OFFICIAL REPORT
AITHISG OIFIGEIL

# Economy, Energy and Fair Work Committee

**Tuesday 23 June 2020**

Session 5

The Scottish Parliament
Pàrlamaid na h-Alba

# Tuesday 23 June 2020

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## ECONOMY, ENERGY AND FAIR WORK COMMITTEE

**21st Meeting 2020, Session 5**

**CONVENER**

*Michelle Ballantyne (South Scotland) (Con)

**DEPUTY CONVENER**

*Willie Coffey (Kilmarnock and Irvine Valley) (SNP)

**COMMITTEE MEMBERS**

*Colin Beattie (Midlothian North and Musselburgh) (SNP)
Rhoda Grant (Highlands and Islands) (Lab)
*Alison Harris (Central Scotland) (Con)
*Dean Lockhart (Mid Scotland and Fife) (Con)
*Richard Lyle (Uddingston and Bellshill) (SNP)
*Gordon MacDonald (Edinburgh Pentlands) (SNP)
*Andy Wightman (Lothian) (Green)

*attended

**THE FOLLOWING ALSO PARTICIPATED:**

Michael King (Aberdeen Heat and Power)
Claire Mack (Scottish Renewables)
Eoghan Maguire (Vattenfall UK)
Nicola Mahmood (ENGIE)
Colin Reid (Wheatley Group)
Alex Rowley (Mid Scotland and Fife) (Lab) (Committee Substitute)

**CLERK TO THE COMMITTEE**

Alison Walker

**LOCATION**

Virtual Meeting

# Scottish Parliament

## Economy, Energy and Fair Work Committee

*Tuesday 23 June 2020*

*[The Convener opened the meeting at 09:33]*

## Decision on Taking Business in Private

**The Convener (Michelle Ballantyne):** Good morning, everybody. I welcome members, witnesses and those joining us online for the Economy, Energy and Fair Work Committee's 21st meeting in 2020.

We have received apologies this morning from Rhoda Grant, and we are joined by Alex Rowley MSP. As this is the first time that you have joined the committee as a substitute member, I invite you to declare any relevant interests.

**Alex Rowley (Mid Scotland and Fife) (Lab):** I refer members to my entry in the members' register of interests.

**The Convener:** Agenda item 1 is a decision on whether to take items 5 and 6 in private. I will pause for any objections to be made.

I will take silence to mean that no members object. The committee therefore agrees to take those items in private.

## European Union (Withdrawal) Act 2018

### Prohibition on Quantitative Restrictions and Equivalent Measures (Cessation) (EU Exit) Regulations 2020

09:33

**The Convener:** Our second item of business is consideration of the Scottish Government's proposal to consent to the United Kingdom Government legislating using the powers under the European Union (Withdrawal) Act 2018.

The UK statutory instrument proposal relates to the Prohibition on Quantitative Restrictions and Equivalent Measures (Cessation) (EU Exit) Regulations 2020. The Scottish Government has given the notification a category A label, which means that it considers the instrument to be minor and technical in detail and that it ensures continuity of law. Additional detail on the purpose of the statutory instrument is outlined in the committee's papers.

We have a number of things to do. The committee is being invited to consider whether it is content for the issues to be dealt with by statutory instrument laid at Westminster and whether a category A classification is appropriate for the SI. I invite you all to comment on any aspect that you have an issue with.

**Andy Wightman (Lothian) (Green):** I have no problem with the substance of the proposal in relation to the repeal of European Union measures, given that, from the end of December, we will no longer be subject to EU law.

However, I have a view on the fact that the Scottish Government has made it category A. It would be more appropriate as category B. It is not minor and technical; those are direct rights that are being removed from people in the United Kingdom.

I also have concerns about the timing of the instrument. We have to deal with it today; the Scottish Government is expected to respond by 27 June; and it is expected to be laid in Westminster on 1 July. That is not really acceptable for an instrument that does not need to be in force until the end of December. I am keen that we stress that to the Scottish Government, because we will not be able to deal properly with such instruments if we do not have enough time to properly consider them.

We should also be asking the Scottish Government some questions. It argues, for example, that retaining the measures could

disadvantage some companies. I am not clear how that would be the case.

I also wonder whether the Scottish continuity provisions, in particular the ability to keep pace with EU legislation, might be used to ensure that the substantive provisions can be kept up to date in devolved areas.

Those are a few points but, substantively, I think that we should be content to let Westminster deal with it.

**The Convener:** Thank you. I see that Richard Lyle would also like to speak.

**Richard Lyle (Uddingston and Bellshill) (SNP):** Like Andy Wightman, I think that category B may be more appropriate, on the basis that the proposed statutory instrument would remove a very significant part of EU trade law.

I am very displeased that, in this instance, the Scottish Parliament received notification late on the afternoon of 16 June—we did not get it in the proper timescale; today is 23 June. We should record our displeasure at that, as we generally get 28 days or more. We should send a letter to record our concern and displeasure at being asked to do this in the space of a week.

**The Convener:** Thank you.

There are no other requests to comment. Silence will indicate agreement with the comments that have been made about the timing of the notification and the concerns about the categorisation—that perhaps it should have been category B, not A. If anyone wishes to disagree or comment, please let me know.

As no one has indicated otherwise, I take that as agreement. On that basis, I propose to write a letter to approve the giving of consent, but also to highlight members' concerns about timing and categorisation. I hope that that will at least alert them to our concerns, for future SIs. Is everybody happy with that? Again, I take silence as agreement. I will shortly write to the minister.

# European Union (Withdrawal Agreement) Act 2020

## Insolvency (Amendment) (EU Exit) Regulations 2019 Amendment Regulations 2020

09:40

**The Convener:** The next agenda item is to consider the proposal by the Scottish Government to consent to the UK Government legislating in relation to the Insolvency (Amendment) (EU Exit) Regulations 2019 Amendment Regulations 2020. The proposal is made under the European Union (Withdrawal Agreement) Act 2020. As with the previous statutory instrument, the Scottish Government has given the regulations a category A classification. Further details are outlined in the committee's papers.

We had some conversation about the issue last week. I invite the committee to consider the notification and decide whether it is content for the issues to be dealt with by statutory instrument laid at Westminster. If any member is not content with that approach, please request to speak. I see that Andy Wightman has requested to speak again.

**Andy Wightman:** I am content with the UK Parliament dealing with the regulations. I am also pleased that, in contrast to the instrument that we dealt with earlier, we have had the proper timescales for consideration of the regulations—hence our conversation about them last week. I am pleased that, despite the fact that there is not a protocol in place between the Scottish Government and Parliament to cover EU exit-related instruments and that we are using a protocol that was developed under the deficiencies power in the European Union (Withdrawal) Act 2018, that protocol is nonetheless helpful to keep the Parliament apprised and give us proper time to scrutinise requests for statutory instruments to be dealt with by the UK Parliament. The notification is very specific and detailed and helps us to understand exactly what the issue is about. I am happy to agree with the proposal.

**The Convener:** I have not had any indication that other members want to speak, so I will assume, unless I hear otherwise, that the committee is content to agree to the proposal.

# Heat Networks (Scotland) Bill: Stage 1

09:41

**The Convener:** Our main item of business this morning is to take evidence on the Heat Networks (Scotland) Bill. I am pleased to welcome our first panel of witnesses. We have Nicola Mahmood, senior business development manager at ENGIE; Eoghan Maguire, director for Scotland and the north with Vattenfall UK; and Claire Mack, chief executive of Scottish Renewables. Good morning, and thank you for giving your time to us today.

Unless anyone on the panel specifically wants to make opening comments, I will move to questions from members. I remind everybody to keep your questions and answers succinct and to give broadcasting staff a few moments to make sure that your microphone is on before you begin to speak.

**Alison Harris (Central Scotland) (Con):** Good morning. What involvement did you have in the development of the bill? Are you content with the consultation process and the development of the bill?

**Nicola Mahmood (ENGIE):** I sat on the Scottish Government working group, so we have been heavily involved in the development of the bill and we are delighted to see many of the recommendations and much of the feedback that we gave to Government officials reflected in the bill. We broadly welcome the bill and we think that it is a good step forward in helping to put consumer confidence behind heat networks and to help us with the growth of the market.

**Eoghan Maguire (Vattenfall UK):** I echo Nicola Mahmood's sentiments. We were involved in the run-up to the bill and we are happy to see some of the key recommendations coming through. The bill is long overdue and provides a nice framework to allow for wider investment in heat networks as we move towards the decarbonisation of heat. As I am sure members are well aware, with a lot of the issues, the devil is in the detail, but the direction of travel is broadly very positive.

09:45

**Claire Mack (Scottish Renewables):** We have similar sentiments. We very much welcome the introduction of the Heat Networks (Scotland) Bill. It is very timely, because we can see its strong capability to help us with the green economic recovery that we have been talking about in Scotland. District heat networks are very much a proven and low-regrets solution. With the right policies, they can help to support decarbonisation as well as economic growth.

**Alison Harris:** Has anything that was considered in the consultation been omitted from the bill? Should anything else be included in the bill?

**Claire Mack:** We think that, largely, the bill is an excellent foundation to get the infrastructure in place. However, the technology infrastructure perhaps does not have the same consumer demand as its driver that certain other technological roll-outs that we have seen have had. It is different from broadband or even digital television, for example, and it does not have the same consumer demand running behind it. We need to create that demand to make it viable and ensure that we can gain the wider benefits of the heat network roll-out that we are about to see in Scotland.

A few things can be done to make a robust and proportionate licensing regime, including making regulations on obligations to connect; doing work on permitting with local authorities; and strengthening the network assessment process in order to bring forward specific zones in which we can look to develop heat networks.

**Eoghan Maguire:** On areas in which we think that levels of focus could be increased, and consumer protection in particular, I understand that there are issues around development and powers that might curtail Scottish ambitions to enforce protection levels for the consumer. This is the first pass, but Claire Mack mentioned the obligations to connect and heat network zones. We can look at how those will be enforced and what obligations there would be on local authorities not just to produce studies. If we look at the developments down south, we can see that the Department for Business, Energy and Industrial Strategy heat network policies have resulted in a lot of studies but little action. There is definitely more of a drive from us to be able to see more material obligations on local authorities to push forward with heat network zones where appropriate and suitable.

**Nicola Mahmood:** We think that the only thing that could strengthen the bill would be considering the potential of a stronger transition period. With the networks that we already have in Scotland—we are currently developing one in Edinburgh—the investment cases have been made based on the current technologies. Currently, the bill does not give protection in respect of the existing investment cases for those specific networks.

We think that the bill is a very strong start, but we would like to see a better definition around the transition from where we are now to the bill and

the obligations that that will bring, if that is possible.

**Richard Lyle:** Good morning, panel. Can you remind the committee what shared group loops are and how extensively they might be used in low-carbon heat networks?

**Eoghan Maguire:** That is one of those nice technical questions like, "How long is a piece of string?" I will be succinct. The shared ground loop is ultimately a technology relating to the extraction of low-grade heat from the ground. The shared element is that several different individual heat pumps can be applied to that shared ground loop, which allows for various different nuances of heat transfer to be used. It uses a ground-source heat pump to increase the performance of a heat pump, which reduces the cost of the production of that low-carbon heat. There are two ways in which the shared element can work: a communal source can be shared where there is a ground-source heat pump that provides heat for a large number of individual blocks—that would be classed as a shared loop; or there can be ambient temperature loops in a closed-loop system. For example, one building might require cooling, so heat could be transferred to another building that requires heat. It is a case of balancing demand and supply.

**Nicola Mahmood:** My colleague has made an excellent summary of the technology.

**Claire Mack:** I will add a wider point around what Eoghan Maguire said. We need to underpin the technology and drive it in the most effective way possible for Scotland; there are lots of different outcomes that we want from that, not only to reduce carbon emissions but to drive inclusive economic growth and drive down fuel poverty in any way possible. The building assessment tools and the information that we gather as we go along this journey are really important to work out how we can aggregate demand in the way that Eoghan just explained and make sure that we can drive a strong partnership between not only industry in an area but domestic heat demand in an area, and to work out whether there are opportunities to attract heat-intensive industries to an area and how they could serve the domestic market through heat transfer and other options of that nature.

**The Convener:** That sounds sensible.

**Richard Lyle:** Does the panel have a view on how the definition in the bill could be future proofed to include emerging technologies—for example, sea-source heat pumps and shared group loops, as have been discussed, and on whether the possibility of amendment by regulation is adequate to ensure the flexibility that we may need over the next few years?

**Eoghan Maguire:** I will take a step back from the question, which focuses on the technologies, and point to heat networks. I will crudely separate them into two different components: the generation side, which I think Richard Lyle refers to, and the heat networks. Richard Lyle is right that it is key that we ensure that those heat networks are future proofed; creating heat networks to be technology agnostic and considering how we can ensure that they are decarbonised, or enable the easiest form of decarbonisation, are ways to do that. We need to look at outcomes rather than inputs; ensuring that the heat generated is measured by its carbon contribution and carbon reduction is one way to do that.

Secondly, there is a technology aspect to that for heat networks; there is a large push for heat networks to decrease their operational temperatures. For the committee's benefit, a lot of old heat networks used to be run at very high temperatures, which is a facet of the fact that they were running off old combined heat and power plants that were burning coal or gas, so the temperature is a little bit irrelevant. As we move towards low carbon and the next generation of technologies, we can see that the operational temperatures of those networks need to come down. That answers Richard Lyle's question about how we future proof. If we can ensure that we have a technology agnostic lower temperature network, we can then look at various degrees of how we get the cheapest form of heat generation to use it—sea or ground loop, or river source.

The key driver in that instance—I touch on what Claire Mack said earlier—is that Scotland is fortunate to be blessed with a huge national resource of, for example, wind. We can use that low-carbon energy—green electricity when the wind blows or when the sun shines—to decarbonise the rest of society through heating and transport.

The heat network itself is rudimentary. My engineers give me a lot of grief when I say that it is just plumbing, but it is a simple concept: when the network can store energy as cheaply as it can through hot water, it acts as a key enabler for the modern energy system.

To come back to Richard Lyle's question, I am reluctant to take a technology-specific approach, but I try to look at the problem as a whole, which comprises electricity, power, transport and the question of where heat networks can enable the energy transition.

**Richard Lyle:** I have a quick supplementary. Does the panel believe that energy companies and housing developers work together or separately? We could do a lot to develop heating through connecting up energy companies and housing developers. A quick reply is fine—yes or no?

**Eoghan Maguire:** Crudely, no—at the moment—but there is room for improvement.

**Nicola Mahmood:** We work quite extensively with housing developers—I grant that it is mainly in Lanarkshire, but we are seeing more of that come through the rest of the country. Developers take a proactive view on heat sources with a view to the decarbonisation requirements. We should absolutely promote and bring forward the development and nurture of those relationships to become closer to developers by helping them design their buildings in a way that gets in the best possible heat technologies.

To go back to the first question, the beauty of heat networks from our perspective is that they are technology agnostic. As Eoghan said, they are a good low-regrets option that allow the generation technology to be swapped out as the existing one comes to the end of its life, and they give us a better opportunity to keep pace with whatever the future developments are. The fact that the bill gives ministers the powers to amend the definitions in the regulations provides a proportionate approach to ensuring that both the regulations and the heat networks keep pace with future emergent technologies.

To go back to Richard Lyle's supplementary question, our view is that we already do that work and would like to do more of it, as well as developing connections with local authorities and therefore covering social housing as well as private developers.

**The Convener:** For the avoidance of doubt, when you talk about technology agnostic, you are talking about the heat supply—[*Inaudible*.]—generation. Does Claire Mack want to add anything?

**Claire Mack:** No, the point has been covered well. Eoghan Maguire mentioned the requirements on carbon emissions: we need to be really aware of that and keep it at the front of our minds. At the moment, our heat networks will need to compete with fossil fuel gas to be economically viable. We need to ensure a level playing field, and one way of doing that is to measure carbon emissions at the source.

10:00

**Willie Coffey (Kilmarnock and Irvine Valley) (SNP):** Good morning, everybody. In the panel's view, what is the public perception of this whole area? I occasionally tell my constituents what I am doing with my time in the Scottish Parliament, and the subject that we are discussing does not register with too many of them as something that they are familiar with or aware of. What do we have to do to raise awareness that heat networks are on the way and that they might be beneficial to people?

**Claire Mack:** Mr Coffey, you are absolutely correct, in that the decarbonisation of our energy networks has been really successful, but it has been done very much behind closed doors. We are now at a different point, where developments in heat and transport will impact on consumers and households. You are absolutely correct that there is a need to bring people along with us and get them on board.

There has been a lot of recognition in recent times—certainly over the past year or so—of the impacts and risks of climate change. When people ask, "Why are we doing this?" or "Why would we do this?", that is why. I have already spoken about the need to drive consumer demand, and it is right that you ask that question.

One of the reasons for taking action in this area, and one of the explanations that we need to get out there, is the fact that the future costs of climate change have not yet been calculated and, as with Covid, they will affect everybody. The impacts of climate change will fall in a very similar way to the impacts of Covid—they will fall disproportionately on lower-income households and those in less secure work. The fact that extreme weather events and resilience challenges will impact their ability to work and to travel and the type of housing that they live in means that it is likely that they will suffer more than other people in different areas of society. That is a really strong driver that we need to be clear about.

The other aspect of this is that we are talking about a fantastic opportunity for a fantastic infrastructure project. We need to do it for climate reasons, but we also want to do it for economic reasons. As Eoghan Maguire mentioned, the pumps for heat networks can be manufactured here in Scotland, so we have an existing supply chain, but the huge bulk of the costs of a project and the revenue from a project go into civil engineering works, which we have huge strength in here in Scotland.

When we are thinking about how to modernise our economy and how to get ourselves fit for the future and for a cleaner, healthier, more resilient economy, that is the story that we need to start telling everybody in Scotland to explain why this is necessary and why it is necessary now.

**Willie Coffey:** Thank you very much for that. Does anybody else want to comment or shall I move on to another question?

**The Convener:** If you go ahead and ask the next question, people can always add any comments to their answers.

**Willie Coffey:** I have a really exciting question about regulation. As you know, Ofgem is a UK agency, so the Scottish Government cannot appoint it as the regulator in the bill. Does the panel have any views on that and on whether we should invite Ofgem or someone else to be the regulator? Should the Scottish ministers retain stewardship of regulation in the whole sector? Any views would be welcome.

**The Convener:** Who wants to lead on that? As there are no volunteers, I will pick on Nicola to start.

**Nicola Mahmood:** Thank you very much for that question, Mr Coffey. [*Laughter.*]

We can see that Ofgem has the appropriate skills and expertise to perform that role. We would not say that Ofgem is not an appropriate regulator; it is well versed and skilled. We might consider Ofgem to be the Rolls-Royce of regulation in an emerging market. Perhaps the ability for the Scottish ministers to have a closer eye on how this is progressing in Scotland might be more desirable in the short term.

**Claire Mack:** I echo what Nicola Mahmood said. Ofgem is absolutely fit for purpose. It would know what to do. However, we need to think more about the wider outcomes that we might want here in Scotland, which could direct us to a different solution. The partnerships that we are talking about will be one of the strongest sets of public-private sector partnerships that we have ever seen in Scotland. For that reason, the role of local authorities is extremely important, which might suggest that we need a different model, in which local authorities can be front and centre as we set the regulation, as we monitor it and as we make sure that it is delivering the outcomes that we want.

One of the key aspects here is the important issue of consumer protection, which I think that Eoghan Maguire mentioned. That is not a devolved power of the Scottish Government; the UK Government is developing regulations in that regard, which could apply to Scotland. However, we could think about whether those regulations should be devolved here, and whether they could be part of a package that would help us to develop a full heat network deal. Such a deal might give us different outcomes, such as social outcomes, along with economic and regulatory outcomes. Those outcomes should be one and the same, but given that we are bringing together a slightly different set of partners, a regulatory system that is more attuned to that could be considered.

**Eoghan Maguire:** I echo the views of Nicola Mahmood and Claire Mack. The risk of going towards Ofgem is that Ofgem would take a model that is based on electricity and would not necessarily have the skills or experience to apply regulation to district heating. If that were the case, it would need to be upskilled in that area.

The other consideration with any form of regulated business is that you need to balance regulation with strategic innovation. The industry is going through a huge amount of innovation and is going to need to innovate more. As I touched on earlier, you need to ensure that, in integrating heat pumps and heat networks with electricity, time-of-use tariffs and getting better customer protection, you do not get bogged down in the world of old and well-established electricity regulation. In principle, regulation by Ofgem could work, but the detail would need to be fleshed out. As Nicola and Claire said, it might be more prudent early on to keep regulation closer to home.

**The Convener:** If I can interject, would there be any conflict of interests for the Scottish Government in driving the regulations on what needed doing if it were the regulator? Do customers and organisations need a third party that stands separate from Government, in the way that Ofgem does?

**Nicola Mahmood:** I can see the benefits of having a third-party organisation. The thing that might need to be considered in that field is the set-up costs for a new regulator, and the on-going running costs. We might not have made it entirely clear how small the heat network industry is. There is probably only a handful of players that operate nationwide; other organisations are much more localised. The cost burden of setting up regulation needs to be considered. We are pleased that the Scottish Government has acknowledged that, in the early stages, those costs might need to be absorbed in other ways. I do not know whether Ofgem or an independent regulator would be needed. What might be needed is a route for appeal or an independent ombudsman.

**The Convener:** Claire Mack, did you want to add to that?

**Claire Mack:** No. Nicola Mahmood has covered that perfectly.

**Andy Wightman:** That conversation was interesting. We are not actually talking about a regulator; we are talking about a licensing authority, and I have a specific question for Eoghan Maguire of Vattenfall on that. Section 11 of the bill deals with the revocation of heat network licences, and it does so without containing any regulation-making powers, so the revocation conditions would be as set in the bill. Section 11 sets that out without specifying any appeal rights.

I note that Vattenfall has sought greater clarity on

"what the circumstances or criteria will be under which a licence may be withdrawn".

Can you say a bit more about whether you think that that should be included in the bill or covered through licensing? Should there be an appeal right? From the industry's point of view, what are the kinds of things that end up with companies losing their licences?

**Eoghan Maguire:** That is a detailed question, and I thank you for it. Where to start?

In broad terms, we think that the licensing measures represent a very good step, and we think that they are needed. One of the reasons why, around eight years ago, Vattenfall was a bit reluctant to come to the wider UK market, and the market in Scotland, was the lack of standards and the potential for the industry to be a bit like the wild west. When we see the upcoming licensing, we know that there will be companies there with a certain level of economic standards and technical standards, as well as consumer protection.

The process of licence revocation could potentially be dealt with through secondary legislation, but I must admit that I am not completely au fait with the ins and outs of the mechanics of the legislation and how it will go through the Parliament.

The question of how firms end up losing their licences is an interesting one. Many of the markets that we operate and run in are regulated, so all the operators—such as ENGIE, ourselves and E.ON—ultimately do business according to regulation and standards. As far as I can see, the only instances in which licences might be lost would be through persistent and continuing negligence of customers and poor performance.

I suppose that it is incumbent on the Scottish Government to be careful about to whom it awards the licences. Any such company should have a sufficient technical, commercial and financial standing so as to be able to deliver on the heat networks, and it should have sufficient experience. That should be a matter for consideration when the licences are awarded.

I am not sure whether I answered your question fully, but I would be happy to take any supplementary questions.

**Andy Wightman:** Perhaps you could come back to us in writing, but you want more clarity on the circumstances and criteria under which a licence might be withdrawn.

**Eoghan Maguire:** Yes.

**Andy Wightman:** Should that be included in the bill, with the criteria being set out as a, b, c, d and e, for instance, or should it be left to regulations, which would make the process more flexible?

**Eoghan Maguire:** I think that it could probably be done through secondary legislation. I do not have an exact answer for you on that—I do not know where that should sit in the bill—but having clarity on the instances in which revocation would occur would certainly be welcome.

**Andy Wightman:** That is clear—thank you. I move on to part 2, which concerns the consenting process. The bill stipulates that ministers will provide consents. That is unusual, because consent is planning consent, in a sense, which is usually undertaken by planning authorities. I would like to hear the panel's views on whether it is appropriate for ministers to award those consents. Should that be done by planning authorities? Should they deal with smaller schemes, with ministers dealing with larger ones, as in the case of, for example, renewable electricity?

**Claire Mack:** What you suggest would seem to be a very sensible way to do things. As you say, it is unusual for us, in the consenting process, to take a different approach on how we would do planning. We need to recognise that we are discussing a new technology and it needs strong power and drive behind it. It represents a full, wholesale technological change.

I wonder whether it is appropriate, in the circumstances and for bigger projects, to drive the strong message to industry that this work is linked into the Scottish Government's wider remit, with climate change as a really strong driver for networks to get out there in the early days, as we start to build demand, aggregation and the localised energy networks that Eoghan Maguire talked about.

However, regardless of that, as I said earlier, the strength of the public and private sector partnership will be really important. Local authorities are central to that, so I cannot see them not being part of the development process, if not necessarily at the consenting stage.

10:15

**Nicola Mahmood:** From our perspective, the important part is the recognition of who is an appropriate and fit-and-proper person in relation to licensing and what is an appropriate scheme in relation to consenting. We think that the provisions on the transition and consenting for existing schemes could be strengthened, because they are slightly unclear to us. The fact that there is no right of appeal means that investments could be made in schemes that do not receive consent. That would leave them inoperable and would leave customers stranded without heat, cooling and power. That issue needs to be clarified in the bill.

**Eoghan Maguire:** I will supplement what Nicola Mahmood and Claire Mack have said. It is

unusual, but we think that some of the larger-build developments that are strategically important to national infrastructure should potentially be with the Scottish Government. The concern is that expertise in local authorities on district heating will vary widely. Similarly to the position with Ofgem, if responsibility is devolved to local authorities, there will be an expectation that the people who make the decisions will have experience of district heating.

**Andy Wightman:** On the point about local authorities having experience of district heating, I note that local authorities act as planning authorities for a range of developments of which they have no direct experience. My question is more focused on the fact that a district heating system has much more of an impact on local residents and businesses, space, house design and so on than offshore renewables have, which affect nobody in the vicinity. Ministers consent to such developments, but my question is whether planning authorities should be eliminated from consideration of quite detailed and complex schemes that will affect a lot of people in the local area. However, those answers were useful, so I thank the witnesses.

**The Convener:** I will pick up on some of the detail. If the bill does not specify the framework or the timescale for a heat network licence, and if technical standards are not referred to or detailed in the bill, there will be an open season in terms of the Scottish Government consenting to things being built. As Andy Wightman said, there will be an impact on communities in which schemes are built.

Would there be a greater degree of safety if the bill included more specification of the frameworks and timescales for the building of heat networks and the technical standards to which they should be built, or would that restrict the development of heat networks as time goes on? As a starting point, I throw that question to Eoghan Maguire.

**Eoghan Maguire:** In short, I think that a lot of what you raise could be addressed through secondary legislation. I do not have strong views on that, so I am happy to hand over to Nicola Mahmood or Claire Mack.

**Claire Mack:** I tend to agree with Eoghan Maguire. Given that this is an evolving situation and we are developing new business models and new local economic models to make the developments work, I agree that secondary legislation would be quite valuable in enabling flexibility, as Mr Wightman identified. That is the benefit of using secondary legislation rather than putting things in the bill.

Zone permits is an area that we could strengthen. Local authorities could be required to state whether they intend to issue zone permits, which would offer a level of certainty on the timeline. There might be enabling legislation to create a heat network and get people to connect, but if you cannot get the local zone permit, that will increase the risk to anybody coming in. The bill could be strengthened to require local authorities to state clearly whether they intend to issue zone permits. If they do not, they should explain why and publish, alongside the zone assessment plan, their plan for commercialising the opportunities and taking things forward.

**Colin Beattie (Midlothian North and Musselburgh) (SNP):** This question might be for Claire Mack. How long, on average, might it take to recover the capital costs from a heat network, which is the point at which a transfer competition could take place?

**Claire Mack:** My colleagues might be better placed to answer that, as they have experience of that abroad, having rolled out such schemes in Europe.

The trajectory that we are going to have to take is clear. As you have identified, we will start off with a set of capital funding that is perhaps subsidised through some sort of public-private partnership, in order to move the project forward. However, there are lots of inclusive growth opportunities in the year for various entities to become involved as electricity services companies and to use that role as a revenue-generation proposition. That includes entities—such as local authorities—that have the right skills and can grow the necessary expertise. There are huge opportunities in that regard.

These are long-term capital and revenue projects, but they will be around for a long time. They are future-proofed solutions, which is what is great about them. One reason why operators in the industry feel so strongly about being technology agnostic is that that approach retains flexibility in heat networks, which means that they will retain their value as assets and will not become tied to a fossil fuel lock-in or an additional risk that we might start to see in future because of legislation that comes forward. For example, at the moment, we are unclear about how we might tackle climate change globally. Programmes around carbon emissions taxation and so on could very much alter the business models of some of the things that are being put in place if we do not set them up in the right way.

**Colin Beattie:** So you are saying that you do not know.

**Claire Mack:** I am saying that my colleagues who have experience of developing those networks would be able to give you a more detailed answer.

**The Convener:** Let us put the question to Eoghan Maguire, as Vattenfall has experience of setting up heat networks.

**Eoghan Maguire:** The recovery of the capital costs will take double-digit years. We are not getting single-year payback. We are investing in a long-term asset, and the flipside of those long-term investment time horizons is that we end up investing over, say, 40 years.

As Claire Mack said, some of the assets that are in place have been around for a long time. For example, some of the heat networks in Berlin have been around for 80 years—they have been through two world wars and the rise and fall of the Berlin wall. We are talking about long-term assets with a long-term payback.

Vattenfall is happy to invest in those assets at lower returns if we can manage the risk. A key area that the bill is trying to address is regulation, standards and quality in order to manage the risk that allows Vattenfall to invest in an infrastructure asset over a long period. One of our projects is the Millerhill district heating network in Midlothian, which will be in place for a long time, growing over 30 or 40 years in order to enable economic development. That is what heat networks do—they are an enabling technology that enables businesses and buildings to be built with low carbon at their heart.

In short, capital recovery takes a long time. The flipside is that it can take roughly 18 years for some payback. However, we can make those long-term investments if we can manage risk over that period.

**Nicola Mahmood:** Most of our contracts for development of heat networks are for between 20 and 40 years. As Eoghan Maguire said, it can take up to 20 years to get payback of the capital that has been invested, and there is on-going investment in the infrastructure as well.

Our view is that we should start small with a core number of buildings and look to build out from there. As we do so, it will help to bring down the length of time that repayment takes, so we can speed up the recovery of our capital investment. However, these are long-term investments that have significant on-going capital expenditure investment points in order to maintain them properly and keep them operating effectively. I think that what we are saying is that it is quite an expensive business.

**Colin Beattie:** I will flip to a different question. In response to Andy Wightman, the witnesses talked about local authorities and so on. Should local authorities be under a statutory duty to carry out the assessment and designation of heat network zones? What value is there in having ministers do that on their behalf? I am happy for anybody to respond to that.

**Claire Mack:** On ministers doing that work on behalf of councils, I go back to Eoghan Maguire's point that we are talking about very large, critical, national infrastructure-type projects and the benefit of the weighting of resourcing. We are very aware that heat networks at scale are perhaps not something that local authorities have had to tackle in the past. That is not to say that local authorities will not ultimately grow and deliver those skills, but the need to maintain the pace, given the level of projects that we are looking at, is probably why the resource is set at ministerial level.

**Colin Beattie:** Okay. Are the timescales in section 38 of the bill adequate? Section 38 states that a heat network zone review must be carried out "as soon as practicable", and at least every five years.

**Nicola Mahmood:** Every five years is a good start. I do not think that the review would require to be any more frequent than that after the first has been concluded. Even in the current circumstances, it can take a year to two years to agree on and sign new connections. It is unlikely that there would be significant change over a period of five years, so I would say that that is a satisfactory timescale.

**Eoghan Maguire:** I agree with Nicola Mahmood on the five-year timeframe, as these projects do not move at rocket pace. As I said, the pace is not quite glacial, but it is slow, so the five-year period is sufficient.

**The Convener:** Are you happy, Colin?

**Colin Beattie:** Yes, thank you.

10:30

**Alex Rowley:** I go back to the role of local authorities. Part 5 places a duty on public sector building owners to assess the viability of connecting the building to a network zone and reporting to the local authority. Why does the duty apply only to public sector buildings and not to all non-domestic buildings? Would there be more potential if we were looking at all non-domestic properties in an area?

**Nicola Mahmood:** Public sector buildings are a good start. They often provide excellent anchor loads to build the district energy network around. We always envisaged that the heat network zones would be developed with a degree of partnership with local authorities; that was how the working group saw it rolling out. Therefore, it makes a lot of sense that public sector buildings would have a duty to assess their ability to be a catalyst for a heat network. It also makes sense to widen that out to other commercial buildings, but there is

perhaps a view that that could take longer and might not give us the catalyst that is required to move forward more quickly with the initial schemes.

**Claire Mack:** We have identified that there is a need to improve the quality and use of information that is gathered from non-domestic buildings and to align that reporting requirement with the heat network zone assessment process so that we can try to develop them in tandem. Although the public sector provides an excellent opportunity for that anchor load because it takes very long-term views that sit on some of the same timelines as the larger heat network projects, it would also be helpful to demand aggregation and move to a place in which we get better-quality information about the non-domestic market and its viability. That is very important.

**Alex Rowley:** I am in Fife. I do not know whether any of the witnesses have come across the district heating system that takes gases from the Wellwood refuse dump and pumps them into the Carnegie leisure centre, the high-rise flats and a range of other places. That is a good example of a successful local authority district heating scheme.

In its evidence, Scottish Renewables states:

"It is important to recognise that local authority capacity to develop and operate heat networks is constrained at present and it will be vitally important that they are given additional resources and support from The Scottish Government to deliver the activities required of them".

That rings alarm bells for most people, because we increasingly see new legislation being passed that puts more requirements on local authorities without giving them the resources or support.

In the current economic environment, and given that local authorities are being cut to the bone and are struggling to provide mainstream services, can we be confident that they will have the resources and capacity to do this? Witnesses keep talking about the benefits of a public-private partnership, but what would the private part of that bring? Are we expecting the taxpayer to pay the money out and the private sector to take the rewards, as so often happens in the renewables sector?

**The Convener:** That is a big question. I will go to Eoghan Maguire first and then to Claire Mack.

**Eoghan Maguire:** It is a big question, which I will unpick as it involves several areas. We think that local authorities' resources have been cut back to the bone. If more obligations cascade down to local authorities, their capabilities and resources will need to be considered.

With regard to the deployment of heat networks and where the benefits do, or do not, flow to, a good example is Midlothian Council, which we are working with in a joint venture partnership to deliver a heat network across Midlothian from its Millerhill energy-from-waste plant. The benefits are twofold: it is a joint venture equity investment, so we and the council are investing the same amount of money; and our expertise from the continent brings in risk reduction. Knowing how to do that is a big thing. It is not a question of risk transfer—we are sharing risks, and our role is to manage and reduce them. We bring that experience—for business development, and the design and engineering—to build and manage those contracts in order to deploy the network. Ultimately, the investment is between us and the local authority, hand in hand.

That point goes back to Andy Wightman's question. Heat networks are very different from an offshore wind farm. They are in the community and are the lifeblood of a community. The pipes go right into the heart and soul of people's homes, so the concept is fundamentally different. We are aware of that, and without proper local engagement with people, local authorities and all the local stakeholders, it will not be successful.

On the question whether investment and profit flow just to private companies and risk remains with public authorities, I do not think that that is the case in any manner, shape or form. The incorporation of those partnerships with local authorities reduces risk, brings capital investment and offers the benefit that local authorities also invest with the same risk and reward as the partnership, so it is a true partnership in that sense.

**Claire Mack:** There is very wide engagement by the renewables sector on socioeconomic benefits—including in relation to community benefit and local supply chain use—which needs to be pointed out.

The UK Government has launched a £320 million capital fund for heat networks in England and Wales, through its heat networks investment programme, which seeks to leverage investment of more than £1 billion from the private sector over the next five years. That is one area where there is a return—the programme signals that this is a good opportunity and that the private sector can come in to work with it and bring its money.

As Eoghan Maguire mentioned, the investments are long term, so the revenue streams are not huge. Other infrastructure investments could be made that would potentially give more return over a shorter period of time, but they would not deliver the same certainty as this type of investment. For the public sector, there are wider potential outcomes. I have mentioned that a heat network can be a springboard for other economic growth opportunities. If you decide that you want to draw in the kind of industry that is very heat intensive,

heat transfer between buildings, which we have just talked about, is a very attractive option.

Having the strength of the public sector in the partnership allows it to bring the outcomes that it wants, too. We are very aware that clear outcomes are sought for such issues as fuel poverty, and we can see the potential for wider economic growth that would springboard from a heat network.

**Alex Rowley:** I say to the sector that people in Scotland are increasingly starting to question the renewables sector because the jobs that were promised are not coming. The renewables sector should wake up to the fact that the public will not be on board when they see jobs going to every country but Scotland. The Fife offshore wind farms are a perfect example of that.

I expect that most local authorities will now have data on the energy performance certificates of their buildings. Is it likely that this process will rely on existing data in the EPCs? If so, what are the strengths and weaknesses of that? That is my final question, convener.

**The Convener:** Who wants to lead? Do not all volunteer at once. Nicola Mahmood, I will go to you to start.

**Nicola Mahmood:** To be honest, I do not have a view on that. The EPC data is useful and helpful, although sometimes it is not quite as complete as we would want it to be to enable us to make an assessment of heat demand. However, it is a good starting place.

**The Convener:** Does anyone have anything to add?

**Claire Mack:** I have a wider point about EPCs. In and of themselves, heat networks are fantastic at doing what they do, but one thing that will go hand in hand with the roll-out of heat networks is serious and significant uptake of energy efficiency measures. That is always the first port of call in any project of the size or shape that we are discussing, because the best kilowatt hour is the unused kilowatt hour. Making sure that our buildings are as energy efficient as possible is important, and having a certification system that reflects that and which rewards it in any way that it can is also important.

**Gordon MacDonald (Edinburgh Pentlands) (SNP):** I have questions about part 6 of the bill, which is on the powers of licence holders. Eoghan Maguire, you stated in your written evidence that

"it is difficult to see how the envisaged powers will help in securing connection to anchor loads".

What reasonable changes to the bill are required to improve the viability of any new heat network scheme? Is it just an obligation to connect, as Claire Mack has mentioned?

**Eoghan Maguire:** Very simply put, we feel strongly that the obligation to connect would be of benefit for heat networks.

It is important to make a separation between new builds and existing buildings. New builds could be addressed through an obligation to connect in the planning process. There would be an obligation to connect or otherwise, with that "otherwise" being when a heat source that is both cheaper and lower carbon can be found. That would be the standard for not connecting, but the de facto assumption would be that new builds would connect to the heat network.

In relation to existing buildings, we think that the obligation to connect needs to be strengthened. We have touched on anchor loads and how that derisks investment, which allows for longer-term capital investment as well. The obligation to connect for existing buildings is currently not as strong in the bill as we would like it to be, although there is an acceptance that public buildings will, or should be, connected. One reason why we want to see that obligation to connect is that it allows for a bigger view to be taken of the whole heat network, which enables people to invest ahead of need, in different areas at different times. It also enables us to decarbonise.

We have touched on the issue of the public versus the private sector. The obligation on new builds would be the equivalent of the obligation on the public sector to connect, without there being too strong a mandate for retrofits to connect, just as there is not for the private sector. That allows for a balance of connecting between new builds and retrofits.

One of our networks is in Amsterdam. When it started more than 20 years ago, 85 per cent of the projects were new builds—that was through a planning obligation—and 15 per cent of them were retrofits. Today the balance is about 50:50. The planning obligation is still in place, and we see that the obligation to connect is tightening in relation to existing buildings. For example, as boilers come to the end of their life cycles, buildings connect to the heat network. The obligation to do that is increasing, because there is a carbon tax, too, so people see connecting as beneficial.

An obligation is not a question of stating "thou must connect"; it should be a case of considering how we factor in the costs of delivering gas and ensuring a level playing field. That is something that should be addressed in secondary legislation.

10:45

**Gordon MacDonald:** What changes need to be made to wayleave rights so that connections can be made?

**Eoghan Maguire:** As it stands, the bill has strong advocacy for wayleave access and rights, so we are happy with that. The bill gives heat network operators similar obligations and powers to the ones that water or electrical utilities have. That is a positive step.

**Gordon MacDonald:** My understanding is that heat networks are long-term investments—over 20 to 40 years. You suggested that an obligation to connect would derisk investments. Are you in danger of creating localised monopolies? What needs to be in place to ensure that pricing will continue to be competitive in the long term and that consumers will be provided with a minimum level of service?

**Eoghan Maguire:** I am happy to take that question; Nicola Mahmood will probably have a view, too.

Yes, there is a risk of creating monopolies. We advocate that there should always be a level of regulation to manage that. We are used to operating in Amsterdam, for example, which is a good example in relation to consumer protection on pricing. A price cap is put in place.

We try to ensure that there is an obligation to try to connect but not necessarily an obligation in relation to volume or pricing. Again, I think that the obligation in relation to service and standards will come through the consumer regulatory aspects, to ensure standards on pricing and service that are sufficient to protect the consumer. That is absolutely needed, too.

I suppose that the discussion is always about there being an obligation to connect or otherwise—by which I mean, in essence, that if there is another viable solution that the consumer can put in, which is lower carbon and cheaper, they should be able to try to do that.

I am happy to give Nicola Mahmood space to come in on this; I am sure that she has a view.

**Nicola Mahmood:** This is part of the beauty of having to hold a licence to operate. A licence might be removed if the heat price is not competitive or there is a failure to deliver the expected standard of service.

It is worth remembering that heat networks are not a regulated industry just now, but there are heat networks throughout the country—not just ours; there are other providers. Thousands of domestic customers as well as commercial buildings are connected to networks. We have contractual standards of service in place that cover all the commercial buildings, and we register all our heat networks that have domestic residences connected to them with the Heat Trust. That is a voluntary approach; we have chosen to do that because we feel that it is the right thing to do.

It is absolutely right that there will be monopolies, given the nature of how the investment is made and how the connections are made. That is partly why we welcome the bill: it should give confidence that appropriate standards are in place and that fit and proper people are operating heat networks. In some way, that should take the sting out of the tail of a network being a monopoly.

**Gordon MacDonald:** My final question is about provision for compensation. In evidence to the committee, a local authority expressed concern about compulsory purchase powers and the impact on green space, biodiverse areas and forestry that might need to be removed to make way for new district heating networks. Concern was also expressed about the impact on archaeological sites, scheduled monuments and listed buildings. Are there safeguards that would force developers to remediate in such areas?

**The Convener:** Is that question directed to someone, Gordon?

**Gordon MacDonald:** It is directed to whoever is willing to answer.

**Claire Mack:** One of the beauties of the planning system that we already have in Scotland is that it is very robust. All the developers who have Scottish Renewables membership are aware of their requirement for a social licence to operate, as well as a regulated one. Whether on sites of special scientific interest, in forestry or in biodiversity, wider environmental considerations have always been part of projects. They are also part of the thinking when budgets are put together, in how developers make reparations and in how they work with—and not against—the environment they are working in.

As an industry, we do not want to be part of the problem, and we are very aware of our needs and responsibilities.

**Nicola Mahmood:** I want to point out that heat networks operate best in dense urban environments. Therefore, they are generally probably more of a pain to bus lanes and traffic than to green spaces. However, Claire Mack has covered the issue perfectly: from the perspective of reputation, we would absolutely want to avoid those types of issue.

**Dean Lockhart (Mid Scotland and Fife) (Con):** I would like to ask the panel about what projections are available for the heat networks in

Scotland for meeting heat demand. There are some estimates that heat networks might supply 6 to 7 per cent of heat by 2025. Are there projections available for what that percentage could look like in the longer term, over a 30-year period, by 2050?

**Claire Mack:** I do not have projections for percentages up until 2050. However, our commitment in Scotland is to reach net zero by 2045, and heat is a huge part of that.

We will have to apply different treatments to different areas in Scotland. As Nicola Mahmood said, heat networks work best in dense urban areas. We are used to working in those environments because of other roll-outs that we have done in which density of population has been a key variable to whether things have moved fast or slow; I am thinking about mobile networks. There will be different treatments and solutions in different areas. Heat networks will not be the entirety of what we will do: we will also look to other low-carbon heat solutions.

Some 55 per cent of Scotland's energy demand is for heat. We have 113 existing heat networks that supply the equivalent of 1 per cent of Scotland's total heat demand. The reason why there are so many networks, and why that quantum looks so unusual, is that the networks are relatively small because they have been built around the constraints. That is exactly what this bill is trying to unlock, and that is what is so good about it. It will unlock the constraints and allow us to get more bang for our buck.

Scottish Renewables did some research that has identified 46 potential heat networks across all of Scotland's cities and towns. Another great aspect of heat networks is that they are very targetable to places where we might want to see development happening.

What is interesting about heat as a whole is that we can apply an industry—[*Inaudible.*]. There is that capability because we have manufacturing here, and because the bulk of the work is in civil engineering. That means it has a different supply chain profile to other renewables, which is one reason why it has such strong potential from a green economic recovery perspective.

Our research suggested that the 46 heat networks that we have already identified could provide 8 per cent of Scotland's heat by 2030. That is a very rapid expansion and also a rapid decrease in carbon emissions. For 2030 and beyond, I am not sure. Perhaps Nicola Mahmood and Eoghan Maguire have projections from their companies that might be valuable here.

**Eoghan Maguire:** Thank you for the question. As a short response, how far we get ultimately depends on what stimulus the bill provides to give a framework and confidence for investment in the heat networks. Crudely, heat networks are the cheapest and best-value way to deliver low carbon heat in densely populated and urban areas, and we think that they could provide up to 20 per cent of low-carbon heat by the late 2040s. As I said, the change does not happen overnight. It builds up slowly, but you need to start making the investment decisions now and grow from there.

**Dean Lockhart:** Thank you for those helpful answers. I understand that projections are always subject to variability, but the targeted nature of the projects gives us hope that those projections have some degree of accuracy.

I would like to ask briefly about the just transition impact of the development of heat networks. Are there estimates of how many jobs could be created and of how many might be lost in traditional heating areas? What other impacts on the wider economy might we see from that just transition?

**Claire Mack:** The energy transition needs to be a just transition. That is absolutely clear, and people need to be at the heart of it. That has never been more at the forefront of our minds in renewables than it is right now, because of the difficulties that the oil and gas sector is experiencing and the potential for us to create further pipelines in that offshore space.

Renewable heat will still require maintenance. There will be the opportunity for people who currently work in heating to get a dual set of skills. They can work on both the electrical and the gas side while we make the transition and then change fully to the electrical side as we move into that majority-of-low-carbon space.

As a trade association, we would certainly advocate for the management of that transition. In the past, we have seen energy transitions that have not been managed, and we know the catastrophic effects of that. We now have an opportunity to manage the transition and perhaps to think about a renewable transition training fund to help people who are currently working in heating to pick up the dual set of skills that I talked about.

Lessons from continental Europe tell us that ahead of decarbonising heat we will need to switch our homes away from gas, and we will also need advanced insulation. The energy efficiency programme that I was talking about has a lot of near-term jobs in it. It can be kicked off relatively quickly and create jobs in the nearer term.

There is also an opportunity to transition our tradespeople to become all-round energy advisers—to widen their role and add higher-skilled opportunities such as working with homeowners to optimise their energy systems in

order to reduce bills and micromanage their energy use, perhaps using solar power to charge electric vehicles and then using the vehicles to power heat networks. That is a really exciting prospect for the future, which will need to be supported.

**Nicola Mahmood:** The heat networks industry council has put proposals to the UK Government in the past few weeks that suggest that there could be 20,000 to 35,000 new jobs in the sector by 2050. I do not have the breakdown of how that would play through into Scotland, but presumably it would be proportional to the number of heat networks that we are able to develop here. Given that we are ahead of the curve in terms of the regulation and stimulus for heat networks, we hope that more of those jobs would appear here in the shorter term.

**The Convener:** Andy Wightman has a short extra question.

11:00

**Andy Wightman:** It is on permits. The committee has to give Parliament a recommendation on whether we agree with the general principles of the bill, but it is still not clear to me how the permit system will operate.

As I read it in the bill, there is no explicit requirement for a permit holder to have a licence, or for consent to be in place, and yet those are grounds for a permit to be revoked. Can a permit be awarded, for example, to a person other than a licence holder who has sought consent over an area? What would happen there?

You all have experience of implementation. Is the model in which there is a licence holder, a consent process and a permit that operates in zones a novel one, or does it replicate systems that operate elsewhere? If it does, there are presumably no problems, but I am still a little unclear as to how the permit system will operate. Can anybody help me by illuminating that area?

**The Convener:** Who is an expert on how permit systems operate? Do not all volunteer at once.

I will start with Eoghan Maguire, and then work my way around all of you.

**Eoghan Maguire:** In short, I am no expert on permits, but I am happy to submit supplementary evidence to the committee if you wish on how systems operate in different countries—for example, in Sweden, Germany and the Netherlands.

Given some of the points that Andy Wightman raised earlier, there seems to be a slight disjoint with regard to clarity on permitting versus the situation with licensee awards. We perhaps need to form a better view on that in order to understand a little more what the issue is there.

**The Convener:** You can come back to us on that, or we can write to you. Does Claire Mack have any clear views on permits?

**Claire Mack:** That is one of the areas in which we think that there is scope for clarification and strengthening. Licences and permits need to work in tandem, as having the infrastructure in place and a licence to operate it without the permit part would introduce a potential barrier. The reasons for that, and the situations and circumstances around it, need to be clear.

We felt that, if local authorities decided not to issue those permits, it would mean that the network would not go ahead. It would need to be stated clearly why the specific circumstances meant that that was the case, because the process would be quite far down the road at that point. There is potential for further clarification and strengthening of that aspect of the bill.

**Andy Wightman:** Just to be clear, it is the Scottish ministers, not local authorities, who award permits.

**The Convener:** That is clearly an area that we need to get our heads around to ensure that we understand it, so that whatever ends up in the bill—if it is approved at stage 1—will make the situation clear and will not create a black hole or a gap that might raise problems down the line. Does Nicola Mahmood want to add anything?

**Nicola Mahmood:** Our understanding from the discussions was that those things should be aligned, but I recognise that the wording in the bill does not convey the intent. Such a system does not exist anywhere else in the United Kingdom, and there are always challenges in forging a new path.

**The Convener:** Absolutely. It may be that we need to revisit the wording to ensure that the intent is clear and that there is no lack of transparency in the way that the provisions are presented. Is Andy Wightman content with that for now?

**Andy Wightman:** Yes, but it is an area that we need to explore further.

**The Convener:** Absolutely.

Thank you, everybody—I have no other bids for questions. I am aware that we are quite time constrained this morning, and that we may well have other questions in the light of some of the conversations that we have had. We can potentially get back in touch with the panel with any further questions.

In the meantime, I thank the witnesses for their time today; the session has been a useful start to

our inquiry into heat networks. We will now take a short break.

11:05

*Meeting suspended.*

11:10

*On resuming—*

**The Convener:** We continue to take evidence on the bill. I am pleased to welcome Michael King, who is director of Aberdeen Heat and Power. Unfortunately, Colin Reid is not with us, due to illness; Michael, I am afraid that you are on your own. As a panel of one, you will have plenty of opportunity to give us your thoughts on heat networks and the bill.

**Alison Harris:** Good morning, Mr King. I want to ask about projections for heat networks in Scotland over the next 30 years. What contribution can heat networks make to achieving net zero greenhouse gas emissions and tackling fuel poverty?

**Michael King (Aberdeen Heat and Power):** Good morning, and thank you for your question. Earlier in the year, in March, the Scottish Government published a policy memorandum on the bill, in which it suggested that, in the absence of legislation, heat networks could grow to deliver about 4 per cent of delivered heat by 2050. It was suggested that with minimal intervention the proportion could grow to about 8 per cent and with stronger intervention, particularly by using waste heat and renewables, it could reach 12 per cent.

Aberdeen Heat and Power has a fairly secure forward pipeline of about 1,000 connections over the next three years, which will grow our network by approximately 30 per cent. I emphasise that that is the confirmed, secure pipeline; the likelihood is that the approach will snowball.

**Alison Harris:** In terms of financial investment, are there any investments—sorry, are there any estimates of what can be achieved?

**Michael King:** Will you clarify the question? What do you mean by “investments”?

**Alison Harris:** Just any financial investment. I am looking to find out whether there is any investment as we look to the next 30 years. Are there any figures in relation to that?

**Michael King:** I believe that there are, but I do not necessarily have them. The opportunity is there and there is a great deal of interest from investors in the sector. The problem has been how to address the risk. Indeed, that is one of the purposes of the bill.

**Alison Harris:** Yes, and in the context of a just transition, I am thinking about the impact of the development of heat networks. Could jobs be created? How many job losses are there likely to be among traditional heating professionals? Do you have thoughts or comments on that?

**Michael King:** I think that, in the earlier part of your meeting, Nicola Mahmood commented on an

estimate from the heat networks industry council, which—if I recall—was in the region of 73,000 jobs.

There is a snowball effect. In Aberdeen, we created five jobs directly ourselves, but there is also a supply chain of local plumbers, for example, who are installing systems in people's homes. More jobs are created outside the industry.

**Alison Harris:** Thank you. I appreciate your response.

**Richard Lyle:** Aberdeen Heat and Power is a shining example of what can be done. I have always believed that we can do more with heat networks, with developers and house builders promoting the approach.

We all know that a heat network is either a district heating network or a communal heating system. Could the definitions in the bill, and the bill as a whole, be future proofed to cover technologies that will emerge over the years?

11:15

**Michael King:** Eoghan Maguire said this morning that heat networks are an infrastructure that is agnostic to the heat source. Consequently, they facilitate the development of new technologies. For example, the development of hydrogen is proposed to decarbonise heat, but the Committee on Climate Change has suggested that hydrogen will not be widely available until 2035. That would leave us only 10 years to hit the target that the Scottish Government has set, but if we expand the use of heat networks, it would be much easier to retrofit hydrogen plant into centralised plant rooms on heat networks than to visit each building. As a consequence, that would facilitate the advance of the new technology.

**Richard Lyle:** Is the possibility of amendment by regulation adequate to ensure that we have the flexibility that we need?

**Michael King:** The definition as it stands is adequate. Other witnesses have referred to the issue of temperature, and the general move to lower-temperature systems throughout the heat network industry in Europe and North America would help in respect of connecting technologies such as heat pumps into the system. That will happen anyway, so I am not sure that it is necessary to define it in the bill.

**Richard Lyle:** Thank you very much for your answers to my questions.

**Willie Coffey:** Good morning. I will ask about your views on regulation. Nicola Mahmood, who was on the previous panel, said that the heat networks industry is not regulated. If you feel that there should be regulation, who might provide it? Ofgem is a UK body.

**Michael King:** It was said elsewhere that heat networks are a natural local monopoly, and monopolies need to have regulation to balance things out. The industry is unregulated at the moment, which can lead to instances of abuse. The industry is trying to address that through the creation of the Heat Trust, but that is voluntary and only goes so far.

The Department for Business, Energy and Industrial Strategy has proposed that Ofgem should become the regulator, which has tensions with what is proposed in the bill. First, consumer protection is a reserved matter, so that would need to be addressed through engagement between the Scottish and Westminster Governments. Secondly, the Westminster Government is taking a slightly different approach, so having the Scottish Government as the regulator is probably prudent. Nevertheless, as matters advance, it will be necessary for the two Governments to liaise closely.

The last point is about the pace at which those matters are moving. Although the Department for Business, Energy and Industrial Strategy has indicated that Ofgem will be the regulator, I understand that that is not likely to happen for another three or four years, due to the pace of change. What is proposed under the Heat Networks (Scotland) Bill will be much more rapid. Consequently, in the absence of regulation from Ofgem, it is appropriate for the Scottish Government to take on that responsibility.

**Andy Wightman:** Aberdeen Heat and Power is operating a heat network just now. If the bill is passed, are you clear that you will have to apply for a licence and comply with the bill's laws, even though your organisation is already in existence? Is that your understanding?

**Michael King:** Yes, that is my understanding.

In respect of obtaining the required licence, permits or consents, our concern is that there will be a regulatory burden on us. We are a not-for-profit organisation. We aim to be a very lean machine, so we do not have large reserves. Our objective is the alleviation of fuel poverty. Any additional cost of such requirements will be passed through to end users, which we want to avoid as much as possible.

**Andy Wightman:** You mention that issue specifically in relation to your organisation as an existing provider, and there are issues with how existing providers can fast-track becoming licence holders, given—[*Inaudible.*]—schemes already have the consents. As a not-for-profit organisation that is focused on fuel poverty, do you think that that poses questions about the bill and the players

that may or may not be able to come into the market and focus, as you do, on social ends?

**Michael King:** That is a very good question. I have raised concerns elsewhere about how the cost burden that I referred to earlier might impact not on existing networks but on new networks that are community based and serving small villages in rural areas. That is a concern.

**Andy Wightman:** I note that the bill contains provisions that allow regulations on the issue to be made, which could exempt or partially exempt certain organisations from the full rigour of the licensing regimes. However, that is not spelled out in the bill.

I will ask a bit more about the fuel poverty dimensions of the bill. The need for heat networks is being driven by a need to decarbonise heat and provide more affordable and reliable heat sources for people. What role can heat networks have in the alleviation of fuel poverty more generally across Scotland?

**Michael King:** Thank you for picking up on that point. I beg your pardon, but I did not pick up the second part of your previous question, which was about fuel poverty. It is a concern to us that it does not appear in the bill. The bill mentions decarbonisation but not fuel poverty. In order to lock in future Administrations, we think that it would be helpful if a reference to fuel poverty appeared in the bill.

In respect of your second question about how the bill can help to address fuel poverty, in the main, the focus has been against a benchmark of current fuels, such as fossil gas or electricity. However, studies by consultancies such as Element Energy and Fortec found that most pathways to the decarbonisation of heat will result in an increase in the cost of heat for the end consumer. The one exception to that is heat networks associated with waste heat, energy from waste plants and suchlike, where the cost is equivalent to business as usual, if not negative. Out of all of the technologies, that is probably the best one for addressing fuel poverty.

**Andy Wightman:** How many years has your scheme existed for?

**Michael King:** We were established in 2002 via Aberdeen City Council to address fuel poverty in the council's high-rise blocks, of which it has 59. We have treated more than 50 of those. Starting from nothing, we now have 15km of pipe networks, approximately 7MW of combined heat and power capacity, 30MW of thermal capacity, five plant rooms, five employees and a turnover of £4.4 million. We hope that we are making progress.

**Andy Wightman:** So your company is wholly owned by Aberdeen City Council.

**Michael King:** No. We are a company limited by guarantee and, as such, we have a membership structure. There are five members, of which Aberdeen City Council is one. It is a minority owner of the company.

**Andy Wightman:** Presumably you needed planning consent to do a lot of the physical works that you have done. Is that correct?

**Michael King:** That question came up in the previous session. I think that there is a distinction, because heat networks are below ground, and that aspect does not require planning consent. However, the plant rooms, which of course are above ground, do require planning consent. I think that all the issues that you raised in the previous question would need to be addressed, in respect of environmental protection. I understand that the Scottish Environment Protection Agency is a recognised consultee for that, so hopefully that would address those issues. As a plant room is within the community, it is right that that should be addressed by the local planning authority to ensure that it beds into the local community.

**Andy Wightman:** Just to be clear, part 2 of the bill is about heat network consents. As it stands, it is the Scottish ministers who make decisions about heat network consents, which carry with them, as I understand it, a deemed planning consent. Would it be your view that, certainly for some schemes, if not all—you can maybe clarify that—those consents should be awarded by planning authorities rather than by ministers?

**Michael King:** No. With respect, I think that you have misunderstood me. The heat network is the bit that is below the ground, and that would be covered by the consent. It may be that no plant rooms are required because the heat is being drawn from some other source. For example, Aberdeen City Council, in association with the county council and Moray, is constructing an energy-from-waste plant, which we anticipate we would take a connection from. In that instance, we would not need to have planning permission to connect to that. That is a wholly different matter. It is only if the plant room was in our ownership that we would have to pursue consent. In that instance, it is probably most appropriate to go to the local planning authority.

**Andy Wightman:** Thank you. That is a useful clarification.

11:30

**Colin Beattie:** On average, how long might it take to recover the capital costs of a heat network, so as to allow a transfer competition to take place?

**Michael King:** That is a good question, and I do not want to seem to be trying to avoid it but, often, the payback varies from project to project. There is no standard in that respect. It is about the size of the load, the number of buildings that are connected, the capital that is required to install the plant room and to connect the buildings to it, and how long the revenues from those loads will take to recover that capital.

In the main, it is not a short-term payback. At a minimum, it is around seven to eight years; at a maximum, it can be over 20 to 30 years.

**Colin Beattie:** Previous witnesses gave timescales that varied widely, from 18 to 40 years. From a planning point of view, if one is investing capital, that creates a lot of uncertainty as to when one will get it back.

**Michael King:** I absolutely agree. One of the purposes of the bill is to increase investor confidence, so that investors have some certainty about recouping that investment.

**Colin Beattie:** Yes; it is a very patient investment.

What do you think of the strengths—[*Interruption*.] Sorry?

**Michael King:** I beg your pardon. Please continue.

**Colin Beattie:** I was going to develop another question; if you have something to add, please do so.

**Michael King:** In many places, at the outset, the principal investor has been the public sector, either directly, as local authorities, or through grant programmes at national level—and now through the energy company obligation. We have benefited from free capital, if you like, from those. That has enabled us to move forward.

**Colin Beattie:** In reality, will 40-year capital investment come from the private sector?

**Michael King:** What will probably happen—in the general way that things happen in the UK—is that, at first, these things will be public sector led, or at least public sector influenced, through the development, construction and early operational phase. Once the project has been de-risked, the public sector will have the opportunity to refinance it. At that point, there will be appetite from institutional investors, such as pension funds, to come in, because it will fit their risk profile and give them the sort of stable, albeit low returns that they typically find helpful in their portfolio.

**Colin Beattie:** You used the term “de-risk”. Will you define that?

**Michael King:** Once all the costs and revenues have been stabilised and people understand what their costs are likely to be and what revenues are coming in—they have two or three years of understanding what those might be—at that point, a project could be refinanced.

**Colin Beattie:** What are the strengths and weaknesses of a transfer system, as set out in the bill, and how should a company be protected?

**Michael King:** We are concerned about that. Under the licensing regime, if a company or organisation is no longer considered to be fit and proper, its assets will need to be transferred to another company so as to provide security of supply to the end consumer—there will need to be a supplier of last resort. We do not quite understand that. Those assets actually belong to us as a company. Is it proposed that they would simply be taken away from us, or would we be compensated for them? How will that work? We do not know.

**Colin Beattie:** Assuming that we have reached the end of the period during which there is a concern about the stability of the revenue and the capital costs, surely whoever takes that over is in effect buying a source of revenue, which—[*Inaudible*.]

**Michael King:** That is the basis of refinancing, yes. There is no suggestion, however, that that will be paid for.

**Colin Beattie:** Would the public sector hand the assets across for free?

**Michael King:** One would need to address that.

**Colin Beattie:** I am assuming that the public sector will get a return, particularly as the repayment period goes through. Let us say that it is 40 years: at some point in that period, a surplus will be triggered, and either that surplus will be reinvested into the company or it will come back into the public sector in some way.

**Michael King:** Yes. Pardon me; we are talking about different issues. I think that you are correct on that point, but I wanted to say that more clarity is needed in cases where a licence is withdrawn.

**Colin Beattie:** Okay. We note the fact that you feel that. I am trying to explore how the actual transition will take place at the point at which the private company moves in. I am assuming that there will be a transfer of some value to the public sector.

**Michael King:** That would depend on whether the asset was being sold in its entirety. It might be that the public sector would sell only a percentage of the equity, which would be bought by a private investor, such as a pension fund, as I suggested. The management would remain the same, but the ownership structure would change.

**Colin Beattie:** So, the actual management of the company would not change; there would simply be a background change of ownership.

**Michael King:** Yes.

**Colin Beattie:** We do not know yet whether the public sector would hire someone from the private sector in order to run the business for it.

**Michael King:** That is a possibility. All sorts of options are open to the public sector.

**Colin Beattie:** My concern is to ensure that the public sector gets value for money in investing in those assets, and then in transferring them, in whole or in part, to the private sector.

**Michael King:** If the public sector invested in the asset, it could take the option to retain 100 per cent ownership, in which case it would get the revenue. It could decide that it wished to exit from it, in part by selling a share of the equity, or it could exit entirely by selling 100 per cent of the equity.

There is a great example in the city of Toronto, where the city council, in association with its pension fund, developed a heat network, taking heat out of Lake Ontario and cooling it. They developed the network downtown and then sold the whole lot to Brookfield Asset Management. In the process, the city council made a $300 million profit. There is the opportunity for the public sector to benefit from the approach.

**Colin Beattie:** Thank you.

**The Convener:** An issue that has come up is whether the licensee should be a person or a legal entity. The bill seems to suggest that it should be a named individual—a fit and proper person, as in the approach to alcohol licensing. Should the approach be extended or changed to make the licensee the legal entity, that is, a limited company or an organisation, rather than an individual so that, as individuals come and go, it is the company that has the licence to operate?

**Michael King:** Thank you for the question. I suppose that the approach is similar to the licensing of pubs; it is the individual landlord whose name is above the entrance but it is the company that provides the service. Our concern is that people in companies change; we wondered whether there would be a cost associated with reassigning a licence to a new individual.

**The Convener:** For alcohol licensing, an exam goes with the process, to show that someone is a fit and proper person. The applicant has to tick boxes in a mini-exam, to show that they know what is required and so on. We perhaps need to explore that issue.

**Michael King:** Yes. That would be helpful.

**Alex Rowley:** You talked about fuel poverty in response to questions from Andy Wightman. Should more be done to ensure that fuel poverty is considered when heat network zones are designated and permits are issued?

**Michael King:** As I understand it, that will be dealt with in the secondary legislation. In particular, in relation to the issuing of licences and consents, an applicant will have to demonstrate that they are a fit and proper person and come forward with a proposal and business plan that seeks to build a heat network over the whole area, while providing some form of price benefit for the end consumers. As that is not actually in the bill, I think that the bill should contain a reference to fuel poverty, which would hook seamlessly into the secondary legislation.

**Alex Rowley:** There will be the opportunity to lodge amendments to the bill, and your proposal is worth taking on board.

**Michael King:** In our submission, we suggested a particular point in the bill at which such a reference could be included.

**Alex Rowley:** Thank you. I asked the previous panel about requirements in relation to publicly owned buildings. I talked about the scheme in Fife that I know well, which links a community asset, the Carnegie leisure centre, with high-rise flats. Will you give us a feel for your scheme and how it works? Do you have an anchor building?

11:45

**Michael King:** Our approach is to have a framework agreement with a city council that gives us exclusivity to build a combined heat and power plant in its buildings. It was initially focused on the high-rise estates that I mentioned, but it also includes administrative offices and schools.

The high-rise blocks tended to be in clusters, so we could develop a heat network island that was financially sustainable and viable serving just that island. The housing estates became our anchor loads, which we connected together and then picked up other buildings along the way. A lot were public sector but now, because new connections to the gas network will be banned from 2024, we are getting inquiries from private developers about how to connect to our networks.

**Alex Rowley:** You are saying that there is a potential opportunity, and we should not restrict the network to just publicly owned buildings. Section 38 of the bill says that each local authority must

"carry out a review to consider whether one or more areas in its area has the potential to be designated as a heat network zone"

and that that should be done "as soon as practicable" after section 38 comes into force, and at least every five years after that. Is that adequate?

**Michael King:** Yes, it is. A difficulty of rolling out heat networks in towns and cities across Scotland is that there has been no statutory duty. Aberdeen Heat and Power provides an example for lots of towns and cities, but not many have followed it. In the main, that is because, from a strategic point of view at the top of a local authority, it is not a statutory requirement, so why should the authority do it? Making it a statutory requirement would encourage authorities to focus on that area and I hope that they will understand the opportunities that it will bring to address climate change, fuel poverty and urban regeneration.

**Alex Rowley:** From what you have said, I am reaching the view that local authorities are absolutely key to the issue. To deliver heat networks, the local authorities must be totally on board and driving them. Do you agree? My second question is about where the expertise exists; some authorities have not driven renewables forward not for a lack of will but because they do not have the expertise. Where does that expertise sit?

**Michael King:** You are right. Commentators throughout the world have recognised that municipalities and local authorities are key to the development of heat networks. They have the vision for the whole of their area rather than just the edge of a development site. They are the planning authority and have the ability to shape the town in terms of the mix of use, the size of anchor loads and this, that and the next thing. The local authorities own a great many buildings that can be put into the mix to provide an anchor load and underpin a network financially and technically, and they tend to be at the centre of a web of relationships with people in their locality.

Local authorities are key, but the issue about competence and skill is a problem. People refer to heat networks as a new technology but it is not; it is very mature in other parts of Europe but not in Scotland. As a consequence, there is a lack of expertise here, particularly in the local authority sector. The bill has addressed that issue; if the local authority does not have the competence to develop heat networks, the Scottish Government can step forward and take over that responsibility. We would want to ensure that the Scottish Government had the requisite skills to be able to deliver that on behalf of the local community.

**Gordon MacDonald:** To continue on the theme of buildings—Alex Rowley is big on that—part 5 of the bill places a duty on public sector building owners to undertake an assessment of the viability of connecting their buildings to a heat network. Are energy performance certificates sufficient to assess actual performance as well as whether a building is suitable for connection?

**Michael King:** It is key that we are able to understand demand for heat in a building, not only in absolute terms, but in terms of the shape of demand—in other words, what demand is over the course of a day or a year. Owners of large buildings with EPCs will have derived the data that they need to generate that information from the current typical heat source, which is gas. Simply reviewing their gas bill would provide owners with the information that they would need to make an assessment of connecting their building to a heat network.

**Gordon MacDonald:** You have already mentioned that no new gas connections will be allowed from 2024 and that you are beginning to get inquiries from privately owned commercial properties. Have any of those inquiries come from customers who are already connected to your network? What length of contract would need to be entered into? What are the additional benefits that customers would get from Aberdeen Heat and Power?

**Michael King:** I will address your last question first. Aberdeen Heat and Power has been in existence for 18 years. Over that period of time, we have developed the competencies to be able to provide a good, reliable and secure service, which would be the attraction for potential customers. At the moment, no private developers are connected to the system, but we are in conversation with them. The responsibility for interacting with the end consumer is a very challenging area. In the main, my company would prefer to be able to sell bulk heat, and that it would be for the end consumer to establish a vehicle to manage the heat network on their development.

**Gordon MacDonald:** The bill places a duty only on public sector building owners. Should all private building owners have to carry out an assessment to encourage them to think about connecting to heat networks?

**Michael King:** The public sector is a good place to start, but I anticipate that the requirement would need to be rolled out to other major buildings as well.

**Gordon MacDonald:** Are any public buildings outwith the scope of the bill? Back in the 1980s and 90s, a lot of councils outsourced their services to arm's-length external organisations. For instance, in Edinburgh, Edinburgh Leisure runs all the sports facilities. Would those buildings be included in the definition of publicly owned buildings?

**Michael King:** I guess so, because it is the management that has been outsourced, not the

ownership. I presume that such buildings would still qualify as public sector buildings.

For all the reasons that I mentioned, and because of the public sector's aims and objectives, the public sector can take a long-term view, so the likelihood is that these spine mains or putative projects will develop on the back of a public sector load. It makes sense that such projects would be extended to large commercial buildings—using the EPC definition of "large". That would bring into place a heat network in most of Scotland's towns and cities, to the point that when fossil gas was withdrawn, other, much smaller buildings would have the opportunity to connect to a heat network and get low or zero-carbon heat from that at a reasonable price. If we do not build up the networks now, those smaller buildings, including residential buildings—homes—would not have that opportunity. It is about building a platform now.

**Dean Lockhart:** In practical terms, is the bill likely to encourage your organisation to invest more in heat networks? If so, can you explain why?

**Michael King:** A barrier remains that I think has been referred to this morning, which is the obligation to connect. The wayleave right, as outlined in the policy memorandum to the bill that was published by the Scottish Government in March, indicates that it would be possible to build a heat network up to an anchor-load building. However, you would not be able to oblige that building to connect.

One argument is that while that extension was happening, a contractual negotiation could take place between the heat network operator and the anchor-load building owner. The fact that the pipework network was coming up to that point would facilitate that discussion.

Secondly, there could be a change of ownership. A new owner may want a low-carbon source of heat, which would then be available to them, because it had been built up to their doorstep.

Thirdly, there could be a change of boiler. If the current heating equipment expired, that would be an opportunity.

The difficulty with that is that I do not think that people—including Aberdeen Heat and Power—would invest money in such an open-ended scenario. If you or I were to take £100 out of our building society to invest in a project, we would need greater certainty—in this case, that the building was going to connect and provide the revenue stream to repay the capital investment that we had made.

**Dean Lockhart:** That is very useful.

I have a follow-up question. In the earlier evidence session, we heard about a fairly significant increase in provision from heat networks to meet heat demand. Are those projections optimistic, or are they realistic?

12:00

**Michael King:** I think that they are realistic, but I would refine that. The figure that is quoted in the Scottish Government's financial memorandum, which is based on Scottish Government research, suggests that provision could be 12 per cent of delivered heat by 2050 across the country as a whole. Because heat networks tend to be an urban technology, the percentage is likely to be higher in towns and cities.

**Dean Lockhart:** Is there anything that policy can do to help with the wider distribution of heat networks, or is it largely driven by the economics of the investment?

**Michael King:** Overall, that is largely driven by the economics, which is, in turn, driven by the density of buildings in a particular area, the mix of buildings, the presence of an anchor load, the presence of sources of waste heat, such as from energy-from-waste plants and power stations, ambient heat from rivers and the sea, and heat from the land through ground source heat pumps. All those things should be captured in the latent heat energy storage proposal for producing a heat network zone. You would have to encapsulate them all to define the heat network zone, and as the process begins to derisk the proposition, it makes it much more attractive for the investor, whether public or private.

I would like to follow up on one more point about the obligation to connect. There is a resistance among certain building owners because of competition law and other such things, so a softer option would be for the bill to include an obligation on those building owners to explain why they cannot connect to a network. That could force them to engage in contractual negotiations with the heat network operator to justify their position.

**Dean Lockhart:** That is understood. That is valuable feedback; I appreciate it.

**The Convener:** Richard Lyle just has one more quick question to ask.

**Richard Lyle:** I am just trying to unmute my microphone.

**The Convener:** You are unmuted.

**Richard Lyle:** I am sorry; I was trying to unmute myself.

We have failed to exploit various opportunities to use waste because of environmental concerns.

If we had more drive and determination, we could change that. Do you agree—yes or no?

**Michael King:** Are you referring to waste?

**Richard Lyle:** Yes. I will not bore you with the detail but there was a proposal for a waste-to-heat plant in my constituency and my constituents were against it. However, other cities and towns, and other countries, have waste-to-heat plants. Have we failed to tackle environmental concerns?

**Michael King:** I am afraid that I have to duck that question because I am a heat network person, not a waste management person. The decisions lie further upstream and are down to people who know about such matters. However, if we decide to go down the energy-from-waste route—and I believe that that is SEPA policy nowadays—that should be done as efficiently as possible, including through the provision of a heat offtake, if not immediately then within a certain amount of time, which I understand to be about five years. That would create the opportunity for a heat network operator to come in, capture the heat and distribute it to the local community. However, the decision on waste is not ours to make.

**Richard Lyle:** Yes, you mentioned that. Thank you very much.

**Michael King:** You are welcome.

**The Convener:** We are coming to the end of the session. We have asked a lot of questions and covered a fair bit of ground. Is anything missing from the bill that you would like to be in it?

**Michael King:** I think that I have covered that. First, we really want a reference to fuel poverty in the bill. Secondly, as I mentioned to Dean Lockhart, there is the issue about the obligation to connect.

**The Convener:** It is just those two aspects that you really want to be included in the bill.

**Michael King:** Yes.

**The Convener:** Okay. In that case, and given the time, I thank you for your time. It has been really helpful to speak to someone who has delivered and is running a heat network. We will decide what recommendations to include in our report to Parliament, but your evidence, both written and oral, has been helpful.

That completes our public session. I thank anyone who is watching, and I thank broadcasting for supporting the transmission of the meeting.

12:07

*Meeting continued in private until 13:13.*

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