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ECONOMY, ENERGY AND TOURISM COMMITTEE

Wednesday 16 May 2012

Session 4

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CONTENTS

ECONOMY, ENERGY AND TOURISM COMMITTEE
16th Meeting 2012, Session 4

CONVENER

*Murdo Fraser (Mid Scotland and Fife) (Con)

DEPUTY CONVENER

*John Wilson (Central Scotland) (SNP)

COMMITTEE MEMBERS

*Chic Brodie (South Scotland) (SNP)
*Rhoda Grant (Highlands and Islands) (Lab)
*Patrick Harvie (Glasgow) (Green)
*Angus MacDonald (Falkirk East) (SNP)
*Mike MacKenzie (Highlands and Islands) (SNP)
*Stuart McMillan (West Scotland) (SNP)
*John Park (Mid Scotland and Fife) (Lab)

*attended

THE FOLLOWING ALSO PARTICIPATED:

Ian Booth (Aberdeen Heat and Power)
Emilia Jane Hanna (Biofuelwatch)
Neville Martin (Shetland Heat Energy and Power Ltd)
Lesley McInnes (West Highland Housing Association)
Professor Paul Mitchell (University of Aberdeen)
Stuart Reid (HWEnergy Ltd)
Calum Wilson (Forth Energy)

CLERK TO THE COMMITTEE

Stephen Imrie

LOCATION

Committee Room 2

Scottish Parliament

Economy, Energy and Tourism Committee

Wednesday 16 May 2012

[The Convener *opened the meeting at 10:00*]

Renewable Energy Targets Inquiry

The Convener (Murdo Fraser): Good morning, ladies and gentlemen, and welcome to the 16th meeting in 2012 of the Economy, Energy and Tourism Committee. I welcome our witnesses, those in the public gallery and, of course, committee members. I remind everyone to turn off all mobile phones, BlackBerrys and other electronic devices. We have one item on the agenda—the continuation of our inquiry into the Scottish Government's renewable energy targets.

The witnesses are Ian Booth, who is general manager of Aberdeen Heat and Power; Professor Paul Mitchell, who is director of the institute of energy technologies at the University of Aberdeen; Emilia Jane Hanna, who is a biomass campaigner from Biofuelwatch; Calum Wilson, who is managing director of Forth Energy; Stuart Reid, who is from HWEnergy Ltd; Lesley McInnes, who is chief executive of the West Highland Housing Association; and Neville Martin, who is general manager of Shetland Heat Energy and Power Ltd.

Before we start the questions, does anybody want to make a brief introductory statement? I stress the word "brief", as there are quite a number of witnesses.

Calum Wilson (Forth Energy): Thank you for the opportunity to appear before the committee. I represent a joint venture between two Scottish companies—SSE plc, which is an energy company, and Forth Ports Ltd, which is a ports logistics operator. We are proposing to develop three efficient combined heat and electricity power plants in three of Scotland's ports that are close to urban and industrial areas of demand—Rosyth, Grangemouth and Dundee.

Before giving an overview of what we are proposing in terms of heat, I need to make the point that we are about to embark on a public inquiry on the Grangemouth plant—the inquiry starts next Monday—so the level of detail that I can go into on that proposal is restricted.

The plants represent an investment of about £1.1 billion. They are planned to generate 300MW of low-carbon electricity and 260MW of low-carbon heat. In target terms, that is equivalent to about 6 per cent of Scotland's predicted electricity demand in 2020 and 30 per cent of the 11 per cent renewable heat target for 2020.

The plants will be fuelled by wood fuel—a renewable source of energy. We believe that wood fuel has an important part to play in decarbonising our energy supplies. We are predicted to save about 79 per cent in carbon emissions compared with a coal plant and about 44 per cent compared with a highly efficient combined cycle gas turbine plant. That gives you a feel for where the plants will fit.

We will source our fuel from the growing global supply chain for biomass. The fuel will be shipped in bulk to the plants, shipping being a low-carbon form of transportation. The fuel will come only from certified sustainable sources. It is important to note that, in utilising imported wood fuel for our plants, we will not be competing with Scotland's existing timber industry for the resource within Scotland.

We need to reduce the carbon in the heat that Scotland consumes. From the outset, our plants were designed to deliver heat for industry and also for heat networks in the surrounding areas. We will actively engage with potential partners and consumers around the plants to encourage them to take that industrial heat in large volumes. Over and above that, we have developed the community enterprise heat model as a method of rolling out renewable heat into the local communities around the plants—we have taken a collaborative approach.

We believe that the availability of renewable heat will not only reduce carbon emissions but maintain and stimulate economic growth and support the development of other renewable technologies. Scotland needs low-carbon heat and it has set an ambitious interim target for 2020. We believe that our plants will play a part in delivering on that target and we also see a wider opportunity for Scotland.

We need to learn how to use heat more efficiently and understand its value. We need to accelerate the understanding and commitment to renewable heat by working collaboratively across different technologies and across different scales of technologies. We believe that we have the opportunity in Scotland to take the lead and create a sustainable heat industry. Let us turn the target into an opportunity for growth and bring carbon reductions, inward investment, manufacturing and long-term employment to Scotland as we deliver decarbonised heat solutions.

The Convener: Thank you, Mr Wilson. If nobody else wants to say anything, we will go straight to questions.

We have a large panel this morning, and I appreciate that you all come at the subject from different angles. Some of our questions will be directed at specific witnesses and some will be more general. If you want to respond to a question, please catch my eye and I will try to bring you in. It will not work if you all try to answer every question—we would be here for a very long time and not get through many questions. Similarly, I ask members to be as brief and focused as they can be in the questions that they ask. If they can direct them at specific witnesses, that will be helpful.

We start by looking at the target that the Scottish Government has set. Rhoda Grant will ask the first question.

Rhoda Grant (Highlands and Islands) (Lab): In his opening statement, Mr Wilson said that the renewable heat target is ambitious. Do people agree with that? When compared with the electricity target, it seems quite a low target to have set. Should it be higher or is it ambitious and might it be difficult to attain at the moment?

Ian Booth (Aberdeen Heat and Power): It is quite an ambitious target, although it seems quite low in comparison with the electricity target. It is difficult to envisage meeting the target primarily because investment is needed in the infrastructure for district heating. The infrastructure cost is the biggest stumbling block to getting heat out to the consumer.

Calum Wilson: I believe that the target is ambitious for a number of reasons. In Scotland, there is an understanding that we cannot continue to burn fossil fuels for the electricity that we need—people get that. People get onshore wind, offshore wind, which is coming along, and wave and tidal power, which we will have in the future. People are comfortable with those, so we understand the electricity target and we are making good progress towards it. That understanding does not exist around renewable heat. When I let people know that we will be producing renewable heat from our plant, I am often met with blank looks. People think, "Why do we need that? We've got a gas boiler and we're warm enough as it is." A big shift needs to take place—not at the expense of the progress that we are making on electricity, but in addition to that—to drag renewable heat up to the same level of awareness and to get momentum behind it.

I think that the target is reasonably ambitious. Some reports have said that, on the basis of delivery over the past two years, we should hit the target, but I do not think that that should be taken for granted. We should be clear about the projects and the scale of heat output along the timeline to 2020, and not just assume that we will repeat what we have done in the past two or three years and hit the target.

Professor Paul Mitchell (University of Aberdeen): It is an ambitious target, but heat accounts for 50 per cent of energy use in Scotland, so it is a significant component of the energy requirement. It also accounts for about 30 per cent of the United Kingdom's emissions. The target is particularly ambitious when it is broken down into the various sectors. I understand that the Government is trying to clarify better the demand in each sector. In 2011, 51 per cent of demand was in the domestic sector, from individual houses. Feeding into that is difficult. An industrial component can often be met by industry itself—that might involve the forest products industry.

The target is ambitious, but it can be achieved. That must be done judiciously and sensibly.

Stuart Reid (HWEnergy Ltd): One important thing to understand is the difference in how we go about achieving the heat target versus the electricity target. To make progress on heat, we need to convince thousands or tens of thousands of customers—whether they are domestic customers, businesses or industrial-scale facilities—to change from fossil-fuel-fired heating to renewable heating. That challenge is fundamentally different, and different communication is required to generate traction on heat in comparison with electricity.

A challenge in Scotland is that the main mechanism that will be used to encourage people to switch is the renewable heat incentive, which is outwith the Scottish Government's control and is a UK initiative. That will be the fundamental driver for whether we succeed.

We must take a bottom-up perspective on what will encourage customers—whether they are domestic, commercial or large scale—to switch to biomass and on the economics of their decision-making process. That must be thought about before we can assess whether the target is ambitious.

Neville Martin (Shetland Heat Energy and Power Ltd): Fortunately, I do not have to compete with gas, which is the biggest problem as it is much cheaper to install and is relatively cheap to use. Shale gas is possibly on the horizon; in America, that has brought wholesale prices down by 80 per cent.

Retrofitting for district heating is very expensive, so we must concentrate on new areas. Somehow or other, legislation must keep gas out of those areas. I do not know how that can be done in the free market.

I am conversant with the Danish situation, as I have been to Denmark many a time and I work with Danish consultants. Only two years ago, I went to a town in Denmark where gas mains were being taken out—I believe that that is also being done in Copenhagen—and district heating was being put in. Denmark had the legislative means to do that. I am not sure how it did that under European Union law—I leave that to you experts.

Gas is the main competitor. I appreciate that gas is not everywhere in Scotland, but the size of the area that is covered is surprising.

Rhoda Grant: I understand what you say—you are talking about the many individuals who choose gas because doing so is easy. Are the technologies available to allow people to choose to move away from gas, for example? To provide the infrastructure for area heating schemes, roads need to be dug up, people need to get together and agreement is needed. Is enough choice of technology available for an individual who has a gas boiler to say, "Okay—I'm going to change to a renewable source"?

Neville Martin: The idea of going up a street and picking up the odd customer is not viable. To make a street viable, nearly 100 per cent of customers need to join a scheme. If we want to get enough people, we must get the gas mains out.

I will make a point about the scale of operation, which a few of us discussed before we came into the committee room. Small biomass schemes are too small; we need to think on a larger scale. It is ideal to include a facility such as a swimming pool or a school, to make economies of scale and to make schemes viable, which is critical. It is up to planners to designate areas for district heating—that is the only way to proceed. We must have high penetration in such areas, and the only way to achieve that is to keep out competitors.

10:15

Calum Wilson: I have a couple of points on that. First, on whether the technology exists, I believe that it does. The good thing is that investment in innovation and technology will keep the technology moving forward. Functions such as the green deal that facilitate the move to localised low-carbon energy will help. However, district heating is not a magic bullet. We need to recognise that there are a number of technologies at a number of scales. We need to consider our cities and our rural landscape and understand what technology mix makes sense. If it does not make sense to use district heating because there is not sufficient density of customers, we need to consider whether to use solar or thermal, ground source or air source heat pumps or perhaps a different technology. We might need small-scale central heat provision for a particular island network.

We have the technology, but we have not quite created the integrated approach and collaborative working to deliver that cluster of technologies. We need to focus on certain geographic areas and perhaps start seed financing technologies to demonstrate what is possible and then tweak it and replicate it throughout Scotland. That would be my approach.

My second point is on the barrier to achieving the target. One fundamental difference between electricity and heat is that there is no regulated network or grid for heat. If I get a wind farm consented anywhere in the UK, I will have the right to connect to the electricity grid and get a return for my electricity. For heat, I cannot do that. So far, the growth in heat has been stifled by the premise that you need to know what the demand is and then build a heat plant to match it. Our view is that, if we are to break that stalemate, we need to start thinking about speculative heat provision, such as speculative district heating networks, and about how to create a semi-regulated framework to allow developers to produce heat in the knowledge that they can sell it commercially in a heat marketplace. We are trying to push that forward through our plans.

Lesley McInnes (West Highland Housing Association): We have a scheme in Oban that feeds heat to 89 people. If we extend the scheme, as we want to, we will try to include private owner-occupiers. That makes sense. It would also make sense to include the nearby hospital. As colleagues have said, that is where quick wins can be made in district heating. Hospitals, swimming pools and other public buildings make a substantial contribution to making district heating schemes work. In Sheffield and Nottingham, where there are large-scale district heating schemes, public buildings are involved.

Another important perspective is that, to buy into district heating networks—although I agree that they are not a magic bullet—people need the security that they have had from gas. Buy-in from public bodies is key to making progress on that.

Emilia Jane Hanna (Biofuelwatch): We need to consider the context of hitting the heat targets. In Scotland, wood is scarce, so if we predominantly have electricity-only, or mainly electricity, biomass power stations, which do not maximise efficiency, the implication is that the price of wood will increase. That will make things harder for small-scale off-gas-grid users who would be inclined to make use of the heat. The real problem is CHP schemes that do not maximise efficiency or make the best use of heat.

The Convener: We will have more questions on those issues later.

Rhoda Grant: My final question is for Lesley McInnes. You operate in rural and urban areas. You talked about a community heat scheme in Oban, but what about more rural properties? Have you considered things such as air-source heat pumps?

Lesley McInnes: Yes. We have ground-source heat pumps in Islay and Jura, and we are looking at schemes outwith Oban. Argyll is well known for its forestry, and we are keen to look at biomass as something that is sustainable in the future. We would definitely consider other technologies such as air-to-air and air-to-water technologies for smaller developments in rural settlements, but we would then be looking at at least double the cost of putting in a gas or straightforward electric system.

Rhoda Grant: What about the running costs? How do they compare? Do your tenants save over time?

Lesley McInnes: That is an interesting question. At present, the biomass cost is 0.5p below the electric cost, but there is no standing charge on that. We would probably prefer to reduce the pence cost and have a standing charge, but it is a matter of the mix in how the business plan works.

We are piloting air-to-air technology, and it will be interesting when people come back and tell us whether they find it less expensive. The biomass system is a pay card system, and people find that they pay little in the summer, but a lot in the winter. We probably need to think a wee bit more about behavioural pricing and trying to get people to spread their payments throughout the year, but that is difficult, particularly in the current economic system.

Mike MacKenzie (Highlands and Islands) (SNP): I draw members' attention to my entry in the register of interests, and specifically to the fact that, until recently, I was a board member of West Highland Housing Association.

My question is directed at Stuart Reid. Are you in a position to assess the proportion of the heat target that may be realised by smaller-scale biomass installations? I am talking about things such as woodchip plants that are used on a smaller scale and wood-pellet stoves that can be fitted in individual households. Will you give me an idea of the scope and scale of such installations that we could see in the future?

Stuart Reid: Certainly. I will put things in context. Our company specialises in biomass heating installations of between approximately 100kW and 1MW. We tend to install systems in schools, swimming pools and hotels, for example, and so far, we have about 165 projects in operation across all parts of Scotland.

To assess what the uptake of such installations will be, we need to think about the thought processes that an individual who is in the position to decide whether they will switch to biomass will go through. Let us consider as an example a medium-sized high school that requires a biomass boiler of approximately 500kW to heat it. Generally, people will desire to save carbon. A local authority might have a carbon management plan. All other things being equal, people will therefore probably choose to switch from their existing fossil fuel source to a renewable heating source. It then becomes a case of individual economics. To hit roughly 6 per cent of the overall heat target or about 50 per cent of the 11 per cent heat target, we would need between 1,500 and 2,000 high-school-sized buildings to convert to biomass heating.

Whether individuals will choose to make the decision depends on a number of factors. Neville Martin referred to gas mains being a factor. If people are on gas, the return on their investment in switching to biomass is likely to be about 12 per cent, so it will take them eight years or so to pay back that investment, which may or may not be attractive. It might be attractive for a local authority that has long-term security on a site, but it might not be so attractive for a business that is facing constraints in getting capital and difficult trading conditions. It will be challenging to get people who are on gas to switch, unless the public sector drives that through.

Many businesses are on oil, and we have a number of projects in Argyll in which we are displacing oil in hotel-type settings. In such cases, I think that the uptake of biomass will be relatively good. Whether it will hit 1,500 installations depends purely on the economics of the individual decision makers.

With the renewable heat incentive, people are seeing a 15 to 20 per cent return on their investment, so it is paying back in five to six years, before the cost of financing the capital is included. That is quite a compelling business case, but we must remember that people feel a bit nervous about what has happened to solar photovoltaics and about the Government's ability to change the incentive mechanisms at relatively short notice. Although the business case is strong, a number of other factors mean that switching to biomass is perceived as high risk.

As things stand, I do not think that there will be a significant uptake of individual domestic pellet systems. There are a number of reasons for that, but the main one is that there is no domestic renewable heat incentive at present. Although one is being talked about, it has been delayed for a

year and it will be 2013 at the earliest before anything is seen. We will have to make progress on the 100kW to 1MW range if we want to deliver on the target.

Mike MacKenzie: As with any new ideas or technologies, things that give rise to concerns and uncertainty will inhibit uptake. I have a particular problem because my wife has fallen in love, not with my neighbour, but with my neighbour's wood-pellet boiler.

Chic Brodie (South Scotland) (SNP): That is what she told you.

Mike MacKenzie: The red line as far as I am concerned is the domestic RHI, which seems to have been delayed not just for a year but interminably. I ask for general comments from the other witnesses. I am concerned that anything that gives rise to uncertainty inhibits uptake. I have heard a concern expressed from various quarters that, as the market for wood-type biomass develops, it will give rise to price increases that might wipe out any savings in heating costs. I have heard that view from people who are involved in small-scale installations and from people in the wood panel industry. Would any of the witnesses care to comment on the uncertainty about the RHI and the concern about the increase in the price of raw materials?

Stuart Reid: There is no doubt that uncertainty is a barrier to people making decisions. That is fundamentally the case. I speak to people about these issues every day. It is predominantly businesses or district heating-type projects that are considering switching to biomass, and uncertainty about the RHI is a key concern, closely followed by access to and availability of capital financing. Certainty about what will happen with the RHI would be hugely welcome. I do not know how it will be within the committee's power to influence that, but anything that you can do would be well received.

I will give two examples. The first is about woodchips and the second is about wood pellets. We are working on a project that involves a relatively large educational building and linking up 14 buildings on a campus. There is a £600,000 capital investment by the client in the project, which is displacing oil heating. In that scenario, we have offered a five-year deal on price certainty for the woodchip resource. When we wrap that up in the business case and the return on investment, we can create quite a compelling case, because we can offer price certainty.

10:30

That is possible to do on relatively small installations, where the demand for the wood fuel will be less than about 1,000 tonnes a year, because that can generally be sourced quite locally and an arrangement can be reached with the supplier about how it values that resource. Asking a supplier to give a price commitment for 10,000 tonnes or 100,000 tonnes would be different, but it can be done with relatively small numbers.

Wood-pellet heating costs the end user around 4p per kilowatt hour, compared with around 3.5p per kilowatt hour for mains gas, 8p per kilowatt hour for oil-based heating—you will be aware that there has been a significant increase in the oil price in the past nine months, which is making oil ever-more expensive—and around 10p or 11p per kilowatt hour for electric heating. Those figures apply in a stand-alone setting. In the operation of a district heating scheme, additional costs need to be reflected in the cost of heat.

The reality in the pellet-producing sector is that Scotland has the capacity to produce around 250,000 tonnes of pellets a year, and domestic demand will be around 15,000 tonnes for heat projects. The majority of the pellets that are produced in Scotland today are being exported to the continent or down south—where demand accounts for around 40,000 tonnes—or are used for things such as horse bedding.

Although there is speculation about the future demand for the wood resource, the reality today is that pellet producers would bite people's hands off to sell even their existing levels of stock, never mind what might be sold in the future.

Calum Wilson: I can offer a larger-scale perspective. We have concerns about the RHI as well. We were moving on a flight path where the RHI for large-scale heat associated with our plants was sitting at £27 per megawatt hour. That kind of level was comparable to the existing uplift of half of a renewables obligation certificate for combined heat and power. It brought benefits by bringing down the starting point for heat, which helps to kick-start the marketplace.

When that figure was reduced to £10 per megawatt hour following the European challenge, that decimated the level of support, as you can imagine. That drove us to suggest, in our submission to the consultation on the renewables obligation Scotland, that the half-ROC uplift needs to be maintained, as the RHI does not deliver the goods at the scale that we are talking about. I suggest that there are RHI issues at different levels, quite apart from the future budget for it.

On fuel, there are similar issues. We deal with suppliers in the global marketplace and negotiate 12 or 15-year contracts for the fuel for our plants. Those suppliers are in control of the raw material, because that is important to the stability of fuel supplies. Much of the timber industry moves with

fashion, depending on where the money is, to be frank. Having dedicated biomass fuel suppliers who are in control of the raw resource and have strong sustainability standards is key to maintaining the supply over the minimum modelled 20-year life of a plant.

As for volumes, we have done a lot of work on the availability of biomass, as you can imagine. Globally, there is an increasing uptake of biomass, as has been said. Our finding is that, if Europe were to deliver all the biomass energy that it states that it can deliver, there would be a shortfall of about 50 million tonnes of oven-dried material a year, which would mean that that amount had to be imported. Further afield in the supply chain—in Canada, North and South America, north-west Russia and so on—there is probably a surplus of almost 100 million tonnes a year. The high-level numbers therefore suggest that there is enough flexibility and capacity in the marketplace to satisfy the increasing demand and the possible European shift in demand for biomass.

The Convener: Some members have questions specifically on the availability of biomass. Mike, is your question a follow-up, or should I bring in other members?

Mike MacKenzie: I would like to follow up the general theme, if not the specific issue. A couple of witnesses have indicated that one way of breaking the cycle of uncertainty would be for public sector partners to get involved—Aberdeen Heat and Power emphasised that strongly in its submission. As well as breaking the cycle of uncertainty, that would help with balancing demand and making installations more efficient. Would the panel care to comment on how open local authorities and other public sector partners are to embracing such technology?

Ian Booth: It is important to note that, at present, Aberdeen Heat and Power has no renewable sources of fuel in our portfolio—we still provide heat through CHP, for which we use gas. That in itself is reducing our carbon footprint. I recognise that the future use of biomass presents big difficulties, such as the cost of supply and so on.

As far as your point about involving local authorities is concerned, Aberdeen City Council set up Aberdeen Heat and Power with its housing stock in mind. It wanted to tackle issues related to the housing stock, such as fuel poverty. It is through close co-operation with the council over the years that we have been able to deliver affordable heat to tenants and public buildings.

We want to get to a position in which renewable heat sources are available to us, but at the moment we are concentrating on building the infrastructure. Once we have sufficient infrastructure in place, we will be well placed to bolt on such technologies at the front end.

Lesley McInnes: The strategic involvement of public sector agencies is key. It will take away a lot of the risk if we reach the targets by using networks of public sector buildings that are close to housing. That will also give a seal of approval to biomass or renewables for people who are nervous about looking at using them, and it will give suppliers the certainty of knowing that there will be a demand in the future and will allow them to start thinking about what they want to invest in.

I am from Oban, where the leisure centre is now powered by a biomass boiler, as is the Scottish Association for Marine Science centre at Dunbeg. Our housing association has a biomass boiler, too. Those three biomass boilers are in reasonably close proximity.

It is a question of making a strategic link and saying what will happen in a particular town or place. That gives everyone certainty. Through the community planning partnership, the local authority has a key role to play in helping to do that. It is not about the local authority doing everything, but it needs to set the strategy. I represent a delivery organisation. It makes it easier for us to deliver if we are plugging into a strategy.

Mike MacKenzie: I have a final, brief question about the Aberdeen situation. Would it have been possible for you to have carried out the installations that you have carried out without the co-operation of public sector partners such as the local authority?

Ian Booth: I hazard a guess that that would have been absolutely impossible without the local authority. The housing stock that we are feeding is all local authority housing. We are also feeding public buildings that are generally local-authority-run buildings. Without the co-operation and determination of the local authority for us to do that, it would have been impossible for us to do it.

Mike MacKenzie: So if we are to have any chance of meeting the target, it is key that we work in partnership with and engage all 32 local authorities in that process.

Ian Booth: It is horses for courses, really. A local authority will have its own carbon reduction targets to meet in its housing stock or public buildings and the key is how it wants to go about meeting those targets. It can do that by setting up arm's-length companies such as Aberdeen Heat and Power or by getting into business partnerships with other providers, as Calum Wilson said. He is plugging in a huge system that will have heat available for distribution around a big, wide network.

Chic Brodie: I ask my questions having seen two technology developments that are not quite finished but that would, in effect, see boilers in domestic use that produce both heat and electricity from waste. That is at the other end of the spectrum from a fridge.

Let us move away from biomass for a minute. Before I came to this place—as they say—I was involved in a couple of projects. One of those was an AD plant that was proposed for South Lanarkshire, which was to produce both electricity and heat. The plan was to heat 30 social rented houses that were to be built and to use any surplus heat on a farm, replicating the Rennies' AD plant at Turriff. The farmer wished to use the surplus heat to grow peppers. In the course of that, I talked to Marks & Spencer's green team in Glasgow and Asda's green team in Leeds, and I met Baxters in Fochabers. I also talked to six Clyde valley councils. There are hundreds and hundreds of tonnes of waste, but I do not see the AD developments getting the profile that we are talking about in relation to biomass—why is that?

The Convener: Before anyone answers that question, it might be helpful if you explain what AD means, Mr Brodie.

Chic Brodie: It means anaerobic digestion—farmers using methane gas from slurry to drive heat pumps and pumps to generate electricity. Perhaps Mr Martin can comment on that.

Neville Martin: It makes a lot of sense to use animal slurry in anaerobic digestion. One of the reasons why it may not have taken off is the expense of laying the pipes. Too much is said about anaerobic digestion, however—my heat source is domestic waste. There is talk of anaerobic digestion using domestic waste, as happens in the Western Isles, in Stornoway, but the output from that is very low. I think that the Stornoway plant takes in energy—although I might be wrong—and all that comes out of the process is a very poor compost that goes to landfill. What is the point of that when the waste could have been used to generate many megawatts of heat? It is worth using animal slurry or food waste, which are biological and can form methane to generate heat and CHP but, in some cases in which people talk about doing anaerobic digestion, I query whether it is worth it on the grounds of cost and what we get out of it.

10:45

My heat source is primarily energy from waste—that is, domestic rubbish. Once we take metal—which comes out of the other end of our plant—and most of the bottles out of the system, well over 80 per cent of our waste is biomass. That is forgotten about, and I sometimes query whether taking some things out of the waste stream gives value for money.

I am moving into different areas there, but I believe that energy from waste—and perhaps AD, in a smaller way—is one of the main ways in which district heating networks can get under way. With the current high gate fees—the charge made for putting waste to a disposal site—energy-from-waste plants can justify themselves without producing anything. I do not want to see cases such as that in Dundee, where there is a plant—I think it is the only one other than ours—in which 18 or 19 per cent of the energy produced is electricity and the rest is dumped as heat into the atmosphere. That is almost right in the middle of Dundee, with high-density housing areas nearby. We produce only heat and we are 80 per cent efficient in producing heat that is used. That has been sidelined a bit; people are trying to get away from plants, whereas I defend them and would like to see more of them.

Professor Mitchell: Anaerobic digestion technology has been around for a long time; it is basically what happens in a sheep's or a cow's stomach. A lot of the problems have been about understanding the microbiological processes and the time involved in AD, and getting the balance between carbon and nitrogen within the system right. In the past few years there has been a lot of development in the area, so we are now able to do things such as mix animal slurry with vegetable waste.

AD can be seen working in areas where a large amount of animal slurry is produced and there is an awful lot of vegetable processing waste—the two are combined. The size of the plant is, to a large extent, dictated by the materials' transport costs. The exciting thing that is happening is that there is now the technology to take the methane and upgrade it to pipeline quality. A lot of the utilities are looking seriously at pipeline quality methane from anaerobic digestion.

The technology has a bad name because of the nature of the material that goes into it, but it is an area that has great potential for development. There is also the opportunity, in the longer term, to take the methane steam and reform it into hydrogen. If hydrogen becomes a significant part of the transport strategy—in, say, 2030 and beyond—we would have a mechanism to take that waste material into the hydrogen economy.

Ian Booth: My background is the paper industry. In the paper mill in Aberdeen, which is now sadly closed, we had an anaerobic digester for 15 years before its timely demise. I will add to what Professor Mitchell said by saying that the key to the successful operation of that anaerobic plant was the consistency of the feedstock; consistent operation was dependent on the temperature and

consistency of the feedstock. It would be easy to kill off the anaerobic bugs that do active work if the feedstock was varied significantly. That is perhaps a barrier to people's investment in anaerobic digestion, as it is quite a technical thing to keep in consistent operation. Obviously, capital investment in that type of plant is also needed to get a successful outcome.

Chic Brodie: I will come back to biomass. As Calum Wilson will perhaps appreciate, some five years ago I was involved in talks about biomass plants in the very ports that we have been talking about today. We were talking about bringing timber from Russia to Rotterdam in bulk and bringing it into the smaller ports such as Buckie, Dundee and Leith. We talked to the Government at that time about it, but not to anyone else.

Your submission states:

"Larger-scale CHP plants, using imported, sustainably-sourced biomass can make a significant contribution to Scotland's carbon reduction and renewable energy targets."

For continuity of supply you are dependent on the policies of Governments of other countries such as Russia. What guarantee do you have that they will embrace carbon reduction policies and ensure continuity of the timber supply?

Calum Wilson: The first thing that we tested was the commerciality of the biomass supply chain. The pulp industry is a long-term industry that is based on plantation forestry and supplies chips for the paper industry. That demand has receded in recent years, and there has been a shift in some quarters of the industry towards the biomass supply chain.

Marketplace indications suggest that there has been major investment in the biomass supply chain, specifically in pellet plants in the east and west of the States that will produce 1 million tonnes of pellets a year. There is a growing core of what I would call good covenant biomass suppliers, and that is their business. Around that, there are marginal suppliers that flit between industries, but we are not interested in those. There is a strong core emerging and strong investment in the supply chain, which gives us confidence that there is a long-term approach to global biomass supply.

As I mentioned earlier, we cannot control the global supply chain. However, SSE, which is one of Forth Energy's partners, is experienced in managing long-term fuel risk. Contracting coal and gas for the SSE portfolio involves understanding global risk and global supply chains. In some respects, biomass can involve a lower risk than some of the existing supply chains for fuel in bulk.

We drew on that experience, and, as we progress the plants, the final part of the jigsaw will involve moving to contractual terms that involve long contract periods and are matched to lending against the project. There will therefore be a financial and institutional check on the robustness of biomass supply chains over and above our own diligence. Price and supply would be index-linked to energy prices or to the global marketplace for biomass.

The overarching thread that encourages us is the fact that the white pellet, which is produced from virgin timber, is quickly becoming a commoditised, recognisable and tradeable product with regard to its price, quality and sustainability credentials, which is encouraging for the long-term supply chain.

Emilia Jane Hanna: I dispute that the supply chain is really there, based on the evidence. All existing biomass power stations in the UK are running well below capacity, which perhaps indicates that a supply chain is lacking. Perhaps prices are increasing as a result of the fact that demand for biomass is significantly exceeding supply.

For example, if all the proposed power stations in Scotland are given planning permission, they will use around 4.2 million tonnes of wood each year. However, only around 860,000 tonnes of wood will be available to the industry. Demand is clearly exceeding supply, and that trend is mirrored across the UK. The UK has ambitions to use around 80 million tonnes of wood in biomass power stations each year. Current domestic wood availability is 10 million tonnes, of which nine tenths is used by the construction, furniture and other industries, so there is little domestically available.

As Calum Wilson said, if we are to expand into Europe, Europe, too, will be dependent on imported wood. In March, the European Parliament published an interesting report that projected that non-traditional suppliers of wood from the developing world would have to make up the additional amount required. There will be significant adverse impacts that cannot necessarily be controlled through sustainability criteria because the criteria do not speak to the issue of scale or the fact the demand is exceeding supply.

Professor Mitchell: Ms Hanna makes some interesting observations, but we must bear it in mind that, from the UK's perspective, we have a big wood-using industry that has various sources, only 20 per cent of which are from the UK. We are therefore 80 per cent dependent on imported materials. To bring in biomass is not that big a deal from that perspective.

There is a great incentive from the Government to increase planting of the forestry resource. An

increased internal demand for wood fuel and for the other forest product industries can be met in the longer term by new planting, assuming that the planting targets are met. That is not a subject for your committee, but it is an issue—

Chic Brodie: That is the point that I was making. Are we inevitably, as part of the overall balance or mix, going to get into the same situation with wood as we could be with gas, at the very point at which we do not wish to be in a position of huge importation?

The Convener: I will let Patrick Harvie come in because he has been very patient.

Patrick Harvie (Glasgow) (Green): Thank you. Earlier, Calum Wilson talked briefly about sustainability criteria and I am glad that we have come back to that. If we are talking about increasing domestic production, we have some control—we have the ability to decide where and when, how much and in what circumstances, and to take account of the impact on other industries and on people. Mr Wilson's written evidence warns that

"Scotland could miss out on the opportunity to utilise the growing global availability of sustainable biomass".

What do you mean by sustainable biomass? Do you have your own definition, in terms of what your company would buy and from whom? Do you simply use the EU's sustainability criteria?

Calum Wilson: We have a three-channelled approach to sustainability. We have a sustainability policy for fuel supply. Our policy document is based on industry practice. There are also standards that we want to comply with and will comply with once contracts are in place.

The sustainability criteria are also driven by various certification schemes. As with all such schemes, there are various opinions about their robustness and completeness. We will ensure that the fuel procured will satisfy the schemes. That may vary between suppliers, so our job is to ensure that, through our sustainability policy and standards, the chosen sustainability criteria and certification scheme meets our standards. If it does not do that, that can be addressed.

Part of our commitment is about auditing to ensure that the standards are maintained. I envisage that we will have perhaps five or six key fuel suppliers on long-term contracts that we will either partner or contract with. As part of that relationship we will audit that supply chain to ensure that the supplier is doing what it says it is doing.

11:00

Patrick Harvie: I am really trying to get at whether you would factor in anything additional to EU sustainability criteria. For example, Biofuelwatch's evidence mentions not only the human rights impact of certain production sources around the world, but indirect changes in land use, which can have a whole host of consequences for local economies, food production and global CO_2 balance. Will you commit to ensuring that those kinds of factors, which are not covered in the EU criteria, are covered in your own criteria?

Calum Wilson: We are committed to addressing land use change in our sustainability criteria.

Patrick Harvie: Both direct and indirect land use change?

Calum Wilson: We recognise the implications of direct and indirect land use change. However, we also need to recognise certain differences; for example, storing carbon beneath the ground is a big issue with regard to previous land use and land use change while some mature forests are themselves ground-source carbon stores. Previous land use will be a key element of our sustainability criteria in sourcing biomass through our supply chain. We have also ensured that our carbon calculation tools consider the issue of land use change, which in itself leads into the third strand of our sustainability criteria—the emissions threshold linked to the biomass support mechanism.

Patrick Harvie: And human rights?

Calum Wilson: It is very difficult to be specific about individual instances and positions, but I have to say that human rights and the provenance of the biomass are important to us. Although I have read the press reports about the negative impacts of biomass production, I have also had conversations with individuals and organisations that demonstrate that, where managed correctly, such production can help the indigenous population to stay in that part of the country because it brings jobs, investment and economic growth. We believe that, if managed correctly, biomass sourcing can realise that kind of gross domestic product argument. It is not all negative.

Patrick Harvie: I wonder whether Biofuelwatch will also comment.

Emilia Jane Hanna: Quite a lot of points have been raised, but I will try to cover everything.

First, on Mr Wilson's reference to certification schemes, I point out that various concerns have been expressed about different schemes. I cannot comment too much on the detail, as we will be engaging in a public inquiry next week but, by way of example, I note that Forth Energy proposes to comply with the sustainable forestry initiative scheme. The majority of that scheme is, in fact, owned by the companies that contract to use the

land in question, which raises huge questions whether it is independent or reliable. As a result, we dispute the suggestion that reliance on certification schemes necessarily ensures sustainability.

Secondly, with regard to auditing, I am not sure whether Mr Wilson was referring to Forth Energy's own internal auditing or external auditing but it is another issue that we would highlight.

Thirdly, on greenhouse gas emissions, Forth Energy will not, as far as I am aware, be taking into account emissions from indirect land use change. I cannot comment too much on the detail, but we have serious concerns that the carbon calculations for the plant's life cycle contain serious flaws.

Patrick Harvie: Perhaps you could respond to the question in terms of the broader situation rather than Forth Energy's specific developments. I guess that the same issues emerge on a global level.

Emilia Jane Hanna: I was just referring to Forth Energy by way of example, but I take your point.

Patrick Harvie: Sure.

Emilia Jane Hanna: We need to recognise that there are a number of factors that contribute to greenhouse gas emissions that are not accounted for under the sustainability criteria. First, emissions from indirect land use change are not counted, because we are in a situation where the policy is ahead of the science. There are scientists who say that if we were to account for those emissions, they would show that bioenergy can be worse than fossil fuels in some instances. That is a whole section of the equation that is not taken into consideration in terms of greenhouse gas accounting.

A second factor is that biomass is considered to be carbon neutral, so the carbon emissions that arise when the fuel is burned are not taken into account. The European Environment Agency's scientific committee has said that that is wrong and that it misses out a whole section of emissions. In fact, when biomass is burned, per unit of energy you get, the carbon emissions are one and a half times those of fossil fuels. Those emissions will be repaid only if and when the trees or plants—or whatever was used as biomass—are replaced. That can take from between 20 to 200 years. Given the urgency of tackling climate change, the fact that that has not been taken into consideration is worrying. Perhaps bioenergy is not the way to meet carbon reduction targets.

The Convener: I know that other members want to ask about different subjects, but just on that point, as you have raised it, I have a question for Biofuelwatch.

The Scottish Government's heat target is that 11 per cent of heat demand should come from renewable sources by 2020. In 2012, we were at 2.8 per cent of heat from renewable sources and 90 per cent of that was generated by biomass. Is it Biofuelwatch's position that we should scrap the heat target because it can be achieved only by burning more biomass and that is not desirable?

Emilia Jane Hanna: We would not go as far as saying that the target needs to be scrapped, but there are potentially more appropriate ways to achieve it. Inefficient biomass power stations that are predominantly making use of electricity, or even CHP stations for biomass that are not making as much use of the heat as they could, will make it harder to meet the renewable heat target.

The Convener: To pick up on the first part of that response, if we are not going to meet the heat target using biomass, how will we meet it?

Emilia Jane Hanna: I cannot comment on that, because I am not a technical expert in other areas.

I will say that if Scotland is to meet its own stated target for heat we need to consider stronger efficiency requirements for biomass power stations. Given Scottish Government policy and the fact that Scotland would prefer highly efficient power stations, it is our view that continued subsidies for CHP stations that do not maximise efficiency and new subsidies for using co-fired biomass alongside coal will make it a lot harder to meet that target.

Professor Mitchell: On that point, the committee needs to look closely at the carbon balance and carbon debt arguments. As Emilia Jane Hanna said, there is a carbon debt and it will take longer than we originally anticipated to pay back that carbon investment. That needs to be looked at closely. The UK Committee on Climate Change and the current UK biomass strategy have supplementary papers that deal with the carbon balance. The academics among us will pore over those papers for a long time, because they are difficult to understand. A lot of that is to do with what the parameters deal with and what assumptions are being made. General statements can be made, as has been done, but when we start to look at particulars, we can find that arguments fall away a little. I recommend looking at those papers.

What has come out of that work and the Forestry Commission Scotland's work for the Scottish Government's approach to bioenergy is a useful hierarchy for the use of wood, whether it is sawn timber, medium-density fibreboard, chipboard or fuel. That gives an idea of which item comes in at which point. Unfortunately, a lot of detailed work needs to be done, so a broad-brush approach cannot be taken.

The Convener: I ask Mr Wilson to be brief, because we need to move on to other issues.

Calum Wilson: We recognise that views differ on carbon debt. The studies that we have asked our advisers at Heriot-Watt University to carry out have demonstrated that, with a deliverable mix of fuel sources and growing cycles—that is fundamental to the debt period—and with the operation of the plant, we can deliver on the carbon debt and show savings against coal within two years and against CCGT—gas-fired generation—within up to 11 years. We believe firmly that we have the evidence to demonstrate that we can deliver carbon savings well within the plant's lifetime.

We must recognise that efficiency is an iterative process. In existing fossil fuel generation, it took us 20, 30 or 40 years to move from 30 to 35 per cent efficiency in a power station, which was seen as a big step. Efficiency in the output of electricity and heat for the plants that we are looking at ranges between 48 and 72 per cent. We feel that that is a reasonable leap forward while we ensure that we maintain the security, stability and controllability of supplies and that we start delivering against the heat target. The processes of increasing efficiency and maintaining the energy that we need must be complementary.

The Convener: We will move on to a different subject.

John Park (Mid Scotland and Fife) (Lab): Good morning, panel. I will touch on a couple of issues. The first, which was mentioned earlier, is how partnership working might harness district heating. Do smaller schemes, in comparison with larger schemes, provide examples? What skills are around? It would be interesting to hear what that has looked like in your experience or, in relation to larger-scale biomass, what that might look like. I have a further question, which is more about practical arrangements for skills and employment, but I will give you an opportunity to answer those questions first.

Lesley McInnes: We are working with the national health service and the council in Mull to build a health facility, houses and a social work facility, and we are putting in a biomass district heating system there. That works because we will have the heat load from the health facility.

One partnership challenge for us is that our organisation, which is the smallest involved, is taking the financial risk. The payback period will depend on how much heat is sold and could range from 11 to 16 or 17 years, so we need the partners to commit to being in the building for that period.

Once three sets of lawyers are in a room, people start to lose the will to live—

The Convener: Do not be cruel to lawyers.

Lesley McInnes: I hope that nobody in here is a lawyer.

The Convener: I think that your time is up. [*Laughter*.]

11:15

Lesley McInnes: I had to put my foot in it with the convener.

There is a practical issue about how to negotiate partnership working. The extension of our existing scheme, to which I referred earlier, is important. Linking with the NHS would make it a win for both, I hope. However, it is also about aligning the timescales and budgetary processes of both partners, because without such alignment there is no scheme and probably no will for discussion.

On the third point, we have worked with Argyll and Bute Council on a potential biomass scheme for 60 houses and a high school, but the council has decided to go with a gas scheme for the high school because it is cheaper. That was a rational decision, but it throws our scheme into difficulty. Those are the realities and challenges of partnership working.

Stuart Reid: I echo those points. The reality is that any multiparty scheme always boils down to two factors: who will stump up the cash, and what will the risks be? If multiple agencies are involved—whether those are public sector agencies only, a mixture of the public sector and the third sector, or a mixture of the public sector and the private sector—the discussions quickly become complicated and a lot of ducks need to be lined up before any progress can be made.

To echo some of the points that Neville Martin and—I think—the witness from Aberdeen raised, somebody needs to take a strong lead in a scheme, install some of the equipment and infrastructure, and then piggyback on to future sites and expand from there. However, it is a brave party who takes the lead and oversizes equipment in order to cope with future expansion.

There is another approach. A commercial provider such as us could take a commercial view to install a system and hope to sign up multiple parties. We looked at a scheme that involved a social housing organisation, a private hotel, a court and a police station. In theory, that offered quite a nice project because there was good proximity of buildings, reasonable heat use and a bit of complexity around the conversion of the social housing from electric heating to incorporate wet systems. However, the reality of trying to get some form of commercial agreement with the four parties that would give us the confidence to

finance the scheme meant that it was not really viable.

The flip side is that in Fort William, which is where our company is headquartered, the local community sports facility has a 400kW biomass boiler that provides heating. Within 30m of that building is a 90-bedroom hotel, and 50m away on the other side is one of the colleges that is a branch of the University of the Highlands and Islands, which has its own biomass system. Just across the road is a supermarket that is looking at putting in a biomass system. The hotel has not done anything yet—it shows no signs of doing so—but in a more sensible world there would have been one system and a district heating scheme. It is difficult to co-ordinate the timescales, the different agendas and the different financial positions of such organisations.

Ian Booth: I echo Stuart Reid's comments about co-operation between different parties. We have had discussions with NHS Grampian about connecting up a new health village near the city centre. I can vouch for what Lesley McInnes said about lawyers. I have been involved in meetings where we have had three sets of lawyers: two of them on the phone and one in the room, which made things even more complicated.

It comes down to joined-up thinking. Even before you embark on a scheme, you should get some sort of map of what is available in the area. Once you have a heat map, you can talk to individual parties about their aspirations for the future in terms of their ability to provide heat for their business. It is difficult to get parties together. If you just go knocking on doors, you find that the hotel is owned by an entity that is 1,000 miles away, and the people in the hotel are not interested in you trying to sell them a system that will heat their business.

Calum Wilson: We are trying to deliver two key things. One is the delivery of large volumes of medium and high-pressure steam and hot water to industry in order to decarbonise industry, which will help us to reach the targets that have been set; the other, which is connected to our key policy of decentralised energy production, involves district heating networks that go into communities, which means that we must inform communities what the facility does for them in terms of heat. Our community enterprise heat model is one way in which we are trying to make that a reality.

Forming a commercial contract with one big industrial user is challenging but eminently achievable, and doing the same thing in relation to district heating is even more challenging, as even more partners are involved. We have proposed a model that involves a community enterprise group that can take heat and hot water from the plant, and is effectively overlaid adjacent to the plant, with the heat being supplied to that entity by Forth Energy, as the plant operator. That proposal has been well received. The community enterprise group needs to bring the right people to the right table to discuss funding, a local authority strategy for heat roll-out and—because, in order to fund the installation of pipe work, you need demand at the end of it—anchor load commitments from local authorities, health boards and other public bodies. With a plant operator in that mix, we believe that we really have a chance of launching district heating off the back of those plants.

The other thing that we can bring to the party is the fact that the heat source—the recovered flue gases to heat the water—is already there. That can help to de-risk the up-front investment in district heating. We believe that district heating networks offer a great opportunity to push together demand management for heat. It should be possible to address efficiency levels through the enterprise group so that we are not just supplying heat for the sake of it. We should learn how to supply heat in a way that creates ownership in the community. As I mentioned earlier, there must be a cultural shift to the idea that heat is valuable and that we should learn how to use it better. We need community involvement and ownership in order to drive that change in behaviour.

The wider model of industrial and commercial users and high volumes can stabilise a commercial model that allows the plant to operate and helps to de-risk the roll-out of sizeable district heating into the some of the bigger cities in Scotland, off the back of the plants.

Stuart Reid: I could not agree more that the anchor load is crucial. In some of the examples that Lesley McInnes gave, it is almost as if the tail is wagging the dog, with the smaller demand of multiple individual properties, each consuming not much heat, trying to drive the bigger public authority facilities to get on to the network. Really, it should be the other way around: the big load should come first, and the residual heat should be used to heat whatever buildings are in the vicinity.

John Park: I am conscious of time, convener, so I will ask one more question on that point and then ask my final question. Given what has been said, when we produce our report, what could we ask the Scottish Government to do to facilitate better partnership working at a strategic level in relation to community schemes and larger-scale plants?

My final question is on employment and skills. During our inquiry, several witnesses have raised concerns about the availability of skilled professionals to work on a range of energy production matters throughout Scotland, given the clear shift towards renewables technologies. It has also been suggested to us that there are real skills

challenges. For example, despite the lack of job opportunities in the construction sector, Tullis Russell is having to import labour to work on its biomass plant because of a lack of the specific skills that are needed for the project. Is there concern about whether we have the skills to deliver biomass and other heat projects? If so, what do we need to consider to ensure that the issue is tackled?

Calum Wilson: On what the Scottish Government can do to help, my sense is that we need clear leadership. The Government needs to communicate and to encourage renewable heat. As I said in my opening remarks, people do not understand renewable heat. When I tell those in industry that low-carbon heat can reduce their carbon tax, suddenly there is an interest. We need central communication and a message of encouragement on renewable heat to lift up the level of understanding to the level of understanding that we have on renewable electricity. We need an integrated approach that accepts that the process is about multi-technology and multi-providers, not one size that fits all.

The local authorities need to put that together locally, and their approach must sit underneath a Scottish view on where the big demands and the early wins that we should go after are. I would like the Scottish Government to give clarity on our priority areas for heat in the transition to renewable heat.

We need to incentivise the production and the uptake of renewable heat. There is a reticence to force new developments towards using renewable heat, but if we want to change our perspective on the carbon that is associated with heat, we will have to grasp some nettles. We need rules of engagement as well as incentivisation to take up renewable heat. Those would help.

Your second question was about skills. I agree that, if we drive renewable heat as we have driven renewable electricity, we will create a skills gap. The strongest message that we could give is that the approach is not about setting up individual projects and seeing if they work, but about creating a long-term heat industry in Scotland. That heat industry will deliver jobs. That has happened in the offshore supply chain. Once establishments such as teaching universities and colleges understand that an industry, not just a project, is being created, they will commit to developing courses and delivering training to ensure that we have the skills when we need them. However, we need to start that process now.

11:30

Professor Mitchell: The university sector is important in relation to skills, and we are moving strongly on the issue. Obviously, the universities have renewable energy courses, but they take in a high level of engineer. We have 50 PhD students working in the energy area. They are not all working in heat, although a proportion of them are.

I am part of the energy technology partnership, which is an alliance of Scottish universities that are working on research to service the renewables industry, and we are working closely with an alliance of further education colleges to help them to design courses for the engineers, plumbers and welders who will go out and do the work. There is an apprentice scheme as well.

Perhaps the focus to date has been too much on the onshore and offshore wind industry. I echo Calum Wilson's point that renewable heat will be a significant part of Scottish business, so we need to ensure that we have the right people in the right places at the right time. We might be a little behind the curve, but with a bit of a push now, we can do that. I will feed the point back to my colleagues, who are now in an alliance with the colleges, as I mentioned.

John Park: If you can provide information on that work to the committee, that would be helpful.

Professor Mitchell: Okay.

Neville Martin: As far as the networks are concerned, 60 per cent of the cost is the civil engineering work, which mainly involves local labour. In the 14 years for which we have been operating, we have built up a base of local people who can confidently do the work. That side is not necessarily a problem. One problem that I do have—I will take on the university side here—is that the service engineers cannot understand why we need low return temperatures, and they do not install the plant properly. I discussed that with Ian Booth before we came in and he is having the same problems, as are colleagues in Sheffield and other places.

When I started trying to sell the scheme 14 years ago, our health board was advised by its consultants—I will not say who they were, but they had a good name—that the scheme was a waste of time and that it would never work. It was so successful that, since then, the health board has put all the hospitals on the scheme—the accommodation blocks, the offices and so on. It is now actively promoting another scheme, which will operate on biomass. A local developer is moving in hoping to promote biomass, and the health board is central to the scheme. It is trying to organise things with the council, the recreation people and a nearby care centre to enable a biomass scheme in a small town in Shetland.

We have won the battle in Shetland. Everyone wants district heating, which is a highly sought-after commodity. Unfortunately we do not have gas, as I said before. There is a big learning curve, but we can now show people the wins and train the staff. However, we are still having a nightmare dealing with service engineers. In some of the works, we find the local plumbers more competent in getting things up and running. That was the case at a local supermarket recently, where the plumbers achieved what the consultants could not do. I find it frustrating that the more educated engineers are so blinkered. They just cannot see that this is a different way of operating heating regimes. That is the biggest fight that I have had from day one.

The Convener: The clock is ticking, so we will take some brief comments.

Lesley McInnes: I will make a quick comment, and I will not say anything about lawyers.

The Convener: You are on your final warning. [*Laughter*.]

Lesley McInnes: I have been well warned.

From my organisation's point of view, there is also a need for a knowledgeable client. We have learned a lot since we started in 2004, and I would not now have an organisation without an engineer in it, simply because we need to know the right questions to ask and we need to be able to interrogate people who come along and tell us things, particularly as innovation is involved, and we are investing substantial amounts of money.

There are opportunities for a link between universities and what is going on on the ground, where people can get real-time experience. Making that link happen is important because, as with everything, the practicalities of schemes and how they stack up are different from the theoretical models.

I also echo Calum Wilson's plea for clarity. It is important to be clear about what is wanted and for people to take leadership in the community.

I do not want the tail to be wagging the dog or to force the dog to wag its tail—that would drain our organisation of energy. We know fine that that is not our role—it is not the role that we are good at. What we bring to the table is practical experience of pulling things together to make them work once the overall vision is provided.

Stuart Reid: I will address the skills issue first. We now employ just over 40 people, and at any time we have maybe another 40 working on a sub-contracted basis. If there is a demand from customers for projects, the industry will be able to respond; the first thing is to stimulate demand. Before we invest in taking on more people and so on we need to be confident that the business has a viable future.

Your other point was about what the committee can do. It is important to ask whether the target is achievable. It is also important, however, that the committee flips that and asks what we need to do to achieve the target—what steps need to be taken. I have a wish-list of three things. Number one is that the renewable heat incentive has longer-term certainty. The dream solution would be the Scottish Government giving some form of commitment that, if the RHI changes, it will develop its own scheme that offers a similar underpinning. I have no clue whether that is financially deliverable, but that would be the dream outcome.

The second thing on my list picks up on Calum Wilson's point about communication. Yesterday, I was at a business that had not heard of the RHI although it is a prime candidate for switching to biomass. It spends about £50,000 a year on oil and liquid petroleum gas heating but it had no awareness of the RHI or of what renewable heat can do for it. There must be a much more concerted effort to communicate that. For various reasons, the Government's focus has switched away from communicating with individual businesses and towards district heating. There needs to be a focus on district heating, but the core businesses—the ones that will drive uptake and the deliverability of the target—still need to be communicated with.

The third big issue is capital funding. To meet the renewable heat target, if biomass is to deliver about 6 per cent of renewable heat at the medium scale, we are talking about investment of about £1.3 billion in capital funding being required across Scotland to deliver the projects. At the moment, organisations and local authorities are financially constrained and the banks are not lending. What can the Government do? There have been some welcome initiatives such as the £2.5 million that the Energy Saving Trust gives in small business loans and the district heating loan scheme. Those add up to around £7 million at the moment, which is great but, against the £1.3 billion of investment that will be required, it is simply scratching the surface.

That is my wish-list for the committee to take on.

The Convener: Thank you for that. Let us move on.

Angus MacDonald (Falkirk East) (SNP): I declare an interest in that, early last year, as a member of Falkirk Council's planning committee and prior to my election to Parliament, I opposed Falkirk Council officers' recommended approval of the proposed 100MW biomass plant in Grangemouth. As a result of Falkirk Council's

opposition, a public local inquiry will now take place, which will, as Calum Wilson mentioned, get under way next week. I will give evidence alongside the Grangemouth community council coalition. There seem to be coalitions all over the place these days, convener.

I am keen to explore further the financing of district heating and the community enterprise group that Mr Wilson mentioned. I stress that I am in favour of renewable heat and district heating schemes. Indeed, a district heating scheme was proposed in Grangemouth, in my constituency, 60 years ago to capture gases from the petrochemical plant. Unfortunately, it was rubbished at the time and never saw the light of day. In hindsight, the idea was ahead of its time.

I note from Forth Energy's submission that it places the onus on the Scottish Government to co-ordinate

"organisations and initiatives to secure greatly increased renewable heat production, delivery and consumption."

Mr Reid mentioned that £1.3 billion would be required in capital funding to complete all the possible district heating schemes. That is all very well when the going is good and the Government has cash to spare, but we are not in that position at the moment, unfortunately. If Forth Energy is committed to district heating, where will the finance come from, given that local authorities have significantly less to spend on their capital programmes these days, as has been acknowledged? Earlier, we heard that retrofitting would be required. The cost of that could be particularly exorbitant, given the built-up areas that district heating would perhaps go into. Would Forth Energy be willing to invest in the infrastructure in any of the proposed projects?

Calum Wilson: We have made it clear that we want to play our part in infrastructure investment. On district heating infrastructure and the investment challenges, we are fortunate that one of our parents—SSE—builds, installs and operates district heating networks. They have predominantly been gas fired until now, although there is a shift to biomass. We understand the economics and mechanics involved—indeed, with my colleagues on the panel, we should have a good grasp of the matter.

Fundamentally, a heat source is needed, which introduces a significant risk into a district heating project. Multimillion-pound investment in a heat plant with however many customers on the end of the pipework is one of the big challenges for district heating. That is why I spoke about anchor loads; it is a matter of creating anchor loads on a network to create a cash flow and we have to know when that cash flow will happen. The challenge with new developments is about businesses coming on stream and taking the heat. If they come on three months late, that has an impact on cash flow. Therefore, the model is finely balanced.

Let us say that there is £4 million or £5 million up-front investment to produce heat in the first place. Forth Energy is investing in that as an integral part of all its plants. The equipment and technology to produce the hot water will be an integral part of our proposals, and is included in our costing model for the plants. We see ourselves investing in that heat source.

We are certainly willing to look at pipework investment, but it is important that consideration of how we fund that pipework is spread through a joint group. I think that we all accept that there is traditionally a funding gap in district heating, so we should look at different routes to funding. Can we fund through local authorities so that they play their part in low-cost access to finance, for instance? Can we access European investment in our heat industry? Can we attract private investment? Some anchor customers may like to invest in their energy rather than simply to view it as a cost.

I do not think that we are in the unique position of having to invest in the whole scheme, but we want to play our part. We are playing a big part in heat provision, and we can play a part in pipework provision and developing the scheme. We want to take the lead in the community group and try to help to develop district heating networks. That would be our contribution.

The other important aspect is how heat is supplied from the plant—to what could be a separate entity that is made up of multiple stakeholders—and put out into the district heating network.

We are willing to invest.

Angus MacDonald: I take on board the points that you have made, but a lot of ifs, buts and maybes still seem to be involved, particularly with regard to funding for the district heating side.

You rightly point out that you are making a major investment in the plant. However, the extra bit—the district heating—is clearly not quite there yet, although as you say there are avenues for investment through pension funds or whatever. Do you want to come back in?

11:45

Calum Wilson: I wanted to come back in on the split of investment. We have designed a district heating scheme into the new waterfront in the centre of Dundee. The budgeted cost of the pipework is £2 million. My opinion is that if we want to get district heating off the ground, the cost

is not an insurmountable obstacle. We could put our heads together and fund that pipework. If that is coupled with a heat source in the plant, we would have a sizeable district heating scheme, which could grow throughout Dundee. My belief is that getting the capital investment that is required is achievable if we set our minds to it.

Angus MacDonald: If that does not happen, it does not exactly tick all the boxes with regard to any application.

I will stick with the financial viability aspect. The Forth Energy submission goes into some detail about the RHIs, which have already been mentioned, and about concerns about the lack of a confirmed budget beyond 2015. I presume that if the renewables obligation Scotland CHP bands do not remain open post-2015 and if the current level of subsidy falls below £27 per megawatt hour or transfers completely to support tidal energy developments, for example, your projects will simply not be financially viable. Is that the case?

Calum Wilson: I reiterate that if RHI remains in its current form at £10 per megawatt hour, which was where it dropped to from £27 per megawatt hour, and the half-ROC uplift for CHP is withdrawn, the plants lose their financial viability.

Angus MacDonald: Are you not in a bit of a quandary?

Calum Wilson: I do not feel that we are in a quandary. I feel that I am in a position in which there is a prospect of delivering large volumes of renewable heat. In Dundee, there is a mix of district heating; Nynas's refinery has openly said that it is interested in around 8MW, 9MW or 10MW of process heat; and renewable manufacturing is about to be developed in the port, which should be supplied from renewable heat.

We seek confidence that, through the ROS consultation, the Government recognises the need to incentivise heat at scale and gives us, as a developer, a fighting chance, because these are marginal projects. When it comes to realising finance for a £460 million plant, the financial institutions require a good hurdle rate of return. The level of support that I outlined, through either the half-ROC or increased RHI at £27 per megawatt hour, is required to get to that hurdle rate. I assure you that it is not icing on the cake.

The Convener: We are in a little bit of danger of straying into the specifics of projects that are subject to planning decisions. Angus MacDonald can come back with another question, but I ask him to be careful.

Angus MacDonald: I will break away from that theme.

You obviously sell the prospect of district heating to local industries well. However, if you look at the success to date in selling heat from conventional power stations in the UK, what are the features of biomass-fired plants that make the supply of heat from such plants more viable in the long term?

Calum Wilson: Traditionally, power stations in the UK have not been located close to heat demand. They have been located to deliver electricity across a transmission grid—predominantly north and south—to distribute the energy that we need. Cities have taken their energy from rural power stations. This is partly about cities taking responsibility for the energy that they use.

Given the policies around distributed energy production to address electricity and heat, it is no accident that we sited our plants in Grangemouth next to huge heat demand, in Dundee, next to heat demand and in Rosyth, where the council is 100 per cent behind renewable heat and is carrying out heat mapping, and where there is land provision to attract inward investment to use that renewable heat. That has been our model.

We have located our combined heat and electricity plants in locations where there is a known high demand for industrial commercial heat, and where we can soft-launch district heating off the back of the plants. We designed the plants from the outset to deliver that heat. We are a commercial organisation, and our premium to produce that heat in terms of the scale of boiler that is required is around 25 per cent additional capital investment. Commercially, I would not be proposing plants with that level of investment to produce heat if I did not know that I would be able to use it.

Over the past two years, we have refined our discussions from the initial talks that informed the initial plant and technical design to a position where we have a high level of openly stated commitment from industrial and commercial users to take heat from the plants.

Angus MacDonald: Can I direct a question to Biofuelwatch?

The Convener: You can. I hope that it will be brief.

Angus MacDonald: Yes, it will be. The Scottish Government's position on biomass is quite clear: it wants small-scale, off-gas-grid, highly efficient biomass power stations. Why do you believe that we are seeing many new proposals for large-scale biomass power stations in Scotland?

Emilia Jane Hanna: The Scottish Government's position is clear, but there is a disconnect between that and the planning applications.

The Government favours highly efficient off-gas-grid power stations to make best use of local supply. However, the planning applications are not highly efficient because of the promise of subsidies, which are currently being reviewed. We all know how subsidies work: they drive demand and incentivise or artificially stimulate the market. There has been a question about whether subsidies would continue for CHP biomass. As CHP is currently defined, a station can be eligible for the half-ROC uplift while achieving efficiency levels as low as 35 per cent. A CHP power station can therefore be very inefficient and still receive subsidies. Unless that changes, the situation will be that the power stations will run directly counter to the Scottish Government's stated position.

There is a second proposal to introduce a new subsidy for co-fired biomass, in which biomass is burned alongside coal. That would encourage or incentivise a demand for biomass that would be highly in excess of what is available locally. For example, the Hunterston proposal would use biomass up to 15 per cent: that could involve using up to 2.4 million tonnes of wood a year, which is far in excess of what is available locally.

We are saying that if the Scottish Government wants highly efficient off-gas-grid biomass applications, it must remove the subsidies from CHP biomass and co-fired biomass as currently defined.

John Wilson (Central Scotland) (SNP): Good morning—it is almost afternoon, now.

I thank Forth Energy for commissioning the Fraser of Allander institute report, which we have seen. I read with interest the institute's comments on some of the research that is currently being carried out on heat sources and the efficiency of some of the methods that are currently being applied, particularly those that involve ground-source heat pumps and air-source heat pumps. The institute seems to imply that the models that are currently being used are very inefficient and goes on to recommend that the renewable heat database be made publicly available. Do you agree?

Stuart Reid: In the past, much of the work on the renewable heat database has been driven by the Forestry Commission and the research that it has done on biomass use. The renewable heat database, as it currently exists, will be superseded by the renewable heat incentive. As part of the process of receiving their renewable heat incentive payments, people will need to register their installations. In the future, renewable heat incentive support will be sought for the majority of installations. Therefore, the information that is collected in that way will de facto become the method of knowing how much renewable heat is produced.

John Wilson: Who will provide that information? Who will measure a plant's efficiency and effectiveness in producing heat?

Stuart Reid: The Department of Energy and Climate Change took the legislation on the renewable heat incentive through the Westminster Parliament. Responsibility for acting as the administrator of the scheme has been devolved to the Office of the Gas and Electricity Markets, which supports some of the feed-in tariff work.

When someone installs a renewable heat system, whether it involves biomass or a ground-source heat pump, they will register it on a database that records the size of the boiler or heating system that has been installed. The payments are based on the amount of heat that is used, so every quarter a payment will be received that is based on how much heat has been registered on the heat meter as having been used. It will be possible to track exactly how much heat is used for each installation.

There is already a publicly available database that lists which technologies have been approved, the size of the boiler and where they are located. It anonymises the end users, but it is possible to search it by region. For example, it is possible to use it to find out how many accredited renewable heat incentive installations there are in Scotland. There are not many.

John Wilson: As no other members of the panel wish to comment, I will move on to the issue of the large biomass generation plants that companies such as Forth Energy have proposed, which there has been much debate about. My question is really for Biofuelwatch, but it is open to anyone else who wants to comment on it.

Angus MacDonald mentioned small-scale biomass. He quite rightly said that the Scottish Government's objective is to see the creation of small, local biomass plants similar to those in Shetland and Oban, which provide real benefit to communities. The large-scale biomass plants that are proposed target particular markets such as the industrial market and large conurbations. An important issue for me is the fuel poverty that exists, particularly in rural communities throughout Scotland and especially in communities that are off the gas grid. We are trying to address such issues as well as deal with the underlying objective of meeting the targets under the climate change legislation.

How do we get to a position in which we have small-scale biomass plants producing heat and energy for small communities? Does Biofuelwatch have any major reservations about the setting up of such plants in communities throughout Scotland?

Emilia Jane Hanna: In answer to your first question, the subsidy scheme will have an adverse impact on smaller-scale users and users of heat, in that it will drive demand. There will not be enough wood to meet the demand and, as a result, prices will increase. We have anecdotal evidence of that. Biofuelwatch was contacted by a campaigner who lives in the Borders who used to heat her house using wood, but who can no longer afford to do so because of a larger-scale biomass installation nearby.

12:00

As mentioned earlier, that trend is being mirrored across the UK. Medium-scale biomass power stations are simply not able to compete with the big players—for example, Drax is the only company that significantly increased its use of biomass last year—and there is significant concern that large-scale biomass facilities will compete for wood. Although they will primarily use imported wood, the intention in a significant proportion of large-scale applications is to use domestic wood, which will have an impact.

The solution is either to remove the subsidy scheme, which creates unabated demand on an unabated scale, or to cap the threshold at which power stations are eligible for subsidy. That is not Biofuelwatch's position, but it might be a way for the Scottish Government to achieve its stated aim. The fact that CHP biomass might continue to be subsidised at very inefficient levels will lead to a further disconnect between policy and what happens to those subsidies. That issue will need to be addressed.

On your second question, we certainly have reservations. For a start, carbon dioxide emissions are not adequately accounted for under the current system and, in that respect, policy is ahead of the science. It is simply putting the cart before the horse to encourage a policy without being able to properly account for carbon dioxide emissions. Of course, we are more concerned about the larger-scale facilities. Because they will rely on imports, there will be environmental and human rights impacts that will be very difficult to measure and account for.

Stuart Reid: We need to be clear about some of the terminology. There are different uses for heat. For example, a biomass heat-only scheme might provide heat to an individual building such as a school, hotel or NHS facility, to groups of buildings such as houses, as in the case of the West Highland Housing Association, or to a mixture of houses and various other facilities. In the majority of schemes the technology used to deliver heat generally operates at more than 90 per cent efficiency and works on similar principles to oil and gas-fired heating, with fuel being fed into the boiler on demand. In other words, heat will be produced only when there is demand for it. In general, the fuel is sourced from some of the pellet factories that now operate in Scotland or from very local woodchip sources that predominantly lie within a 30-mile radius. As a result, it comes from local forestry and supports small-scale local development. Mr Wilson was, I think, asking how we support such developments.

On the other hand, combined heat and power plants will generally only kick in at a larger scale. Scotland has some very good examples of biomass-fired combined heat and power plants. For example, the pellet producer Balcas is powered by a CHP scheme that uses some of the factory's electricity, and all the heat is used to dry and produce the pellets. Tullis Russell and the UPM Caledonian paper mill in Irvine are also making use of such combined heat and power schemes, which generally use the majority of the heat in their individual business units and will have been sized predominantly to deliver the required heat load and therefore to operate at high efficiencies. There are also the bigger schemes such as those proposed by Forth Energy.

It is important that everyone is clear about the distinction between the different projects because they need different elements of support in order to be delivered, and different levels of complexity are involved in getting them up and running. For example, to heat a hotel, you just need to find a hotel owner who has a large oil bill and some capital that he can access to install a biomass system. With the renewable heat incentive, that person should have an attractive return on the investment. There would be no huge barrier to uptake in that case, other than that the owner would probably not be aware of the RHI and might face capital challenges. However, the individual decision-making process can be straightforward to promote. That person would have a highly efficient biomass heating system helping their business and delivering the benefit of making it more viable. Such a biomass system would predominantly use locally sourced fuel at high levels of efficiency.

It is important that the distinction between the scale of different projects is understood. That is not to say that one type of project is better than another; it is just important that everybody understands that there are different types of project out there.

Calum Wilson: Our view is that they can all co-exist; given the renewable heat opportunity that is in front of us, they should all co-exist. As Stuart Reid said, they are on different scales and do different things, but there is clearly a mix of indigenous demand for biomass and timber resource, which will be local for the smaller-scale plants, that will stack up for carbon savings. They

can co-exist with a model such as ours, which involves imported biomass coming across the quayside and bringing heat to our large cities and rural locations, and with the merchant type of model at Tullis Russell in which a process in a factory can be underpinned by lower-carbon heating.

Different schemes can co-exist at different scales within the spectrum. Scotland needs a vision so that it can say to heat-heavy industries that we have renewable heat available at various locations, with networks up to a certain volume, and ask them if they would like to locate here. By doing that we would cross the boundary into delivering not just what we think we need in the here and now but speculative heat to kick start our industry.

John Wilson: I appreciate those responses.

Ms Hanna raised the example of someone who used to source their wood supply locally finding that, for whatever reason, they are being priced out of the market. We heard earlier this week one of the major energy companies indicating that gas prices will go up again because of the international price of gas. Calum Wilson said today that some of the major biofuel companies will source their fuel from outside Scotland. How can we guarantee price stability in that case? He also said that we will attract companies from other countries to Scotland because we will be able to provide plants. However, companies will be looking for price stability. How can we achieve price stability if we have externally sourced fuel for the plants? How do we guarantee price stability when we cannot even guarantee the price of gas for the customer from one year to the next? How much will the customer be expected to contribute to the overall cost of providing plants, particularly large-scale ones?

Calum Wilson: I mentioned specific investment in pelletisation plants to supply biomass. There is clearly growing demand and a growing supply chain. Our discussions around supply contracts and heads of terms indicate that the supplier can provide a degree of stability because of their ownership of the raw material. They are in control of their raw material, which is important.

The processing of the raw material into a useful pellet or chip is a repeatable process. The indications from the suppliers are that we can introduce a degree of price sustainability, index linked over long-term contracts. That gives us certainty that we can operate the plant within given cost parameters. As members will imagine, in the commercial models, there are caps and collars and different bandwidths that we need to operate in. At this reasonably early stage, that gives me the confidence that I can control my plant operational costs and therefore I can control the bandwidth of price at which I can supply heat to industrial bulk users or to a district heating network. We should remember that a district heating network is about the mechanics of capturing heat and delivering it in hot water.

In summary, my answer is that our experience in the marketplace is that we can control price volatility—not completely, but to an acceptable level of risk—and have a bandwidth that gives me the confidence that I can pass that on to our heat customers and stabilise their costs going forward. However, that all depends on the length of contracts and subcontracts with our suppliers.

John Wilson: It also depends on other people buying into the schemes.

Stuart Reid: I will give a flavour of what can happen in smaller-scale schemes, in which individual clients might need 500 tonnes or so of fuel a year. I mentioned that, in many of the projects that we work on, as well as installing and designing the system, we operate the system on behalf of the client and sell them heat. Generally, we can fix the price or at least give price certainty—it might be indexed to the retail prices index, for example—for a period of three to five years. That can be a strong driver and can encourage people to shift to a biomass system, particularly if the alternative is to buy oil, when they do not know what the price will be tomorrow, never mind next year. We have seen oil price rises of about 17 per cent per annum from 2004 to 2011—that is averaged out, because obviously the figure fluctuates. Therefore, price certainty and transparency for five years can be attractive to people. Although the longer-term demand for wood and the impact on its price is an issue, the commercial reality today is that we can generally offer customers price certainty for a three or five-year period.

Stuart McMillan (West Scotland) (SNP): I have heard a lot today, and one point that has come out strongly has been about leadership and who should drive the industry. For instance, should it be the Government or local authorities? My question is about new developments, whether of housing, office blocks, schools, health centres, golf courses or anything else. Should the planning system have a presumption that renewable generation technologies will be built into any new development? Should there also be a set minimum level of heat and electricity to be generated in each new development?

Stuart Reid: To an extent, that already happens. An example from your constituency is the new Port Glasgow high school community campus, which is installing a biomass system to heat the building. The drivers for that decision were predominantly to do with meeting the planning requirements to deliver a certain level of

sustainability. It is incumbent on any new building to deliver that. However, it can be done in a number of ways and does not necessarily have to involve renewables technology. It can be about energy efficiency, insulation or a host of other factors. However, in some cases, a renewables technology is the most cost-effective way of meeting planning requirements in developing a new building. I think that that was the driver in the Port Glasgow campus.

The scheme might not have involved a conscious decision by the local authority to show leadership, because it is just something that the authority has ended up with, but it is a prime example of a good development that could act as an anchor load for other buildings in the vicinity to connect to. To an extent, what you ask about is happening, although I am not sure whether there could be a stronger focus on renewables.

12:15

Ian Booth: As Mr Reid said, renewables may or may not be involved in the issue. Either way, if you are undertaking efficiency measures, such as making a place part of a district heating system, there needs to be some involvement by local authorities in the planning, because a lot of designers of buildings will invent ways of meeting certain efficiency criteria, such as putting a wind turbine or solar panels on the roof, even though, if they looked at the bigger picture, they would see that there is a district heating network within a few hundred yards, which is a better option than installing additional measures.

Professor Mitchell: It seems eminently sensible for a planning condition to be placed on housing developments and small industrial parks in rural areas to ensure that they are part of district heating systems or have renewable energy systems and high levels of energy efficiency. That would help to drive the initiatives that we are talking about. It is difficult to retrofit those things in existing developments, which is why it would be advantageous to make them a requirement for new developments.

Lesley McInnes: We were lucky enough to get money from the Government's innovation fund to build another 50 houses. Despite our enthusiasm for the issues that we are talking about, the cost makes it difficult to stack up the business case for a district heating system for those houses. We have installed air-to-air systems in 20 houses in Mull. Again, however, that is still double the cost of an oil or electric system. If you are looking at a cost floor involving a Government grant at the new benchmark level of £56,000, it is going to be difficult to make the financial case for a district heating system, even if the enthusiasm is there.

It is important to get the insulation right in the new buildings, but that still leaves the need to retrofit the existing housing stock, which is a serious issue, as there are just over 2 million houses, of which more than 60 per cent are in the private sector. We know that our sector will be subject to more legislation about delivering improvements. Our organisation is keen to install renewable energy and deliver on the targets. However, that will be difficult financially. We will get the RHI, but the community energy saving programme is run on a data zone basis, and there are not many data zones in rural Scotland.

The issue is how to get everything to work financially. Each of the technologies has different pros and cons and they all need to be seen as part of a partnership approach in order to ensure that Scotland can reach its targets.

Calum Wilson: Of course, for new developments, what we are discussing in relation to building fabric and renewables is essential. However, whether that should be enforced or incentivised is a big decision. In my experience, if there is ad hoc enforcement through versions of the Merton rule—20 per cent, say, of energy for every development from on-site renewables—some developers move geographic area because it is easier to do so. Why do they do that? From speaking to developers, I know that it comes back to my earlier point about communication of the value. The grim reality is that, if they have to pay a premium per house to develop on-site renewables, they want to know whether they can recover that investment through the house price that they charge their customers. Generally, the answer is no, because their customers do not value the renewables project—in this instance, the renewable heat project. We need to start at the bottom end of the chain and work up as well as working down the way, with either enforcement or encouragement.

Stuart McMillan: The answers that we have heard have been quite varied. The question was targeted at renewable generation. I did not ask about better insulation measures because we all agree that better insulation is a given and I was keen to hear what you had to say about generation.

The Convener: We will have a brief final question from Patrick Harvie.

Patrick Harvie: I am glad that Lesley McInnes mentioned the private housing sector, because it is probably the part that we have not touched on before. I wonder whether West Highland Housing Association, Shetland Heat Energy and Power and Aberdeen Heat and Power can say something about mixed tenure. I recognise the opportunity for housing associations and public buildings, where there is perhaps more of an easy in. However,

Glasgow, where I live and which I represent, is a city full of tenements. Tenements should lend themselves really well to a community-scale solution, whether involving solar panels, heat pumps or improved insulation—a host of different technologies could be used—but their fragmented ownership and mixed tenure pose a huge barrier. How have you overcome that, if you have? What can we do to make it easier to overcome that? What barriers can we remove to ensure that those opportunities are taken up?

Neville Martin: I do not have big blocks of flats to deal with, but we modelled our scheme on Danish practice and have 1,000 houses on the scheme, two thirds of which are privately owned. However, we are unusual. We had Energy Saving Trust consultants up a year ago and they could not believe it. They took photographs of new-build private houses with pipes sticking out of the foundations before the buildings even went up.

Patrick Harvie: Is that because they do not have gas?

Neville Martin: Basically, price will determine it. We have to compete with oil and try to maintain a margin below the price of oil, which we have done for 14 years. I tell people that the capital cost of oil conversion makes it not worth doing, but quite a few customers came on board because they thought that it was the environmentally responsible thing to do. That is not going to happen everywhere, but it sums up some people in Shetland.

We have been very successful in supplying private housing. Some of the connections were expensive because most of the houses are retrofitted. A big housing scheme was put in by the Hjaltland Housing Association—120 houses, of which 15 were private, and they all came on board because they did not have gas. When we connected people, we had some THERMIE grants in the initial days that helped a lot by cutting 30 per cent of the cost of connecting. Connecting new developments is no problem because the trenches can be shared with the sewers and the water mains, which cuts the cost even though the individual heat demand is less than elsewhere. However, retrofitting is expensive and I do not think that the cost could be justified in competition with gas.

At the moment, we are working for SSE—you have perhaps heard about the northern isles new energy solutions—NINES—project. We are involved with that. We are trying to use wind power as well, to try to stabilise the cost. I do not want to go into that too much, but I will say that wind power is more dependable in terms of cost, although not in terms of supply. We have a massive thermal storage tank, which should help to keep our costs down. It will also help to stabilise the grid so that more renewables can come on to it. That approach is being used a lot, both here and in Denmark. I have digressed a little bit there, but keeping the price right is the answer.

Ian Booth: We are in a slightly different situation from Shetland. In Aberdeen, we have about 1,600 flats connected to our systems. There is a mixture of tenure, but only about 4 per cent of them are privately owned. For those properties, it is a wee bit of a selling job. When we install on behalf of the council, everybody who wants to have the heating installed in their flat can get it installed as part of the scheme. When we come to sell to private tenants, we have to sell it to them and they have to pay for the installation.

How we have worked until now has been that we work out a cost for an individual flat, we quote that price to the individual owner, and they have the choice of taking it up or not.

Patrick Harvie: You do that at cost price.

Ian Booth: Yes. Well, we operate a not-for-profit company, so we are not making a profit.

Patrick Harvie: But do they pay for the heat?

Ian Booth: Yes. They pay for the installation, and then we have an agreement with them under which they pay for the heat as well, just like council tenants. It is a wee bit of a selling job to get private tenants on board, but it usually works. In the multistorey blocks of flats, we are replacing electric heating with a far more efficient system, so we can usually sell it to the private tenants based on the fact that their operating costs will reduce significantly.

Patrick Harvie: But you have not managed to expand beyond that 4 per cent.

Ian Booth: We have only been dealing with multistorey blocks to date, and that has been the take-up there.

Lesley McInnes: We are looking at extending our scheme and we hope to get some private owners involved, but the infrastructure costs will be a challenge. Also, I return to the point that people understand electric and oil. Biomass renewables are still seen as being a bit oddball, even in our area. I am constantly amazed at people who, even now, think that it is not a secure technology.

We have probably not worked hard enough at selling. We are more confident now than we have ever been in understanding where we are and where we want to go, but we should remember that there has been no other biomass in housing in Argyll since 2006. That is the challenge.

Patrick Harvie: Thank you for that last opportunity, convener.

The Convener: That concludes the session. I thank all the witnesses for their contributions. It has been a long session this morning and we have covered a lot of ground. I appreciate that some of you sat for quite a long time without saying anything, but I thank you for coming. I hope that you think it was valuable. Certainly from the committee's point of view, there was a lot for us to take away and consider further.

Meeting closed at 12:29.

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