that energy inflation tends to be significantly higher than the retail prices index. For example, the advice from the Scottish Government on gas prices is that, over the next two years, they will rise by 18 per cent compared to the RPI at 3 per cent. Although we might make savings by taking action, we will not necessarily be getting cash savings—the carbon will go down, but the cash might not. When we talk about investing massive amounts of money, that is very challenging.

One of the questions that have been raised through the climate change process is how we get the money together to do all this. The local

authority sector—and I am sure that this is also true of the health boards—is very financially challenged in that respect. The issue will be where the money should be invested: is it for education, social care or carbon? I do not know the answer to that.

It is very difficult to get climate change high enough up the agenda. It makes sense to do it and we all understand the health benefits of a better climate and fewer heat problems and so on, but one of the biggest questions about the whole agenda is how we deliver it financially.

**John Scott:** What are the views of the other witnesses? We know that it is going to be difficult.

12:15

**Tom Thackray:** The energy cost dynamic that Chris Wood-Gee described should be an incentive for private sector companies to invest more, so it is interesting that there is market failure. We can look at the energy prices and say that such companies should be investing, but before the situation becomes critical, the private sector, except in some industries, needs to be nudged in that direction, whether that is in the form of best-practice campaigns or showing what works.

On the more negative side, I am not sure whether the £13 billion figure takes into account the changing tax base that comes with the changes. For example, if we move to using electric vehicles and less money comes in from fuel duty, how will that play out in the public finances? We need to have a much broader conversation about how the economy will be financed in 12 years' time, and we need to have it fairly quickly.

**John Scott:** We are unclear—at least, I am unclear; maybe others are not—how the £13 billion figure has been arrived at. Nonetheless, even if the figure is open to variation, if the scale of the costs to be incurred is somewhere between £10 billion and £15 billion, how are we to afford it? I expect Paul Gray to have the answer. *[Laughter.]*

**Paul Gray:** Thank you, Mr Scott. In 2018, we are as far away from 1986 as we are from 2050. If you had asked in 1986 what the technologies of today would be, some people would have got it right and many would have got it wrong. One of the issues is that we are trying to imagine what the world will be like in 2050 in order to make the estimates. The significance of the £13 billion figure is simply that it is not easy. As you said rightly, the figure could be £10 billion or £15 billion, but it will not be £0.5 million. The issue is significant and it will require thought.

What I can tell you is that, if the national electricity and gas grids were fully decarbonised, for example, that would save us the cost of

retrofitting our energy infrastructure in order for there to be net zero carbon to the tune of £300 million. Of course, that rests on two assumptions. One is that the grids are decarbonised and the other is that all the infrastructure that would need to be retrofitted will still be here in five years' time. Clearly, some it will not be here.

It is possible to make calculations about the costs. The risk is the calculations being based on the world in 2050 simply being what it is now, but decarbonised. That is not a realistic future to imagine. The way in which we deliver services, the way in which people travel and the way in which they think about their health and their lives will all be very different from how that is done now.

However, there are some imperatives. For example, if temperatures rise over time to the extent that they could do, there will be an increase in the prevalence of what are called vector-borne diseases associated with species migration—in English, species will come to this country that are not here now, and they will carry diseases with them, which will have an impact on the population. Therefore, it is not just about the £13 billion figure, plus or minus; it is about what it will cost not to take action. Clearly, even if Scotland were the world-leading exemplar, other countries would need to follow in train, as vector-borne diseases would not stop at Carlisle. Again, I go back to the point about being nationally and internationally influential in the way in which we approach the issue.

Calculations can be done, but they have a very big confidence interval. If we are serious about tackling climate change, we will need to plan for it and plan for affording it. If we are not willing to do that, the implications and impacts will be much more profound than whether we can afford to run a health service. They will affect the whole population. That is a partial answer to the question.

**Claudia Beamish:** Last weekend, I was in Aberdeen, where I saw for the first time—not that I have never been to Aberdeen before; my gran was from there, so I know it well—the scale of the oil supply ships and other parts of the industry. In respect of low carbon, I was heartened to see turbines ready to be taken out to the bay for use by the offshore industry.

On the bill's targets, Aberdeen City Council's submission says:

“How compatible these targets are with those of our present economy; there is still a heavy emphasis on fossil fuel sectors.”

You may know of a recent University of Aberdeen report that models the potential of Scotland's offshore industry to 2050. It estimates that the equivalent of 17 billion barrels of oil could still be



extracted. The industry has a well-educated and well-paid workforce. How does maximising economic recovery for the industry fit in with reducing carbon emissions—if, indeed, it does? If it does not, what of the just transition for workers?

I do not know who wants to answer.

**The Convener:** Tom Thackray is the obvious person to answer the question.

**Claudia Beamish:** The witness from Aberdeen City Council could answer, too.

**Tom Thackray:** There is huge expertise and supply chain capability in the oil and gas industry that needs to be celebrated. There needs to be a managed transition as we get the most out of the resources that we have. The Scottish and Westminster Governments and the industry need to have an honest conversation about that.

There are massive opportunities in new forms of energy generation that are particularly relevant to Scotland. We know the prowess of the wind companies here, and there are supply chain opportunities.

There has to be a transition; I think that the industry accepts that. We are not yet exploiting the new generation capability that we have for renewables, particularly because we do not have the routes to market through, for example, the CFD. If signals on that are sent early enough, that would enable industry to invest, which could pick up some of the slack in the overall economy. A signal of change to the CFD would be critical for the UK generally, but for Scotland specifically.

**Claudia Beamish:** Is there robust conversation about that in the CBI?

**Tom Thackray:** Yes, there is, and we are making representations to all parts of Government to make sure that it happens.

**Claudia Beamish:** What is the perspective in Aberdeen? We are running out of time, so you will need to be brief.

**Mai Muhammad:** I will try to respond quickly to your—

**Claudia Beamish:** It is such a momentous question for your city.

**Mai Muhammad:** Indeed it is. As you will have seen from the supply ships in Aberdeen, the oil and gas industry is still there, although it is currently in a downturn. New fields have been discovered, but we must take cognisance of the fact that there is a large cost of taking out, refining and supplying the gas, or whatever. On top of that is the carbon issue and all the other associated costs.

In Aberdeen, we are, as you know, trying to diversify, but we can use the same skill set; the skills are transferable. We are looking at the offshore wind industry, we are developing a new harbour and we are looking to expand other industries. We are not moving away from our history, but we want to use existing skills to develop other economies.

We are still trying to be at the forefront in being an energy city. Hydrogen is a huge step for us: we are developing heavily in hydrogen and putting in a lot of infrastructure, for which we have secured a lot of European funding. We are almost running a parallel economy, so that we are ready for the transition. We do not want to reach a cliff edge at which many skilled people suddenly have no job. We are ready.

As part of the local heat and energy efficiency strategy that we are putting together, we have an implementation plan and we are looking at improving insulation, installing district heating, putting external wall insulation in our buildings, removing air conditioning units and using air-source heat pumps. That is creating a market that the private sector and industry can consider entering.

The point of an LHEES is to identify projects. There is a cost attached to their delivery but, equally, there is a market opportunity. That is particularly the case in the north-east, given that companies that deliver such things are not based in the north-east or readily available there. When we go out to procurement tender we find that a lot of the skills in energy efficiency are held in central Scotland.

There is therefore an opportunity for Aberdeen to develop a training industry that encourages energy efficiency. That is the transition that I envisage. Oil and gas will still be in there, but we need to understand that there are other markets that can use the transferable skills, particularly in energy efficiency, renewables and hydrogen. There are massive opportunities.

**Claudia Beamish:** District heating is already available, through Aberdeen Heat and Power Company Ltd.

**Mai Muhammad:** That is correct. We need to expand on what we do best. We have an established workforce and skill set, so Aberdeen is attractive to investors. That is the way forward.

**The Convener:** We must move on.

**Mark Ruskell:** In the private sector, the services sector has struggled to reduce emissions and has achieved only a 6 per cent reduction since 2009. How is the sector innovating? There are a lot of disruptive businesses in that sector. Where might reductions come from?

Tom Thackray said that business does not like regulation. I would have fallen off my seat if he had said that it does. Do you see a way for the private sector and the services sector to innovate, if business is regulated? Is there a danger that in countries that are going down the route of stronger regulation or setting higher ambitions, disruptors and innovative businesses will take the lead on innovation, which will leave us behind?

**Tom Thackray:** It certainly was not my intention to make a blanket comment about business not liking regulation. There is good regulation and there is bad regulation.

Drone technology is a great example of a disruptive technology that is bringing in many disruptive businesses and has the potential to transform many sectors, including energy generation, without a regulatory approach being taken. There are no rules of the game, so businesses can innovate.

There are also huge opportunities in artificial intelligence, particularly in the services sector. However, there are complex regulatory questions about ethics, for example, which will need expertise from the private and public sectors if they are to be answered. The quicker we can make progress on that, the better, although great progress is already being made.

**Mark Ruskell:** I see. You are not talking about climate regulation and climate targets restricting activity, but about regulatory frameworks that govern innovative technologies, and about freeing up businesses to compete.

**Tom Thackray:** Having climate targets is useful: businesses welcome clear targets that are set by sector, with milestones along the way to the longer-term targets. However, there will be huge opportunities, particularly in the context of the disruptive model, if there is more focus on facilitating innovation, which I think your question was partly about.

**Mark Ruskell:** What more should we do to facilitate innovation? We are talking about technology that we do not yet know about. It is not stuff that the UK Climate Change Committee can put into an advice letter to the Scottish Government.

**Tom Thackray:** That is right. If we consider the power sector, for example, we see that innovation there has brought down the cost of renewables far more than was anticipated, without central Government having taken an overly regulatory approach. That has happened through partnership with industry, and particularly through the carbon price, contracts for difference and electricity market reform. There are great examples of things that we have achieved in the context of emissions

reduction, which could be expanded to cover the broader economy.

Those could be seen as the low-hanging fruit, however. The power sector in particular might be more engaged with discussions about emissions reductions and climate change than is the wider economy. How do we make the issue number 1 on the boardroom agenda, rather than number 3, 4 or 5?

12:30

**Mark Ruskell:** What sectors need to catch up? We heard last week evidence from Sweden that it has 15 action plans, a strong focus on how its steel sector positions itself globally, and all sorts of interesting technologies. Where is the resistance within the private sector? Are there particular areas that are showing huge leadership in innovation?

**Tom Thackray:** We have a gap in investment in energy efficiency in the private sector, particularly among small and medium-sized enterprises. As was said in the earlier conversation, we have not had a consistent policy framework in that area for a long time, and businesses are not sure of the pay-off. It has been much easier to make the case for investment in new information technology systems or in higher wages for staff than in energy efficiency because there has just not been a business case, in the perception of those who would invest.

Transport is another area in which there will be a huge amount of demand for and disruption to services in the coming years, and in which there is a huge need to decarbonise. The transition to electric vehicles could be a huge opportunity for the UK economy, given the manufacturing strength that we already have. However, it is necessary to make decisions about supply chains years in advance, so the policy signals must be got straight early. By “policy signals”, I mean that you need to create a market for the product.

Norway is the country with the highest take-up of electric vehicles, but it has had the best consumer incentives for take-up of those vehicles. When those incentives were cut—hey, presto!—the pace of transition also dropped. We have not had clear and consistent policy incentives for the transition to electric vehicles.

Across industry, there are examples including electric vehicles and buildings in which partnership between Government and the private sector could yield quite rapid results.

**Stewart Stevenson:** Paragraphs 45, 46 and 47 of the financial memorandum provide five cost scenarios for the Scottish Government, for local authorities and for “other bodies, individuals and

businesses". It takes the £13 billion that we have talked about—the origins of which are a mystery to me—and offers scenarios at 0 per cent, 25 per cent, 50 per cent, 75 per cent and 100 per cent of costs. In other words, it is just an arithmetical distribution of figures for the three sectors. I do not think that that tells us anything. Is it useful or should we have something else that properly informs us what the view is? Those paragraphs suggest to me that there is no view, so should not they be deleted from the financial memorandum?

On the other side, of course, should not the financial memorandum include the economic opportunities? There are now 126,000 people employed in renewables, earning £3 billion a year. That gives a context in which the £13 billion is a trivially small number.

**Paul Gray:** As Mr Stevenson knows, a civil servant will not comment on the detail of something that the Government has produced. However, I will offer the view that the scenarios are helpful. They might be wrong, but they are helpful, because they allow us to test assumptions against what might or might not be. Even if we do not think that a specific scenario will happen, if we test it, we might at least come up with one that does.

As I said earlier, I can provide the committee with scenarios that we have been thinking about and have costed—with all the caveats that I have offered to do with their being based on today's technology and not on tomorrow's technology.

It is important that we have at least a sense of the scale of what we are looking at. We have discussed whether we ought to be aiming for 90 per cent or 100 per cent of costs. In a sense, the financial memorandum is telling us that whatever we aim for will come with an associated cost.

Stewart Stevenson is right that there might well be as yet undefined associated opportunities. That prompts us to think hard about how we work together with the private sector, the third sector and academia in order to understand as well as possible the threats and opportunities.

From my perspective, if the financial memorandum and a set of scenarios promote conversation, that is a worthwhile exercise. If the committee wishes to ask for more, that is entirely at its hand.

**The Convener:** I thank the panel for giving us evidence. We have kept you a good 10 to 15 minutes over the allotted time, so thank you for indulging us and answering all our questions so comprehensively.

At the next meeting on 13 November, the committee will continue its consideration of the

Climate Change (Emissions Reduction Targets) (Scotland) Bill.

12:36

*Meeting continued in private until 12:55.*



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