



Environment and Climate Change Committee

Corrected oral evidence: Boiler Upgrade Scheme

Wednesday 9 November 2022

10 am

Watch the meeting

Members present: Baroness Parminter (The Chair); Baroness Boycott; Lord Browne of Ladyton; Lord Colgrain; Lord Grantchester; Lord Lilley; Lord Lucas; Baroness Northover; Bishop of Oxford; The Duke of Wellington; Lord Whitty; Baroness Young of Old Scone.

Evidence Session No. 2

Heard in Public

Questions 11 - 24

Witnesses

[I](#): Andrew Sissons, Deputy Director of the Sustainable Future Mission, Nesta; Zoe Guijarro, Principal Policy Manager, Net Zero Homes, Citizens Advice; Tom Elliott, Practice Manager, Heat Policy and Local Energy, Energy Systems Catapult.

Examination of witnesses

Andrew Sissons, Zoe Guijarro and Tom Elliott.

Q11 The Chair: Good morning and welcome to the second session of our committee's inquiry into the Government's Boiler Upgrade Scheme. We have three witnesses today who will share with us their insights from the organisations with which they work. They have explored the consumer experience of switching to low-carbon heat with the support from this new government scheme.

Our three witnesses are: Andrew Sissons, Deputy Director of the Sustainable Future Mission at Nesta; Zoe Guijarro, Principal Policy Manager of Net Zero Homes at Citizens Advice; and Tom Elliott, Practice Manager, Heat Policy and Local Energy at the Energy Systems Catapult.

You are all extremely welcome. Before we move into questions, there are a couple of matters of housekeeping. A transcript will be made public. Each of you will have the chance to comment on the transcript and review it. The session is webcast live and subsequently made available via the parliamentary website. Finally, if any Members have relevant interests, I know that they will declare them. We have about an hour and a half for questions. We will take supplementary questions from committee members if there are further issues that they wish to raise.

I will start by asking the first question on the non-financial barriers that are stopping people considering low-carbon heating and joining the Boiler Upgrade Scheme. What are the issues for people who start to go down this route, but half or three-quarters of the way through decide that it is just not for them? What are the main reasons for stopping or deferring a decision?

Andrew Sissons: The first thing to say is that installing a heat pump system, or most low-carbon heating systems, is more complicated and takes longer—both the installation time and the preparation in advance—than, say, replacing a gas boiler or another fossil fuel heating system. For installers of heat pump systems, but also for customers, a lot more prep and work needs to be done.

My organisation, Nesta, mapped out the customer journey from first thinking about heat pumps through to having it installed and living with it. We think that that journey for a heat pump probably takes around two to six months. It can vary a little, but there are various stages of preparation. Some of the stages of that journey lead to drop-outs. There are various moments along that journey that cause customers to give up or conclude that they cannot technically get a heat pump from an installer, or for other technical reasons. That journey is probably the biggest non-financial barrier to choosing a heat pump system.

The other critical factor is that often people replace their heating system—their boiler or otherwise—when it breaks down. If you have to buy your heating system in distress, particularly in the winter, you do not always have that long prep period to consider installing a heat pump.

That is a key factor. Not everybody waits until their heating system is on its last legs, but it becomes really challenging if you are in distress. The chances are that you will find it difficult to go through that journey towards getting a heat pump.

Zoe Guijarro: Similarly to Andrew, I believe that the biggest two barriers are, primarily, cost—unsurprisingly—and a lack of information. People do not feel that they know enough about these systems generally in common, everyday life. Such a large amount of research needs to go in. We did some net-zero diaries research with other organisations. A lot of the people who were engaged in some of that work had already had them installed. They shared with us that there was a lack of advice on the correct set-up to choose. People literally do not know what to choose to go in their homes.

As Andrew said, it is a lot more complicated. Sometimes you need ancillary works. You might need new radiators and new pipework. There are so many unknowns, and it makes it really challenging for people who are juggling everyday life to understand how to install these systems. People definitely do not understand how to use them and how the experience of using these systems differs vastly from using a gas boiler. If you are a bit chilly you might just switch on a gas boiler, whereas with a heat pump it is better to have that low, long temperature continually. It is much more efficient.

As Andrew said, there is the long installation time. People's expectations are that it can be done in a couple of days. One of our participants said that it took them two weeks to have their heat pump installed—longer than they were originally expecting. The expectations do not really match the reality.

Tom Elliott: I would tend to agree with what has already been said. I would add that it is confusing for the consumer to understand who they should speak to. Do they go to the installer, the plumbing engineer or the manufacturer? At the moment, there is no single stakeholder who can take responsibility for that entire journey, from start to finish. I think that makes it a bit more confusing and challenging for the individual.

We have found with previous research that even when they start to get into the process and perhaps appreciate a bit more about the disruption that is likely to occur—whether internal or external—they tend to drop off as they learn more about it.

Another key barrier is trying to understand the space requirements outside the building. Quite often, there will be a need for a new unit or housing on the outside of the building if it is air source, or something a bit more extreme if it is ground source. Quite often, people have not considered that when they sign up for these programmes. The drop-off that we have seen can be anything from understanding that they will need two or three weeks of disruption in the home right down to them not being willing to move a piece of garden furniture or an outbuilding

because it is going to intrude on the heat pump. There is quite a variable set of reasons for that disruption.

Q12 Lord Browne of Ladyton: I am interested in the degree to which what is known as “the skills gap” contributes to the problems that people have, such as focusing on the availability of certified installers and people who can give communities objective advice on making these decisions.

I turn, first, to Andrew, only because I have seen reporting of Nesta’s comments on this issue. In Nesta’s experience, what does this skills gap in the heating sector mean for workers’ and businesses’ likely capacity and expertise to deliver these solutions? To what extent does that affect the speed at which we are ramping up this technology?

Andrew Sissons: We think that the skills and capacity issue in the heat pump and low-carbon heating industry is probably the biggest barrier to their acceleration. Our research has found that, although not everybody is desperate to get a heat pump, a lot more people would like to consider it than are currently able to get one. Even allowing for the very long journey I have just described, there are a lot more people who are keen, but there is a significant constraint on the number of installers.

To try to put the numbers into context—it is hard to get complete numbers—we think that about 3,000 to 4,000 people can install a heat pump. They will do other things such as solar panels. Some of them can fit bathrooms, et cetera. About 130,000 engineers can fit gas boilers. There is a huge gap between those two numbers.

The difficulty is that becoming a heat pump installer requires some upskilling. Installing a heat pump is not vastly different, but there are some skills and complications, particularly around the design issues that Tom has just alluded to. It is typically a bit more complicated to install a heat pump. There are some particular challenges around reconfiguring the way the home is heated. The goal with a heat pump, which is really important, is to try to get the flow temperature—the temperature your radiators run at—as low as possible. That requires a bit more skill and calculation from the installer, the engineer. There is a job of raising the skills of some engineers.

Probably the bigger issue at the moment is motivating people who currently install gas boilers to want to move into heat pumps. That is a bigger challenge. A huge number of people are well capable of this, but there are a number of reasons why they might be reluctant to move into the sector. Some of that is perceptions about whether heat pumps are here to stay. Only a relatively small number of heat pumps are installed. Most gas installers are waiting to see whether heat pumps really are taking off.

You also have questions about whether the work will be too difficult or take longer. It will probably cost a typical gas installer £5,000, £10,000 or more to retrain as a heat pump installer. There is real uncertainty about whether that is worth it for them—whether they will get the

payback—or even whether there will be guaranteed work installing heat pumps rather than gas boilers.

There are also cultural factors. The manufacturers of boilers and of heat pumps play a crucial role in informing and influencing installers. Ultimately, some of those manufacturers are doing a really good job of giving accurate information, but a message is sometimes sold about hydrogen as an alternative to heat pumps. Clearly, if you are installing gas and are told, “Don’t worry about heat pumps, they’re bad”, and that is misleading information, you are much less likely to want to make the switch.

There is a whole suite of issues. That issue of how we motivate more plumbers and heating engineers to want to move into low-carbon heating and heat pumps is probably the single biggest issue that stands between heat pumps growing quite rapidly, as they are in the rest of Europe.

Lord Browne of Ladyton: Zoe, I do not know whether you have anything to add. I am particularly interested in the skills gap. The comparative numbers that Andrew has given make it more likely that you will know a gas installer than someone who installs heat pumps for a living. We are not going to change that overnight.

Do you have any experience of the trajectory? Are we significantly increasing the number of people who are being trained? We raised this in Parliament recently and were told by the Minister that tens of thousands of new training places were now available because of the funding for green jobs. Is that having any impact in this area?

Andrew Sissons: There is no perfect data on this. We are probably seeing tens of heat pump installers training every month. We will need to see hundreds, if not thousands. Our estimate is that we will need to train 4,000 to 6,000 heat pump engineers every year for the next 15 years. It is hard to be precise, but we are currently in the tens to hundreds.

We are nowhere near the scale of switching over that is required. There needs to be a very big effort if we are to speed up heat pump rollout. We need a very big effort to reskill and reorient the heating engineer and plumbing sector.

Lord Browne of Ladyton: Zoe, do you have any comment?

Zoe Guijarro: Yes. I was going to say that skills are really important in the space of thinking about people being scammed. It is such an unknown and there is a lack of public awareness, combined with a lack of public trust, that people coming in with scams who are not adequately trained is rife.

We would absolutely support greater training but also a real focus on a single consumer protection regime. That would start to help to build that confidence and, therefore, to build demand. Maybe some of those installers, especially the smaller, one-person installers, might see the benefit of investing in their training in the future.

Lord Browne of Ladyton: Where would we find accurate data about how many of these people are trained, and how many are in training?

Tom Elliott: You could probably look to the MCS—the Microgeneration Certification Scheme—which typically administers training and qualifications for installers who are doing domestic-scale renewables, whether it be heat pumps or solar PV. They are usually quite a good source of information.

I have just a few points to add to what Andrew and Zoe said. Given this additional disruption, which has already been mentioned, there will be some new skill requirements. The social skills of installers or stakeholders will be very important. That initial dialogue between the heating stakeholder and the individual will be so important to ensure that they can overcome some of that nervousness or lack of awareness around heat pumps.

We will have to do something about how we enable these installers and stakeholders to make the best use of the data that is available, so that we can rely less on the typical paper-based heat loss calculations and the energy performance certificates, to make sure we get much more accurate information with regard to the feasibility of heat pumps.

At the moment, the approach seems to be, “Let’s try to stimulate demand and send signals to installers to get the skills”, whereas I think we need the installers and the skills at the same time. We need to be thinking about how we can ensure that colleges and training providers are bringing these skills into their courses and syllabuses. At the minute, that is one of the missing loops or it is a bit broken. As there is no demand, the colleges and skills providers do not want to put those courses on because it potentially will not lead to those students going into employment. We must think how we can drive the skills before the demand is there. That is going to be really important.

Lord Browne of Ladyton: My conclusion is that technology is useless without the people to encourage lifestyle change. Thank you.

The Chair: They are all smiling, so I think we should take that as a yes. I have four colleagues who want to come in, so you have obviously opened up an interesting avenue.

Q13 **Baroness Boycott:** I have a point of clarification of what Andrew said in the first answer to Lord Browne. You said that people were worried that this technology would change and might not be as useful in the future, and that they were not certain about it. Am I right to interpret it like that? If so, what does it mean?

Andrew Sissons: I think that is a perception. There is a perception in particular that different technologies may come along that are better than heat pumps. A lot of that information is being fed by people who perhaps want to promote alternative technologies or do not want to delay the switch to low-carbon heating.¹

Ultimately, the thing about heat pumps is that they have been around for decades. They are not a new technology. You experience them every time you go to a service station or a shop. It is a very common technology. It is not changing very rapidly. The interesting stuff is much more around the changes that you make to homes than the technology itself.

You get a lot of hype around different technologies, and everything is seen as the magic solution to heating. Engineers get pitched different things, often by the manufacturers of different pieces of equipment, and that makes them doubt. Frankly, installing heat pumps is hard. It is a transition to their business. It makes them doubt that they really need to make that difficult switch. It makes them hold out and delay for years to come in case some other magic technology comes along. It is very unlikely that another magic technology will outperform heat pumps.

Baroness Boycott: It seems to me that that ought to be abundantly clear. It is like people in the EV car market constantly waiting for the next great car to come along because every organisation is trying to cash in on the potential profits from it. I see that that is a potential difficulty. Thank you.

The Chair: Baroness Young.

Q14 **Baroness Young of Old Scone:** There seems to be an intermediary market growing up, with advisers who can come and assess whether it is a viable proposition to have a pump, and perhaps give you advice about installer selection. Is that a good thing? Are there enough of them, and should they be accredited?

Andrew Sissons: That is a really good question. There is a very specific issue about the link between the heating system—heat pump or something similar—and the insulation and other changes to the home. Typically, if you contact a heat pump installer, they will not necessarily know a lot about all aspects of insulation. Likewise, if you contact an insulation specialist, they will not always be able to advise you on the heating system. That is not uniformly true, but it is often quite a disjointed experience. Often, quite rightly, people who want to invest in making their home more energy-efficient and low carbon want to do several different measures.

There is a new profession. I do not know whether it is brand new, but it is a very small profession called a retrofit co-ordinator. I believe it exists in some local authorities and in some retrofit organisations. That role is potentially quite valuable. There is a standard for that to make sure it is high quality and accredited. That role could really help people. It could give people a bit of a journey for their homes. Rather than saying, "You must do all of this at once", it is, "I will give you the individual parts of

¹ Andrew Sissons later corrected his statement, explaining that he was referring to people who want to promote alternative technologies and want to delay the switch to low-carbon heating.

what needs to happen to your home". It should be able to give a bit more of a journey to the home to say, "These are some of the steps that we recommend you take, and here are the different costs and implications".

As I understand it, there are very few people trained in that role. There is a real bottleneck. We would hope to see more local authorities, businesses and charities able to offer some of that advice, but it has to be appropriately skilled and good, accurate and impartial advice. There is always the risk that if roles such as that are not highly skilled, or if they are done with different business motives, you end up getting quite limited advice. Often, people trust their gas engineer or their local tradesperson, who does not necessarily have the full range of options or the best ways to decarbonise cost-effectively. That retrofit co-ordinator role is likely to be critical.

Baroness Young of Old Scone: Are they expensive?

Andrew Sissons: To train, or to get somebody to assess your home?

Baroness Young of Old Scone: Presumably you have to pay these folks.

Andrew Sissons: Yes. There are services that are typically a few hundred pounds. It will vary. There are some very good services, very small businesses and organisations, but typically there are organisations that for a few hundred pounds can help with that. Also, via community energy companies and local groups, there are people who may offer that service for free, particularly to vulnerable households.

For a lot of homeowners, a few hundred pounds to have that advice, if it is done well and if it leads to further cost savings and lower carbon measures, can be money really well spent. If it leads you down the wrong path, it can also easily be very costly in the decisions you make next.

Baroness Young of Old Scone: Zoe or Tom, do you want to add anything?

Zoe Guijarro: If we have retrofit co-ordinators, yes, they should be accredited. They should be independent and able to offer that independent advice. That could be of real benefit to householders. The likelihood of large numbers of householders being able to afford that service, while it is still niche and probably quite expensive, is quite small.

What we really need over the whole net-zero energy efficiency piece is a much more co-ordinated public campaign around net zero in general and why we are headed in that direction. We need access to much more comprehensive advice around net zero and what that means for our homes, so that that is easily accessible to people from all walks of life.

I know that the Government are looking into the better provision of advice, but it needs to be much more holistic. At Citizens Advice we are looking at how we can transition and make sure that our advice offering provides people with much more information about the different types of

things that they can do to their home. It has to be energy efficiency first. For example, it is 3.4 times more expensive to heat a poorly insulated home with a heat pump than it is a well-insulated home. There are real benefits to be had in having that holistic advice, but we do need to bottom out ways of providing that so that it is accessible for all.

Tom Elliott: The retrofit co-ordinator process is a very good step forward from where we were. It helps to manage some of the potential risks or unintended consequences of home decarbonisation more generally, but for heat pumps. As mentioned, it still involves someone coming round to the home and spending half a day measuring it, charging potentially £300 to £400 to do it. Then you are presented with what some people may find quite a confusing set of recommendations with lots of detail. That is another potential disruption in the process.

These initiatives are very helpful and very good, but they need to be modernised to ensure that what the consumer ultimately gets is more confidence that they can get warm when they want to be warm. It is probably different for early adopters. More generally, I do not think consumers are that fussed about the technology. What they want is heating on demand and confidence that they can get warm at an affordable price.

The efforts to try to manage the risk through upfront processes need to be balanced with the overall customer experience, which is why I think that the next step is these co-ordinators somehow going to another stakeholder who can manage that customer journey and think about how we can absorb some of that cost or process into the overall customer journey rather than trying to separate it into different components.

Q15 **Lord Colgrain:** My question is to do with the information that is available on the comparable longevity of heat pumps as opposed to oil boilers or gas boilers. Do you feel that the information is readily available to members of the public when they are considering putting in a boiler? Is there sufficient information regarding maintenance costs on an ongoing basis? Can people look at this and say, "This is a very sensible investment over a 15 or 20-year timescale", for instance?

Tom Elliott: Typically, the source of information that one might go to in order to understand the operational costs would be the Energy Performance Certificate, which can give you some operating costs. That in itself can be quite confusing and is based on assumptions. The actual data or numbers presented might not always materialise.

The operating costs of a heat pump would typically depend on how efficiently the heat pump is run—the unit called the coefficient of performance. Again, that will vary based on the type of hardware, the quality of the install, the efficiency of the property and how well the equipment is used by the consumer, if I can put it that way. It is very difficult to provide an accurate average of all those things. It is quite confusing for a consumer to understand what that might look like.

Typically, at the moment, people are more concerned with the upfront capital cost of this piece of equipment. If I am thinking about putting a gas boiler in, whoever is providing me with that gas boiler is probably providing me with some sort of cover, which takes that concern away from me. Typically, consumers would expect to have some sort of insurance or maintenance cover with the equipment, which takes the thought out of their mind. What they will ultimately be thinking about is, "Changing my gas boiler might cost me £1,000—it varies—but for me to get a heat pump I'm probably looking at somewhere near £10,000". The scale of that difference is what people are thinking about rather than the operating costs.

Lord Colgrain: I was just thinking that the RHI—renewal heat incentive—payments that the Government made were over 20 years. You can see how the upfront costs associated with those boilers, which are very high, can be offset in the first 10 years or so. I was just wondering whether there was something comparable that one could try to ascertain with regard to heat pumps.

Zoe Guijarro: There is a severe deficit in information on both the areas that you identified: the longevity of the systems and the ongoing maintenance costs. One of the biggest problems that we see with ongoing costs is not necessarily the costs themselves but finding a trader able to do that ongoing maintenance. Frequently, their installer may have gone out of business or moved on and decided that it is not for them. Finding someone to do that maintenance in the first place can be the hardest step. If there is a limited number, of course, you are held to ransom a little on how much that cost is going to be, because we just do not have the competition in the market at the moment.

Andrew Sissons: People get information from two places. One is from charities like ours, the Government, and searches online. That information is being developed, and we and a number of organisations are working hard to try to provide accurate information on the comparative cost benefits and how long boilers and heat pumps will last.

The running costs issue—Tom's point about how efficient the heat pump is—is crucial. The biggest expense that people will have with their boiler or heat pump over its lifetime will be the running cost, and the efficiency of the heat pump can vary a lot. It is hugely important in determining that. That is a really important issue that is not always very visible to customers. It needs care.

The other route that people get information from is either their installer or the manufacturer. That is an area where there is scope for a lot of misleading information. A lot of manufacturers and installers are excellent, but some will be tempted to cherry-pick figures and paint things slightly differently. It is quite hard, particularly for heat pumps, to get really accurate information about how long they last, efficiencies and upfront costs.

A lot of the people involved in heat pumps are working really hard to make that information as transparent as possible. The more we can gather that data and commit, either via the Government or independent organisations, to make it available to people, the more there should be a good opportunity in the coming years to give clear advice to customers on what they are getting and what they can expect with a heat pump.

Lord Colgrain: I think it was you who said that this technology is very well used on the continent. Is there not quite a lot of information that we can draw from their experience?

Andrew Sissons: There is. In most countries on the continent, it is quite a recent uptick. There are slight challenges around the configuration of homes and the climate. You will see slight variations. Heat pumps are a growing field globally and there is a lot more evidence. It is just that a heat pump installed in a Victorian home in Britain—there are not as many Victorian homes in most other countries—will perform slightly differently. You need to make sure that you are not taking an American set of data and applying it in the slightly different context of the UK.

Q16 **Lord Lilley:** On the number of people being trained, in another committee Octopus told us that it had established a training school that is turning out 1,000 people a year, I thought. I am hoping to see it, which makes me think that it already exists, but it is possible that it is talking about a future plan.

Are our guests aware of what Octopus is doing and whether other manufacturers of heat pumps are training people? Octopus said that it was conscious that the people it trained would be able to install other manufacturers' equipment as well as its own. Possibly, therefore, other manufacturers are taking the same view: that if they train people, they will be able to install any pump but will, they hope, do what that manufacturer trains them best in.

Octopus said that it would streamline the process for installation, so that it could train people to install it much more quickly and do it all in a systematic way rather than just pull up each time and think it is a one-off. Are the witnesses aware of that source of training?

Andrew Sissons: Octopus is the first big company in the UK to enter the market of heat pumps, in a sense, which is really welcome and significant. There are other energy companies and other large companies, as well as some start-up industries—venture capital-backed organisations—getting into heat pump installation. They have seen this challenge and see an opportunity. That is really welcome.

You will see that some of those large organisations have purchased existing infrastructure. There are also some very helpful set-ups in the industry called umbrella schemes. The umbrella scheme acts as a bit of cover, with branding and various bits of support for installers. Individual installers can subcontract with that umbrella scheme and get a lot of support, which makes the job a lot simpler.

There are a lot of innovations in the industry. We hope to see that resulting in a lot more installers. The challenge for Octopus and for everybody coming in is that training 1,000 installers a year is really tough. We hope to see that come through and be represented in the heat pump installation statistics towards the latter end of this year. We should see more heat pumps going in and more installers as the Octopus machinery kicks in and other bigger organisations come in. That is really welcome.

There are a couple of things that we need to watch from an industry-wide point of view. One is that the people who are training with larger companies are indeed new to the industry—it is not competition for the existing 3,000 or 4,000 skilled installers. That is critical, because clearly there are a number of experts who are quite in demand. We need to make sure that we grow that pool of expertise rather than competing for it. I do not believe that will be the case and I believe that we will see an expansion of the industry via efforts such as Octopus's and others, but we need to look at the whole picture, which is still very much in flux.

The other thing that is key—Zoe referred to this previously—is the quality of those new trainees. This is really important. We must make sure that for any company coming in—I have no doubt that Octopus and others coming in will pay close attention to this—the skill levels of those new installers are high, that they are getting hands-on experience, that they are being helped by experts in the initial installations, and that ultimately they are installing really good, efficient systems that customers are happy with.

There are lots of grounds for optimism that this surge in interest from larger companies in the industry will help it to grow. We just need to make sure that that growth is for the whole industry and leads to really good and efficient heat pumps for the whole system. That will require bringing a lot of skills, expertise and experience to a number of people rapidly. We all need to watch that and hope that it carries through.

As I say, I have every confidence that it will happen, but other organisations may try to take a slightly more shortcut approach that, as Zoe said, could set back heat pumps.

Zoe Guijarro: I think that there will always be a limit to how much streamlining you can do. Obviously, we can do things like making sure that your kit is in the right place at the right time. If you are having a ground source heat pump and you do a borehole, it will take as long as it takes to dig that borehole or that trench in the back garden. We need to be careful about cutting corners.

The majority of the problems occur in that operation stage of the buying process. We hear from a lot of consumers that their technology is not performing as expected due to poor installation. We need to make sure that the installations are working as intended, so that we are not creating a big groundswell of people who will come to us and say that their

heating bill is completely unaffordable on the basis that something has been installed incorrectly for their property.

The Chair: Thank you.

Q17 **Lord Whitty:** Some of my question has already been covered, so I will ask it in a slightly different way.

For those who have engaged with householders and landlords in looking at the options, how far do you think the upfront cost of heat pumps is putting them off? How far do you think it is the suitability of those particular premises to heat pumps? How far do you think it is the cost of the ongoing lifetime cost of operating a heat pump? Do we have sufficient experience of consumers who have been put off, as distinct from those who have gone ahead, for us to draw any generalisations? Perhaps I should address Citizens Advice first.

Zoe Guijarro: Yes, the upfront cost is without a doubt the biggest barrier for consumers in installing heat pumps. Over 65% of people told us that that was what was putting them off. A large number of householders—about 26%—are not convinced of the benefits. Another fifth do not feel the need to make those changes to their homes. There is a big variation in that. You could say that people who do not feel the need to make changes perhaps do not think that it is suitable for their homes. Some people are put off by an air source heat pump because you have this big unit on the side of your house. Maybe you have to have it at the front of your house because there is no space at the back. Those visual things can put people off as well.

Without a doubt, it is the high upfront cost and the unknowns of what it is and how much it will cost to run. A lady came to us who lives in a newer-built property in EPC band B, so her home is already quite energy efficient but there was something clearly wrong with the heat pump. Last winter—not even this winter with our higher energy prices—it was costing £400 a month to heat her home, which is huge. Even in the summer, it was costing £200 a month. Other people on the same new-build site were having similar experiences. They found out that it was because the installer had not put them in properly.

At the moment, the problem is this unknown—“What will it be like in my property, and what will it look and feel like?”—and the lack of understanding about how the systems operate. First and foremost, it is the high upfront cost. You are looking at £7,000 as a minimum to install a heating system, which is huge. If you add to that the situation we are in—the cost of living, people having very few savings, and those who might be able to get access to finance not having enough money left over at the end of the month to service finance for these products and services—it is all the more important that we have access to some kind of finance such as upfront grants to help people to install these technologies; otherwise, we will get nowhere near close to what is required.

Andrew Sissons: I agree with Zoe that upfront costs loom largest for customers.

I would say—I would give this advice to anybody—that if you get a heat pump or a gas boiler, the biggest cost that you will pay over its life is the running cost. We think that about 60% of the overall lifetime cost that you pay for your heat pump is the running cost. That is not the bit that looms largest in people's minds. People tend to be much more swayed by upfront costs than by running costs over 15 or 20 years, but it is important that we make sure as far as possible that heat pumps keep energy bills as low as possible, even if that is not the key sales point for people.

We did some testing of costs and different incentives with people. We invited people to choose between a heat pump and a gas boiler. We varied the costs of the heat pump and various things. We found that, even with high upfront costs above £10,000, a substantial minority—above 10%—said that they would choose the heat pump. I presume that that reflects them being financially able and having a climate concern. We also found that when you introduced various incentives it increased their interest in heat pumps quite a bit. The £5,000 subsidy—the current upgrade scheme for an air source heat pump—was the most effective, increasing by 10 percentage points the number of people choosing a heat pump.

Almost as effective was offering finance. If you offer zero-cost financing—no interest rate financing—people's interest in heat pumps and their likelihood to choose the heat pump rose by nine percentage points, so just a little less than the subsidy. That is important because a heat pump has a high upfront cost and probably always will have, so we will probably need to switch in the long term to thinking of it as more like buying a car rather than buying a boiler. When people buy cars, it is very commonly done on finance. The upfront cost is not necessarily seen as a huge barrier.

To enable that financing—this goes to what Zoe says—if you are paying monthly for the upfront cost, it is really important to get the running cost, the monthly bill, low enough to make that okay. There is a world with heat pumps in which we could make it such that you are no worse off. You basically pay your monthly finance payment and your monthly energy bill, and you end up just as well off as if you had a gas boiler.

We are not that far away from a world in which that is possible, if the interest rate on the finance is cheap. That is how we see the heat pump sector going in the long term. There will, of course, be a role for subsidies for some time. It is that switch and making the upfront cost manageable for people, but not ignoring the ongoing cost. What we absolutely do not want to do is to load people with much higher ongoing bills for their energy.

Lord Whitty: Thank you very much. Do you have anything to add, Tom?

Tom Elliott: I would just add one thing. I will try not to repeat what has already been said. I tend to agree that, if this is purely framed around a capital cost comparison between different bits of hardware, it will be very difficult. As Andrew said, subsidies will be quite important in overcoming that in the short term, but going forward it will have to transition into a service-based approach. I think the service will have a financial element to it. It will also have to have a confidence and outcome to it, ensuring that the consumer is getting the heating or the warmth outcome that they require.

Octopus is now driving the market because it has a unique position. It is trying to get installers into the market, but because it is a regulated retail supplier it has the ability to have an ongoing relationship with the customer. Some of the research that we have done in our living lab has highlighted that, if you can give consumers a valuable outcome, they will typically stay with their supplier as opposed to trying to find the cheapest tariff in the market. Obviously, it is quite complex with energy with regard to fuel poverty and environmental consumers.

That then starts to address the original point that you made about disruption. It is quite a disruptive process, but as consumers we go through disruptive processes. We happily rip out our kitchens and bathrooms. The social housing industry has been doing that for many years as well. The disruption, or our willingness to acknowledge and accept disruption, exists but it all depends on whether we think the outcome will be of value to us, whether it be in a financial sense or some other kind of heat or warmth sense as well. That transition to services is going to be paramount.

Lord Whitty: You have mostly focused on the way we finance this, easing the burden on householders. Should we be doing anything to reduce the absolute cost—the upfront cost and the running cost—or are we just waiting for the volume to bring the cost down as the market develops? Should we do anything else to bring the costs down?

Tom Elliott: On the capital costs of the hardware, it is going to be quite difficult. The components used in heat pumps, as Andy mentioned, are already used in an international heating, ventilation, air-conditioning market that is configured slightly differently for a domestic heat pump. Trying to create savings from that element will be difficult. However, there will be savings through the processes of getting that heat pump installed because it is an immature market. We just need to be sure that we are not trying to drive so much efficiency into that process that we risk the quality.

The other element is the wider energy system reforms around how we can start to rebalance the levies and costs currently apportioned to gas and electricity so that it is more even. From a standing start, ignoring the current energy crisis, electricity is typically three to four times higher than gas. We need to rebalance some of the levies and the subsidies in the wider system so that electricity and gas are on a more even level to begin with.

Q18 Lord Lucas: The impression I am getting from our witnesses is that looking at the total system effect of these heat pumps, given that at best the costs are turning out similar, there is probably no energy use advantage. There certainly does not seem to be any performance advantage in heat pumps. We are creating a system that can access zero carbon electricity when it is available, which under the plans that I am aware of is some good, long way in the future.

Does moving to heat pumps offer us any advantage in buffering so that we can deal with electricity that is available at one moment and not available to others? Given that we will be using gas in the total system for some long while, should we not also be looking at gas-powered heat pumps?

Tom Elliott: To try to address the first part of that question, I feel like we are slowly moving to a stage where innovators and the system more generally are allowing for demand-side innovation. That is why I think both heat pumps and other demand-side technology will start to support this change in the market. We can start to have much better incentives and granular pricing to ensure that the demand for heat from electricity is better matched to the supply of electricity, which does not happen at the moment. Not only can that be done in a way to satisfy the occupant of the building; it can be done in a way to drive better efficiencies in the wider energy system.

There is a huge amount of innovation in this space, which is very encouraging to see. Ultimately, a lot of it is dependent on wider system reforms and regulation that are ongoing through the Government's REMA² consultation. It is very important to acknowledge that. It is happening. We would like it to happen a little more quickly, but it is definitely happening.

On the gas point, the challenge I see is that if we continue to try to rely on gas for appliances or applications like this, we have another question about how much investment we have to put into the infrastructure that enables that gas to get to its use. I will try not to digress too much outside this inquiry, but ultimately other system considerations need to be considered if we start to think about gas-fired heat pumps, as you suggested.

Lord Lucas: The costs in moving to a purely electrical system will need a vast investment in the grid. If we can continue to use the gas grid, that is there.

Tom Elliott: Yes, it is there. There is a risk that we keep making large investments in the infrastructure, which then potentially leads either to redundant or to sunk investments at a point where we start to transition to electrification. It becomes very complex. I am not sure that I can give you a good answer today, here and now, but I just think that there are wider system considerations.

² Review of electricity market arrangements

Q19 Baroness Northover: In case this question has not been fully addressed in the discussion that we just had, what are the pros and cons of the current design and administration of the Boiler Upgrade Scheme? How well are any risks to consumers addressed through the protections that exist? You have been addressing that to some degree. Is the slightly larger grant for ground source heat pumps set at an appropriate level? What would be the advantages and disadvantages of including additional technologies in the scheme?

We have been addressing a number of these areas, but our witnesses have probably seen these specific questions and may have further comments to make.

Zoe Guijarro: Some of the pros of the Boiler Upgrade Scheme are that it is relatively simple. It is much simpler than the Renewable Heat Incentive, for example, because you just have your upfront grant. That is easier for people to understand. Perhaps if you have some savings, but not lots of savings, it is a bit more accessible for you. Grants have been proven to be much more effective at driving the change that we want to see.

On the cons, we have probably gone on an awful lot about the high upfront cost. The co-pay arrangement is a significant barrier. Unless you have access to finance and unless you happen to have significant savings, you are not really going to be able to use this scheme. It is still very skewed much more to affluent households. Where people are in fuel poverty or just about managing, given the high cost of gas at the moment, they would really benefit from having these systems. If we are looking at between £7,000 and £13,000 for an air source heat pump, and £30,000-plus for a ground source heat pump, you can see that that £5,000 does not take you very far even with the uplift for the ground source heat pump. To answer that question, it does not really take you very far if you need, or want, a ground source heat pump.

On the protections, it is great that we have MCS for the Boiler Upgrade Scheme. It is brilliant, but what we actually need is a universal single protection scheme for people who might be installing heat pumps and other low-carbon technologies using their own money. It is great that it exists where there is government funding, but the fact that it does not exist unless you are receiving that funding creates a problem. It creates space, as I have already said, for scammers to operate in. Because there is this lack of public awareness more generally, and in the absence of a well-known protection scheme, I always think about Gas Safe. Most people have heard of it—or they will mention Corgi, if people are old enough to remember it. We need something similar in that low-carbon space to help to build that confidence.

The only other thing that I would say about the Boiler Upgrade Scheme specifically is that although the funding is really welcome and was set at a good level, if you compare it with schemes that we have seen before, it will install only around 30,000 installations a year for three years. That is what we are already doing. We need to get to 600,000 installations a

year by 2028, and then even higher. In one of our best years, we did 1.5 million gas boilers, so that gives you an idea of the scale we need to get to. This is really just a drop in the ocean.

As welcome as it is, sadly we will need more of it if it is to be a much more universal scheme that is available to lots of different people.

Tom Elliott: On consumer protection, to build on what Zoe said, it is great that we have MCS, but we have two separate consumer protection codes and multiple certification bodies. From a consumer point of view, understanding where to go and who to go to can be quite confusing. Typically, quite a lot of paperwork needs to be completed. If it is an urgent issue, it will be resolved within 24 to 48 hours, but if it is non-urgent, the timeline is two weeks. I still think there is some work to be done to make the process a bit easier for consumers, both in administration and in who they go and speak to.

It is quite difficult for consumers to identify a problem, whether that is install quality, it is not running properly or it is not delivering the heating. It is quite difficult to understand where and when that is. It is thinking about how we can ensure that consumers are supported to identify that, and then the appropriate redress. One of the main benefits of the scheme is the fact that it is not the consumer who is responsible for claiming the voucher. I think that has been shifted to the installer, which, from what we have heard, makes it a lot easier for the consumer and the installer to participate in the process.

The Chair: Thank you.

Q20 **Baroness Young of Old Scone:** May I pursue one of my current hobby-horses: off-grid customers—people who are dependent on oil and LPG? The Government have consulted on the off-grid regulations, which would enforce people changing to something other than oil or LPG after 2026 if their current boiler arrangements break down. We do not yet know what the Government's response to the off-grid regulations will be—at least, I have not spotted it so far. What do you think needs to be put in place to protect the consumer rights of individuals who could be forced to go down what you are describing as a rather complicated and, as yet, immature route?

Tom Elliott: Ultimately, we need to ensure that those consumers are supported and marketed to in the right way. That partly comes down to a couple of things, including ensuring that we are confident that an EPC target is the most appropriate proxy or measure of what that property needs to be doing.

Where recommendations are being made, how can we ensure that the actual performance of that equipment is being guaranteed or assured in some way? I appreciate that it will become increasingly difficult for certain building types and certain users to comply with these EPC regulations, so perhaps we can get better at ensuring that what we are proposing for that property is the most optimal solution and that the

performance of that solution is measured in some way—maybe not guaranteed, but at least measured—so that if there are problems, consumers can be supported more easily. At the moment, both those things are a little light-touch, especially for off-gas grid properties.

Zoe Guijarro: I echo everything that Tom said. There needs to be much greater detail on how you handle the transition, because many people will be in homes that perhaps cannot reach EPC C or above because of the nature of their construction. Is there a way of ring-fencing so that they pay only so much towards their heating bill? I guess there are lots of different ways that you could divide it.

It would also help to drive much greater understanding of how we make some of these technologies work better in those non-traditional construction homes. Various organisations work in heritage buildings, for example, which you would think are quite leaky and you cannot change the windows, but they are able to make some of these technologies work—and work quite well. We just need to be open-minded about which technology is most appropriate for that household to deliver energy and warmth at an affordable level.

Baroness Young of Old Scone: Quite a lot of the rural poor will be in rather substandard accommodation, which may not be heritage at all but just dreadful.

Andrew Sissons: It is a really important question. At the moment, heat pumps are by far more common in off-grid areas. The places that have by far the greater share of heat pumps are northern Scotland and the islands, Cornwall and East Anglia.

That is primarily because, normally, oil is an expensive way to heat your home, and heat pumps have mostly been a slightly more affordable option. There has been a bit of a change recently with the energy crisis and gas and electricity prices, but, typically, oil is a very expensive way to heat your home, and it is quite inconvenient because of the delivery system. For the 15% of homes that are off-grid and mostly rely on oil heating, switching to something more efficient, such as a heat pump, may not be a bad deal. It may save people quite a bit of money and increase convenience.

The difficulty, of course, will be the upfront cost, and if, after 2026, people are obliged to switch to something else, the basic affordability will be really challenging for many people. I hope the Government are thinking very much about that ability to pay, but we should be trying to make the most of the fact that people in rural areas should save money from switching to a heat pump, provided that energy markets calm down a little. It can be partly subsidy, but some of the interest-free loans and some of the schemes that help people keep their energy bills constant while paying the upfront cost might be quite good ways to tackle that problem.

In many cases, heat pumps work really well in big, draughty homes, if they are designed well. A lot of heat pumps go into the coldest places in Europe: Scandinavia is the heat pump capital of Europe. Insulation helps, but you can put heat pumps into lots of big, rural detached homes. That is where they most commonly go in the UK. There is a challenge with the off-grid switchover and the phase-out of oil, but there is also a big opportunity in upgrading those homes. There is a chance for rural areas to lead the way on this technology, which we should try to embrace.

Q21 The Duke of Wellington: I was very interested in the figures given by the representative from Citizens Advice. I think you said that we need to get 600,000 heat pump installations per annum. What is your suggestion of how we could get to that figure, given all the other figures that we have heard and the difficulties of installing heat pumps and similar technologies? It is a huge increase, so I wonder how you think we can possibly get there.

Zoe Guijarro: It is a huge figure. It was in the Government's 10-point plan, and it goes beyond 600,000 a year: once you get into the 2030s you are edging closer to 1 million a year. It is massive, but there is a massive job to do when it comes to net zero and moving away from carbon.

We really need to see the price of heat pumps come down if it is to be a more universal technology that people from all walks can have in their homes. The upfront costs need to be mitigated in some way, be it through upfront public subsidies or, as both Tom and Andrew mentioned, through a heat-as-a-service model, in a similar way as you pay for your car or your mobile phone. Obviously, that needs to be set at an affordable level for people to be able to pay for it on a monthly basis.

There needs to be much more access to green finance, which at the moment is quite lacking. We have grants available for people on benefits and the boiler upgrade scheme for people who are able to pay and make their own contribution, but in between those two there is quite a wide swathe of people. Some people will need to be able to access finance to do those things.

We need to see much greater work on what that might look like. Will there be grants on a sliding scale, depending on people's income? Is there availability of low-cost or zero-cost finance, or do we see the emergence of a heat-as-a-service scheme? We need to start thinking about and deciding on these things now, because 2028 is not that far away.

The Duke of Wellington: What you are really saying is that one of the recommendations of this committee when we produce our report is that there should be some financial package available to all consumers. That might be difficult to distinguish on a means-tested basis—I imagine that would create a bureaucracy, which might be difficult to justify—but I think you are saying that, if you were a member of the committee, you would suggest a finance scheme backed, I suppose, by the Government.

I wonder whether that is practical and realistic.

Zoe Guijarro: I am suggesting that there are various routes that you could go down. There will be a need for public subsidy for a while. At the moment, the Government are pinning a lot of their hopes on the low-carbon heat mechanism, whereby they will put a duty on to boiler manufacturers to deliver an equivalent number of heat pumps. They are relying on the market to deliver some of those cost reductions, but, as we heard from Tom and Andrew, there is a limit to how much you will be able to reduce the cost of the hardware. There might be some savings to be made through personnel installing these systems—we have heard that Octopus has streamlined the process somewhat—but we do not want to be making it so cheap that these things are not going in or are not being installed properly and are costing consumers a huge amount of money.

Today has shown that there is a need for more investigation about what financial models might work. You are right: it will not be palatable for the Government to pay for whole swathes of the country to have heat pumps put in, but what financial models can we come up with to support people in that transition? At some point, gas boilers will end; there will be no more gas boilers in people's homes, so how do we help people to afford whatever new technology will be going into their homes—whether they are put on to heat networks or they have heat pumps? What I am saying is that more work is needed in that area.

The Duke of Wellington: Would either of the other witnesses care to comment on how on earth we get to 600,000 a year, and more, in the near future?

Tom Elliott: Let us not forget that grants are very helpful, but they need to be set at the right level. In the short term, let us try to raise the grant, if we possibly can, to try to overcome some of the cost of the disruption. I think that early adopters will start to acknowledge that.

Going forward, as you mentioned earlier, we need the skills—not just in installers but in the people who can interface with consumers and explain the best option. If we want to set this going forward, we need the right markets and signals in terms of energy prices, in addition to capital costs.

There are some very interesting considerations in the current REMA proposal on how the energy system can better interface with the demand side so that the incentives for installing heat pumps or adjusting your time of load are accurate. As part of this retail reform, we need to consider the role of energy retailers so that we can see more innovation from the likes of Octopus. They can be that key stakeholder that can try to absorb some of that upfront capital cost, rather than just purely trying to rely on grants going forward.

Q22 **The Lord Bishop of Oxford:** Do the witnesses want to comment on the installation of domestic solar panels to help with the cost of running heat pumps and how that affects the equation? Are there any schemes offering a dual upgrade in both those respects?

Andrew Sissons: Solar panels work really well with heat pumps and, often, with batteries. There is a nice mix of solar panels, home batteries and heat pumps. It has the appeal that, for a lot of customers, it can effectively mean free heat, because energy is free for a large part of the year, particularly through the summer. Given the current energy bills, that is hugely appealing.

The downside, of course, is the capital cost. If you were to install a heat pump, solar panels and a battery, it would probably cost £20,000-plus. At the moment, because electricity is so expensive, solar is very attractive for businesses and homes. There is no shortage; the constraint on solar is the supply—getting enough installers of solar panels. Solar is really popular, and it is going well.

It is more about helping those who are able to spend that level of money, which is not many people, to understand how they can fit together and make the system work for them. Getting the best out of that sort of system, where you can get that much free energy, is quite complicated, and some companies are building good systems to help people to manage that.

However, in general, I would not unduly divert money towards solar. Solar panels are doing the same thing that wind farms and solar farms are doing, probably slightly more expensively. The biggest imperative in reducing gas use is to stop burning it in our homes, as far as possible, and heat pumps give you the most immediate hit on that. Focusing support on heat pumps, which are not yet hitting that tipping point, like solar, would be the priority from my point of view.

Tom Elliott: I agree with a lot of what Andrew just said. We need to remember that, based on where our country is located, we will not generate a huge amount of domestic roof-top solar PV in the winter when we need to power the heat pump. It will be very helpful for heating water, and we need hot water throughout the year, but it needs to be considered according to whether we think we can rely on those solar PV panels to power a heat pump in the depths of winter when it is dark, raining and cloudy.

There are definitely opportunities for combining solutions, but I do not think that customers will be in a position to make that choice, which is why we need these services and innovators in the market to be thinking about how best they can combine these systems for a desirable outcome in a given property.

The Chair: We have touched a bit on the issues for consumers using these heat pumps. Obviously, as you have made clear, they are not new technologies, even though the Boiler Upgrade Scheme is a new scheme. Are we clear what the problems are, in the technology itself or in the information that is given to them, when customers actually get these in their homes? Are there common after-care support packages and, if so, are they adequate?

Zoe Guijarro: On after-care, we do not have any specific comments about the boiler upgrade scheme, because it is quite new and we are not seeing lots of that coming through in our data at the moment.

From our net-zero homes diaries project we found that after-care can be poor, and that in some circumstances consumers had to resort to YouTube videos to learn more about how to manage their heat pump if they had questions and so on.

As I alluded to earlier, maintenance is an issue. People can really struggle to find someone to come back to help them or if there is a problem with their heat pump. As Tom mentioned, often people do not know what the problem is, so they need someone to come in and look at it, and we have found that that can be quite difficult.

Andrew Sissons: The one thing I would add is the hidden trap that Tom described. If your heating system—this applies to boilers as well—is performing inefficiently, you do not know about it, and that can cost you an awful lot of money. A lot of people will see very high energy bills and not understand why.

We would like to work towards having some proper, open monitoring so that people can find out what efficiency the heat pump system is and know what is good and what is bad. It should be relatively easy to do that. It would apply just as much to gas boilers, many of which are hugely inefficient and could work better.

If we could get customers armed with a little warning that says, “Your system is not performing very efficiently. Contact your engineer”, that could save a lot of money and a lot of gas and carbon emissions. That is the hidden bit, which is too far below the surface in the monitoring and customer support.

Tom Elliott: I have nothing to add, but I strongly agree with that point from Andrew.

The Chair: Great. We might ask you after the meeting whether either of you have any specific ideas about how you can achieve that idea of open monitoring, because that is an important and interesting angle that we may wish to pick up on. We might ask you to write to us on that issue, if you would not mind.

Q23 **Baroness Young of Old Scone:** This is the Christmas and birthday offer: if you were the Government, what improvements would you make to the upgrade scheme, beyond the ones that we have already talked about? You have already talked about quite a number of things that you would like to see done. Now is your chance to tell us the things that you really would like that we have not talked about so far.

Zoe Guijarro: If I had a choice, the Boiler Upgrade Scheme is great, but, as we have already touched upon, it advantages those who are already relatively well off. There is definitely space for the level to increase, especially because it has a real potential to help with the cost of living

crisis. We are seeing that heat pumps can be cheaper to run than gas boilers, even in poorly performing homes.

We mainly want to see a focus on energy efficiency, as part of the boiler upgrade scheme. It is critical that energy efficiency is done first. It costs people £900 more a year to heat their home if they live in an EPC band E home compared to a C, so there is definitely scope for thinking about how these things work better in tandem.

If I had an ask of government, I would go with a good package of energy efficiency, plus the boiler upgrade scheme, to make a really neat grant scheme to improve the affordability of heating people's homes.

Andrew Sissons: I will start with the very technical and maybe move out. There is a challenge about people definitely getting paid, which is really problematic for the mainly very small businesses that operate in this sector. Currently, only 40% of vouchers applied for have been paid out, and we need to try to speed up payments and remove or extend the three-month limit. As the vouchers are eligible only for three months, there is a real risk that people will lose out on getting a grant at all. That could be the installers, who might then be put off from doing more heat pumps, or it might be the customers who are £5,000 or £6,000 out of pocket.

The level of the grant for ground source heat pumps needs to be looked at again, because the uptake is very low and a ground source heat pump costs more than £1,000 more than an air source heat pump. The £6,000 ground source heat pump figure seems not to be working so well.

We have not hit this problem yet, but there is a very big problem brewing with the 30,000 cap each year. The current policy is "first come, first served", so if an installer installs a heat pump and applies for the grant, but they have all been taken at the 30,000 limit, again, that means people missing out on money. We need to make sure that there is more flexibility and an indication that, if this scheme works, the Government will extend it, or at least will look after installers who, in good faith, try to follow the scheme. If you have any installation companies or customers losing out through the quirks of the scheme and the caps each year, that will be a really big problem.

Baroness Young of Old Scone: I thought that the way the deal worked was that the installer got the go-ahead after whoever it is that is running it—is it Ofgem?—had checked with the householder. Are you saying that, even if they have that go-ahead, they may not get the money if they hit the ceiling of the 30,000?

Andrew Sissons: I do not know how exactly the cap will work at the end of scheme, but if you are selling someone a heat pump, the grant is an integral part of it and there is a possibility that you quote somebody for a heat pump, you apply for the voucher, you may well go ahead with the work, because you do not want to cause huge delays, and you find, "No, sorry, it's full". For this year, that may not be an issue, but for future

years we hope to see heat pump uptake increase a lot, so you could find that you are hitting that issue and a few thousand people could be affected if that is not addressed.

Tom Elliott: Anything I can add builds on that last point about giving the supply chain or the installers a bit more confidence in the timescales. Quite often, particularly at the moment, the majority of installers or engineers doing this will be fairly small businesses that typically operate on a two to three-year planning horizon, so anything that can exceed that and give them more confidence that this is a market that they should be getting into would have a really good impact on the wider skills issue.

Another, quite obvious, area that has already been mentioned by Zoe is the capital grant that is available, and thinking about whether that could be increased at all.

Q24 Baroness Young of Old Scone: I can see the Chair glaring at me, but I would like to ask one more question. Is there any merit in looking at how this could be linked with the capital cost of a house and the mortgage system to make it an affordable cost spread over many years, although possibly not the entire length of the mortgage? Is that an avenue that is worthy of examination, or has it been looked at but found not to stack up?

Tom Elliott: Some thought is going into the link between the energy efficiency of a property and the stamp duty tax, and how that can perhaps be linked to ensure that, if you are improving the energy efficiency of your property, which a heat pump should in theory do, you will pay less stamp duty. On the mortgage idea, we have to remember that not everyone can get access to retail finance, so if we try to pin this to something like a retail finance product, such as a mortgage, we risk excluding quite a lot of people from the market.

Baroness Young of Old Scone: Andrew, do you have any additional thoughts? I am conscious that the Chair is going to kill me.

Andrew Sissons: I would echo that a lot of banks are offering green mortgages, which are good for everybody; it is a good private sector initiative. At the moment, those mortgages tend to focus exclusively on insulation, and heat pumps typically will not improve your EPC rating, which is one of a number of big problems with the EPC system.

Banks will probably get into heat pump mortgages. Moving home is a perfect time to have a heat pump installed, because if you are doing renovations, having a bit of time to plumb the heat pump when you are between things could be very attractive for those people it affects. However, the banks, like the installers, need confidence that heat pumps will continue to happen and that they are not increasing the risks. That is the issue: because heat pumps are still a small market, there has not been enough of a signal to banks, like other businesses, that heat pumps are here to stay and are worth investing big money in.

Baroness Young of Old Scone: I think I have run out of road. Poor

Zoe, unless you are desperate to say something, I had better hand back to Baroness Parminter.

The Chair: Zoe, are you happy to remain quiet on this issue?

Zoe Guijarro: Yes, that is fine.

The Chair: Excellent, thank you. For the avoidance of doubt, no Members will be harmed in the recording of this evidence session. I thank all three witnesses, Andrew, Tom and Zoe. You have been excellent witnesses, which I think you will have noticed by the number of supplementaries that committee members have asked. You have really given us a lot of food for thought. We will perhaps come back to you on one or two issues, but many thanks.