

Energy Security and Net Zero Committee

Oral evidence: [Smart meters](#), HC 752

Wednesday 11 June 2025

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[Watch the meeting](#)

Members present: Bill Esterson (Chair); Sir Christopher Chope; Torcuil Crichton; Wera Hobhouse; Luke Murphy; Melanie Onn; Mike Reader; Claire Young.

Questions 1-78

Witnesses

[I](#): Sara Higham, Director of Corporate Affairs, Smart Energy GB, Alex Belsham-Harris, Head of Energy Consumer Markets, Citizens Advice and Ned Hammond, Deputy Director for Policy, Energy UK.

[II](#): Penny Brown, Chief Operating Officer, DCC, Pil Krogh Tygesen, Energy Counsellor, Embassy of Denmark, and Simon Elam, Principal Research Fellow, UCL Energy Institute.

Examination of witnesses

Witnesses: Sara Higham, Alex Belsham-Harris and Ned Hammond.

Q1 Chair: Welcome to today's evidence session of the Energy Security and Net Zero Committee on smart meters, the state of play in their roll-out, or otherwise, and what should be done from here on in. I ask our first panel—you are very welcome—to introduce yourselves, starting with Sara Higham.

Sara Higham: Thank you very much for having me. My name is Sara Higham. I am director of corporate affairs at Smart Energy GB. Smart Energy GB was created by Government for efficiency and effectiveness reasons to do the marketing and communications for the smart meter roll-out, instead of 20, 30 or 40 energy suppliers having to do it individually. We are here to do three things: to persuade people to have smart meters; to make sure that vulnerable customers are not left behind; and to make sure that people are using their smart meters.

Alex Belsham-Harris: Hi, I am Alex Belsham-Harris. I am head of energy consumer markets at Citizens Advice. We are a charity with a network of local organisations across England and Wales delivering face-to-face advice, as well as national services. One of those is an energy-specific advice service with a statutory consumer advice and advocacy provider in energy. We therefore engage closely with issues that consumers face in that market, and with the smart meter roll-out and the governance around it.

Ned Hammond: Hi, I am Ned Hammond. I am deputy director of the customer policy team at Energy UK. Energy UK is the trade association for the energy industry, covering everything from energy suppliers through to energy generators. In my role, I am in charge of everything that relates to customer-facing policy, which includes the smart meter roll-out.

Q2 Chair: Thank you all very much for joining us. Sara Higham, I will start with you. The installation of smart meters is, we think, somewhere around the 66% level in domestic properties and about 60% in non-domestic properties in this country. Other countries have done rather better. Why are we doing so badly in the UK?

Sara Higham: Thank you very much for that question. In summary, a lot has been achieved, but there is more to go. As you say, about two thirds of meters in the UK are smart meters. Eight out of 10 people who have smart meters like them and about 60% of people with an IHD—that is the little mobile screen that comes with the meter—are using them, some on a weekly basis, some on a daily basis. Progress has been made. Absolutely, there is more we can do, and the industry is working hard to think about how we can get there.

Q3 Chair: Do the Government's 2025 targets remain in reach?



Sara Higham: As the body that looks after the marketing and communications, we are not close to all the details of what makes the smart meter roll-out achievable—operational considerations, for example, which my colleague from Energy UK may be better placed to answer. We know from the stats that, at the end of quarter one this year, we had got to about 67.6%. At the end of the year, I think we will be getting to about 74.5% as the target overall for domestic. There is a long way to go. The targets are really challenging. I will say that, from an operational perspective, things can be easier in the summer, for example, so we often see a bump around those times.

From the communications perspective—so the things that we are looking after—we have two big campaigns for the year, one of which is on energy flexibility. You may have seen some of our adverts that focus on that issue. Now that there are so many new, innovative products on the market, which was not the case two or three years ago, we have this new news, and those adverts are working really well with customers for whom the previous benefits were not quite enough to make them want to get a smart meter. We are beginning to see that they are reappraising now that they can see this new news benefit, so we are very hopeful about what that might unlock this year and beyond.

Q4 **Chair:** Thank you. We saw a 15% fall in the level of installations between 2023 and 2024. Do you think that what you have just outlined has overcome that drop?

Sara Higham: There are probably two things in that. One involves questions about how much operational activity is going on. My colleague from EUK may be able to talk to you about that, because yes, there are installations, but the same workforce are also doing other things. We have meters on the walls that are 10 or 15 years old now, and of course they may be on a replacement cycle, so other activity is going on, as well as installations.

On the consumer sentiment side of things, which is what I am best able to speak from the perspective of, we know that, yes, we have three quarters of the population who now have one. We have a third left. Of that third, a population of about 6.5 million say that they would seek and accept a smart meter in the next six months, and of those who say that they do not want a smart meter, about half of them say that they do not want a smart meter right now. With regard to the new news that I have just spoken about and the idea that you can reappraise when there is new news, we know this is something that from a customer behaviour perspective often will help. We have hopes that that will go further.

The one other thing I would add—I am sure that the Committee will want to talk about this—is that we know that there have been some issues with what we are terming non-operating meters; these are essentially smart meters that are operating in traditional mode. Some of the media moments around that have caused concerns in consumers' minds. Some people who do not have a smart meter cite concerns about them not operating as a reason why they might not get one. We are really leaning



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into the fact that our data shows that the vast majority of people are happy with their smart meter; four in five people who have a smart meter are happy with it and use it regularly. You may also have seen some of our marketing around that, to help reassure people that if they get a smart meter, in all likelihood it will work for them.

So there are two big campaigns this year. Lots of other stuff is going on as well, but those two things are really leaning into what our data shows us are the drivers for helping persuade the population who at the moment don't have one to get one.

Q5 Chair: You have quoted the figure of 80%, or four in five, liking smart meters, which means that 20%, or two in 10, do not. Why do those people not like them?

Sara Higham: We know—I am sure you will have been shown these figures—that just under 10% of smart meters are operating in traditional mode. What that means is that the meter is still recording your energy use in the way your traditional meter would have been doing; it just isn't necessarily sending that reading automatically to your energy supplier and/or the little screen that you might have on your kitchen worktop, in my case. Those meters need to get fixed; it is really important that they are.

The industry is working hard on those, and we can see that they have got better as a percentage. Two years ago, about 12.5% were operating in traditional mode; now we are at less than 10%. The Government or rather Ofgem recently announced—I am sure Alex will want to touch on this—they are looking to introduce further GSOP, guaranteed standards of performance, for smart meters and the service standard you should be able to expect when getting one installed. I am sure that will mean further changes for the experience as well. So this is going in the right direction—absolutely.

Q6 Chair: Thank you. This is a good time to move on to Alex. Are the energy suppliers fulfilling their smart meter duties to consumers when more than a quarter of people say they have not been offered a smart meter by their supplier and one in 10 with a smart meter say they have not been offered an in-home display?

Alex Belsham-Harris: We are seeing those sorts of challenges where suppliers are probably focusing on some of the things that they are required to do in aiming to meet the roll-out targets that they have, but not so much on some of the areas that Sara has mentioned in relation to operating meters that already exist. There is an obligation on suppliers to make sure that those meters are operating as well as they can. We think that at the moment that is not being achieved enough of the time.

Sara mentioned that about one in 10 meters are not working in smart mode, and the improvements in that have been quite slow, so that is the area where we are particularly concerned about suppliers not meeting those obligations, in addition to some areas where we think there are

customers who are at risk of being left behind in the roll-out. We see that some geographic areas—London and Scotland—have a much lower roll-out of smart meters and also that people who live in private rented homes have a much lower take-up. We want to see suppliers focus their activity in those areas to improve take-up rates, so that those people can also feel the benefits of smart meters, because we know that they can be transformative for people's experience of the energy market.

Q7 Chair: Ned Hammond, Centrica propose that there should be a mandatory smart meter roll-out. That has happened in a number of European countries. Is that something you support?

Ned Hammond: The Government decided on the framework that they wanted for rolling out smart meters a long time ago with the information that they had at the time, and did not mandate smart meters. I do not think we should dwell on that; we should look at the best options for the future. At this point, we feel that mandating smart meters risks sending the wrong signals to the remaining customers who do not have smart meters yet, rather than focusing on the benefits that they would receive by getting a smart meter. Sara has talked about some of those already. We think it is better to focus on that.

A new framework should make sure that we maximise the benefits that customers can get from having a smart meter. It should also look at some of the incremental demand drivers that could be delivered, such as improving the roll-out in the private rented sector—there could be requirements on landlords, for example—as well as making it clear to tenants that they can get a smart meter installed and looking at things like public sector buildings and social housing. But we do not think that now is the right time to mandate smart meters in all remaining households.

Q8 Chair: How do you overcome the negative perception, which Martin Lewis described to us, that many customers have about the rest of the roll-out?

Ned Hammond: There are a few things that can be done to improve the consumer's perspective on smart meters. The start of that is trying to raise the levels of satisfaction among smart meter customers. That should help to improve sentiment more widely. As Alex and Sara mentioned, that can partly be done by improving the proportion of smart meters operating in smart mode. We have seen significant progress on that. The number that are not has dropped from 4.7 million in 2020 to 3.5 million now—it has gone from nearly 20% of the total to less than 10%. We want to get that as low as possible. Something that can be done about that is having more flexibility around the connectivity options. Two different systems are used: the cellular system in the south and the radio system in the north. There have been problems with weak signal in some areas. We would like to see more flexibility around what could be used to make sure that all customers can have a smart meter that operates effectively.

Q9 Chair: Do you think that what you have just been talking about is a way of reassuring people?

Ned Hammond: Yes, because if you improve the satisfaction of people that have smart meters, that should help to improve wider sentiment across the market. If more people have smart meters that are working for them, that should improve sentiment.

Q10 Chair: Is there evidence that people talk to their neighbours about how fantastic their smart meter is and that it is a topic of wider discussion?

Ned Hammond: I do not have any specific information on that, but I would be happy to come back to you on it. We are seeing improvements in a lot of different areas at the moment, but the thing I was going to get on to is that we also need more focus in the media on positive coverage of smart meters. Sara can talk about what SEGB does. Thinking about the things around the flex benefits is really important. That can provide more positive reasons why people should get smart meters and improve the sentiment around it with those customers.

The other thing we would like to see is the Government giving positive messages around the smart meter roll-out more frequently. We barely ever see Ministers talking about smart meters at all. For example, pretty much every announcement about heat pumps says that you can save £100 on your energy bills if you use a smart tariff, but nowhere does it mention that you need to get a smart meter to benefit from those smart tariffs. They should be including things like that all the time.

Smart meters and the flexibility benefits that they can bring are really important to achieving things like a clean power system, because they can reduce the amount of generation and grid investment required. It is also a key part of delivering the warm homes plan with clean heat technologies and making sure that people get the benefits of those.

Q11 Claire Young: Welcome to the panel. We have seen some worrying statistics about the reliability of smart meters, such as one in 10 being used in manual mode. Money Saving Expert has estimated that, when you take a wider definition of "faulty", it is more like 19%, which also ties in with Citizens Advice saying that 20% are having problems. Alex, should targets for energy suppliers focus on the number of working smart meters, rather than simply installing new ones?

Alex Belsham-Harris: To respond to the research that you cited, our research also shows that one in five people are still regularly giving manual meter readings, even though they have a smart meter, which suggests that there is a wider issue with smart meters than the data published. We think that is potentially to do with intermittent issues where meters are coming on and off, and that is what is causing them not to reliably generate accurate bills. We really want a much more consumer-focused definition of the smart meter experience to understand what is driving some of these issues.

On how that is incentivised from suppliers, there is already a requirement, alongside the roll-out targets, that they take all reasonable steps to operate smart meters in smart mode—there is already a rule there. Ofgem has published data that shows there is quite a broad range of performance

among suppliers. For the worst performers, between 85% and 95% of meters are operated in smart mode, which suggests there are actions that suppliers can take that can have a real impact on the ratio of smart meters not being operated properly.

That is why we are also really supportive of what Ofgem is proposing: a new automatic compensation to increase the incentive. If a rule saying that you have to do this thing is not enough, increase the incentive on suppliers, so if they do not do it, customers receive an automatic payment. The only concern we have there is that it is again linked to quite a long period of the smart meter not operating. Some of those people who are still experiencing issues would not necessarily receive the compensation that we think they need. We are keen to see that change and ensure that there are no loopholes in that set of rules, and also to ally that with other protections, so that people with smart meters have a guarantee that they can get a more accurate bill. I can talk a bit more about what might look like, if it is helpful.

Q12 Claire Young: Specifically on the targets, would you change them to focus on working smart meters, rather than simply installing them, or do you think these other things that you are outlining would be a better approach to the problem?

Alex Belsham-Harris: In our opinion, generally yes. At some point, having a smart meter, and operating a smart meter as a supplier, is a business-as-usual activity. Having a target from Government feels a little bit odd. It may sit better with Ofgem, as the energy regulator, to make sure that firms are doing this as part of their ongoing service to customers, and to keep the roll-out more focused on the infrastructure side of increasing smart meter penetration and achieving the system benefits that it is designed to deliver. That can make sure that we are keeping people focused on the right activities. However, we are concerned that Ofgem has left it quite late to get to the stage of taking this action to really incentivise suppliers.

The other challenge that I would highlight in this space is that it is not just suppliers that deliver the smart meter infrastructure; it is also the DCC, which is the company that manages the communications network. Within the rules that require suppliers to operate smart meters properly, there are get-out clauses that say, "If this is an issue that relates to the network, the rules do not apply." That is really negative for customers because it can mean that the supplier says, "Well, this is a network issue. There is nothing we can do about it."

That customer is stuck in limbo and there is no way for them to progress their complaint if the supplier is not able to see improvements in their engagement with the network company. There is no ability to verify that the network is the cause of the problem, and it will mean that people in that situation will not be eligible for the compensation. It is a bit like if you get on a train and you are delayed, and your train company turns around and says, "It's not our fault. It's the people who run the track. They caused the delay, so you cannot get compensation."

Q13 Claire Young: I see the point you are making. Ned, are there enough smart meter engineers to carry out repairs and installations? If not, what steps would you take to boost recruitment?

Ned Hammond: Across the country as a whole, the biggest challenge we have in installing new meters is demand from customers to do so. As we are getting to higher and higher numbers who have smart meters, an increasing proportion of the remaining number does not want them, so it becomes more and more difficult.

Claire Young: But for repairs?

Ned Hammond: There are enough engineers in the country as a whole. However, there are some challenges in certain areas of the country. Alex has mentioned areas with a lower level of penetration in central London, where there is a particularly dense population and there are difficulties with access—getting vehicles in, parking and so on. There are also areas, of northern Scotland in particular, that are very sparsely populated and it is difficult to make it commercially viable to have engineers there regularly for when a small number of customers might request a meter.

There are challenges in certain areas. In those instances, we would like to see the Government make the smart meter roll-out part of their overall green jobs and skills programme and look at how we can have engineers in some of those more difficult areas to help with the roll-out.

Q14 Claire Young: Sara, Ofgem's rules state that suppliers must take "reasonable steps" to ensure that smart meters are working. Do you think those responsibilities need to be made clearer?

Sara Higham: That probably is not a question that I would necessarily be able to answer, as a marketing and communications body—Ned might be able to comment on it—but I would like to pick up the piece about people who say that they currently do not want a smart meter and how we might continue to persuade them.

As we talked about earlier, it is important to separate what consumer sentiment really looks like and how it perhaps might be seen within social media channels or when you have media moments. We know from our data, which is incredibly robust, that of the third who do not yet have a smart meter, 33% said they would seek and accept one in the next six months, which is a lot of people—6.5 million. Then there are those who say they would not want one right now, but we know they can be persuaded; consumer sentiment is not static, and people will often change their mind. About 10% of those who say they do not want one go on to get one six months later, so we know people change their mind.

To pick up one of my colleague's other points, on how there can be a barrier or a difference between consumer sentiment and getting a smart meter, there can be reasons why that does not happen. For example, I know that the Committee is interested in the split incentive model between landlords and tenants, and you have looked at that from an energy efficiency perspective. That is absolutely an issue in the smart



meter world as well. When we look at private rented sector tenants, they say at a greater level than others that they want to get a smart meter, but their ownership levels are below average. When we dig into that with our data and research, we can see that it is often because there is a grey area around who has a right to get a smart meter in those situations. The legal advice Ofgem gives is, "If you're the bill payer, it is your choice, but your landlord might be able to stop you, and you should speak to them," and so on. By that point, if you are a tenant, you just do not bother. One of the things that all of us are probably in agreement on is that there is a real need to clarify that legal situation for the private rented sector. There is a lot of them left who still do not have one.

- Q15 Claire Young:** If I can come back to whether smart meters are working, Ned, do you want to add anything on whether Ofgem's rules about taking "reasonable steps" to ensure that smart meters are working need to be made clearer?

Ned Hammond: Absolutely. One of the challenges we have at the moment, as Alex has alluded to, is that the regulatory framework is a combination of rules that are set by DESNZ and things that Ofgem has within its overall licences. DESNZ has set targets for each supplier to meet for the number of new smart meters that they install each year, and that supersedes everything else. That creates the problem that suppliers are having to do enormous amounts of engagement efforts and contact customers multiple times, even if they may not necessarily want a smart meter, to try to convince them to get one. That is the main focus of the roll-out at the moment.

We think that the framework should change in the future and there should be much more clarity around a consistent regulatory framework across DESNZ and Ofgem. We are broadly supportive of the guaranteed standards that Ofgem is considering introducing, particularly those around having a smart meter installation after a customer has requested one within a reasonable timeframe and making sure that smart meters are operating in smart mode. We think that should be the main focus for any future framework, but it is important that if DESNZ makes that a part of its framework, it does not duplicate what Ofgem is already looking at. We think a combination of those guaranteed standards, making sure that customers are getting the benefits of the smart meters they have in their houses, and then the incremental demand drivers I mentioned earlier around getting public buildings and social housing to install them, and requiring landlords to install them as part of the 2030 minimum energy efficiency standards, is the way to take the roll-out forward.

- Q16 Claire Young:** Do you think those guaranteed standards of performance that Ofgem is proposing go far enough, or is there anything that you would add?

Ned Hammond: As I say, we think two of the four are a good idea. We think that they are broadly the right approach. What is important is how they are designed, and that it is made clear whose responsibility it is to overcome some of the challenges to ensure that smart meters are working



properly. Alex mentioned the timeframe; we think there should be more analysis done on what the right timeframe is between a customer requesting that a smart meter that is currently not working in smart mode be fixed, and it being fixed. The 90 days that they have set seems to be reasonably arbitrary. We would like to see an assessment of what the right timeframe is for that.

- Q17 **Torcuil Crichton:** Thank you all for coming in. I have some questions for Ned and Alex on the role of energy suppliers, but first, Sara—I feel like I have to wave because I am a long way away—I want to challenge the 66% roll-out figure. Where I come from, on the western seaboard of Scotland, 75% of my constituents in Na h-Eileanan an Iar still have not got a smart meter. They have got 0% chance of getting a smart meter because of internet connectivity problems, supplier problems with engineers, and transportation problems. It is not about density, like with cities where you cannot find parking, but about actually getting the engineers to the location. Was there a strategy for rural and island areas in this roll-out, and if not, why not? This was an entirely predictable situation.

Sara Higham: It is understandably really frustrating if you want to get a smart meter and you cannot have one. As someone who owns one and really enjoys having it, I can understand that it is frustrating. In terms of what the Government strategy was, I am not the best placed in my organisation to answer that. I know that you have got the DCC on the second panel; they may be best placed to talk to you from a signal perspective.

One of the really good things about this roll-out has been the collaboration across lots of different parts of the industry—organisations like ourselves, but also Citizens Advice, energy suppliers and Government. As a result of that, where we have needed bespoke solutions to tech problems, we have been able to develop those in a way that I do not think would have happened if a Government programme had not been there, for example.

Next year, hopefully, there is a new product coming on the market that energy suppliers will be able to use. It enables people to use their wi-fi to work the smart meter if they need to. If they have got wi-fi, they should be able to get smart operability from the beginning of next year, I think—Ned might have more details on that. We would have loved some of those solutions to have happened sooner, of course, but I am not sure they would have happened at all if it were not for the fact that we work as a programme in the way that we do. These bespoke solutions are really important, because many people get them. Hopefully that is good news for your constituents from January next year.

- Q18 **Torcuil Crichton:** Ned, you mentioned that there are targets for energy suppliers. Do we know if they meet them? Are they audited? Do we have the data to find out if they are doing their job?

Ned Hammond: Those targets are checked by Ofgem, and then there is compliance engagement for any suppliers that do not manage to meet

their targets. Sara mentioned earlier that the Government's target for the end of this year is 75%, and we are likely to get to around 71%. Those targets so far have been unrealistically high, with the fact that there are not any additional demand drivers in there. It is entirely dependent on suppliers going out and trying to convince customers to get a smart meter. It has been entirely focused on the national level; there is not a regional picture. Suppliers are putting in a huge amount of effort to convince customers—they are contacting them multiple times and through lots of different formats—but the challenge is that there is an increasing proportion of the remaining customers who do not want a smart meter, so trying to convert them is becoming more difficult.

We can see that a pretty small proportion of suppliers managed to meet their targets in the first year, 2022, and those were generally small suppliers accounting for a very small proportion of the total smart meter target. Despite that, Ofgem only took compliance action against a few suppliers, and that is basically because there is clearly a disconnect between the targets that DESNZ is setting and what is achievable in the current framework.

Q19 Torcuil Crichton: Are there penalties if they do not reach their targets?

Ned Hammond: There can be penalties, and penalties have been produced. Ofgem have a page that publishes the penalties that they have produced and the compliance engagement that they are continuing.

Q20 Torcuil Crichton: They are named and shamed, but do they lose money?

Ned Hammond: The fines for 2022 were around £11 million in total, across six suppliers.

Q21 Torcuil Crichton: Alex, in order to reach that 33%, or 75% in my area, are the energy suppliers the best people to engage consumers and get to the hard-to-reach people—those who do not want the meters, or who we cannot get to?

Alex Belsham-Harris: It is a really challenging issue that your constituents are facing. As Sara mentioned, it is wrong to think of the smart meter roll-out as a single roll-out. We have multiple, overlapping roll-outs. Some people have been able to access a smart meter for 10 to 15 years and others, because of where they live or the type of home that they have, are only now getting to the point where that is possible. That is one of the reasons that Ned's view is maybe a little pessimistic about the capacity for smart meters to be rolled out. Our data aligns more with what Sara has described.

There are a range of reasons why people currently are not willing to take on a smart meter. Some of that is, as was mentioned earlier, negative media attention and bad word of mouth. That does play a role. Tackling those performance issues will bear down on that, we think, and at least a significant proportion of that is within the supplier's gift to tackle. On the demand side, the other thing that we can do is demonstrate the benefits of smart meters. As Sara mentioned, new products and services are



coming on that will demonstrate new benefits to people, and people will come through to thinking, "Actually, I didn't see the point before, and I was happy to give my meter readings, but now I'm seeing a tariff that I really want to use," or, "I've bought an EV and I really want to get the most out of it." But constituents like yours, if they do not have a smart meter, will not be able to access those benefits. Our big concern is that people get left behind.

On your question about whether suppliers are best placed, other countries have taken different approaches to who does the roll-out, but given that we are quite far along this path, it would be very disruptive to change who is delivering the roll-out at this stage. We have significant targets to meet in terms of decarbonising the power system. The National Energy System Operator says that we need 90% of smart meters operating in smart mode by 2030, as part of its 2030 clean power plan. Disruption that delays the delivery of smart meters at this point by moving around who is doing the delivery could really put us off track. A better path would be getting the suppliers to up their game in some areas, and tackling some of the challenges around take-up and the technical barriers.

- Q22 **Torcuil Crichton:** I hear what you are all saying: there are customers who are physically hard to reach, and you have mentioned consumer resistance. But you seem to be saying that, for the remaining 25% of consumers, we stick with the same system that is not getting to them. Surely, we need a rethink about how this is sold to consumers, or how consumers engage with tariff incentives, or Government making them aware. There must be another way of doing this, because the way we are doing it is not getting it.

Ned Hammond: It is important to think about not just the total number of households that have a smart meter but the benefits that smart meters are providing to the system as a whole.

- Q23 **Torcuil Crichton:** I hear you saying that, but I have never heard a Minister or anyone else say that.

Ned Hammond: Sure, but you do not hear Ministers talk about smart meters very much, and we would like to see them pushing them more clearly. We think there are other ways of driving the remainder of the roll-out that are not setting unrealistic targets on suppliers. We think that the best way to do that is to make sure that those who have smart meters are getting all the benefits that they can get from them. That creates benefits to the system because if we flex demand, we need less peak power. It also improves energy efficiency because, on average, people with smart meters use 3% to 4% less energy than those with traditional meters.

We get all those benefits, and ideally people hear about those benefits—and that is where the Government come in, because we need more communications around that—and that convinces more customers to take up smart meters. We also need the incremental demand drivers, such as making sure that public buildings and social housing are getting smart meters and putting requirements on landlords to install smart meters as



part of the minimum energy efficiency standards. We think that those kinds of things will enable the roll-out to continue making progress, and there can then be greater focus from suppliers on ensuring that their customers who have smart meters have them working in smart mode and are getting all the flexibility benefits from them. If customers have products such as heat pumps, solar or EVs, the supplier should ensure that they are getting all the time of use tariffs or, even if they do not have those things, that they are able to reduce their consumption where they see that it is inefficient, or that they can potentially get involved in things like the demand flexibility service when that comes back, in the future.

Torcuil Crichton: Thank you.

Q24 Luke Murphy: Thank you to the panel for coming. We have covered some of this already, but I would like to ask about the negative perceptions of smart meters. Evidence from Citizens Advice shows that nearly half of those who did not take up a smart meter when offered one said it was because of negative media reports. Similar numbers said it was because they did not believe it would provide benefits. Also, similar numbers said that they distrust the technology. Martin Lewis of Money Saving Expert has expressed similar concerns about negative perceptions. In addition to what you have already said, what steps are needed to improve perceptions of smart meters?

Sara Higham: Those numbers are fairly similar to what we see. In fact, the insights and data that Smart Energy GB create are taken from a 10,000 sample-size rolling programme over the 10 years that we have had it, and the Government use our data in their target setting and so on. It is one of the most robust places to get an understanding of consumer sentiment.

From that, of the third who are left, some would still get a smart meter—6.5 million say they would seek and accept in the next six months—but it is true to say that as we get into the latter stage of the roll-out, as you have converted more and more people who have said that they would seek and accept, you are left, for obvious reasons, with a large group of people who say they do not want one right now. When you then look at the reasons why they say they would not have one right now—we undertake separate research on this group—the two main reasons given at the moment are, first, concerns that the tech will not work in the way that they would expect it to, and, secondly, “I already use energy really well in my house. I don’t necessarily need to do anything further. Therefore, what more do I need to do?”

At Smart Energy GB, we have been tasked by the Government and energy suppliers that sit on our board to undertake the communications to try to overcome those issues. That is our big focus for 2025 and onwards. They are the two main campaigns that we run. I will also talk about vulnerable customers, if that is of interest to the Committee, because I think that is something that we do need to pick up for that latter stage.



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There are two main campaigns. One is around the flexibility issue that we have talked about. For those customers who say, "I don't want a smart meter because I already use my energy well. I don't see what the benefits would be," this is new news. It says, "Your smart meter can unlock these new tariffs, half-price electricity on Sundays—which is what I do—and all this other good stuff." That new news allows them to reappraise their previous position and then go on to get one. Four months into our campaign, our early data shows that that is happening really very well, even for those who say they do not want one.

The other campaign is around the reassurance message, for those customers who have seen some of those media moments, in particular. We also see myths on digital channels and so on; that is a fact of life for all of us. It is really important that we tackle those myths in a way that does not overcorrect. One of the things that we all have to deal with in communications is that sometimes, talking loudly about a myth can, in fact, bring that myth to the understanding of a greater number of people than those who already knew the myth. You have to be very sophisticated in the way that you do it.

We do a couple of things. One is the Smart Facts campaign, which helps us understand if people are doing digital searches on a myth and make sure that we are serving up to them communications that help tackle that myth in a positive way—for example, the message that four in five people, or eight out of 10 people, are happy with their smart meter. Therefore, we are reassuring them that, actually, lots of people have them and are using them well. It also helps with other myths in and around that. There are lots of things that we can do.

Let me talk very briefly about partnerships and our vulnerable customers. We have a statutory duty to make sure that vulnerable customers are not left behind in the roll-out. The good news is that if you look at the different vulnerable groups that face specific barriers for the roll-out, the vast majority of those groups are in line with the ownership of people not in those vulnerable groups, which is really positive. Two, however, are not. One of those is the private rented sector, which is why I made the point that I made earlier, because it is a really important one.

We put an awful lot of work into partnerships. That is something that Committee members may not have seen, because it is very targeted, for efficiency purposes. However, we work with large organisations, such as Asda and the English Football League, and also smaller ones, such as charities. I know that you had the NEA in front of you last week. That is one of the charities that we have a partnership with. Through that, we talk to people in the community where they are. We train advisers and we run local events. We work with the English Football League, for example, through its local charity network to make sure we are going to those charity events and helping people understand how smart meters can save them money by talking to them on a more one-to-one basis, so we are able to have those more direct conversations. There is a lot going on in

that space. It is really important, and that is why we are continuing to put in a lot of effort this year.

Q25 Luke Murphy: Thank you. Anything to add, Alex?

Alex Belsham-Harris: For us, there are probably three buckets of activity. We have talked about some of them already. It is about tackling the barriers that some people face to improve take-up, and making a much clearer benefits case for consumers. Having a guarantee that you can get more accurate bills through a smart meter is a positive way of both protecting customers if things go wrong and saying to them that they will definitely receive more accurate bills.

At the moment, whether you have a smart meter or not, you can be billed for energy that you used up to 12 months ago. That is called the back-billing rule. With a smart meter you should be getting an accurate bill every time, so why not have a shorter back-billing limit for those customers to demonstrate that the technology is there? It should be working, and if it is not, you have a higher level of protection. That is a real clear benefit for people. Those sorts of benefits, as Sara said, can encourage people to reappraise smart meters.

It is clear that people who have smart meters have a much better experience overall. Some recent research that we did with Ofgem showed that people who had a smart meter had 20% higher satisfaction than those who did not. But the real drag on that is the fact that if your smart meter is not working, you are actually less satisfied than if you never had a smart meter in the first place.

The last bucket is those reputational risks and tackling the significant minority of people who are having problems with their meter. That can also improve take-up.

Ned Hammond: I agree with those points. It is about raising the satisfaction, extolling the benefits that smart meters provide and giving as much positive messaging as possible. SEGB does a lot of good work on that. We need to see the Government getting involved on the comms front as well.

Q26 Luke Murphy: We are moving to a phase of the transition in which, potentially, a lot more new clean tech is going into people's households, such as heat pumps, electric vehicles and solar panels. Is there anything we can learn from the smart meter engagement campaign for the roll-out of those technologies—both positive and negative, or any critical lessons?

Sara Higham: Yes, absolutely. There is a lot to learn. We think we are probably one of the first behaviour change campaigns of this sort of size. There are parallels between what we have needed to do with smart meters and, for example, what you might need to do with heat pumps, energy efficiency building fabric or EVs.

On the whole, it is a low-interest category. Although we all love energy, it is not a new iPhone, so it is not in the interest category you would like it to

be in. It also has a very similar adoption curve. By that we mean that it is a new piece of technology that people do not know anything about, so you have to go through the awareness stage about the product, not the brand. One of the clear lessons from our perspective is that having the communications done through an independent non-commercial organisation can help to overcome some of the initial stages in that adoption curve.

It is also so important to take into account vulnerability and make sure no one is left behind; that should be fundamental in the duty of any organisation doing the communications for a piece of technology. It was in our statutory duties from day one, and we have focused on it so hard that we are now in a situation, which many people are surprised about, where ownership among vulnerable people is in line with that for everyone else. That is a really important lesson for the future.

There is a long list. In fact, I can send you a report we did with the behavioural insights team that goes through some of this for you, because it is really fascinating. There is something around the importance of data, evidence and insights. Everything that we do is based on data and understanding what drives customer sentiment and what might change it, and making sure that we are being agile with those changes.

For example, when covid happened, we could see from the data that national messages about how smart meters help customers contribute to the future renewable system worked more than the personal messages about how they can help in the home. But that switched as we got into the energy crisis, and we were able to switch up our messaging in all our communications really quickly to make sure that we were able to fit into that situation and support people through the energy crisis. Making sure you have the facility to have an in-depth understanding of your customers—that insight—is hugely important. I will send you the report if you want more details.

Q27 Luke Murphy: That is great to hear and those are very useful lessons but, just to be a bit more challenging, they are not things that went wrong and that we can learn from. It is useful to air those as well.

Sara Higham: Absolutely. In terms of the operational side of things, what you are probably hinting towards is that we had delays in the roll-out. Yes, we have had delays in the roll-out. I would put those into two categories: one is the technology, and the other is probably the external context.

Others might want to go into more detail, but from the technology perspective, the solutions to some of the things have increased accessibility. In answer to your colleagues' previous questions about how we reach people in areas where there is no signal, it would have been brilliant if we could have got the wi-fi enabled meters in sooner. I do not know why we did not, but sometimes these things take time. It would have been lovely if those things had been quicker. Some of those other solutions, such as those around tall buildings, take time to come in, and I

do not think that the delays were anticipated. They are in place now, and we are waiting for the last couple. That is good.

The external context has been interesting. Obviously we had covid and the energy crisis, and both of those things had a big impact in a variety of different ways on the roll-out—interestingly, sometimes in ways that you would not have expected. This comes back to my data point. What we saw during the energy crisis was a polarisation of customer sentiment. Logically, you might think, “We have an energy crisis, so people might be more willing to get a smart meter because they want to better understand their energy.” That is true for some, but for a whole group of other people, particularly those on low incomes, our data shows that their behaviour is different: you do not want to change anything, because that risks something happening. In the energy crisis, you could see more people falling into that category. So there are lots of things in there.

Again, understanding what is going on for customers and how we can react to that is important. Obviously, we did not get this all done perfectly, but I would say this was a first of its kind roll-out. It is very different from what happened in other countries: we have put so much emphasis on the consumer engagement side, so it will naturally take longer.

Q28 Mike Reader: I am going to talk about vulnerable customers, in particular RTS, but before I go into that I have a question for Ned. I am just working this through in my head, given what I have heard from you today about the way the fines worked. It is commercially beneficial for energy companies not to do the difficult ones now, because you are leaving people on high tariffs, particularly those on RTS, and the fines are not appropriate to drive energy companies to accelerate the roll-out. We need a fivefold increase in the speed of roll-out to ensure that no one on RTS is left behind, but for energy companies, there is no commercial benefit to doing that, because you are putting customers on higher tariffs.

Ned Hammond: Ultimately, completing the smart meter roll-out is commercially beneficial for suppliers, because it will mean they can have a better understanding of their customers’ energy usage and they will not have to run systems for traditional meters any more. So it is in their commercial interest to complete the roll-out.

The problem is that the pressure is just to get as many meters installed as possible each year. There is no focus on which customers get them—whether they are customers who really want a smart meter, will use it properly and will benefit from it, versus customers who are just taking the incentive of an air fryer to get a smart meter. It just counts as a new install, and it does not matter if it is working either.

We think that the current framework has a lot of problems. We would like to see a new framework that focuses on the benefits to the customers, and on making sure that those who want smart meters get them, that the meters are working properly and that customers are getting all the potential benefits of them.

Q29 Mike Reader: Who decided what was the priority in the roll-out? I am guessing that, commercially, you will go for the low-hanging fruit and do the easy ones, and that vulnerable customers with RTS, particularly in rural areas, for instance in Scotland, have been left behind. We will potentially have people who will be unable to use their boilers in a few months' time if they do not move off an RTS meter, won't we?

Ned Hammond: The current target system is set by DESNZ. That framework runs until—

Mike Reader: That is the target, but what about the structure of the programme? Did the energy companies choose which ones to fix first and where to focus the marketing?

Ned Hammond: I will let Sara talk about what the SEGB campaign does. As she said already, it focuses on the vulnerable customers. If we think about that in the bigger picture, Energy UK runs the vulnerability commitment, which most domestic suppliers are signed up to. They account for 95% of supply. One of the key themes of that is making sure that the move to a smart system helps and does not hinder vulnerable customers. Making sure that they are kept along is a big part of that commitment.

That includes making sure that we can better see risks of self-disconnection within a smart system, as well as making sure there are things like clear communication channels with vulnerable customers and helping to signpost them towards third party services such as Citizens Advice. That is a key focus for suppliers as part of the roll-out.

The challenge that suppliers have is that the target's framework, which was set by the Government, makes it really difficult to put as much resource into all of the other things, because that is what they are potentially at risk of getting significant fines for.

Q30 Mike Reader: To build on that, Sara, if we went into your organisation and looked at all your marketing strategies and plans since this started, would we see vulnerable people front and centre from the very beginning? It feels like this is a bolt-on at the end, as you are having to pick up the difficult stuff.

Sara Higham: I will talk about RTS separately, but in terms of our overall campaign, our vulnerability strategy has been baked in since day one. We have a dedicated vulnerability team, and because we can now see that vulnerable people with vulnerable characteristics have the same ownership levels as the rest of the population—in fact, in some of those vulnerable groups, such as prepayment meter customers, we see a higher proportion of them having smart meters—we know that that works well.

Our strategy is set by our board, which has representation from Citizens Advice, In fact, Alex sits on our board, and energy suppliers, the Government and Ofgem attend as well. We design our strategy based entirely on where the data leads us.



As I said earlier, the research we do includes drivers research, which helps us to understand what would persuade people to get smart meters. We use that on a nationwide level to design our campaign materials. In addition to that, we have the specific focus on vulnerability, so vulnerable customers will see the overall campaign and the specific campaigns. As I said earlier, particularly through our partnership work, a lot of it will not be visible to members of the Committee because it is happening in local community centres or with local charities, and it will therefore be on a very one-to-one basis. That is a huge focus.

Briefly, on RTS, from a campaign perspective—

Q31 Mike Reader: I will come to RTS in a moment. I want to talk more generally about people who are less digitally literate or have been mis-sold, I read a case study on the Citizens Advice website by Franc Kolar, who was told by the energy company the smart meter would work, and installed it in his basement. He assumed it was all fine and paid his bills. Two years later he got a £5,000 bill from the energy company, and was told that he had to pay it.

Where the energy company installed the electric meter was not his choice, but the liability sat with him to pay the bill. He has now had to pay an extra £500 a month on his energy bill to get himself back into the positive. Is that fair? What more can you do to protect people who do not fully understand the smart meter process?

Sara Higham: That is an awful case study. In fact, as you will be able to talk about, with back-billing rules and so on, it sounds as if something is going on there that is not right. That particular case study needs to be looked at, and I am sure Alex will be able to pick up with you afterwards on that. The less digitally enabled are in fact a group that we specifically look at from a vulnerability perspective, and that we will focus in on in the work we are doing this year.

Q32 Mike Reader: What are you doing for that group?

Sara Higham: That will be particularly through the partnerships work, which is where we work with organisations such as National Energy Action, local organisations and local citizens advice bureaux.

Q33 Mike Reader: When you work with them, what do you do?

Sara Higham: We train their advisers and give them materials. We also do quite innovative things such as putting materials on pharmacy bags and making sure materials are up in GP surgeries. We ensure we are looking at where people who have those different vulnerable characteristics are and how we can best communicate with them.

What is really interesting is that, when you look at the data, for a lot of these groups the messenger is more important than the message, which is why we work with trusted third parties such as Citizens Advice, Carers UK, which is one of our long-standing charities, and the RNIB, because we know they are trusted intermediaries. We work with them to make sure

they are getting the messages through in a variety of different ways. Housing associations? You name it, we have worked with them.

Chair: Thank you. I will ask Torcuil Crichton to intervene, because he wants to ask something about the radio teleswitch.

Q34 Torcuil Crichton: With the RTS switch-off for consumers, there is no incentive for the energy suppliers to go there because they put their consumers on to a higher tariff. Would it be a good idea for Ofgem to insist that consumers switch from RTS or, if they are left behind on RTS, go on to the lowest possible tariff?

Ned Hammond: Are you saying that there is no incentive for customers to switch?

Q35 Torcuil Crichton: No, for the supplier to push them. The customer is pushed on to a high tariff, but if they were pushed on to a low tariff, the supplier would then be incentivised to sort this problem.

Ned Hammond: If we look at the big picture of the RTS phase-out, this is really old, outdated and frail infrastructure, so it is very much in suppliers' interests to complete the phase-out. Suppliers are working really hard to engage customers to get them to book in a replacement. We have seen a massive increase in momentum. Over the past year, that has increased from 1,000 replacements a month to now well over 1,000 replacements a day, so it is making very strong progress, and suppliers are working as hard as they can to get the replacements done as quickly as possible.

Q36 Torcuil Crichton: Isn't there a fortnight left or something before the RTS switch-off?

Ned Hammond: We want to complete the phase-out as quickly as possible. Any customers who have a meter replacement booking, even if that is after 30 June, should not be worried about that. That is factored into suppliers' plans. If they do not have a booking, they should book one as soon as possible.

There is not going to be a switch-off of the national signal on 30 June. Instead, from 30 June, the RTS functionality will be phased out on a small number of meters at a time. Any customer in an area where that is going to happen will be contacted in advance of it happening.

Torcuil Crichton: Once again, that is the first time that I have heard that; I have never heard that from a Minister or any other Government official.

Chair: We will pick this up separately, because what you are saying is very concerning.

Ned Hammond: We have been working really closely with Ofgem and the Government on the plans over the last several months, and we really appreciate the efforts that they are putting in to this as well.

Alex Belsham-Harris: As you say, it is urgent to get much clearer information out to consumers about what happens after the end of this month in relation to these meters. In the same way, we want to see clearer benefits and protections from the smart meter roll-out more generally; we want much clearer guarantees for customers that, if they do switch to a different type of meter, they will get at least the same price outcomes that they had before they switched. At the moment, suppliers cannot guarantee that.

We know that there are some people who are put off from changing because they do not know whether their bills might rise as a result of moving to a different type of meter arrangement. We really need to tackle that problem as well as the issues around outreach. We must ensure that, when we do get to the point of turning off some of these signals, we have the right mitigations in place so that anyone who has not acted can be supported as quickly as possible, because some of them will face the fact that their heating and hot water might go off.

Chair: We will ask both of you to follow up in writing as a matter of urgency. Thank you very much. I am going to move to Chris Chope because we do not have very long left in this session.

Q37 **Sir Christopher Chope:** I apologise for not being here at the beginning, but I have been at another Committee. I wanted to ask you about the costs and benefits. What are the costs in the current year of this smart meter roll-out?

Sara Higham: The Government are probably best placed to answer on the cost-benefit analysis. They do an annual report to Parliament, and the most recent one, which I think was published a couple of months ago, showed that net benefits are now in the range of £1.8 billion to the end of 2023. For the overall programme period, which goes out to 2034, you are looking at net benefits of £6 billion.

Q38 **Sir Christopher Chope:** That wasn't quite my question, was it? My question was, what are the costs this year of the smart meter roll-out?

Sara Higham: I am afraid I do not know. Someone in Government would be best placed to answer.

Q39 **Sir Christopher Chope:** But who is paying for the cost of the smart meter roll-out?

Sara Higham: Ned might be best placed to answer, but as with any part of your metering system, it is something that will be passed through the bills.

Ned Hammond: It is added on to energy bills. At the moment, around £15 of the bill is on smart meters.

Q40 **Sir Christopher Chope:** About £50 of everybody's energy bill is going on smart meter roll-out? That seems a heck of a lot of money.



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Ned Hammond: I think the point you are trying to get to is about how costly it is to do this overall. What we have talked about previously is around what the future framework for the roll-out might look like. One of the challenges that suppliers have and one of the reasons that increases the costs of the roll-out at the moment is that DESNZ has set unrealistic installation targets for suppliers, which mean that they are basically forced into doing as much communications and giving as many incentives as possible for any customers who do not have a smart meter and are able to take one up, whether or not they are planning to use it for its purpose and get the benefits of it. We would like to see a future framework that focuses much more on making sure that those with smart meters get all the benefits they can from them and looks at incremental demand drivers to help the—

- Q41 **Sir Christopher Chope:** So who is paying for these unrealistic targets, which you are complaining about and want rectified? If they are unrealistic targets, and they are costing every household on average £50—

Ned Hammond: £15.

Sir Christopher Chope: Sorry, I misheard. If they are costing every household on average £15 a year on a smart meter roll-out, that is unnecessarily high, isn't it? Why isn't the cost of the smart meter roll-out being borne by the industry, rather than being transferred to the consumer?

Ned Hammond: The important thing to note is that the benefits people can get from smart meters far outweigh that cost.

- Q42 **Sir Christopher Chope:** There may be individual households that do not wish to have a smart meter, which is fine, but as they are not going to get any benefit, why should they pay the cost?

Ned Hammond: There are benefits to individuals who get involved. Anybody who has a time-of-use tariff can get benefits of at least £115 a year. It could be several hundreds of pounds a year, particularly if they have an electric vehicle.

Sir Christopher Chope: You are talking like a snake oil salesman, if I can say so. Why can't you just answer the questions?

Ned Hammond: Even those who do not take it up will benefit from the smart meter roll-out. Because the roll-out enables demand flexibility, and because people who get a smart meter use less energy—it is typically 3% to 4% less energy consumption—the amount of peak power generation and network grid we need will be lower as well. That means there is a lower cost of the overall energy system, which means that even the people who do not get a smart meter can benefit from lower costs.

- Q43 **Sir Christopher Chope:** You are describing a national benefit, but the cost of that is being borne by individual consumers, many of whom are complaining about the extent of the policy costs on their bills every month. Why is the national benefit, which you have been describing, not being



borne by the national taxpayer?

Ned Hammond: It is worth noting that that national benefit is also a benefit on people's energy bills, because the costs of developing the grid also get added to energy bills. If you can optimise that, you are reducing people's energy bills. By having more smart meters and more demand flexibility, you are able to do that optimisation that reduces people's costs. There is a benefit that people will get even if they do not get a smart meter.

Q44 **Sir Christopher Chope:** But in the meantime, irrespective of their income, people are paying extra—a policy levy—on their household bills, aren't they, and businesses likewise?

Ned Hammond: As I have said, there is a cost on the bills, but there is also a benefit that both individuals with smart meters and all households get from the smart meter roll-out.

Q45 **Sir Christopher Chope:** Can we turn to the benefits? The original idea was that consumers and businesses would, by 2034, benefit to the extent of £19.5 billion as a result of the smart meter roll-out. Is that still the right figure?

Ned Hammond: That is the latest analysis that the Government did, but that was back in 2019. We expect that the benefits would actually be even higher now, because energy prices are higher, so the reductions in costs are higher in pound amounts as a result, but also because there has been a greater proliferation of low-carbon technologies that can benefit from the flexibility that smart meters can provide—heat pumps, electric vehicles, solar and batteries. It is possible that the benefits would be even greater.

Q46 **Sir Christopher Chope:** Why is it not possible to estimate that now? You are talking about a 2019 estimate; why can't that be updated?

Ned Hammond: We are coming to the end of the Government's current framework, which runs to 2025. We would like to see them do a new cost-benefit analysis of part of the new framework.

Q47 **Sir Christopher Chope:** Governments have continually pushed back the date for delivery on all this. Do you think that has added to the costs?

Ned Hammond: I would not have anything specific to add to what I have already said on that front.

Q48 **Sir Christopher Chope:** Do you think suppliers are adequately incentivised to minimise the costs of their smart meter roll-out while maintaining quality customer service?

Ned Hammond: As I have said already, we think the existing framework, which involves what we believe are unrealistic installation targets, adds to the costs of the roll-out. We would prefer to see a new framework that focuses more on maximising those benefits for customers compared with the costs.

Chair: We agreed that we would finish at 4 o'clock and we have reached 4

o'clock. Thank you to our first panel for your evidence this afternoon. We will take a short break while we change over panels.

Examination of witnesses

Witnesses: Penny Brown, Pil Krogh Tygesen and Simon Elam.

Q49 Chair: Welcome back to the Energy Security and Net Zero Committee session on smart meters. Thank you to the second panel for joining us. Please introduce yourselves, and then we will start with the questions.

Penny Brown: I am Penny Brown, the chief operating officer of the Data Communications Company. We provide smart-enabled connectivity into homes across GB. At the moment, that stands at 21 million, and it will grow in scale to over 30 million. We do that by providing the connectivity from the meter in the home through a communications hub right through to our customers, who are energy suppliers, district network operators and other users.

Simon Elam: I am Simon Elam, the director of the smart energy research group at University College London. Unlike a lot of the other panellists, we do not have any direct role in the smart meter roll-out. We do research with smart meter data; we do not do research about smart meters and about the roll-out. There is that small but important distinction.

Pil Krogh Tygesen: My name is Pil Krogh Tygesen. I am the energy counsellor from the Danish embassy in London. I have been invited here to give some insights into the Danish smart meter roll-out trajectory so far. The Danish Government work very closely with the UK Government on energy matters, and we are very proud to call ourselves a close ally of the UK. I am very happy to be invited here today.

Chair: Thank you very much. You are all very welcome. I look forward to your evidence.

Q50 Wera Hobhouse: Over the years, the development of smart meter technology is expected to enable appliances to automatically switch on and off in response to supply, tell me what I feed in, and so on and so forth—amazing things that I am not quite sure my smart meter is doing currently. Pil Krogh Tygesen, what is being done in Denmark and other European countries? What can we learn from the roll-out there? Is all this automatic, flexible switching on and off coming soon? Will I be able to see how much I feed in and time my car charging for when the system tells me to do so? How is it going?

Pil Krogh Tygesen: Thank you for the question. It is very much a moving target, as things are developing very quickly as part of the larger electrification of energy use in society. We have some indications in our data that things are beginning to shift. To give some background, the Danish smart meter roll-out was mandatory, and now 98% of meters are smart meters. If you ask the trade association, it is 100%—I am not sure what is within that 2%, but it is very close to 100% either way.



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We are seeing some shifts in consumption, which began to show themselves during the energy crisis in 2022 and 2023—I am happy to go into that more in a minute. We saw some flattening of the consumption curve within the day, reducing what is referred to—in Denmark, anyway—as the cooking spike, which is in the afternoon and early evening. I also found some data showing that in 2024 there was a massive increase in electricity consumption in the night and after midnight. I am not ruling out that people's behaviour has changed significantly and that they are starting to do more activities at night, but it is more reasonable to assume that this is EV charging, washing machines and heat pumps switching on and off. The increase in night-time electricity from 2023 to 2024 was 16%, which is quite massive, so it is just starting to show itself.

We have some survey data that show that in 2023 about two thirds of Danes had a billing agreement with their electricity retailer that included some form of dynamic pricing for their use of electricity, and about a third reported that they use some kind of a digital service to manage their demand, so it is coming. We also have data showing that three in four of those consumers who have a dynamic pricing agreement state that they have become more aware of when they use electricity. If these customers are the so-called prosumers, which would mean they also had solar PV or some kind of generation in their home, the shift is also massive, but slightly different, because they react less to price signals and more to when their home generation is active, which is a reasonable way to react. Half of those who had a dynamic pricing agreement reported that they tried to adjust their electricity consumption based on the actual electricity price. For some context, right now, the market in Denmark enables pricing on a 15-minute basis.

Q51 Wera Hobhouse: Ultimately, you are saying that the whole roll-out is driven by the consumer. We have been hearing that people want a smart meter because they can see the benefits of it. Should our Government aim for a 100% roll-out, because it is also important for balancing the grid, or should we just aim for those customers who really want it and make sure that they get the best out of it?

Pil Krogh Tygesen: In the Danish case, you could say that the roll-out was mandatory but the reaping of the benefits of the roll-out was customer driven. We did not see a full reaping of the benefits from the roll-out until the energy crisis unfolded. People were very much sticking to their consumption patterns up until that point. I would rather stick to what the Danish Government have done than to say what the UK Government would be advised to do in this context.

Chair: That is very fair and sensible. Thank you very much.

Q52 Claire Young: I would like to focus on the reductions in energy consumption. Simon, has the smart meter roll-out so far had the impact that it was designed to have on reducing energy consumption? Is there a difference between domestic and non-domestic customers?



Simon Elam: I have not studied that—we do not particularly study that at a system level. From the research we have done and the studies other people have done that we have looked at, the figure quoted earlier of an energy saving of around about 3% for people who have smart meters, because they are more aware of their energy consumption, seems to be quite a consistent finding, so we certainly think that is the case.

I would like to highlight the indirect benefits in terms of energy consumption that we are getting out of smart meter data. It is not just about the 3% savings that consumers can make because they are more aware of their energy use from using the in-home display and so forth; there is a lot about demand flexibility, which we might talk about separately.

On energy consumption, we are doing things using smart meter data that can have huge impacts nationally. One of the studies we have done uses smart meter data to evaluate and compare the actual performance of the energy efficiency of buildings to what energy performance certificates model. There is a nice graph that shows this; it's a shame I do not have it. Basically, an energy performance certificate shows energy ratings, with A being the most efficient homes down to F and G being the least efficient. The energy performance certificate will say that energy consumption is going to increase—it is pretty linear—and you might expect that to be the case.

In actual fact, when we have studied those same homes and used their smart meter data, and compared the energy that those homes actually use with what the model predicts, it is really a much flatter line. The prediction is that energy use goes up quite steeply when it gets less efficient, but actually the line is much flatter. For C-rated homes, it is about 8% less than the energy performance certificate suggests, and for F and G homes it is about 48% less. So in many respects the energy performance of these homes is actually much better than the energy performance certificate suggests.

How does that translate into benefits across the system? As some of the panellists on the other panel were saying, smart meters are not just about what happens in individual homes; they are about benefits across the system. Energy performance certificates are a key mechanism for a lot of Government policy programmes. There are policies to raise private sector rented homes to, I think, an EPC of D, and there was a suggestion of a policy programme to raise all homes to an energy performance certificate of C. The latter programme would have a price tag of between £50 billion and £70 billion. If you can improve energy performance certificates through the way in which we have used smart meter data, you can save a lot of money and improve those programmes.

Q53 Claire Young: Do we know whether that is because the energy performance certificates are effectively getting it wrong? Or is it simply that if you are living in a poorly insulated home, getting a smart meter and seeing just how much you are using motivates you to use less? If you are living in a well-insulated home, you might think you do not have to



worry about it as much. Indeed, another reason could be that people living in the worst homes may well be financially unable to improve them, which might be why, when they see the meter ticking up, they don't use the energy. I am a little concerned about drawing conclusions about energy efficiency from all this.

Simon Elam: We did a lot of work on that detail. This is not the first study to find this effect: other European countries have found similar issues. We link data and have a kind of observatory of 13,000 homes across Great Britain that have given us consent to use their smart meter data, and we also link it to other, contextual data—EPCs, obviously, but also weather and some survey data. Because of that, we know a lot about what is going on in those homes—the demographics of the people, their energy behaviours, and so forth—so we were able to remove a lot of those confounding factors that people had assumed were the problem in the past that had led to this discrepancy. They included people under-heating, maybe because they are poorer families in less energy-efficient properties. We were able to remove a lot of those confounding factors, so we have a lot of confidence in this result.

On the back of that, we have been commissioned by DESNZ to follow up on that work and drill into some of the reasons why in a lot more detail. We have just provided that report to DESNZ and it will get published, quite soon, I expect. I don't know how much you know about energy performance certificates, but the model behind them is called the SAP, or the standard assessment protocol, which is being replaced and improved by something called the home energy model. The benefit of this work to the system and the country as a whole is that we are feeding into that work to improve the national models for energy performance certificates and hopefully inform better policy.

Q54 **Claire Young:** We have possibly gone off on an interesting diversion—albeit one that might support our reducing energy bills, so we might want to come back to you separately on that—but perhaps I can bring us back to the question of smart meters. Given that one in five consumers with a smart meter still has to give regular manual meter readings, would a renewed focus on repairing existing meters, rather than rolling out new ones, have a greater positive impact on the energy system? Perhaps I can start with Penny for this one.

Penny Brown: I would like to reassure the Committee that the meters on the DCC network—there were 35 million installed as of yesterday—perform particularly well. There is a small proportion that can erroneously give meter readings, etc, and mean that people cannot get access to the smart services that they expect. We are doing a lot with energy suppliers to support on that. It is a small proportion—just over 2%—so the majority of consumers who have a smart meter are accessing the benefits of it.

Should we be more focused on those that are not working? Absolutely. It is a top priority for the Data Communications Company, right up to the board and shareholder level, and we work on a daily basis with both DESNZ and energy suppliers. We have a stubborn amount that are non-



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communicating at the moment, and they will require a swap-out. Certainly, when I speak to energy suppliers, they are motivated to replace those as quickly as possible, and, as you heard from the last panel, there has been a significant reduction in that issue.

Chair: We are going to move on because we have a hard stop at 5 pm. Mike Reader probably has some follow-up questions for you as well, Penny.

Q55 **Mike Reader:** Yes. We are looking at technical performance and coverage, and we have heard through the evidence we have received that consumers have little recourse when their smart meter stops working due to faults on the wide area network. Is that true, and what is the process for resolving issues under such circumstances?

Penny Brown: If a consumer has problems with coverage or connectivity, their first port of call is actually through their energy supplier. We are a business-to-business company, so we do not have a consumer-facing entity. We work directly with the energy suppliers on that.

Again, our coverage is 99.5%, but that does mean that there are areas where there is no coverage. That is where you will have heard, from the previous panel, that we are working with the Department on introducing what is called virtual WAN. That is a technology that will allow connectivity over wi-fi in the home to support anyone who is having connectivity issues. But connectivity is not just about the wide area network; it could be down to where the meter is located in the property, down to the meter specifically, or down to the comms hub that the DCC supplies as well. We tend to see in our evidence that it tends to be older-aged devices that are creating part of the problem.

Q56 **Mike Reader:** We have heard from Citizens Advice that there is an accountability gap—that it is unclear for people whether they go to DCC or their energy suppliers. Do you think that should be made clearer for people?

Penny Brown: For all resolves, it is the same recourse for a consumer: they must go through their energy supplier. The energy supplier will then come to the DCC and we will triage and understand what the problem is, and work with the energy supplier, and our suppliers, who provide the wide area network, to try to find a resolve on that, or at least try to fix it where we can. Sometimes it will require another engineering visit.

Q57 **Mike Reader:** Just help me work this through in my head: I have a smart meter, but there is a wide area network problem, so it is not working, so my bills are inaccurate. But the issue is not me; it is the wide area network. If my bills are wrong, and I get back billed, get my bills increased, or go on to a different tariff, etc., should I bear that cost as the consumer, when it was the problem with the network that has meant that I have not been able to use the smart meter?

Penny Brown: If you are getting bills and you have connectivity, then back billing is not predominantly down to the wide area network. I agree



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with you that it shouldn't be down to you to sort that out; that is through the energy supplier, and if it is a connectivity issue, that is absolutely with the DCC to fix.

Q58 Mike Reader: Wera talked about charging a car; my smart meter would tell me when to charge it to get the cheap stuff, but I cannot do that if my smart meter is not working, so my bills are going to go up. Should I pay for that, as a consumer?

Penny Brown: I think that is a conversation for you and your energy supplier. I cannot comment on that.

Q59 Mike Reader: It is a general theoretical; I am not specifically saying me. Is there no recourse for the consumer if the wide area network failure means that they are paying higher bills?

Penny Brown: There is recourse. You talk to your energy supplier, and they need to work with us to work out whether it is down to the wide area network—it is not always a wide area network issue. If it is, then they need to work with us, and we can help to resolve that situation.

Q60 Mike Reader: But with those higher bills, who pays that additional cost?

Penny Brown: That is a conversation between you and your energy supplier. I cannot comment on that as the Data Communications Company.

Q61 Mike Reader: The energy supplier would have to be in a good mood and pick up the cost. They would say that they are not liable for the wide area network either, so they would say that they will not pay the additional costs, wouldn't they?

Penny Brown: Well, they could say that. It is a job between us and the energy supplier to understand whether it is a wide area network issue. If it is, we need to resolve that within the time allotted to do that.

Q62 Mike Reader: So what we've heard from Citizens Advice is true, then? There is an accountability gap, isn't there?

Penny Brown: No, because it is our job to fix any wide area network connection issue—

Q63 Mike Reader: But until you fix it—sorry to labour this—my bills are higher, and I am at the mercy of whether the energy company says, "I'll pick up the difference, because there is a problem with the network." The energy supplier will say, "Well, it's not my problem, so I'm not going to pick up the bill," so the consumer will be left paying higher bills because the network is not working.

Penny Brown: Again, that is a conversation between the energy supplier and the consumer.

Q64 Mike Reader: How can we ensure that communities are not left behind in areas where smart meters are not yet rolled out or upgraded to the latest generation?



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Pil Krogh Tygesen: As mentioned, when our roll-out was mandatory it was to make sure the entire-system benefits were made available to everybody, no matter what billing agreement they were on with their service provider. As was mentioned, flexible demand, or demand reacting to price signals from the grid, benefits more than just the specific consumer.

I assume you are talking about leaving more vulnerable communities behind, and that would also be through disproportionate costs and things like that. I looked up some of the cost numbers before coming today, and I can see that the modelling shows that the cost of the smart meter roll-out to be transferred out to the customers—this is obviously an average—is expected to be about £10 a year, which would be balanced out by more than double that in savings from the possibility of shifting your demand.

In the smart meter roll-out in Denmark, whether vulnerable or remote communities will be left behind hasn't been a massive policy issue or a massive worry. Mind you, we also have a quite different geography. We are a much smaller country and we do not have communities that are as remote as communities across the UK. That might also be an explanation for the difference.

Q65 **Mike Reader:** I recognise that this is not your policy area, Simon, but you are welcome to come in if you want. If not, I will move to Penny. Same question: how do we ensure communities are not left behind in areas where smart meters cannot yet be rolled out or upgraded to the latest generation?

Penny Brown: From a coverage perspective, we cover most of the areas across Great Britain. Unfortunately, you are absolutely right that there are areas where there is no wide area network at the moment. It is a very small percentage, and we are building the new technology to fix that gap. From a community perspective, we do not have an influence over the roll-out per se from a data communications company. That is very much down to the energy suppliers and how they roll out at the moment.

Q66 **Melanie Onn:** I want to move on to privacy and data security. Simon, could you advise me on this? Do you think an effective balance has been struck between protecting consumers' smart meter data and optimising smart meter usage?

Simon Elam: Broadly, I would say that it has been a pretty good balance. The data access and privacy framework is part of the smart energy code, which governs how you can access smart meter data, among other things. I think it strikes a pretty good balance between privacy and utility, particularly around consent. I would not recommend any significant changes to that around consent. Consent is, as you know, at the heart not just of smart meters but all our data. That should be shared with consent, and I think the framework does that very well.

Q67 **Melanie Onn:** Do you think consumers understand how much data they are sharing and who they are sharing it with?

Simon Elam: I think so. At the moment, it is mostly shared with energy suppliers. Where there might be some improvements to be made is as we try to reap more of the benefits around demand flexibility. There are more solutions around that—whether that is smart charging, electric vehicles, heat pumps or the automation that Wera mentioned. That is happening a little in Denmark. It is about smart appliances and things like that. Lots can be done around shifting from peak to off-peak.

We want consumers to engage in that a little bit, but we also want to make it easier for them. The way to do that is to automate. No one wants to be sitting there looking at the in-home display and going “Oh, I can put my washing machine on now,” or charge the car or whatever. Automation is key to that. The way to do that is you’ve got to have an effective mechanism for sharing data.

The consent bit is fine. There is another step called consumer authentication, which is not something that energy suppliers or network operators need to do—industry organisations—but anyone who is called an “other user”, basically anyone who is not an energy supplier or a network operator, has to go through consumer authentication, to ensure that there is a direct link between the address and the meter for the person giving consent.

That is a perfectly reasonable thing to do; the problem is that the methods to do it are quite clunky. They are a bit of a barrier for the organisation that is trying to obtain the data that the person wants to share. It is a lot of friction for that person, if you like. To give you an example, the most commonly used method for consumer authentication is for someone to provide their energy bill. That has to be within the last three months. That can involve a householder trying to find their energy bill, if it is on paper and they have not just chucked it away, and then scanning it or taking a photo and then uploading it into a portal, or even posting it in.

In a digital age, that is not a good system. That is one area that I think the Government perhaps should look at if we want to increase the utility of smart meter data and reap the benefits, particularly around demand flexibility, that we can get from the smart meter system. That is an area that the Government could look at. There is some work happening around that.

Q68 **Melanie Onn:** Pil, how has Denmark utilised the data that it has gathered from its smart meter roll-out, and how has it ensured that the data is being used securely?

Pil Krogh Tygesen: To answer the last part of your question first, all the data exchange surrounding a smart meter is under regular Danish data protection law. The data that is being exchanged as part of a smart meter exchange is no different from any other kind of personal data. It has the same governance surrounding it.

The data in the smart meters themselves, and going from the smart meters, is encrypted. There were some concerns and worries when this

was being rolled out about the privacy of the data. There has also been one formal complaint to the Danish data protection agency from a group of citizens who feared that their personal information was not being handled in compliance with the law. However, the Danish data protection agency found that that was not the case: it was compliant with anything within GDPR and other data protection laws. So the concern has been there and has been tested within the existing governance, and it has been found that the policy and the way it is being used holds up to the existing governance.

We also have a very strong tradition of a very digitised public sector and a lot of data sharing. Even within this framework, there were some concerns, because it is a new way of sharing data and it could be sensitive if not handled correctly. This was tested and the conclusion was that it was compliant with the law, and there were no measures to change regulation following that complaint.

I have mentioned our strong tradition of a very digital public sector. That also goes for utility data. Our TSO is Energinet, which has the role that the National Grid and NESO have in the UK. It manages a hub for an exchange of data that can be used in an aggregated form for analysis and for new business models, but never targeting individual customers themselves.

Another possible use—this is what Simon referred to, with customer authentication and third parties—is aggregators coming into the market and helping the customers shift demand, and maybe even bundling customers and having them take part in the balancing market. That is very much an emergent thing and is not there yet.

I would like to raise something interesting in answer to your point about automatisisation, if I may, although it differs a bit from your question. Very surprisingly, our data found that people actually do want to look at when to switch on their washing machine and things like that. A lot of people have reported that they had the ability to have all these things managed automatically, but they liked tinkering with it themselves, because it gives a feeling of being in control of their things and heightens their knowledge of them.

During the energy crisis, the most downloaded app from the App Store in Denmark was an app forecasting tomorrow's electricity prices. It was a national pastime to discuss what time you were going to put on your washing machine tomorrow or charge your car, even more than the actual savings on the bill might have warranted—maybe we just love a good bargain. It was a very surprising finding for Danish energy authorities that manually taking part in demand-side flexibility was so popular.

Melanie Onn: People did have a lot of time on their hands at that point, which might account for it.

Pil Krogh Tygesen: And there was heightened attention on energy over those two winters.

Q69 Melanie Onn: In 2023, the European Commission adopted new rules on access to electricity metering and consumption data. How do protections compare in the UK? Should value extracted from selling customer data be shared with customers?

Penny Brown: If I can give a broader response to that, the data we see shows that there are about 3 billion messages going across our network every month. That is going to grow exponentially to about 7 billion by 2027. There are huge amounts of rich data that are potentially not being unlocked right now—I am touching on what Simon said here.

There is more that we can do in a more anonymised, ethical way so that you are still protecting a consumer's data and identity, but you can understand a lot more about opportunity around social good. There are things around fuel poverty and fuel theft. There is opportunity in the data that we are probably not tapping into quite yet, because we may be completely constrained by consumer data protection at the moment. However, I think that there are ways around that by doing it in a more aggregated, anonymised way. We have talked about demand-side flexibility; things like that, as well as localised investment, could be drawn out of some of the data that we have, which we do not do today.

Chair: Thank you very much. Chris Chope has some questions on cyber-security.

Q70 Sir Christopher Chope: These questions are based on research at Oregon State University, which says that smart meters are ideal targets for hackers because they provide a means for malicious actors to gain access to and destabilise the power transmission grid. Penny Brown, do you think that you are doing enough to guard against cyber-attacks?

Penny Brown: Our network is a private network. It is end-to-end encrypted. You cannot get access to our data or network unless you are certified: every user, whether it is an energy retailer or a device, has to have certification. It is all encrypted, very much like what Pil talked about from a Danish perspective.

We are very alive to threats. We are constantly looking at threat analysis; we monitor our network 24/7. We work with the National Cyber Security Centre as well: our design of the network was actually built with GCHQ. But we are never complacent. After the recent cyber-attacks that we have seen, certainly from our company's perspective, we have been listening to what has gone wrong and building a threat analysis, as well as doing exercises with our own employees. We are always revising on a regular basis and keeping alive to the situation as new attacks happen and new information is sought.

Simon Elam: I am not a cyber-security expert, so the DCC is certainly in a much better place to comment than I am.

Sir Christopher Chope: What about Denmark?



Pil Krogh Tygesen: I am not a cyber-security expert either, but I agree that with the increasing digitisation of the energy sector there is a risk. With more geopolitical focus directed toward the energy sector, that is also definitely a risk.

As I mentioned, this is part of the general Danish legal framework for protecting data. It is also part of the general Danish cyber-security and threat resilience framework, which is a collaboration between the Government, the service providers and the companies involved. Will the risk ever be 100% eliminated? I am not sure that that would be a realistic thing to go for. The target is that all reasonable measures have been taken, and this is within the framework of the relevant authorities.

- Q71 **Sir Christopher Chope:** Some individual consumers do not want smart meters because they are worried about various threats, of one sort or another, and they would like to be able to take responsibility for making their own judgments. As you have just said, that sort of cyber-threat cannot be eliminated 100%. In Denmark, do people have the freedom to opt out of smart meters for whatever reason, such as because they regard them as a threat to their own security? I have a parliamentary colleague, for example, who does not do emails for security reasons. Could he do the same thing in Denmark and not have a smart meter?

Pil Krogh Tygesen: I have not come across any examples of that sort of exemption in the Danish roll-out. My personal speculation would be that the grid-scale assets are a bit more vulnerable or more of a strategic asset than the individual smart meters, but as I say, I am not a cyber-security expert. That is just my own speculation.

- Q72 **Sir Christopher Chope:** So there is no risk from hackers. We are pretty safe from hackers, are we?

Penny Brown: As Pil said, nothing is 100% invulnerable. Based on the design, the monitoring and the constant re-evaluation and rigour that we put in, we are in a good place, but we are always learning. Hackers are always coming up with new ways to penetrate anything, so we always have to keep alive to the risk.

- Q73 **Sir Christopher Chope:** What about rogue installers? It is difficult to control the engineers who put in these meters. They are obviously trained and subject to some scrutiny, but they could be a weak link in the whole system, could they not?

Penny Brown: Because it is a private network, you would not be able to penetrate it from installing the meter directly. If there is a risk at all, it is more likely to be similar to the cyber-attacks that we see right now, with people coming in through employees, as opposed to through meter devices.

- Q74 **Sir Christopher Chope:** Are there any other safety risks associated with smart meters?

Penny Brown: I am not a cyber or safety expert, but we can certainly give you more information on that afterwards, Sir Christopher.

Q75 Melanie Onn: My last questions are for you, Pil, about your experiences in Denmark and whether you have any comparative assessments against other European or international countries. The first question is how Denmark managed to get to 98%; actually, I think our briefing notes said 100%, so you are there or thereabouts. That is quite remarkable. I know you said that it was compulsory, but Sir Christopher has just talked about opt-outs. How easy was it?

Pil Krogh Tygesen: Well, I have only tried the one, so I cannot really compare, but I think it was helped by strong collaboration with industry. It also helped that it was part of a larger strategy for a smart, intelligent grid. It was emphasised very early on by the authorities that there would be benefits for consumers. There has also been a historical legacy of the Government advising on energy savings; we have had massive campaigns for that, stemming from the oil crisis in the '70s, when we had really severe fuel shortages. It is part of an institutional legacy. We have also been aided by the fact that in Denmark there is generally a very high trust in institutions. As I mentioned, it was done in close collaboration with industry, which has been helpful.

I know that there were some asks for exemptions from consumers who have experienced negative effects from harmful rays from the data signal, who had chosen to live an off-grid life and had no mobile signal in their home. I think some technical solutions were devised in which the meter itself was outside the home, but in my experience that has been quite niche.

Q76 Melanie Onn: Are you aware of how active the consumer engagement with smart meters has been from country to country? It sounds as if people in Denmark have been very receptive, but are you aware of any comparators with more or less engagement—maybe because they have been compelled to, versus people who have had more flexibility in the arrangement?

Pil Krogh Tygesen: No, I am afraid not. One more point about the consumer experience is that a lot of consumers have highlighted the ease of not having to have somebody come and read your meter.

Q77 Melanie Onn: You have just mentioned consumer benefits. Not having to be in when somebody knocks on your door to have your meter read is one of them, but are there any other consumer benefits that you think people have experienced? Has it reduced back billing and other bill-related issues at all?

Pil Krogh Tygesen: Back billing is not a major policy issue. It is contained within other policy areas in Denmark. I know that a lot of companies have also used it for optimisation of operations. That might not be an explicit consumer benefit, but it means a better-run system because operators can identify places where they need optimisation or refurbishment of part of the grid.

The ability to switch demand in reaction to price signals has been the main consumer benefit. Even if sometimes the saving in pounds and pence is



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not that large, there is the consumer experience of being able to shift demand and react to spikes in prices. We also have a lot of offshore wind, just like the UK does, so whenever it is a windy day you will see people rushing home from work to put on their washer or charge their EV.

Q78 **Melanie Onn:** Do you know the percentage of meters that are operating in smart mode in Denmark?

Pil Krogh Tygesen: All of them. It is either 98% or 100%, depending on how you count. Sorry: when you say “operating in smart mode”, do you mean—

Melanie Onn: That people haven’t got them in a kind of dumb mode.

Pil Krogh Tygesen: No. Some people might still have a flat tariff or a flat billing agreement with their provider, but that is outside the meter itself.

Chair: Thank you very much to our second panel. That concludes our proceedings.