OFFICIAL REPORT
AITHISG OIFIGEIL

Economy, Jobs and Fair Work Committee

Tuesday 20 September 2016

Session 5

The Scottish Parliament
Pàrlamaid na h-Alba

Tuesday 20 September 2016

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ECONOMY, JOBS AND FAIR WORK COMMITTEE
5th Meeting 2016, Session 5

CONVENER

*Gordon Lindhurst (Lothian) (Con)

DEPUTY CONVENER

*John Mason (Glasgow Shettleston) (SNP)

COMMITTEE MEMBERS

*Jackie Baillie (Dumbarton) (Lab)
*Ash Denham (Edinburgh Eastern) (SNP)
*Liam Kerr (North East Scotland) (Con)
*Richard Leonard (Central Scotland) (Lab)
*Dean Lockhart (Mid Scotland and Fife) (Con)
*Gordon MacDonald (Edinburgh Pentlands) (SNP)
*Gillian Martin (Aberdeenshire East) (SNP)
*Gil Paterson (Clydebank and Milngavie) (SNP)
*Andy Wightman (Lothian) (Green)

*attended

THE FOLLOWING ALSO PARTICIPATED:

Kersti Berge (Office of Gas and Electricity Markets)
Elizabeth Gore (Energy Action Scotland)
Malcolm Keay (Oxford Institute for Energy Studies)
Elizabeth Leighton (Existing Homes Alliance Scotland)
Rachelle Money (Scottish Renewables)
Stuart Noble (Scottish Power)
Mike Tholen (Oil & Gas UK)
Dr Mark Winskel (University of Edinburgh)

CLERK TO THE COMMITTEE

Alison Walker

LOCATION

The David Livingstone Room (CR6)

Scottish Parliament

Economy, Jobs and Fair Work Committee

Tuesday 20 September 2016

[The Convener opened the meeting at 11:01]

Decision on Taking Business in Private

The Convener (Gordon Lindhurst): Good morning, everyone, and welcome to the fifth meeting in 2016 of the Economy, Jobs and Fair Work Committee. I ask everyone to turn off or turn to silent any electrical devices that might interfere with the committee's work.

The first agenda item is a decision on whether to take item 3 in private. Do members agree to do that?

Members *indicated agreement.*

Energy

11:02

The Convener: We have with us a number of guests from the energy sector. Our discussion will be in round-table format. We are interested to hear as much as possible from the witnesses, so if anyone wants to speak they should simply raise their hand so that I can see it and I will come to them as soon as I can. There is no need to switch on the microphones, as that will be dealt with by the sound desk—I should say "broadcasting", which is what they are called.

I invite all our guests to introduce themselves briefly.

Kersti Berge (Office of Gas and Electricity Markets): I work for the Office of Gas and Electricity Markets, which is the United Kingdom energy regulator for the gas and electricity industry. I have two roles at Ofgem: I am head of our office in Scotland and I am the partner for the regulated networks.

Rachelle Money (Scottish Renewables): I am the director of communications at Scottish Renewables, which is a trade association that represents renewable energy companies in Scotland.

Malcolm Keay (Oxford Institute for Energy Studies): I am a senior research fellow at the Oxford Institute for Energy Studies, which—as the name suggests—looks at energy issues. My concern is the interaction between energy and climate change policy.

Elizabeth Leighton (Existing Homes Alliance Scotland): I am a policy adviser with the existing homes alliance Scotland, which is a coalition of housing, environmental and poverty groups that argues for greater investment in our housing stock to address fuel poverty and climate change challenges. Wearing another hat, I also give policy advice to the Scottish fuel poverty strategic working group, which will make recommendations on a new fuel poverty strategy in the next few months.

Elizabeth Gore (Energy Action Scotland): I am deputy director at Energy Action Scotland, which is the national fuel poverty charity, so our focus is on people who cannot afford to heat their homes.

Dr Mark Winskel (University of Edinburgh): I am a researcher at the University of Edinburgh. I also work for the United Kingdom Energy Research Centre and for ClimateXChange, which is the Scottish Government funded national centre for expertise on climate change.

Mike Tholen (Oil & Gas UK): I am the head of upstream policy at Oil & Gas UK, which is the trade association that represents the interests of the oil industry and the gas industry—both the supply chain and the producer community—in Scotland.

Stuart Noble (Scottish Power): I am the head of markets and Scotland policy at Scottish Power. We welcome the opportunity to be part of the committee's proceedings today and to work with it over the next five years. We are interested across the energy chain in networks, generation and retail. As part of the Iberdrola Group, we are one of the world leaders in renewable energy.

The Convener: Thank you. Immediately to my left, we have the official reporters, a representative of the Scottish Parliament information centre and two of the parliamentary clerks.

I will start with a question for all our guests. In a previous evidence session, I directed the question to someone who said that someone else would be better placed to answer it, which was a fair response. In this case, I will see who would like to answer it.

A huge amount of our difficulty with decarbonisation in Scotland is with carbon emissions. Old cities like Edinburgh that have bottleneck roads, such as St John's Road in Corstorphine and other routes into the city through Balerno, Currie and so forth, have huge problems with carbon emissions from transport. How can that be addressed? One issue in particular is the lack of integrated ticketing for public transport systems, which is a given in many European countries. How can we start to address those issues and organise ourselves better?

Who would like to answer that? No one?

Malcolm Keay: I will start, if no one else wants to. In the short term, doing things about public transport and integrated ticketing will be very important. However, in the longer term, it will be vital to think about the vehicle fleet and what role electric vehicles will play.

Many transport studies worldwide suggest that an awful lot of that work needs to be done through regulating what vehicles can access city centres. A congestion charge is one example of how to do that; congestion charges could have special exemptions for electric vehicles, and it might be necessary to increase regulation so that only certain sorts of vehicle could access the city centre. It is an area in which reliance purely on market forces probably does not work and a fairly coherent long-term regulatory strategy is needed. There is a limit to what can be done with the geography of existing cities. In a city like Edinburgh there is a limit to what you would want to do—you would not want to start knocking down lots of Edinburgh, and you would have to live with that, so you would need to go for an approach that had in mind a longer-term low-carbon transport system and which, to a large extent, regulated its way there.

The Convener: Do you mean with regard to both public and private transport?

Malcolm Keay: Yes. It would mean developing public transport in an integrated way so that there were alternatives, and limiting the extent to which private vehicles could access certain areas of towns. Meanwhile, at Scotland and UK levels, you would need to encourage the development of low-carbon—probably electric—vehicles and the infrastructure that is needed to support them.

The nature of road transport is very much chicken and egg. People have a certain sort of car because they know there will be a filling station a certain distance down the road. An entirely new sort of vehicle coming into the system requires regulation. For example, Brazil and South Africa were quite effective in introducing alcohol vehicles—to the extent that the system in Brazil is now more or less self-sustaining. The first steps must be taken through very strong Government action, because people are tied into a system at the moment and moving them off that system is quite difficult.

The Convener: Is it economically feasible to approach those things in the way that you suggest?

Malcolm Keay: Provided that a combination of measures are used, including public transport, the question is rather whether the approach is politically feasible. It is politically difficult to start regulating and telling people that in certain situations they cannot drive into towns, or park in towns, which has much the same effect. The problem is political as much as it is economic.

Gillian Martin (Aberdeenshire East) (SNP): I will move off that topic. My questions are on issues around choice for consumers. Particularly in rural areas, people are often disadvantaged because they have only one option for heating their home. For a lot of people in my constituency of Aberdeenshire East, that means oil-fired central heating, because there is no infrastructure to allow access to gas.

On renewable energies, people with lower incomes are priced out of the advantages of things such as solar energy panels, because the outlay is too high.

What does the panel think about those two issues?

Elizabeth Gore: The big issue of everybody across the country having equal access to a choice of fuels for heating their homes and being

able to heat their homes to an adequate level is being discussed in the fuel poverty and energy efficiency fields in general. Much of the focus in current energy efficiency programmes is on how to distribute more fairly across the country—particularly to rural and remote rural areas—programmes, and measures that are delivered as part of those programmes, to improve people's homes. At the moment, being off the gas network is a disadvantage for people in terms of being able to heat their home.

For most people, access to renewables tends to be through Government grants, but those tend to be for people who can afford it, to a certain extent. Fuel poverty programmes such as the current area-based scheme, which is run through local authorities, are one way in which we can open up to more people the possibilities of a range of technologies. That sort of scheme can be funded through Government and be open to people in areas where it is most needed. Such schemes can also be done through social housing providers. Perhaps through wider use, the price of the technologies will come down.

A range of mechanisms need to be put in place and sustained. It is quite an expensive way to improve houses, but the improvements that are provided make it worth while.

Elizabeth Leighton: I will build on what Elizabeth Gore said. It is good to come at the issue from the entry point of infrastructure because, as we know, the Government has, with cross-party support, made the energy efficiency of all buildings in Scotland a national infrastructure priority. In our view, that should mean a real step change in ambition, with the vision for low-carbon buildings, and a step change in investment.

In order to address the concerns about access for fuel-poor people to some of the technologies, those who are not able to pay should not have to pay; people should not have to go into debt to live a low-carbon and affordable-to-heat lifestyle, so grants should be made available. No longer should the energy performance of a person's property be a cause of fuel poverty. There is no reason why that should happen, because we have the technology and the ability to raise the standards of our homes to a much higher level.

EHAS has produced a briefing, which I believe many members have seen and which some 50 organisations have signed up to. They have agreed with us that, by 2025, nobody in Scotland should be living in a hard-to-heat and draughty home. By that we mean that homes should have a C—if not higher—rating on their energy performance certificates. That would virtually eliminate the energy efficiency or energy performance of a property as a reason to be in fuel poverty, which is really important.

11:15

On solar power, there are many examples of how housing associations, in order to meet a regulatory standard, have used solar panels as a means of raising the standard of homes and to get people on cheaper energy tariffs or to use energy at different times, when it is cheaper. Stirling Council expects to get all its properties up to a B rating, which is fantastic. None of this cannot be done—it can be done.

There is also a link to transport. If we are looking at a future energy system in which we tie together all our energy uses and the problem of energy storage is fixed, we could plug in our electric vehicles—using the energy that we are not using during the day—and charge up our cars so that we could use them later on. An integrated system is the future. That also links to accessibility for rural areas.

Rachelle Money: There is a clear point to be made about renewable heat. At the moment, we have a target to source 11 per cent of our heat from renewable heat by 2020. Currently, we stand at about 3.8 per cent. As has already been said, there is a real case for raising public awareness of what tools are available to people to ensure not only that their homes are energy efficient but that they are using the cheapest form of renewable heat and heat sources that they can get.

We need to do a bit more on public-awareness raising and we need to think not just about domestic homes but about our public buildings. Scottish Renewables made a freedom of information request not so long ago on the amount of renewable heat that had been installed in our public buildings. We found that there is a bit of work going on on that—local authorities came back to say that the figure is about 1 per cent, I think, using renewable heat sources. It is a good start—it is something, at least—but we need to think about how we can help local authorities and public buildings to lead by example by using the technologies and energy efficiency measures that we talk about using in domestic settings.

Kersti Berge: I will touch on access to the gas networks; we have talked about renewables, but less about that. We recognise that access can be an issue for fuel-poor consumers. One of the things that we did for the current price control for the distribution companies was incentivise them to extend the gas network to fuel-poor consumers. At least 17,000 fuel-poor households in Scotland will be connected to the network as part of that.

The Convener: Gillian—do you want to come back in at this point?

Gillian Martin: I am happy to let Malcolm Keay in.

Malcolm Keay: Can I make a plea for joined-up Government? I am a bit worried about talking about renewable heat in isolation. We were talking earlier today about the need for an overall heat strategy. One reason why renewable heat has run into problems is that it is very difficult to get renewable heat in an environmentally acceptable way.

Any promotion of particular forms of heat should be in the context of a wider strategy on heating houses in a decarbonised way. To a certain extent, the same applies to the installation of energy efficiency measures. I know that such measures are generally good for decarbonisation, but if work is to be done on a house, should not the house be redesigned in the context of a low-carbon heat strategy using whatever form of heating the Government or the market has decided is best for that strategy?

The difficulty with policy options being developed in isolation—renewable heat here and energy efficiency there—is that we can end up with all sorts of disparate measures that will not, in the long run, deliver an efficient low-carbon heat system.

Stuart Noble: Well-designed energy efficiency obligations could be a way of tackling fuel poverty, given the new powers that are devolved to the Scottish Government and the consequent ability to influence design, in that respect.

The Convener: Are you thinking of a range of measures such as Malcolm Keay has just described?

Stuart Noble: Off the top of my head, I say that we are not at the moment, but we are looking forward.

Differences between the housing stock in Scotland and that of the UK mean that solid wall insulation, for example, can benefit Scotland in particular.

Elizabeth Gore: The issues around carbon, heat and fuel poverty are not mutually exclusive—there are overlaps and cross-fertilisation. It is important that we pick up the point that has been made about ensuring that the Government in particular is at some level seeking to ensure that targets are not addressed in isolation.

One example is the energy company obligation on suppliers, which is in the process of being devolved to Scotland through the Scotland Act 2016. There have been instances in which, despite the best will, measures have not been delivered to a household because they would not deliver carbon savings, although they would actually have made a great deal of difference to the person living in that house. We must have rules and targets for the programmes, but we need to ensure that we do not cut off our nose to spite our face. We need to ensure that the targets are joined up.

Elizabeth Leighton: On the point about joining up, we are in a fortunate position, given that there is a commitment to the national infrastructure priority and there is a foundation programme in place. A key part of the forthcoming energy strategy is Scotland's energy efficiency programme, which joins up heat, renewables for buildings and energy efficiency. It recognises the interplay between all the technologies and solutions, and the need for us to deal with the energy needs of families and businesses. We need to pull together domestic and non-domestic issues. There is huge potential there.

I am pleased that the committee is looking at the issue, because we rely on people like you to hold the Government to account on its commitment to achieve targets on climate change and fuel poverty. We need to ensure that the programme is designed in a way that maximises the economic and health benefits that can come out of such a programme.

John Mason (Glasgow Shettleston) (SNP): On a different subject, it seems that every time we talk about energy—especially renewables—the storage of energy and electricity is high on the agenda. Am I right in thinking that there is a real bottleneck either at the national level, with Cruachan power station storing the country's electricity, or—as was mentioned—at the level of issues such as how much we can put in a car battery? I would like to drive a bit further than 90 miles before I need to recharge the battery. Can folk give me a steer on that? Are we at the boundaries of science, where we need to wait for the scientists to do more, or is it simply that the technology is expensive and we need to get the cost down? I do not even know, if we pumped water up Cruachan and had to depend on it to supply us with electricity, how many hours it would supply us with.

Stuart Noble: It would certainly run for at least seven hours, depending on what was in the dam at the time. On the technology challenge, Cruachan has done that job for many years—in fact, more than 50 years; it had its birthday the other day.

John Mason: I also meant to ask you how efficient Cruachan is. How much electricity do you get back down compared with what you put up?

Stuart Noble: The cycle is about 80 per cent efficient. It also benefits from some run-off, so it is also a hydro station and not just a pumped storage station. We have the ability to expand Cruachan and to double its capacity and/or add more

storage by using the dam height, and Scottish Power is looking at that potential project.

On your question about the progress with battery technology, some of that is probably more suited to very short runs when compared with pumped storage technology. It is just the way that the technology costs come out. Pumped storage hydro certainly has some wider benefits for the system. If it is on, it is providing inertia, which helps with the quality of the system in relation to the intermittent generation that is going on. Batteries can produce generation instantly, but the system requires inertia in order to remain stable. Kersti Berge might want to comment on that.

We would like to bring pumped storage to the market. We have been working with Scottish Renewables on a report that will be published in the near future about the barriers that might be preventing that. It is a big infrastructure project that has relatively high up-front capital costs and a long construction period of around four or five years, but if there is some form of risk mitigation—we are not asking for a subsidy—that is similar to the mechanisms that are applied to interconnectors, we believe that it could unlock the potential in Scotland. I am not just talking about the site at Cruachan; SSE also has a potential project at Coire Glas.

Rachelle Money: I want to pick up on Stuart Noble's point that work is on-going on hydro pumped storage. As he said, we are working on a paper that, I hope, will bottom out the barriers to the delivery of such projects in Scotland and quantify the savings that they might bring to the consumer as an end result.

On batteries, there is a plethora of technology. Sometimes, in order to bring down the costs of such technologies, we need to innovate, to see them working, to learn and to adapt. We see technology costs coming down when we build and produce that technology.

John Mason: Can we leave that to the private sector or should the Parliament and the Government be doing something about it?

Rachelle Money: The sector is still very new. At Scottish Renewables, we are still trying to map out where the supply chain is and what is happening in Scotland. You have probably seen the news from Gigha in the past few days. The people there are putting in a storage battery to support three onshore wind turbines. That is essential for an island community.

The technology is still very new, but work is being done. As Kersti Berge said earlier this morning, where there is variability in generation, storage is essential. We need it to be supported and to come through.

Malcolm Keay: I reinforce the point about battery storage. In answer to the initial question, I note that it is now very close to being competitive in many situations. In southern California, Tesla recently sold quite a large battery array as an alternative to a combined-cycle gas turbine in order to provide system support.

The significance of batteries is that they are relatively scalable. They certainly sit with the image of a dispersed small-scale system. However, they might require some Government support—Ofgem might want to comment on this—and there are also some regulatory barriers to the use of battery storage. For instance, a number of solar generators in the UK could easily build battery storage and provide more services to the system by spreading their output throughout the day, but there is no benefit to them in doing that, as they get paid their feed-in tariff for what they export. Similarly, if consumers installed their own battery storage and relieved the system of some peaks, there would be no particular benefit to them given the current pricing structures.

What is needed is partly Government support, but to a large extent it is also better incentives for people to install storage, whether that is generators such as the solar generators that I mentioned or individual storage. Once the incentives are in place, the market is likely to develop very quickly. It has developed so quickly in the past few years that it will almost certainly get to a level where it will be economic alongside any alternative. We cannot prove that just now, but the first step would be to remove the regulatory barriers and see what happens.

11:30

Kersti Berge: The central point is that there is potentially a huge role for storage in the energy system, and it is worth remembering that it can be at different levels. Large batteries—the really big stuff—might be connected to the transmission system, intermediate storage can be used in the distribution network, and battery storage can be used in people's houses. We already have the last of those; if somebody has a solar panel, it is usually attached to a battery, so there is already storage in households. At all those levels, storage has potential to play a big role.

Some of the issues are clearly for Government, such as what types of storage it wants to exist and where it wants to support innovation. Those are decisions for Government in the same way as it might want to support particular types of generators. Malcolm Keay is right to say that there are some regulatory barriers to the full development of storage, and we are addressing some of those things in our flexibility work. An example is how storage is charged—how it pays

for using the network. In a sense, it is a consumer when it takes electricity off the network and a producer when it puts it on to the network. It performs an important service and we want to ensure that it is not charged twice. The charges should reflect the contribution that storage makes to the system and the way in which it uses the network.

Another example is smart metering. We have not talked much about that, but smart meters should be rolled out to all households by 2021. As Malcolm Keay said, it is important to get the pricing structure right. With the roll-out of smart meters, it will be possible to measure exactly what consumers use at any point in time and consumers will be able to have control over exactly when they use electricity. The industry needs to do some back-office work to ensure that all of that functions properly. Half-hourly settlement is a boring topic, but making sure that we measure and settle for the exact half-hour in which somebody uses energy will contribute to an efficient, flexible system. It will be possible for people to ensure that they do not use lots of energy at peak times, when it is expensive, and that will be reflected in the price that they pay.

When we work with industry, we need to ensure that we are ready to get those full benefits of smart metering, which can work well together with domestic storage.

Gil Paterson (Clydebank and Milngavie) (SNP): I got practically a full answer to my question from Malcolm Keay earlier, but I will go back to transport. He asks for regulation and deregulation. Is it the case that the step change in transport will take place through regulation and the investment will come later from the private sector?

Malcolm Keay: We need a combination of the two and they have to move in parallel with each other. It is obvious that we cannot regulate people out of city centres without providing them with other ways of getting into them, so we have to improve public transport at the same time that we regulate private transport. However, a lot of the response comes from the regulation.

You might know that, in Norway, some 30 to 40 per cent of new vehicles are electric because the Norwegians have many excellent incentives for that and it is an attractive option. Those incentives include no congestion charges, free ferry services and subsidies on the new vehicles. That market has developed and, as it develops, the infrastructure that I spoke about tends to develop along with it.

Regulation and investment can easily be done in parallel with each other, but we need a clear sense of direction. Otherwise, it is difficult to build all the necessary service stations and so on to get round the infrastructure problems.

Jackie Baillie (Dumbarton) (Lab): Smart meter technology is wonderful and I am pleased to hear that Ofgem is working with industry, but I am terrified for consumers because, although some people will take to smart meters like a duck to water, we know that a lot of consumers in fuel poverty will not take to them. Those consumers are the people who are not switching. I have fears about whether any work is being done directly with consumers to enable them to understand the technology.

My wider point is about affordability. I hear from members of the panel that we have all this exciting technology, but it is not necessarily the cheapest technology. Who pays for all of this? Is it the taxpayer? Is it the consumer? Ofgem said that it will deal with issues of affordability, but we have waited 15 years for prepayment meters to be capped. We need a bit more progress, a bit more quickly, on the issue.

The Convener: Does anyone want to come back in on that point?

Dr Winskel: It is an important point. There is sometimes a temptation to think that we have the same level of wealth as Norway does; there is a lot of subsidy going on behind the Norway story, on electric vehicles and so on. We have to apply the affordability test right across all our policies, whether we are talking about supply networks or demand and efficiency.

Managing demand and efficiency sounds like an absolute no-brainer, but in some ways there is an awful lot of work to do. The question is how hard we should push on policies over the next few years, or to what extent there should be a more gradual roll-out, with an attempt to learn from some of the demonstrations. There is a lot of uncertainty.

Making energy efficiency a national infrastructure priority is a welcome move, but there are questions about how the whole housing stock can get up to band C and what that will cost. I have seen some of the figures that Elizabeth Leighton's group has produced, and it will be quite an expensive exercise. Mass conversion of the housing stock so that it reaches band C has a large bill associated with it, and we have to think about how fast we can achieve that.

In some areas, we are in the domain of working out what is the cheapest option. I do not think that we know the answer to that, particularly for heat. We know that efficiency and conservation make a lot of sense under any scenario, so there is a question about how far to go with regulation and how quickly, and there are also questions about the associated costs. I am still seeing lots of

different evidence about renewable and low-carbon heat, and very different mixes and technologies are coming forward. We really do not know the answer to the heat problem and it would be wrong to suggest that we do, because we do not have the balance of evidence in that regard, as I understand it.

Intelligent policy is therefore a bit more about demonstration and testing to ensure that knowledge from the things that Ofgem has been sponsoring in relation to the distribution networks, for example, is built into future deployment. It is not the case that we know what the solution is for many areas. We have to go gradually in some areas. The problem is that there are very specific targets for, for example, renewable heat. The Government is being pushed hard on that, but it is a difficult target to meet because there are not affordable solutions and the off-gas grid situation is very difficult.

Jackie Baillie has registered an important concern. I think that we just have to apply it as a sense test as we consider the many solutions that have been mentioned.

The Convener: Is it a question of balance, in relation to affordability?

Dr Winskel: What we know differs across different parts of the problem. We can get the costs of wind down greatly. A lot has been achieved in that regard, but there have been many more problems elsewhere. I do not think that there is a single, universal answer to the problem, but I sense that there is a lot of ambition in the policy, which is not necessarily reflected in least-cost solutions.

The Scottish Government is committed to localisation as one of the strands of the energy strategy, and a lot is happening on the localisation and decentralisation front, but the suggestion that we go universally for city-scale solutions for energy balancing puts us far ahead of where we are. The danger in introducing extra costs in the system is that it does not recognise that a lot of what we are talking about is still at the innovation stage and we do not yet know what the trials will tell us about costs and cost reduction.

Elizabeth Gore: Jackie Baillie asked about provision of energy advice and support to consumers. That is not a new issue, but with the roll-out of smart meters it will be crucial. The roll-out is a huge operation that will cost a lot. There are benefits to having a smart meter, but unless roll-out is accompanied by a good programme of advice to customers about how to get the benefit from their smart meter on an on-going basis, we will miss a huge opportunity to tap into consumer behaviour in energy use. There is a range of ways in which advice can be given, from leaflets to telephone advice to face-to-face advice, and such advice needs to be available across the country.

Kersti Berge: I, too, want to come back to Jackie Baillie's question about smart meters. We are talking about a wonderful futuristic world in which we all control our smart meters from our iPhones—although they will not be iPhones at that point. That is all great for people who can grab the opportunities of the technology frontier, but a large number of vulnerable consumers will not be able to do that, so we need to ensure that they are protected. As Elizabeth Gore said, it will be very important that consumers get the help and advice that they will need if they are to be able to use smart meters.

There are direct benefits of smart meters to vulnerable consumers. Currently, someone who is on a prepayment plan, as a lot of vulnerable consumers are, must have a special prepayment meter. It is possible to switch the functionality on a smart meter, which is a benefit because the consumer does not have to have a new meter installed. I accept that it will take work to make people feel comfortable with changing the functionality of their meter to move between prepayment and a more regular type of tariff.

I welcome the Competition and Markets Authority's recommendation that there be a price cap on PPMs, which will help vulnerable consumers on PPMs—another issue to do with vulnerable PPM customers is the cost of installing a meter under warrant. People who have had debt for a long time have to have a PPM installed, so that they do not run up excessive debts. The average cost of installing a meter has been something like £400. We do not think that that is right for vulnerable consumers, so we are consulting on capping the cost at £100 or £150.

We are working with Citizens Advice Scotland on how to help vulnerable consumers to engage in the energy market. CAS delivers a one-to-one service to vulnerable consumers, so we are training front-line workers to help such consumers to look for the best deals.

As we roll out smart meters, we need to monitor carefully what happens. I think that there will be a number of benefits, but vulnerable consumers will need support if we are to ensure that they maximise the benefit.

Malcolm Keay: May I offer a slightly different take on the affordability issue? I know that this is primarily a political question, but there is, arguably, a case for fiscal rebalancing—that is, for taking some of the costs that fall on electricity consumers and putting them into general taxation. There are good wider economic arguments for doing that. We are dealing with what is, in essence, a global public good: a clean climate.

There are good energy-strategy arguments, too. If we incorporate all the costs of renewables and so on into electricity, we just push up the price of electricity. The wholesale cost of electricity has hardly gone up in the past several years, but the retail price has gone up a lot. That is bad in energy-strategy terms, especially if it is decided that home heating is about electric heating. That tends to distort the market.

11:45

Not every country in the world imposes its renewables costs via energy prices; it can be done in other ways. For instance, the United States does it mainly through general taxation by tax allowances. It appears in the UK national accounts as a tax and spend—it is not purely internal to the electricity industry, but is part of British public expenditure. For many reasons, it would be worth reviewing the way in which that form of taxation is spread. In terms of affordability, obviously spreading the cost on to general taxation has a great advantage in terms of the distributional consequences because we can put the tax on those who can afford to pay. That is not the way in which it has been done in the UK hitherto, but there is a strong case for considering at least an element of fiscal rebalancing.

Elizabeth Leighton: I will respond to the point that Mark Winskel made about applying the affordability test to the upgrading of housing stock in general to transform our heat provision.

I whole-heartedly agree that the transition to a low-carbon energy structure cannot be done on the backs of the people who are least able to pay for it. On the contrary—they are the ones who most need passive houses that do not require any kind of heating source. Another solution is something called Energiesprong, which is a Dutch approach to refurbishing houses whereby people roll into a street and refurbish or retrofit the homes up to almost an A rating in a week, and then are gone again. Such solutions are possible and there are different methods of paying for them so that the transition is not put on the backs of the people who are least able to pay.

However, we must also consider how we can encourage the people who are able to pay to invest in their homes and to value the energy efficiency of their properties. We have argued for the introduction of fair regulation that is associated with incentives to assist compliance so that we can gradually bring the private housing sector up to scratch and closer to where the social sector is now. At the moment, in the social sector 19 per cent of people live in fuel poverty, but in the private rented sector the figure is 79 per cent. The difference between the two sectors is big; it is time to bring the private housing sector up to scratch.

Stuart Noble: Kersti Berge covered most of my points on PPMs. Scottish Power participates in the voluntary scheme to transfer PPM customers with some of their debts. It is not open to all customers, but some customers are transferring so that they can take their debt with them. We currently offer two tariffs on our PPMs.

Gordon MacDonald (Edinburgh Pentlands) (SNP): I will ask a couple of questions about affordability. Some of them have been touched upon—certainly by Malcolm Keay. I want to know three things. First, how do we achieve a low-carbon future without adversely impacting on consumers? Secondly, is technology available that would reduce consumers' energy bills and could remove them from dependence on energy networks?

My third question relates to Ofgem's comments about protecting vulnerable consumers. When the Committee on Climate Change considered the matter back in 2014, it said that household bills had increased by 75 per cent between 2004 and 2013, although there had been general price inflation of only 23 per cent. Given that it is suggested that what has happened with Hinkley Point will add £230 on average a year to consumer electricity bills, is Ofgem failing to protect vulnerable consumers?

The Convener: Do you want to answer that, Kersti?

Kersti Berge: Yes—and I will start with the last question first.

I suppose that it goes back to the question of Ofgem's role versus the Government's role. The Government's role is very much to decide what kind of generation it needs and to provide the mechanisms to support that, where that generation cannot be provided by the market. For example, the Government's programme for incentivising the right kind of generation to ensure security of supply and meet low-carbon targets is called electricity market reform. There are a couple of aspects to that; one is the establishment of the capacity market, and another is the decision to support nuclear generation. We have no role in that; we regulate the monopoly networks and ensure that there is competition in the retail market. What kind of generation will be supported and at what cost are questions for the Government.

What were your other questions again?

Gordon MacDonald: How do we make households independent of energy networks?

Kersti Berge: That is a very good question. I suppose that the starting point is to ask whether we want households to be independent of electricity networks. One thing that we do not want

is for the network companies to build lots of networks; instead, we want them to think hard about what networks will be needed and what will be used.

Earlier, we talked about storage. If you have a world where there is great storage but locally intermittent generation, there is obviously less need for networks. However, even with local networks, people quite often want to be connected to the distribution or transmission network for the days when the wind does not blow, or for the occasions in Scotland when the sun does not shine. At such times, people will want to ensure that they have other access.

We want to minimise costs, and one of the key ways in which we are trying to incentivise the network companies to do that is through getting them to manage their networks a bit more innovatively through use of battery storage, which means that they do not have to transport more over the transmission system. We might also move to households managing themselves a bit more, which will mean a smaller network cost. We are not quite there yet, but it is a direction of travel.

Ash Denham (Edinburgh Eastern) (SNP): We have already touched on the Scottish Government's plan for more of heat demand to be met through renewable sources. However, as we know, uptake has been quite slow, and I note in our papers a reference to "an instinctive dislike" of district heating in the United Kingdom. Can any of the witnesses explain what district heating looks like in Scandinavian countries and what its benefits are? Moreover, at policy level, should the Scottish Government be incentivising those who are building new housing estates to make them reliant on district heating?

The Convener: I think that Mark Winskel wanted to come back on the previous question; perhaps he will also comment on the question that has just been posed.

Dr Winskel: Partly, we have to start with what we already do well in the UK energy system. At the moment, we have national systems for heat, called gas and electricity transmission and distribution, that have evolved over a long time and in which we have lots of expertise. For example, the biggest supply chain for domestic gas boilers is in the UK. We also socialise our costs across the Great Britain grid, which means that many of the remoter parts of the grid's access is subsidised through a GB-wide system of payments and subsidies in respect of network access.

As for heat, the evidence is that people like their gas boilers a lot and that they do not like paying the kind of increase in bills that Malcolm Keay referred to. Therefore, the traditional answer to problems of gas bill and gas price inflation is to get the price of gas down—allow international natural gas markets to rebalance, and the price of gas comes down. That provides cheaper bills for most people—although not for everyone and it does not address the issues of electrically heated housing stock or off-gas grid, which are more difficult. However, that is the traditional response; it is how we have done it for decades.

Then comes the idea of following the Scandinavian model on district heating. The question for me is whether that is the best way of delivering UK policy objectives on heat, given that we are starting not from where Denmark was in 1970 or 1975 but from where we are now, with a heavily invested national gas grid. It is not obvious that the Scandinavian model is the one for the UK to follow, partly because the infrastructure cost of getting there would be extremely high and would have to come from public or private funding. It would not be at all straightforward to copy the Scandinavian model.

There is also the question of how much building-heat demand we will have in 20 or 30 years if we get efficiency and conservation right. The ambition in SEEP is to link energy efficiency and heat supply, but those actually play against each other, because if we get conservation and efficiency right the case for investment in new heat infrastructure will not be as strong, given that there will be less demand for heat.

We have to be careful about suggesting that we switch over the entire system with which we have provided heat over the past 50 years since we started doing gas, which is a popular solution for most people. The suggestion raises difficult economic and social questions.

The Scottish Government is looking actively at district heating, which for new housing stock might well make sense. However, we really need to think carefully about how quickly we want to push that. There have been suggestions that we go for city-wide district heating schemes in the next few years of infrastructure investment. The approach needs to be looked at very carefully.

The Convener: Why do people like their gas boilers so much? Is it because they do not trust a system that they cannot control if it breaks down?

Ash Denham: I do not have a gas boiler.

Dr Winskel: The evidence is that gas is reliable, controllable and generally affordable—although affordability has been more of a problem over the past few years. Something that we often get wrong is that we do not acknowledge what we in the UK do well on energy—we should think about how people heated their homes 30, 40 or 50 years ago. There is, however, still some way to go to get the most efficient gas boilers into people's homes.

I have seen suggestions that the heat problem can be addressed through a combination of different technologies, without the wholesale infrastructure changeover that would introduce a lot of extra costs. How infrastructure spend is paid for and recovered is a big problem.

Malcolm Keay: I agree with everything that Mark Winskel said, but I think that the argument for district heating has changed a lot in the past few years, and in ways that people have not quite woken up to. The argument used, to a large extent, to be about efficiency, but I do not think that that is a strong argument; modern gas boilers are very efficient, which is one of the reasons why people like them. There is, however, a strong new argument for district heating, which is about flexibility. Once a district heating system is in place, flexible heating sources can be used; it is much easier to introduce low-carbon sources. Many Scandinavian district heating schemes have moved across to biomass.

One can envisage a future in which, for instance, wind farms that are whirling away throughout the night can be used to create heat. We talked about storage earlier as though the issue was all about storing electricity, but if we are looking to the future, storing heat is much easier and cheaper than storing electricity, so it might be the better way to store energy. The advantage of a district heating scheme, if it fits into some overall future strategy, is that it might provide flexibility and fit into an integrated overall energy system. I accept that no one is talking about retrofitting all big cities immediately, but there are a lot of commercial developments in all the cities in the country that could easily use forms of district heating and cooling. A lot of new estates are being built.

There are a lot of ways in which we could gradually spread the approach. I am not really convinced that the behavioural or the social arguments are that strong—people in Denmark and Finland are not so different from us. If you can get the right sort of district hearing system, I do not see why it would not be acceptable.

12:00

Elizabeth Leighton: On district heating, I generally agree with what has been said. The Scottish Government has put a lot of emphasis on growing district heating, but let us keep things in perspective—not even the Scottish Government would suggest that we move overnight to a Scandinavian model. We are talking about incremental slow change. It is not happening fast enough and neither the regulatory protections nor the operational standards are in place for consumers.

The Government is committed to introducing a warm homes bill and it is expected that regulation of district heating will be at the core of that forthcoming legislation. Some thinking needs to go into building on the work of the expert commission on district heating, which made specific recommendations about consumer protection and operational standards, and into producing a supportive policy context that would require connections when it is possible and appropriate; for example, Malcolm Keay was just talking about connecting an anchor load to a new leisure facility.

Beyond the behavioural issue, people like their boiler because that is what they know. How many of us have been in a house that is connected to a district heating system? Probably none of us has. What a great thing if you do not have to take responsibility for the boiler or for servicing or replacing it. It is a different way of thinking about your heating system.

The forthcoming warm homes bill is an opportunity to put in place the protections that need to be in place, along with the supported policy context to make it more attractive for private investors to come forward and invest in bigger schemes.

The Convener: Andy Wightman wants to come in with a question.

Andy Wightman (Lothian) (Green): I want to get a sense of the challenges that we face. It seems to me that not only is it a complex challenge to decarbonise energy systems, but we are talking across energy systems about transport, housing and generation and distribution. Do we have the institutional capacity to do it? I am talking about the kind of joined-up thinking that is required across policy areas, the timescales that would cross parliamentary sessions, the need for the public and private sectors to work together, and the fact that some of the changes that are required are to European scale and some are to UK, Scottish and local scale. I am interested in any sense of the scale of the challenge, and whether we have done this before and can do it now. It feels like the same kind of challenge as reconstructing after the second world war and I am not entirely convinced that we have the institutional capacity.

There is also a specific question on the role of municipalities. We see a lot of innovation in municipal government across Europe. Prior to the 1940s, that was an innovator here in the UK as well, but it has not been in the past few decades.

Malcolm Keay: Oddly enough, the UK has a good example of how to do it in the form of the Committee on Climate Change, which is providing expert advice and recommendations to the Government that has always been accepted. We

have a structure there except that it is a climate change-oriented structure. One could envisage something similar in the energy sector. In some ways, that sector is more political, but there could be a committee that would provide expert non-political advice over the longer term that is consistent with the Committee on Climate Change's timescales and carbon budgets and so on. We are halfway there.

We have not got any further because there is still great ideological uncertainty at the top of Government about whether it believes in markets and whether it wants markets to be responsible for the project. If it did, we would not want any central guiding strategy; we would want to get prices right and then leave it to the markets. That needs to be resolved one way or another. If you want to rely on prices to deliver this, you have to take the sort of tax issues that we were talking about earlier much more seriously and you have to decide what sort of signals you want to give and how regulation will ensure that you give the right price signals and so on. If you do not want to rely so much on markets, you have to have a clear forward strategy of the sort that I have described, coming from the sort of committee that I have described, which would give a basis for investment that the Government could then secure.

At the moment, we are in rather an uncomfortable limbo between those two situations. The Government—I am talking about the UK Government, but the Scottish Government might have a part to play with regard to the Scottish element—is spending half the time saying that it believes that the market should deliver and the other half saying that it wants Hinkley Point and various amounts of wind power and so on, which leads to rather a messy situation. It has not yet affected the other sectors, although it has affected gas to an extent, because the Government has said that it is going to leave gas to the market but that it is also going to adjust the capacity market until we ensure that we get some more gas-fired power stations built. There must be a decision at the UK level and at the Scottish level about which way is the way forward.

The Convener: Is there not always a tension between markets and Government strategy?

Malcolm Keay: Indeed, and you can certainly have both—for example, you can use the feed-in tariffs, which are now competitive, through the capacity market, which is a market. The trouble is that the capacity market gave Government the wrong result the first time around—it ended up with a lot of diesel generators being built and a lot of old coal-fired power stations being kept in place. The trouble with relying on markets is that you get the outcome that the market wants, which is the most efficient outcome in terms of the parameters that you have set. That is the sort of area in which the Government needs to decide whether it is prepared to accept the outcome of some sort of a market system. If it is, it could probably introduce efficiencies that way. However, if it is not prepared to, people are going to be reluctant to invest, because they think that the Government might change its mind and fiddle the rules of the game if it does not get the result that it wants.

Stuart Noble: I want to speak about the capacity market, because there are some changes coming through there in relation to the Government not getting the result that it wanted.

We are actively trying to level the playing field in the competition in the capacity market. Some of the results that you are seeing are the result of non-cost-reflective charges in the system. Scottish Power is fully supportive of embedded generation, but it cannot be left to non-cost-reflective signals to drive that outcome, because that will not result in an efficient outcome.

We support the changes that the Government has made and believe that they will result in a more competitive outcome in the next auction.

I would like to qualify a point that I made about Cruachan. The length of time that it can run depends on how much water is in the dam. It can run more than seven hours at the moment. I do not have the exact number before me, but my mental arithmetic tells me that it is more than seven hours.

John Mason: I was just interested in a rough number.

The Convener: You said that you agree with what the Government has done. Which Government are you talking about?

Stuart Noble: Sorry. I agree with the changes that DECC—now the Department for Business, Energy and Industrial Strategy—has made and the work that is being undertaken as part of the industry modification process around embedded benefits and awards for small generators that is going through the system at the moment and which will go before Ofgem for approval sometime in December.

Kersti Berge: Your question was whether it is a big challenge and whether we are set up institutionally to meet it. Yes, it is a big challenge. On the question of institutions, it is always a challenge to get institutions to work together and look at the big picture, but there are some positive things. On flexibility and trying to ensure that we have an energy system that is efficient and flexible, the work that we are doing is being undertaken as a joint programme of work with the UK Government. Further, over the past year, we have been working closely with the Scottish

Government to talk about what we see as the challenges with regard to flexibility. We are committed to ensuring that that is a joint piece of work so that we do not do something with one hand while the UK Government does something with the other. It is a joined-up programme.

I want to pick up on the point about the market versus regulation. There is no such thing as a perfect market, particularly in the energy industry, because there are a lot of rules about how things run. I will give a couple of examples. Some of the rules are about how we charge for using the network. That is not a market; we have to set rules for it, and parties that are seen as market participants have to work under those rules. What we need to do as part of the flexibility work is to make sure that the rules are fair in that they provide a level playing field and do not subsidise one technology over another without us realising that that is happening. It is complex, and we always have to think about the rules around that.

Another example is when we are talking about allowing in innovative and new business models. We could say, "Let's leave it to the market—anyone can come in, develop their own models and supply whatever households they want", but we do not want to do that. We want to encourage innovation but, at the same time, we want to ensure that there is a level of protection for consumers and people who are going to use the energy, so we set some rules around what market participants are allowed to do.

That is one of the challenges. We talked earlier this morning about the fact that the big policy challenge in this area is to get the right balance between allowing innovation and allowing the market to operate while making sure that the rules give a level playing field so that we can keep the costs down for consumers while we make the transition.

Rachelle Money: There is a lot to be positive about in Scotland's approach to the transition to a low-carbon economy, and we should also be mindful that we are not doing this on our own. It is a global effort and everyone is pulling in this direction. We can take a lot of heart from the fact that so many of us round the room are singing from the same song sheet. We are talking about energy efficiency, about using low-carbon sources and about protecting the consumer.

Scotland has a history of engineering and innovation, and we are still doing that work. We are working on developing the most cost-effective means of producing energy. Scottish Renewables has produced a number of reports on how we can further reduce the costs of onshore wind, and we have the catapult centre in Glasgow, which is looking at how we can further reduce the costs of offshore wind. We are trying to take advantage of those emerging markets with storage to keep flexibility where we can.

We are also thinking about the community element. We should not forget that we have strong public support. We have a lot to be positive about, particularly with the energy strategy making its way towards publication—we hope—next year.

We need to think about where the committee's role comes into play. When you see the draft energy strategy come through, you will be able to look at it in detail and ask whether it is going to meet its objectives across the board.

Elizabeth Leighton: I want to go back to Andy Wightman's very good question about the role of municipal government. A lot of expectations are being placed on local authorities and, increasingly, on communities around helping to deliver the agenda, yet there is a mismatch between that expectation and the capacity that is in place or that they can afford to put in place. Many local authorities are doing exciting things and setting up energy service companies that are working in either renewables or low-carbon generation and are providing affordable energy to many of the vulnerable people in their communities, but such companies are unusual. They are rare, and they are seen as very high risk.

In the development of programmes such as the national infrastructure priorities, there needs to be some consideration of what capacity is needed at the local authority level and what support communities need so that they can play their part because, often, they know best who is vulnerable and needs help, what their energy needs are and how they can best be met in those areas. That gap needs to be addressed.

12:15

Andy Wightman: Thank you. At the other end of the scale, there is the European dimension. It is obviously a time of uncertainty, but does anyone have any observations to make? We need an energy union across Europe; we already have a hard-wired market in terms of the pipes and cables. Do you have any thoughts on how the situation might develop?

Dr Winskel: We do not know what the settlement is going to be for UK access to the integrated internal energy market. There are different models for that. The cost will potentially increase because of the Brexit vote—it has already been suggested that some of the large capital projects are going to have to pay more for their capital. There is an added element of uncertainty about that now.

The energy union is just getting going, so there is not a huge amount for the UK to get out of in

terms of the large-scale integration of electricity networks, for example, that is envisaged for the future. Nevertheless, there is a lot of uncertainty about access to the market in the future. The UK will have less influence on the rules governing the internal energy market in Europe. There are a lot of suggestions that the cheapest way to go about energy transition is to do it on an international scale, which means having access to an internal market and being part of an interconnected system. That is going to be more difficult now, so there is a lot of uncertainty, and added costs have probably been introduced because of that uncertainty.

Andy Wightman: In your view, is that still a vital part of sorting out our energy needs, regardless of whether it might be more complex and expensive? Is it still imperative that we develop integrated networks at the European scale?

Dr Winskel: It is difficult to answer that question, because that is a matter of political choice as much as an imperative. However, there is a strong technical and economic imperative, because, if we want to do it affordably, the more integration there is, the better. The UK is having to construct interconnectors to bring the system up to a European level—the UK still has an island system—so it is on a trajectory to be a lot more integrated. However, the decision behind that was based on the assumption that it would be part of the energy union and would get the moneys that would go with that. The UK is still involved in the European funding for the interconnectors but it may not be in the future. A lot of these issues involve matters of political discretion that are not consistent with the least-cost pathway, and one just has to realise where we are now, unfortunately.

The Convener: Is Norway not part of the discussion on interconnectors?

Dr Winskel: Norway has access to the internal market. As in other discussions on labour and the economy, the Norwegian model allows access but no input to the negotiations. The fees still have to be paid to allow Norway to be part of the market, and Norway does not sit at the table in discussions on things such as market codes and the strategic issues that, up to now, the UK has been quite influential on. Others may know more about that, but that is my understanding.

Malcolm Keay: Two of the current interconnector proposals for the UK involve Norway and Iceland, neither of which is in the EU. I strongly suspect that trade with Europe will continue in the future much as it has before and that the interconnectors will be built, if they make sense, as they have been before. I do not think that Brexit will make an enormous amount of difference from that point of view.

The only problem at the moment is the uncertainty of there being four or five interconnector proposals, all of which are being put on the back burner until people know what is going to happen. However, the trade in electricity and other energy sources between Norway and the European Union or between Switzerland and the European Union, which is extensive, is not really impeded by the fact that they are not members, so I very much doubt that in the long run it would make a great deal of difference. There is a short-run problem, though.

The Convener: I shall take questions from Dean Lockhart, Liam Kerr and Richard Leonard. The three of you can each pose your best question and we shall see what our guests make of that in the 10 minutes remaining.

Dean Lockhart (Mid Scotland and Fife) (Con): I will do my best, convener. I refer to my entry in the register of members' interests in respect of a shareholding in a smart meter company that operates in England, not Scotland.

I would like to elaborate on the Brexit implications, because that is front and centre in a lot of discussions across a number of sectors, and this one in particular. As I see it, Brexit cuts across a number of areas discussed today, including EU regulatory requirements, targets on renewables and other energy sources, and the interconnector market that we have just been discussing. I would welcome thoughts from our guests as to the immediate impact of Brexit and its longer-term impacts.

Liam Kerr (North East Scotland) (Con): My question is specifically for Mike Tholen of Oil & Gas UK. It is about some of the difficulties that the oil and gas industry has been facing. The UK Government cut tax on the industry, which seems to have had a positive effect on production. We know that the industry has reduced its lifting costs significantly, so what can the Scottish Government do, or what can we as a Parliament do, to support the industry through these difficult times?

First, I have in mind such things as decommissioning. How do we get it coming in at Dundee or at Nigg?

Secondly, what can be done in the meantime with the workforce? We have a highly specialised energy industry with a workforce that has suffered recently. I am not readily persuaded that they can all be ported into renewables. I do not think that that is happening at the moment and I do not think that it will. I am not persuaded either that we can retrain them all into something else. Do you have a view on the solution for keeping our talent in the UK and in Scotland and for re-engaging those people in the short and long term?

Richard Leonard (Central Scotland) (Lab): This is the Economy, Jobs and Fair Work Committee, so I would like to broaden the discussion, as a few people have mentioned the supply chain. Rachelle Money mentioned the supply chain in gas boilers. Will there be an indigenous jobs dividend from some of the investments that you are speaking about and, if you are not sure, how can we steer things so that there is an indigenous industrial jobs dividend?

The Convener: Perhaps we could allow Mike Tholen to come back on Liam Kerr's question first, as he has not been part of the discussion until now.

Mike Tholen: To bounce straight from Dean Lockhart's question to Liam Kerr's, even from our own perspective, Brexit brings regulatory uncertainty in the long term, and the ability to access and influence broader energy policy around Europe is vital to every part of the energy sector, not least my own, and I am sure that that is true of others around the table.

On the question of the outlook for the industry and how the Scottish Government can best help, there have been tax changes but those changes have had only a modest influence on investments that had been going on. The production rise that we have seen has mostly been driven by investments made over the past four or five years, some of which were made when oil prices were high and taxes were also high.

The challenge is to seize the efficiency wave that we have and to ensure that we are competitive for the future in the way that we have been competitive in the past. The focus on decommissioning is one element, but it is only a small part of the bigger effort to secure a successful future for our industry. In relation to our offshore resources, we need to keep investing in them and running the business, as well as decommissioning those that have reached the end of their useful life. There is a tension between those things that investment is vital for.

As regards the supply chain and its capabilities in relation to the decommissioning picture, we are trying to help to inform the market on what the decommissioning outlook looks like. A lot of work is being done with Scottish Enterprise on that, and the Scottish Government has been a strong proponent of those skills.

I would like to put a challenge back to the committee. As I mentioned to some members in the informal session, Norway is first and foremost a big exporter of oil and gas, but its skills in the oilfields goods and services sector are its second-biggest export. Its next-biggest export after that, you will be amazed to hear, is fish. In the future, it will be vital that we make sure that our economy is successful with its industrial capability and able to reach the market of more than 100 countries that use those goods and services. We are leading the way on how we are adapting our business to mid-to-late life. Because we have those skills, we can teach others how to do those things well and found them with Scottish jobs and Scottish technology. That is the path that we are trying to walk.

The Convener: I think that Elizabeth Leighton wanted to come in on Richard Leonard's question.

Elizabeth Leighton: Yes. I was nodding my head vigorously, because one of our main arguments for making it a national infrastructure priority to improve the energy efficiency of buildings is that that could deliver jobs—not just jobs on another infrastructure project, such as the building of a hospital or the new Forth crossing, but jobs in all our communities. We would all benefit from that, because there would be more jobs, more money in the local economy, a reduction in fuel poverty and fewer people suffering from inequality. Therefore, it is a real win-win. It has been estimated as having a benefit to cost ratio of 2:1.

However, the programme must be designed in a way that means that we do not repeat the mistakes of past energy efficiency programmes, when many of the jobs were flown or shipped in from the south or the central belt, with the result that the benefit was not felt in rural areas. The programme needs to be designed in such a way that local jobs and supply chains are prioritised, and there are examples in more recent programmes of how that can be done.

The other critical factor is that a multiyear commitment is made to the programme. In other words, it must be an infrastructure priority over 10 to 15 years and there must be a multiyear commitment on the budget. If that is not the case, the local plumber or the local electrician will not train up in some of the new skills that they will need, because they will not be sure that the job will be there the following year. With those elements in place, we think that 9,000 jobs a year will be provided all over Scotland. What is not to like about that?

Rachelle Money: On the question about the supply chain, it is valuable to ask how we can map the supply chain across the energy efficiency sector, low-carbon transport, heat, electricity, storage and all the other emerging markets.

I know that Scottish Enterprise has done a fair amount of work on mapping the supply chain in relation to offshore wind, but I have not seen a supply chain map of the low-carbon economy that we are striving to have. I would ask the committee whether there is a way in which Scotland can play

a greater role in mapping that supply chain, looking at where new opportunities are arising and looking at the extent to which we export our intellectual property. There are some fantastic examples out there, such as that of SgurrEnergy, which works all over the world and puts its products into international projects, and the European Marine Energy Centre in Orkney, which uses innovation to drive its intellectual property and push its learning around the world.

As far as the job statistics are concerned, around 21,000 people are employed in the renewable energy sector in Scotland. We rely on getting those statistics from the relevant department down south, which was BIS—the Department for Business, Innovation and Skills—and which is now the Department for Business, Energy and Industrial Strategy, or BEIS. From the perspective of Scottish Renewables, we would quite like Scotland to take a bit more ownership of the process of collating what the value is of job creation across the low-carbon economy. We would like to ensure that we get those statistics, that they are robust and that they are produced annually. I am not sure that we are currently capturing all that value.

We should also try to really get down to the nitty-gritty of the investment figures and how much investment has been brought into the Scottish economy. We need to do a little bit more work on ensuring that we have the best possible statistics on that.

12:30

The Convener: Perhaps Mark Winskel can make the last contribution, which should be brief.

Dr Winskel: We can think about energy in two ways: energy as an input to the economy, or energy as a source of economic growth and other economic policy objectives. They are quite different and they can be in tension at times, but there are ways of trying to get them to add up together.

One approach is to encourage a whole-system view of energy that includes traditional and new energy: how can both be maintained to some extent, and at what point do we have to think about a transition of the traditional industry?

One way into the matter is to think about industrial clusters. I know that there are thoughts about that, such as keeping heavy industry in central Scotland and thinking about things in a more joined-up way. There are opportunities for Scotland on the carbon capture and storage front, and there are ways of combining energy intensity with decarbonisation. That is a particular Scottish opportunity, given the CCS interest. We should keep going on that, as well as on more specific growth areas. We need to join up traditional industry and emerging new industries. There is also the general cost of energy into the economy to consider. There are different ways of getting into the issue.

The Convener: I thank all our witnesses who have come and spent time with us. We will now move into private session.

12:32

Meeting continued in private until 12:52.

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