Official Report
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Economy, Tourism and Energy Committee

Comataidh na h-Eaconamaidh, Turasachd agus Cumhachd

Tuesday 15 September 2026

Session 7

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Tuesday 15 September 2026

CONTENTS

	Col.
DECISION ON TAKING BUSINESS IN PRIVATE	1
DATA CENTRES (ENERGY USE)	2

ECONOMY, TOURISM AND ENERGY COMMITTEE
4th Meeting 2026, Session 7

CONVENER

*Duncan Massey (North East Scotland) (Reform)

DEPUTY CONVENER

*Daniel Johnson (Edinburgh Southern) (Lab)

COMMITTEE MEMBERS

*Gary Bouse (Falkirk West) (SNP)
*Kate Campbell (Edinburgh Eastern, Musselburgh and Tranent) (SNP)
*Martyn Day (Falkirk East and Linlithgow) (SNP)
*Rachael Hamilton (Ettrick, Roxburgh and Berwickshire) (Con)
*Kristopher Leask (Highlands and Islands) (Green)

*attended

THE FOLLOWING ALSO PARTICIPATED:

Dr Callum MacIver (University of Strathclyde)
Matt Magill (National Energy System Operator)
Dr Wei Sun (University of Edinburgh)

LOCATION

The Mary Fairfax Somerville Room (CR2)

Scottish Parliament

Economy, Tourism and Energy Committee

Tuesday 15 September 2026

[The Convener opened the meeting at 10:00]

Decision on Taking Business in Private

The Convener (Duncan Massey): Good morning, and welcome to the fourth meeting in 2026 of the Economy, Tourism and Energy Committee. We have received apologies from Daniel Johnson.

Agenda item 1 is a decision on taking business in private. Do members agree to take item 3 in private?

Members *indicated agreement*.

Data Centres (Energy Use)

10:01

The Convener: Agenda item 2 is an evidence-taking session on the energy use of data centres in Scotland. I refer members to papers 1 and 2.

I welcome to the meeting Dr Callum MacIver, Dr Wei Sun and Matt Magill. I ask each of the witnesses to introduce themselves and to make some introductory remarks on what they consider to be the key issues in relation to data centres and energy use in Scotland. I will start with Dr MacIver and move across the panel.

Dr Callum MacIver (University of Strathclyde): Thanks for inviting me along. I am from the University of Strathclyde's electrical engineering department, and my research focuses on the operation of a future, heavily decarbonised electricity system and the design of the market structures to go around it. I am also affiliated with the UK Energy Research Centre, working on its building energy infrastructure theme.

My key messages probably split into three areas. At the high level, data centre demand is likely to represent a significant portion of future demand at a Great Britain and Scottish level, but currently the connection queue is almost unfeasibly large. A huge number of data centres are asking to join the system, and it is very unlikely that all of them will be able to follow through. I think that the National Energy System Operator has talked about having 80GW-plus of data centres in its connection queue, with 7GW-plus of that in Scotland already. However, the projections from feasible reports that are coming out show that the order of magnitude that might develop over the next five to 10 years is likely to be less than that. NESO has it at around 6GW by 2030, and 9GW or 10GW by 2035.

That sets the context for how much capacity might grow, but I would also point out that there are different types of data centre with different energy profiles. When we think about their use of energy, the important question is how much the centres are utilised across the year. Conventional wisdom is that they will want to be heavily utilised and have a high capacity factor, but some of the data that is coming out suggests that the existing ones are not being as highly utilised as we had thought.

Therefore, the range of energy use projections over the next five to 10 years is actually very large. Indeed, just last week, NESO revised down its projections and underlying assumptions in that respect. If you were to compare the NESO projections with a report that came out last year

from the Department for Science, Innovation and Technology, you would see a really wide range with regard to what energy use might be over the next five to 10 years, and that will need to be bottomed out with more evidence.

That, in turn, feeds into the share of demand at data centres. The projections in that respect might be anything from 5 to 20 per cent of GB-level demand. In the Scottish context, you could have a single big data centre representing quite a large proportion of Scottish demand, depending on how heavily it was utilised. Therefore, when we think about that demand, the difference between having one, two, three or even 10 data centres in Scotland becomes very significant.

My second point is about location, which is important. It matters for the data centres themselves, because they want to think about things such as latency and how quickly they can communicate what they are doing with their end users. They also need people, the space, planning and consent to build as well as communications infrastructure. They might be interested in what Government support schemes are in place to incentivise where they locate.

From a system perspective, which we are more familiar with, locations matter for a couple of reasons. I am particularly interested in researching how much wind we curtail in Scotland. Our studies suggest that locating in Scotland will be helpful for soaking up excess or surplus wind energy, but where you locate in Scotland is also very important. This is an evolving picture; it is not cut and dried. If you think about the system as it is today, with the amount of outages that take place and the upgrades, and where generation is on the system, it is not actually the Scotland-England boundary that is the first constraint but rather the central Scotland boundary—the B4 boundary, as we call it. Locating data centres north of that point will likely be more impactful when it comes to managing constraints, certainly in the near term. That could be further researched, and we could see how it evolves over the next five to 10 years as we build new infrastructure.

My final point is around the whole-system impacts of data centres. Adding demand in general will likely put pressure on meeting decarbonisation goals. It is not always windy or sunny, so adding new demand to the system is likely to increase the amount of fossil fuel burn that you have in the system. Locating the data centres in the most sensible places in the system can mitigate the size of those impacts by using up wind energy more than, for example, turning on gas.

From a Scottish perspective, it really depends on whether it is a Scottish plant that facilitates the extra fossil fuel burn or whether it comes from down south and is imported here. Another factor is the extent to which on-site, fossil-based generation comes through. Lots of the sites might have diesel back-up systems or whatever, but if it really is a back-up and is used only a very small percentage of time, the impact might be minimal. However, if you are looking at some of the options that are coming through for on-site gas as a primary energy source, that would be without a grid connection. That is probably the worst-case scenario from a decarbonisation perspective.

The Convener: Thanks very much.

Dr Wei Sun (University of Edinburgh): Good morning, and thanks for the invitation to speak to the committee. I am from the institute of energy systems at the University of Edinburgh, where I am a chancellor's fellow.

My work has focused on how the power system adapts to new kinds of load. In the past two or three years, it has particularly focused on data centres. Three years ago, I was one of the authors of the ClimateXChange report "Electricity system security of supply in Scotland", which modelled our system up to 2045. However, at that time, data centres were not really the focus, so things have changed quickly.

I currently lead a project funded by the Department for Energy Security and Net Zero that looks at the energy impact of edge AI, which is further in the future, to see whether the focus shifts from hyperscale data centres to AI that is used more on our devices and in our households, and what the impact on the energy system would be. I have also done some paid consultant work for data centre developers through the university, but I am here as an independent academic, not for them.

I will make three points at the beginning. First, how much electricity a data centre uses tells you surprisingly little; what matters most is where it connects. Two data centre facilities that use the same amount of electricity in a year can have opposite impacts on the system. It depends on which side of the network bottleneck the site sits on.

Secondly, Scotland's problem has never been a shortage of power, because we generate the supply and export it. The constant is the network. We pay wind farms to switch off because we cannot always move the power to where it is needed, and Scotland accounts for more than 90 per cent of curtailment across Great Britain.

Scotland only has around 30MW of data centre capacity at the moment. We can see from the planning applications in the queue that some of the proposed new projects are 10 to 20 times bigger than that. That adds serious new pressure to what is already a constrained network, and not all the

large volume of new demand can be placed exactly where the supply is already.

My third point is that none of the benefits happens automatically. Ireland made connection conditional on matching renewable generation, while Germany took a bit of a different approach. Germany requires new data centres to reuse a rising share of the wasted heat.

Scotland has named data centres as a matter of national importance but, as far as I understand, we have still not defined what "green" means in this context, or whether it requires anything in particular.

Before I finish this opening statement, I want to put something to the committee. I think that it is better to consider the planning applications together, rather than one at a time, so that we can set out the conditions that serve Scotland before centres are built, not after. Once the concrete is poured, the choice is gone.

Matt Magill (National Energy System Operator): Thank you for the invitation to appear here today. I have worked at NESO and its predecessors for 23 years, with a career spanning networks, market, system design and, most recently, connections reform. NESO is an independent public corporation. We are responsible for operating the electricity system and for ensuring that consumers have secure, reliable energy. Together with the countries, we work on designing the future energy system of tomorrow to ensure that we have a reliable, affordable and clean energy system.

My role is director of engineering and customer solutions, and one of my teams is focused on strategic demand, which covers not only data centres but all forms of strategic demand. We work closely with the UK Government and the Office of Gas and Electricity Markets in considering the policy interventions that may be required to manage the pipeline of projects that are coming forward across England, Wales and Scotland.

Turning to one of the important things that we have considered in our role as an independent system planner, in our "Beyond 2030" report, we highlighted the potential benefits of locating data centres in Scotland in terms of avoided network infrastructure. We estimated in our report that up to £5 billion could be saved by locating 5GW of data centres in Scotland.

The Convener: Thank you. Those were great introductions. I invite questions from colleagues.

Kate Campbell (Edinburgh Eastern, Musselburgh and Tranent) (SNP): Thank you very much for all your presentations, which were very helpful. I have quite a few questions, and I will start with you, Dr Sun. I saw that you had a paper on intermittency. It seems to me that, if we are going to discuss how to manage and usefully use renewable energy to support data centres, we need to manage the challenge of intermittency. I read a bit of your paper, but I did not really understand how that would work. Could you explain how it would work? Does it involve certain sectors, is it about specific organisations, businesses or sectors using energy at specific times, and how feasible is that with real-world applications?

Dr Sun: That is a reasonable concern. The nature of renewables is intermittent. As we know, the wind does not always blow and the sun does not always shine. Co-location, or finding a way to match data centre usage with renewables, will always be challenging, but there are solutions to address that. We can couple with batteries to smooth things out and match the pattern of the data centre, or there could be flexibility in the data centre itself. Some data centres already have a big amount of battery storage on site.

10:15

Some of my research is on the temporal and spatial flexibility of data centres, because the load pattern of the data centres depends on the information technology workload. The workload can be run as AI inference or as AI model training. At the moment, a lot of the large data centres use AI model training workloads, and that training normally takes quite a long time to finish. Some of that training can be delayed a little bit to match a period when the wind is strong, for example. Having such flexibility means that what is happening inside a centre can be matched with the intermittency of the renewable energy.

However, a hybrid solution is still needed. Small changes can help, but if we want to match the level of power that is needed and gain a significant benefit, we probably need a whole-system design, including the batteries, and that would be needed not only on one farm; we would probably want a portfolio of renewables that can buffer themselves and maximize the flexibility of the data centre.

Kate Campbell: That would take quite a lot of planning. I am interested in how the capacity could be adjusted. What assessment have you made of the demand for renewables to be adapted for use at different times when a surplus of energy is produced? Is that feasible for 5 per cent of the demand of data centres or for 95 per cent of it? It sounds like it could be quite a small amount.

Dr Sun: It will be considered case by case, so there is no general figure that I can give you, but that is another fair concern. A significant amount of data centre demand can be flexible. It is therefore useful to capture the surplus, but the

amount produced by renewables is not enough to match the demand. We still need battery power and other energy storage, and we also need flexible, low-carbon generation on the system side to mix the work together.

Kate Campbell: My understanding is that we have still got some way to go to make battery storage effective at dealing with intermittency. I am not an expert, but I believe that 24 hours or so is the maximum period that we can retain large-scale renewable energy. Is that fair?

Dr Sun: Again, that will be different in each case. We have a lot of experience in the UK in balancing the intermittent state of renewables at the system level. Our friends from NESO have been very successful in dealing with that and have experience in it.

I will reframe the question a little bit. A data centre is only one type of demand on the system. If we consider what would bring the most benefit to the Scottish system or the UK system, it would be optimising the whole system. There are more options to balance out the system when we have a portfolio of different generation and demand. Is considering only a single battery enough to balance the intermittencies of the renewables and the data centres? That is probably a small part of the solution.

Kate Campbell: That was very helpful. I have a final follow-up question. It sounds like that needs quite a lot of planning. You said that you think that we should look at all of the demand and make a plan for the whole of Scotland rather than looking at individual cases. Is that right?

Dr Sun: Yes.

Kate Campbell: Is there a role for the Government in that?

Dr Sun: I think that there is a role, but what role the Government can play is not for me to judge.

The Convener: The questions that Kate Campbell raised relate to one of the big themes, which is how we deal with intermittency. As far as I am aware, data centres require extremely high uptime—effectively 100 per cent uptime. Most of the data centre plans that I have seen require a lot of diesel back-up. In America, data centres in effect seem to operate 100 per cent on natural gas. I thought that those questions teased out some of the issues. Take, for example, a hypothetical data centre in the middle of Scotland. How would that be powered with the current mix? That is more of an open question for all the panel members.

If any other member wants to come in on the theme of intermittency, I would welcome that.

Dr Sun: I can start, but my colleagues probably have valid points to add. We already have an issue with intermittency: we generate supply in Scotland, and energy is thrown away because we do not have a robust network to move it to where it is needed. To solve that, we can either upgrade the network or add new demand. Data centre demand can be used to solve part of that problem. However, as we said, most of the time, data centre demand runs relatively flat 24 hours a day and throughout the year. After they use the surplus, another source of supply is needed, and we have another source of supply that we can use in the system.

I go back to the point that it will require more than one data centre to achieve the generation-demand balance. We also need flexible generation in the system and battery storage to buffer the mismatch. It really goes back to the point that we need whole-system planning.

Dr MacIver: It is probably not worth thinking about a data centre in isolation. If it connects to the system, NESO already has the role of balancing the intermittency. NESO manages the suite of generation assets in the system, and you would just be adding a data centre to the big mix of stuff that is already managing with the intermittency of the system. If it is not windy, gas will be turned up in the system, and we have the transmission connections to get power to that data centre.

A data centre does not have to manage the issue on its own, unless it cannot get a good connection, in which case it will have to think about and manage on-site solutions. The system already manages and deals with intermittency. It is a challenge, but that management is happening and the lights stay on. Data centres just add to that mix as another demand somewhere in the system.

Matt Magill: I want to bring in the role of the electricity market. Currently, hundreds of people across the country are forecasting not only the weather but the impact that it will have on the energy mix, and determining what they think tomorrow's and next week's prices will be. That gives a very strong price signal to the numerous partners that have flexible demand, such as data centres. The majority of consumers who have taken up electric vehicles charge them overnight because they have adapted their behaviours to price signals. Those price signals will help to determine the loading. In relation to data centre flexibility, the price will play an important role.

I speak to a lot of data centres as part of my role. As Wei Sun touched on, the training of models is more baseloady in that it uses big chunks of energy for a long duration, although there is flexibility in that, whereas data centre demand for the things that people use every day, such as Netflix, WhatsApp and cloud computing, changes with consumer demand. There is a matching of

that in, and a locational element to, how the load is moved around not only countries but regions. There are signals in the market to drive that flexibility.

On the question of where the power comes from, Callum MacIver made the excellent point that data centres are just another user in the energy system. The users in the energy system will all play in that market, and the right mix will come forward on a daily basis.

The Convener: I will bring in Martyn Day in a second, but I have one point of clarification, which goes back to my hypothetical data centre, although Callum MacIver said that that is probably not the best way to think about it. Significant data centre demand—the potential of up to 7GW was mentioned, although that is unlikely—would be useful on a high-wind day, as we could mop up wind generation instead of exporting it south. However, on a low-wind day, high demand would presumably mean firing up conventional power, whether it was gas or, in some cases, diesel back-up. Is that not the case?

Matt Magill: I would not expect it to be the diesel back-up. The on-site diesel generators are generally there for when a data centre loses its connection to the grid, so I do not think that there would be any intent to use them. There are also environmental restrictions on such back-up plants to reduce their usage.

It is important to remember that the energy system as already planned has a level of data centre capability factored in. We do that through our future energy scenarios, which provide a stakeholder-led forecast of where the energy system might go between now and 2050. Increasing levels of data centre capability are built into that forecast. That feeds into the security supply assessments that we provide to industry and Government so that we can ensure that we have the right amount of capacity on the network.

To answer your question, you will generally see market flows from the other countries in Europe across the interconnectors into GB on days when there is not enough wind and solar to meet demand, and conventional thermal plants, such as gas-fired plants, come into the market to power those units. However, all that has been factored in. The network exists to get generation both out of and into Scotland—it is bidirectional.

The Convener: Okay. Martyn Day has a question on that.

Martyn Day (Falkirk East and Linlithgow) (SNP): This is a really interesting evidence session. My question follows on from the ones that were asked earlier about how we use the intermittent supply—the concept that there is also intermittent demand is quite eye-opening for me. Dr Sun, could you quantify the minimum requirements for constant power from those AI data centres?

Dr Sun: Sorry, could you reframe your question?

Martyn Day: I do not know whether my mic was on properly, so I apologise. I am curious about the intermittent demand from the data centres. Could you quantify what you would expect minimum constant demand to be?

Dr Sun: Again, I do not really have a solid number for that. Part of the reason is because Google or Amazon do not really review those numbers or want to give too much detail about how the data centres run, because there is very strong market competition there.

The load profile of the data centre depends on what kind of IT workload it runs. The first big type is AI inference, which is when we ask questions to ChatGPT and it responds. It calls up a model that has already been trained—it is a user-trained model. The second big type of AI usage in data centres at the moment is AI language model training, which is the main purpose of the big companies that are building large AI data centres. That is different. The load for AI model training is relatively constant during the training process, but AI inference depends on consumer behaviour and follows the daily usage of consumers. For example, I do not think that there will always be lots of people asking ChatGPT questions late at night. To go back to the question, the percentage of the constant load in the data centre really depends on the type of data centre that we will build and run in Scotland.

Martyn Day: Based on that, I have another daft laddie question for you. For how long are we projecting that those large model learning periods will continue? There is presumably a limit to how much knowledge we can feed into those processes. Once they have scanned every book in existence, surely it comes to an end. How long is that likely to take?

Dr Sun: I do not have a crystal ball to predict the future, but that is the focus of the big companies in the States at the moment. They want to compete with one another and keep producing better models. As to how long they can keep doing that, I would flag a significant uncertainty.

10:30

Martyn Day: I have a final question for you, Dr Sun, and you do not need a crystal ball to answer it. Are there any—

The Convener: Sorry to interrupt. Callum, did you want to come in?

Dr MacIver: It really depends on the type of data centre that we attract. The conventional wisdom is probably that training loads will be a big factor in the medium term. However, it might be that we have trained a lot of the models by the mid-2030s and that load tails off a bit. We then must consider the types of loads that might want to connect to Scotland, which will depend on prices here.

Large-scale training and highly intensive loads might well end up being located in the States or elsewhere. We must bottom out what types of data centre Scotland is likely to attract in order to understand the resulting load profile, because data centres are quite diverse.

The Convener: Matt, did you want to come in on that one as well?

Matt Magill: On the question about minimum load, and returning to the point about market, having spoken to some of the larger players who are involved in this, I know that they are looking at conducting some of the training on a regional or even a worldwide basis and that they will move the load around the world depending on what is happening in those locations. They offer flexibility to the power system, and they also have flexibility in their ability to move some of that compute. They are putting in very high-bandwidth connections between data centres to balance the load. There is a real degree of interactivity in that.

I had a really interesting discussion about training. I take the point about how much more reviewing of written material there is still to do. The next stage of AI training will involve developing a better understanding of 3D environments and the physical world, which there has not been much of so far.

I would be cautious about assuming that AI training will end in the early 2030s. There are dimensions that have not yet been effectively modelled and that will continue to be modelled into the 2030s and 2040s.

The Convener: Martyn, you had a follow-up question.

Martyn Day: As I said, a response to my question does not require a crystal ball. Can the witnesses, particularly Dr Sun, give us any good international examples, from which we could perhaps learn lessons, of where large-scale AI data centres have been linked to renewable-powered grid systems?

Dr Sun: There are a lot of examples, so I will pick one or two.

I mentioned at the beginning that Ireland already makes connection conditional. To connect to the Irish network as a new data centre, you are asked to match 80 per cent of your demand with renewable generation—Ireland allows six years for a data centre to reach that point gradually. Ireland is doing that because the network is already congested.

Data from last year shows that about a quarter of Ireland's total national energy demand came from data centres. My reading of the figures for Great Britain is that only around 2 or 3 per cent of national demand comes from data centres. We mentioned that a significant number of those that are in the planning queues want to connect to the GB system. The sum of that exceeds national peak demand. Obviously, not all those requests for connections will be approved, but screening them is a big challenge.

Returning to the question of good international examples, there are various efforts to match data centre demand with renewable generation. Some of the big companies in the United States—I do not want to name any of them—are building data centres with on-site generation or private connections to nearby wind farms in Europe. That is happening at both the corporate and national levels, and Ireland is one example of that.

The Convener: Gary, is your question on this topic?

Gary Bouse (Falkirk West) (SNP): Yes, because it is a vital issue. I thank the three witnesses for their presentations. To put your whole career into a two-minute presentation must be quite tough.

My question is on intermittency and curtailing, which Callum MacIver, in particular, mentioned, and which is one of our biggest challenges. When we move on to have AI data centres—this probably brings the question on to Matt—and it is the middle of winter with high energy usage at home, how many data centres will we be able to hold? I appreciate that you are building for the future, but what worries me is what the source of the baseload would be and how that baseload would affect renewables.

I am looking at the three main options—pump storage, hydro and small nuclear reactors—to provide the baseload. My worry is that curtailing would become more of a problem, because, if you had enough, say, small nuclear reactors to provide the baseload, you would not need as much renewable energy to top up. How would bringing in a different industry end up affecting our entire renewables industry? I know that that is a big question. It is open to all three witnesses; I think that the issues raised cover all three of them.

Matt Magill: It is quite a big question. It is important to understand the gates that people

have to go through to get on to the transmission system. One of the really important ones is getting a connection agreement, which NESO co-ordinates between the transmission owners and the customers who want to connect. A big part of demand is the fact that the transmission owner designs the connection against a set of security standards that ensure that the network is there to support demand in all scenarios. In Scotland, that requires consideration of not only the local connection—the bit where the data centre plugs in—but the wider network, to ensure that there is enough capacity on the network to support the data centre through periods of no wind in the middle of a dark winter night, as well as in summer periods of low demand. It requires looking across the piece to ensure that the network is there.

On the energy mix that is required to support demand, as I stated earlier, as part of NESO's work on future energy scenarios, or FES, we forecast into the future not only data centres but all the energy loads: heat, transport, normal lighting and commercial. We do that through a stakeholder-led process that provides us with a view out into the future. It informs how much generation is needed to meet the security of supply standard that the UK Government sets, which is three hours' loss of load. That is factored into our plans—not only the "Clean Power 2030 Action Plan" but FES and the upcoming strategic spatial energy plan—to set what is needed across the country, including through technologies that you have mentioned such as pump storage and small modular nuclear reactors.

It is important to notice the flexibility that comes with different technologies. Nuclear has been inherently inflexible on the GB grid, and, when you have a system with a lot of inflexible generation and a lot of renewables, that becomes a problem. However, there are optimal mixes through which we can do it, which is where our advice to Government comes in, because we are able to model and understand the impacts of the different technologies.

I would describe it as all being in process and all being worked through at the moment. Ultimately, the future energy mix will be shaped by the strategic spatial energy plan as we go forward.

Dr MacIver: Again, this comes back to the location question and where the baseload generation might be, and my point is that it does not necessarily have to be in Scotland. If we have the transmission capacity to make use of our high renewables output when it is windy—exporting some of the output south and soaking up as much as we can in Scotland—the capacity to transport it south also means that, when it is not windy, we have the ability to import the baseload that might be elsewhere in the system. It could be in Scotland, and you are right to say that, if it did come in and you had more baseload generation in Scotland, it does not necessarily alleviate the constraints problem, because you are adding more generation to that mix. However, if that baseload is coming from elsewhere, you are helping with the constraints challenge by adding new demand in Scotland.

The Convener: Rachael Hamilton has a relevant question that cuts to the nub, so I will bring her in.

Rachael Hamilton (Ettrick, Roxburgh and Berwickshire) (Con): Dr MacIver, given your introductory remarks about decarbonisation and then the countering of that with the fact that data centres use a lot of fossil fuels, what would be your definition of "green data centre"?

Dr MacIver: That is a big question that I have not thought hard enough about. I do not have a definition of "green data centre", but I come back to thinking about the system. If that data centre is part of a whole system that is decarbonising and meeting something that looks like NESO's clean power 2030 mission—if it is part of a system that is, on the whole, clean or 95 per cent clean, which is one of the targets—by definition, it would be a relatively clean data centre. I would look at it in that sense.

Some of the research that we have done shows that, if you have a lot more demand coming in—over and above what you might have expected from data centres—that, by its nature, increases the pressure on the system and you can utilise more renewables, which is great; however, in those fallow periods, you will also probably increase your gas burn. The location element is about where on the system it is best to locate, because you can mitigate some of the impact of that increase by locating in sensible positions on the grid where you can soak up as much of that renewables capacity as possible.

Rachael Hamilton: My next question is for Matt Magill of NESO. The energy strategy for Scotland that is due to come in is not in place. How is it that speculative applications for data centre development are now in place without that energy strategy? Is that not putting the cart before the horse? Should it not be the other way around?

Matt Magill: It is important to recognise the framework that NESO and the transmission owners currently work in. We have an obligation to provide anybody who wants to connect to the system an offer within a period of time. We had a number of speculative projects going through on the generation side, which is why NESO, along with the Department for Energy Security and Net Zero, Ofgem and the network companies, effectively ran the connections reform process. By

using the Government's "Clean Power 2030 Action Plan", we were able to prioritise the projects that were strategically aligned and could live up to that strategic plan from the UK Government, and which were shovel ready and ready to go.

We have done that with generation. When we started the process in 2023, the demand queue was not where it is today—ChatGPT had not launched. We have seen a massive spike; effectively, about 90 per cent of the queue came in the first half of 2025. We are at the early stage of that.

We are working with the UK Government on a three-strand program at the moment. The first strand is curate, which involves looking at managing the current queue and what we can do. Ofgem has recently put out to consultation some of its proposals on managing data centres with a commitment fee.

Alongside that is another stream called plan, which is about how we ensure that policy makers and elected officials are able to influence the type of demand connecting. Data centres are just one form of strategic demand. With generation, you could do an engineering view and determine the right energy mix—an optimisation could be done—but when it comes to strategic demand, there are data centres, new housing, prisons, hospitals, transport and decarbonisation of industry, so there are lots of multiple competing factors and there are tough policy decisions to be made. That is why we think that having a plan and being able to implement that plan through the connections process would be worth while, and we would support that.

I should add, just for completeness, that the final leg of that three-piece workstream, which is called connect, looks at issues in the current framework that are prohibiting developers from progressing certain types of connections and, in turn, the changes that will be required under that framework.

In summary, what we would say at the moment is that we are in the middle of the process.

10:45

Rachael Hamilton: How does that square with the differences between UK energy policy and Scottish energy policy, given that the latter is overlaid with the devolved competence of the Scottish Parliament and its power over planning? At the moment, we are being told that this needs to be expanded; it is being expanded into rural areas in particular and, as a result, speculative applications might well come to rural areas, where we still have individuals who are off-grid. Obviously, that is where the wind farms are, too. We are also talking about bringing down constraint payments and using the excess energy, and the whole thing seems very mixed up to the public. I wonder whether you can provide some clarity as to how you can bring the public along with you, given that they feel as though they are being put upon instead of seeing any advantage to this.

Matt Magill: I think—

The Convener: Before you respond, Mr Magill, I feel that we are moving on to a new theme—the interaction between physical planning and energy planning. Does anyone else have any questions on intermittency? I think that Kate Campbell does, and I have kept Kristopher Leask waiting, too—sorry, Kris.

Kate Campbell: I have a very quick supplementary, but I think that the public would be interested to know the answer to it. Ireland has been mentioned; about a quarter of its electricity was used for data centres last year, which put an estimated €360 on household bills, or a total of €715 million over that time. Could there be a similar impact in Scotland? Callum MacIver talked about turning on the gas if we do not have renewables, but is there a risk that, if a lot of hyperscale data centres were to come to Scotland, it could put up household bills? After all, people are already quite worried about their bills.

Dr MacIver: It is a difficult question. With every system, there is probably a different context. It is happening in the US, too—prices are rising on the back of large increases in data centre demand. However, some of that is to do with building out new gas plant, using more of that sort of thing and building out transmission connections at speed. All those things are rising.

In GB, we are already doing a lot of that, which is putting pressure on bills. As Matt Magill has said, if data centres were placed strategically and if they made more local use of things, we could minimise the amount of infrastructure build needed, because we would not have to build as many transmission links in order to connect the renewables.

Therefore, it is not cut and dried. There are probably levers that are pulling in different directions and—

Kate Campbell: But it could put up demand and therefore put up prices.

Dr MacIver: Another way of looking at this is that demand has been decreasing for the past two decades, which means that the fixed cost of the system is being shared over a lower demand base, which increases the pressure on the system. What would pull things in the other direction is having more demand paying into the system, as it would spread the burden of all this new development that we are doing.

I do not have a clear answer to your question—I do not think that it is cut and dried either way. Perhaps others have a view on it.

Dr Sun: Just to add to Callum MacIver's explanation, I think that what that you have raised is a reasonable concern, and it is something that is concerning a lot of people worldwide. It is a simple question: are data centres going to increase bills or not? However, there is no simple answer to it. Data centres do pay their energy bills and connection costs and pay for using the network. The trickier question is whether the data centre also pays for the wider system upgrade that it will probably trigger. That is the question that we need to answer. We have a market structure in the UK, which allocates those costs, but the question whether they are fairly allocated to the data centre still needs to be answered properly.

Matt Magill: I would echo the previous two comments. There is a charging mechanism that apportions costs across the industry. Those arrangements can be changed for data centres or for specific types of centres, if Governments or regulators deem fit.

On the point that Callum MacIver made, we can see the significant benefit of avoided transmission infrastructure by locating some data centres in Scotland. We can see a reduction of costs overall if we do it right.

Kate Campbell: But you do not really think that the outcome would be immediately reduced costs for households. The big challenge seems to be where there is intermittency with renewables. The data centre still needs power when the wind is not blowing, and we will have to turn on a lot more gas to supply the high demand from the data centre. That pushes up the unit price, which we all pay for. Households could therefore end up in effect subsidising data centres if we do not manage this properly.

Matt Magill: It depends where you baseline it. A lot of the forecasts that are used by us and by the Government already assume a level of data centres. When the figures expand above that, it is very difficult to apportion specific costs and to determine how they flow through.

As for where you see the benefit, you are right, in that the potential £5 billion saving would be over 40 years, because transmission infrastructure is effectively charged over a 40-year period, so the benefits will not be realised immediately. In other countries, community benefits have been factored into the agreement of planning conditions in order to seek some wider benefits. Policy makers could do something similar with the charging arrangements for data centres.

The Convener: I will bring in Kris Leask now. Thank you for your patience, Kris.

Kristopher Leask (Highlands and Islands) (Green): No—thank you.

My question relates to something that Kate Campbell has just raised, referring to the example of the mass, rapid expansion of data centres in Ireland. We are looking at the floodgates opening in Scotland unless we have better national planning, national guidance and some sense of strategy around how we are delivering it.

The burden being placed on household prices in Ireland is largely driven by the electricity trading market being pushed into relying on more fossil fuels for the stop-gap, be that for a half-hour or for intraday trading. It seems that we do not have a pricing mechanism in this country that is prepared to deal with increased demand on such a large scale. Do you think that we do? What work needs to take place to prepare for that?

Matt, you mentioned that such things can be changed. In my experience, pricing mechanisms change is not quick in this country, unless we go through another round of REMA—review of electricity market arrangements—or something like that. What are your thoughts on that?

Matt Magill: I have a couple of thoughts. You raised the point that the increased demand in Ireland increases the number of periods when fossil fuels are heavily involved in setting the price. That exists in this country, but our clean power 2030 forecast included a level of data centre capability in the 95 per cent clean energy period. That is already factored in. We could potentially see more periods of clean power.

As Callum MacIver said, however, it depends on what else is coming into the mix. Some data centres will be built before 2030, but a lot of them will be post-2030. Significant technological progression is being made on unabated gas and long-duration energy storage, and there are other technologies coming in that may power data centres in the future. It would be gas today, but centres will not be connected today at the sort of scale, or with the amount of infrastructure, that is required to connect them. Most of the big centres will be connecting in the 2030s.

The UK Government is continuing with the reformed national pricing programme, which covers how we optimise the electricity market to get the best outcomes for consumers. That is still in flight and progressing at the moment.

Dr MacIver: On the marginal pricing question, as Matt Magill says, with the system that we have today or had historically, having gas at the marginal price more often raises prices, as has been seen in Ireland and parts of the United

States. I wanted to make the point that we are decoupling the electricity system gradually from the gas price via the contracts for difference scheme. That is the mechanism by which the GB system is slowly being decoupled from the flow-through from the gas price, in which gas is setting the system.

In a 2030 or 2035 system, generation that is covered by contracts for difference will be a much more dominant element of the market, and the strike prices that come through from those schemes will therefore be setting the price more often. The gas price may have an impact at the edges, but it will not be as impactful as it was in 2022, or as it is today.

Kristopher Leask: I appreciate that point and that there is a longer-term view, but nonetheless we have constituents across the country—particularly in my part of the country, in the very north—who are facing extremely high electricity or fuel bills. To be frank, it will be of little relief to them that we will have a system that balances out by the mid-2030s when the CFD decoupling takes effect and starts to have an impact on bills. I do not feel convinced, or have any confidence, that we have a pricing system that has planned for such an increase in demand.

There is an example in Ireland, which has seen a substantial growth in prices as a result of gas market reliance. Ireland has done projections to 2034, and the growth of data centres there to 2034 is predicted to add to bills, on top of the increase of €360 so far, a further €295, taking the total up to €644 per household. That is a maximum cumulative addition to bills of €1.43 billion by 2034.

Those impacts are substantial. In this debate, I feel—I felt this during last week's meeting, too—that we can often lose sight of the impact that the situation is having on ordinary people, who are our constituents, and on households. Until we have a better idea of how to manage the impacts and of what those impacts are even going to be, it seems foolhardy to be progressing at pace with the current level of unchecked expansion of data centres.

Sorry, that was not really a question—rather, it was a bit of a view.

I have another question on the next theme when we come to it, if that is okay.

The Convener: Are there any comments on the costs? Looking at the time, I am inclined to move back to the theme that Rachael Hamilton was exploring.

Gary Bouse: Can I come in, convener?

The Convener: Go for it.

Gary Bouse: I was speaking to someone not that long ago about their concerns about artificial intelligence data centres. Dr Sun touched on the subject earlier. That technology could potentially move out of the data centre and into our laptops and phones.

I know that it is hard to do, but if we are horizon scanning, what timescale are we talking about for that? Data centres may end up being built and then, in 10 or 20 years' time, we will no longer need them because the technology has moved into mobile units. Someone said to me that we have to be careful that we do not build something that will be gone in 10 or 20 years' time.

Dr Sun: That is a reasonable concern. My take is that the industry is still expanding very fast. It is not as if a fixed amount of energy usage has to be spread between a data centre and edge use, such as AI running on your phone. It will be a mix of newly created demand adding to the AI future. That is one part of my thinking.

The other part brings me back to the point about whether, when we are planning this and setting the conditions for how we are going to connect the data centres, we can put in place something additional as part of the process. We can make sure not only that we can get enough value out of the data centres when the AI future happens on a larger scale, but that the infrastructure will not be stranded if it does not reach that point based on the current forecast.

Gary Bouse: My big worry is that we end up with something that ends up stranded.

The Convener: That was a good question.

Rachael Hamilton introduced another broad theme, which is that we have a grid planning system—Matt Magill touched on it as well when he talked about generation and demand—and then we have a physical planning system. You highlighted some speculative applications on both sides, and we have general questions around that. I bring in Rachael to finish her question.

11:00

Rachael Hamilton: As you have all mentioned, data centres have come at speed with our demand for the cloud, ChatGPT and all the rest. Data centres were not considered, for example, when the Parliament passed national planning framework 4, which is the latest iteration of the planning system, and the main policy point—which I do not expect you to get into—was to meet the decarbonisation goals and use the excess energy from renewables. Moreover, a data centre is not classified as a schedule 1 development and therefore does not require an environmental impact assessment. In the light of the lack of

definition in relation to green data centres, what are the witnesses' views on whether the planning system is fit for purpose for the speed of the demand that we will have for energy and grid infrastructure? I will start with Dr Sun.

Dr Sun: It circles back to the question of how we in Scotland define a green data centre. There are two main aspects to green data centres: the first is where the energy use comes from; the second is the energy efficiency, which also includes how you reuse the heat that the centre generates. Pretty much all the electricity that goes to the data centre turns into heat, and that is a lot of heat that we can reuse—Germany already put out a policy to mandate some of the ways in which heat must be reused, which improves the energy efficiency of the data centre itself. Those two main aspects can determine how green the data centre is: how much low-carbon renewable energy and electricity the data centre uses, and how much waste heat can circle back.

We have some mechanisms in place for the first aspect. We have renewable power purchase agreements, which can quantify how much low-carbon energy is used for demand—that links to some of my research. At the moment, if you talk about matching data centres with renewables, a lot of people think about matching PPAs annually, with the total demand of the data centre matching the total volume that it has procured from the renewable sites. However, that will not really solve the intermediate issue, because the total annual number completely misses out the hourly matching and mismatching between generation and demand.

I suggest that the committee thinks about those two main aspects in relation to defining the data centre but, behind those two aspects, we also must consider details. For example, in relation to energy efficiency and reused waste heat, will we use annual matching or closer to hourly matching of demand and generation? What is the opportunity in Scotland around that? The best way to reuse waste heat is to inject it into the digital district heating network, but the concern is that we do not really have a lot of digital heating here at the moment. What kind of policy would we need to make that happen in Scotland?

Rachael Hamilton: Matt Magill, there are so many questions around the issues that Dr. Sun has raised, including around heat generation.

Is that part of your energy strategy paper that will come out in, I think, 2027? Will that look at the issues of creating data centres in areas that do not have grid infrastructure but that have wind farms and excess energy? Are you considering how we use the excess heat? Give us a little bit of insight into how NESO will make the strategy reassuring to show the public that it knows what it is doing.

Matt Magill: There are quite a few bits to unbundle in that, so bear with me as I go through them.

On strategic planning, NESO carries out two roles. One is to produce the strategic spatial energy plan, which looks at the sort of motorway network—the big energy transfers across the network, the required infrastructure and the required sources of energy, across electricity and gas, including methane and hydrogen. That plan starts in 2035 and looks onwards from then. We then have the regional energy strategic plans, which are at a more local level and look at the decarbonisation plans of local areas, whether those are on transport or heat, for instance, and how they factor into network development. We are coming at the problem from two sides. One is the strategic overall national view, and the other is about how decisions that are made more locally impact the network and energy strategy that we need.

Where data centres come in is that heat is a big part of regional energy strategic plans, because heat is a major part of carbon emissions across the country. It is about considering where the heat can be used in industrial processes or district heating networks for local communities, and where we can get that benefit and trade-off.

However, the strategic plans are for the longer term. At the moment, under the way in which the framework is set up, we are keen for effective locations to be developer led. Even under the strategic spatial energy plan and the regional energy strategic plans, the locations are developer led. We do not want to pick projects; we want to articulate where the best areas are and where the best benefits to the energy system of some of the changes in demand will be. We do not pick projects and articulate how they need to impact other users of the energy system; we take each one as a developer-led project.

I think that that covers strategic planning. In your previous question, you touched on the issue of where communities come in. Under the current connections process, if a developer cannot achieve planning consent, the project is removed from the pipeline of projects that aim to connect to the electricity system. We have a set of what we call key management milestones, which are where we expect the developer to show progress and, if that does not happen, the project is removed. There is a really big and powerful input into the process of connecting projects to the grid through which the public get a say, and that is through the planning process. That is where that interaction comes in.

I hope that I have covered all of the points.

The Convener: I think so. I am going to move on and bring in some other questioners, and hopefully we can extrapolate a few issues.

Martyn Day: I want to follow up on that information. Will the regional strategic plans that you referred to recommend areas that are best suited for AI data centres?

Matt Magill: In the strategic spatial energy plan, there is some variability in some of the options as to where demand might be best placed, so that comes through in those. On the regional plans, I am not entirely sure—I might have to come back to the committee on this, but the best way to put it is that we are looking at the interaction with heat, where we see that there is an opportunity for alternative heat and where there are developers coming through who wish to signal that approach. That is where we make that link to potentially create benefit for communities through having the two things combined.

If it is all right, I would prefer to follow up on the specifics of that.

Martyn Day: Thank you. Will it be 2027-28 before we see those plans in detail?

Matt Magill: Yes.

Martyn Day: We have around 20 AI data centres in the pipeline, so we could be asked to make those determinations before we see your recommendations on areas.

Matt Magill: There are closer to 30 in Scotland at the moment—it is about 9.7GW.

Some of those decisions might have to come forward sooner. However, from looking at the milestones and the date when some of the data centres will connect, it will be late into the 2030s. There are a lot of timing issues, but it will not be in the next few years that those developers will have to submit planning to us to prove that they have permission. Admittedly, there are some projects on the books at the moment.

As the UK Government makes policy changes through Ofgem's curate process, it will be interesting to see what happens with some of those data centres. Some of those changes will probably remove some of the more speculative applications that are currently on the books.

The Convener: You raised the point that, if a project's planning application fails, you take it out of the grid planning. Is there a mechanism that works the other way round so that, if you feel that something does not meet the needs of the grid, it can be taken out of physical planning or highlighted as not meeting the needs of the grid?

Matt Magill: Currently, for demand, that is not in the strategic spatial energy plan but, in relation to planning decisions on generation and future network, we expect that the strategic spatial energy plan will be used in that determination. We can see that potential evolution; it just will not be in the first iteration. Strategic energy planning is not a one and done. It is not about saying, "Here's the network out to 2050"—it will be constantly reviewed and evolved. We have spoken about new technologies coming along in relation to AI. There will be new technologies that amend and improve the strategic plan in terms of what we can deliver for communities.

Kristopher Leask: Martyn Day touched on various points, but there is merit in expanding on the process and the detail in which councils now have to engage with the system. As you have described, there is a huge pipeline awaiting us, and councils are rather left to their own devices to try to manage applications. Rachael Hamilton rightly said that there is very limited, if any, guidance in NPF4 on how to process the applications or on how to interact with them and balance the cumulative impact.

Is there a need for further, more detailed guidance for local authorities that are dealing with the applications so that they can best manage the cumulative impacts for their communities and understand the varied and complex impacts that data centres can have?

Matt Magill: We are keen for people to have the right information, which is why, from an energy perspective, we are trying to provide that through the strategic plans. I do not have a view about from who or where the advice could come to help councils at the moment. The work that is being done on the curate plan to try to remove speculative projects is probably the most helpful thing that is currently in flight.

Kristopher Leask: Do the other panel members have a view? I appreciate that NESO has a restriction, as it has its strategic element and statutory role but, as we have just established quite well, that strategy is coming further down the line, but we have a pressing issue right in front of us.

Dr Sun: I can add something on what can happen if we do not have the planning. I mentioned the States earlier. Particularly in Texas, a lot of data centres just build their own gas generation because they are not properly planned in the first place. There is no requirement to ask data centres to match with renewables or to provide a community benefit—they just build their own gas generation. Even though the climate is very hot, because Texas is a gas and oil state, it is a huge hotspot for data centre development. In my view,

that is not really benefiting the local community at all and is the opposite of what we want to see here.

Dr MacIver: That is not an area of particular expertise for me, but we should absolutely learn from other experiences and have more information for local councillors. We need to think about the lessons from places such as Ireland, where part of the process was a largely unregulated and rapid build-out, which created a lot of problems.

The more that we can get ahead across the system with planning and regulation and with connection requirements for those data centres, the more it will allow us to alleviate their impacts as much as possible, because we will have learned the lessons from other places. My recommendation is to regulate as much as possible and spot the areas where that will be most important.

11:15

Kate Campbell: Thank you—that is really helpful.

I was slightly alarmed when Matt Magill said that he thought that the location should be developer led. I feel that that probably goes against a lot of the conversation that we have had today and what we have just heard from Callum MacIver about data centres being regulated and planned.

If NESO is thinking about generation and the future network, surely you are thinking about the locations where data centres would create—I have forgotten what it is called specifically—a bottleneck in Scotland between the north and the south. Should we therefore locate data centres north of that? Are you thinking about where they could connect? If you are thinking about those things and if we are having a conversation about the importance of regulation and planning, surely we need a master plan. If we are having that conversation but you then say that data centres will be developer led, it does not feel as if any of those aspirations will be met. Do you have a view on that?

Matt Magill: I would not be alarmed by data centres being developer led. Some of the strategic planning is focused on areas and zones, but we do not necessarily pick the field, the road junction or the exact point where a data centre will be located. There is variability, which is where planning comes in, because shifting the development a mile north, east or west can significantly change its impact. It is up to the developer to choose the spot of land within the strategic area. What we are saying is that we can see £5 billion of benefit from 5GW of data centres in Scotland from a strategic perspective, where the developer comes in, builds and progresses it.

We facilitate the connections with the transmission owner, and, depending on where the data centre connects, their cost of connection might be significantly different. Locating next to current infrastructure is normally a much cheaper way of gaining a connection. The connection costs are tens of millions, sometimes hundreds of millions, of pounds.

A number of factors affect the specific site, including planning, water, telecoms infrastructure, the electricity infrastructure to physically connect it and the overall energy system impact. A number of things are co-ordinated through the system for the site.

Kate Campbell: My question is, if all those factors come together and developers are making decisions that are not beneficial because the data centres are not in places that we think make strategic sense—if we are taking a whole-system approach—who should then be making the decision? Where is the strategy, or master plan, if you think about it in planning terms? Who should take ownership of that, and where should it be developed? What regulation should we apply to make sure that people stick to that plan?

Matt Magill: At the moment, DSIT has articulated the need for, I think, six AI growth zones, including one in Scotland. It is taking more of a lead role in the strategic planning of data centres specifically. That would be my answer at the moment. How Scotland can effectively influence that is a really good question for the committee.

Kate Campbell: How can we do that?

Matt Magill: The answer is through DSIT. There are a number of plans with the AI growth zones. We have one zone in Scotland, one in Wales and, I think, four in England. As those plans evolve, that will involve considering where the benefits for Scotland can be and making sure that they are factored in.

The Convener: Will you briefly explain what DSIT is?

Matt Magill: I am sorry—I used the wrong acronym. It is the Department for Business, Innovation, Science and Trade, which is an amalgamation of the Department for Business and Trade and the Department for Science, Innovation and Technology. It is a UK Government department.

Dr MacIver: I will follow up on some of the incentives that the UK Government is seeking to put in place through the AI growth zones. I think, for Scotland, it has said that there will potentially be up to £24 per megawatt hour off the bills in order to attract data centres into the right areas. There is a bit of detail to be bottomed out as to how

that is delivered, what "up to" means and how granularly that might be differentiated locationally, based on how much the incentives actually alleviate constraints.

That comes back to my earlier point that much of the data centre queue in Scotland is around the central belt. The higher impacts at present are probably located further north, and I am not sure whether the underlying detail has been worked out on the incentive to drive location.

That is just one incentive; we have other levers. We have transmission charging, which has the capability to be regionally targeted but, for demand, is not at the minute. It is flattened at zero in Scotland, so there is no additional incentive, whereas we could let the methodology tell us to give incentives in different locations.

There are financial levers in the system that can direct developer-led projects into locations that are more favourable for the system. Planning also has a big role. Planning and financial levers are the two main strands to how something like a strategic spatial energy plan will come to fruition.

Kate Campbell: Will the strategic spatial energy plan set out in granular detail which locations in Scotland are good and which are very bad? Will that information be included?

Matt Magill: The strategic spatial energy plan has 19 zones across the island of Great Britain. That is the level of granularity at the moment.

Kate Campbell: How many zones make up Scotland?

Matt Magill: In the SSEP, there is one zone. In the regional energy strategic plan, there are four zones.

Kate Campbell: So, we are one zone.

Matt Magill: I am now questioning the figure of 19 zones. Let me clarify that for the committee in writing.

Kate Campbell: Okay, but we possibly have a plan that will specify that the whole of Scotland is good.

Matt Magill: What the plan will say, similar to what we said in the "Beyond 2030" report, is that 5GW of data centres in Scotland could save up to £5 billion. It will be that level of granularity as we move through it. There are other levers and incentives to locate some of the demand in a more granular way.

The Convener: I am cognisant of time, folks, and we are trying to wrap up by 11:30. I have Gary down to ask a question, and we will then move to summing up.

Gary Bouse: I will try to be as brief as possible.

I understand that, in April, Scottish Power Energy Networks—SPEN—gave the connection dates for the current applications that we have in, which is one of the main reasons why we have seen the flow coming through. I do not know about the two new ones that have come in this week, but of the applications that are currently active, only one is a full application. The rest are all applications for planning permission in principle, for which a lot less detail is required. The full one is the one that particularly concerns me.

On the planning side, there is a connection date of October 28 for the one that is a full application. I am trying not to name it, but it is in my local area, where there are concerns, obviously. This is probably what Kate was trying to touch on, and the Scottish Government has put it out there, too: if we put data centres in that are purely developer led, where is the space for the people who the centres are built around? That will always be a concern. I know that they might help in developing district heating systems, but—I have done a wee bit of research on this—you are talking about £100 million to build a district heating system covering about 7,000 houses. That is a significant amount of money, which would not be paid for by the data centre, and, if the data centre eventually closes, as was covered earlier on, you would have £100 million-worth of pipes instead of a heating system.

Dr MacIver touched on something that I really agree with, which is about building data centres without burning fossil fuels. That is potentially easy guidance that could be given to help to arrive at decisions. To be honest, I could go on for ever, but the convener would probably cut me off, so I will not do that. Do you agree that there is an amount of information that could be given just now to at least move the dial? I am sorry if I misunderstood Kate, but I think that the voice of the people has to matter, not just the voice of the developer or the person who designates AI growth zones.

The Convener: If you have comments on that, Matt, that is fine, but the question almost delves into proper planning, which might be beyond your scope. If you have a comment, we will be happy to hear it.

Matt Magill: Planning is a really important part of this. Reflecting on the comments that the right policy and information are perhaps not there at the moment, I note that that is worth thinking about, because it is a key determiner in progressing through on the electricity network.

The Convener: Rachael Hamilton has a quick question.

Rachael Hamilton: There is a petition in the Parliament at the moment to introduce a blanket moratorium on planning applications for data centres. Do you have the experience, Matt, of that

happening in the UK Parliament? Would it be legally competent, or would it be subject to legal challenge? I am just asking for your direct experience.

Matt Magill: From my experience of dealing with connections, specifically, I know that you have to be very conscious of discrimination. You must work around discriminating against a certain class of people, technology or company. Therefore, I see it as being quite challenging on a discrimination basis.

The Convener: As there are no further questions, we will wrap up. I thank the witnesses for all their comments. It is a very wide and technical subject, and very system focused. I am not sure that putting questions to a panel of witnesses is the best way to get answers, but I think that we have done a good job of teasing out a number of the issues. Are there any further points that you would like to make, or do you feel that the conversation has covered as much as you would like? You seem to be fairly happy.

Again, thank you very much for coming in and being so candid with your information. A bit like the conversation that we had last week on the more economic side of things, we are just scratching the surface, but I feel that we have unearthed a few good themes that are worth exploring again.

That concludes our business in public today. Our next meeting will be on Tuesday 22 September, when we will take further evidence on the Scottish economy, labour market and energy sector, which will be another broad discussion.

11:28

Meeting continued in private until 11:48.

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