



**OFFICIAL REPORT**  
AITHISG OIFIGEIL

# Net Zero, Energy and Transport Committee

**Tuesday 28 October 2025**

**Session 6**



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**Tuesday 28 October 2025**

**CONTENTS**

	<b>Col.</b>
<b>DECISION ON TAKING BUSINESS IN PRIVATE .....</b>	<b>1</b>
<b>SUSTAINABLE AVIATION FUEL BILL .....</b>	<b>2</b>
<b>SUBORDINATE LEGISLATION.....</b>	<b>39</b>
Equality Act 2010 (Specific Duties) (Scotland) Amendment Regulations 2025 [Draft] .....	39
Equality Act 2010 (Specification of Public Authorities) (Scotland) Order 2025 [Draft] .....	39

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**NET ZERO, ENERGY AND TRANSPORT COMMITTEE**

**31<sup>st</sup> Meeting 2025, Session 6**

**CONVENER**

\*Edward Mountain (Highlands and Islands) (Con)

**DEPUTY CONVENER**

\*Michael Matheson (Falkirk West) (SNP)

**COMMITTEE MEMBERS**

\*Bob Doris (Glasgow Maryhill and Springburn) (SNP)

Monica Lennon (Central Scotland) (Lab)

\*Douglas Lumsden (North East Scotland) (Con)

\*Mark Ruskell (Mid Scotland and Fife) (Green)

\*Kevin Stewart (Aberdeen Central) (SNP)

\*attended

**THE FOLLOWING ALSO PARTICIPATED:**

Sarah Boyack (Lothian) (Lab) (Committee Substitute)

Ralph Lavery (CATAGEN)

Gillian Martin (Cabinet Secretary for Climate Action and Energy)

Doug McKiernan (Zero Petroleum)

Simon McNamara (Loganair)

**CLERK TO THE COMMITTEE**

Peter McGrath

**LOCATION**

The Mary Fairfax Somerville Room (CR2)



## Scottish Parliament

### Net Zero, Energy and Transport Committee

Tuesday 28 October 2025

*[The Convener opened the meeting at 09:15]*

### Decision on Taking Business in Private

**The Convener (Edward Mountain):** Good morning and welcome to the 31st meeting in 2025 of the Net Zero, Energy and Transport Committee. I welcome Sarah Boyack as a substitute for Monica Lennon, who is unable to attend this morning.

Our first item of business is a decision on taking items 6 and 7 in private. Item 6 is consideration of the evidence that we will have heard on the Sustainable Aviation Fuel Bill legislative consent memorandum, and item 7 is consideration of the committee's work programme. Do members agree to take items 6 and 7 in private?

**Members** *indicated agreement.*

## Sustainable Aviation Fuel Bill

**The Convener:** Our second item of business is consideration of a legislative consent memorandum on the United Kingdom Government's Sustainable Aviation Fuel Bill. The committee took evidence on that at its meeting on 30 September and agreed that further evidence would support our consideration.

As a brief reminder, a legislative consent memorandum is laid when a UK bill makes provision in areas that are within the legislative competence of the Scottish Parliament, or alters that competence or the executive competence of the Scottish Government. The committee must report to the Parliament on whether its consent should be granted.

The committee is also taking the opportunity to look more broadly at the prospect of sustainable aviation fuel production in Scotland and the potential role of that in reducing greenhouse gases from aviation. That will feed into our work later this year, when we will consider transportation aspects of the Scottish Government's forthcoming climate change plan.

The bill aims to create more stable pricing for sustainable aviation fuel to encourage domestic production to grow, in parallel with increasing the mandate for the use of SAF by the industry. The Scottish Government supports the bill overall but is withholding its consent for now on some technical matters. I was going to say that I hoped that we would see a supplementary LCM soon, but we received that at 7 o'clock last night, and I believe that another will be forthcoming shortly.

I welcome Simon McNamara, head of government and corporate affairs, Loganair, and Doug McKiernan, co-founder and chief technical officer for Zero. I think that you were Zero Petroleum—is it now Zero?

**Doug McKiernan (Zero Petroleum):** We are still Zero Petroleum, but we tend to use "Zero", which is easier.

**The Convener:** "Zero" is a snappier title. We also have Ralph Lavery, net zero applications engineer, CATAGEN. Thank you all for attending this briefing session. I will move straight to our questions, and I will start.

In the LCM, the Scottish Government says that it supports the bill because it could help to create and sustain a SAF sector. I put on record that "SAF" is sustainable aviation fuel. I will not repeat that. I do not like three-letter acronyms, but that is where we are.

In your view, are the UK and Scotland well positioned as potential leaders in the prospective SAF industry? It is important to have a SAF

industry that is distributed around the UK, is it not? That was a rhetorical question.

Who would like to go first? By the way, if you all look away when I ask who would like to go first, I will just go to the person who looks away last. In this case, that was you, Doug McKiernan, so I will come to you first then go to Simon McNamara then Ralph Lavery.

**Doug McKiernan:** Scotland is positioned very well to help with the kick-starting of the SAF industry, particularly when it comes to the power-to-liquids sector. Scotland has a very skilled workforce in offshore wind.

We have already been working with engineering, procurement and construction companies in Aberdeen to scale up. There is a good skilled workforce there that can help to scale up the synergies between power to liquids and oil and gas. Those are indistinguishable. We have used the same process engineers, piping engineers and so on to develop our scaling up plans. They have indicated to us that if we wanted to scale up and we got the investment that we wanted, there are sites all the way down the east coast of Scotland that would be suitable for that. The company that we are working with has sites earmarked for that.

Scotland has already demonstrated that it is a global leader on offshore wind and the installation of wind turbines offshore, and I think that Scotland has the most to gain from kick-starting the power-to-liquids market. I say that because I think that power to liquids is the only truly scalable solution to net zero and all the Government mandates in that regard. There is only enough feedstock for power to liquids to meet the SAF requirement.

There are many documents that show that, in Scotland, there is already a lot of curtailment of energy from offshore wind. Montel has done a study of the first half of 2025 that shows that 4 terawatts of energy from offshore wind was curtailed. If we were to double that figure for this year, it would be possible to meet the SAF mandate for 2030 with that energy.

I hope that that puts the issue into perspective. Rather than being to do with energy generation, the challenge is to do with the storage of energy and the transportation of that energy to the consumer. Scotland has all the makings of being able to get energy from offshore to the customer, given the existence of Grangemouth and the pipelines down the east coast. The cheapest way of getting energy from offshore to the customer is by using a pipeline, and that requires the use of power to liquids.

I hope that everyone who is here today does not think that power to liquids is very expensive. That is what I always hear, yet we are wasting an

enormous amount of energy on a daily basis, which could be used for power to liquids.

**The Convener:** Thank you. Simon McNamara, is SAF important to Loganair? Do you see it having a future?

**Simon McNamara (Loganair):** There are two questions that need to be answered. The first is whether Scotland is well positioned to be a leader on SAF. I think that it is well positioned; the question is whether it can execute on it. That is the really key question. I agree with everything that Doug McKiernan has said, but we know that SAF is massively in short supply, not just in Scotland and the UK but globally. We need SAF. The airline industry as a whole needs SAF to comply with the target that it has set itself of hitting net zero by 2050.

For Loganair, SAF is very important, which is why we are interested in, for example, the revenue certainty mechanism and how the contents of the bill will deliver the SAF and deal with the issues of production plants, transportation and so on. The second aspect for Loganair, which your question touched on, is the fact that there is a discussion about the use of new technology as an alternative to SAF. I am talking about alternative propulsion systems and alternative energy sources in aircraft. That will happen first in the regional sector, in small aircraft.

For us at Loganair, there is a lot of potential there, which we might come on to later. There are new technologies in the pipeline that would be suitable for the network that we fly, which involves relatively small aircraft that fly relatively short routes. Scotland and Loganair could absolutely be pioneers in new technology as well.

**The Convener:** Thank you. Ralph Lavery, I noticed that you were nodding at various stages during Simon's remarks. Now is your chance to say whether you agree.

**Ralph Lavery (CATAGEN):** Thank you for inviting me. Yes, I definitely agree with the other two witnesses, especially Doug McKiernan. I think that Scotland is incredibly well positioned to generate the hydrogen and the sustainable carbon that are needed to make sustainable molecules. That has been demonstrated through, for example, the ScotWind project and the innovation and targeted oil and gas leasing round, and even Zero's projects, through the advanced fuels fund, in Orkney. We have projects in Scotland, as well as those in Orkney.

The key thing for us is that we see the opportunity and the potential for Scotland to be a leading region on SAF on not only a UK stage, but a global stage. As has been mentioned, we are very keen to see the details of the Sustainable Aviation Fuel Bill and how it could benefit the

Scottish industry, the Scottish economy and the manufacturing bases and skills that exist in Scotland. We think that there is a lot of crossover with oil and gas and the advanced manufacturing sectors that are already present in Scotland.

**The Convener:** Doug McKiernan mentioned Grangemouth. We have been considering the effect that project willow would have and whether Grangemouth is perfectly positioned for SAF production. Do you want to build on what you said in relation to that?

**Doug McKiernan:** The studies that we have looked at have been at a very high level and have involved very large numbers. Using existing infrastructure is key to getting investors to come to the table. We need to de-risk and to take as much of the capital expenditure out of the projects as possible.

We have considered other sites. One is Flotta, which is up in the Orkneys. I was there a couple of years ago. That site, which is out in the North Sea, was producing 400,000 barrels a day, but it now produces about 40,000 a day and will get decommissioned. That is another brownfield site that could be converted into a terminal, and all the existing infrastructure could be used.

My comment was about utilising existing facilities and workforces without having major relocation. That was where I was coming from.

**The Convener:** Your view is that SAF production would not need to be limited to only Grangemouth. There are other sites in Scotland that we could use.

**Doug McKiernan:** There are other sites. When I was talking to an MP—various MPs come to our technology centre in Bicester—we spoke about the need for a proper evaluation in the UK of how we could transition to power-to-liquid SAF and where the most appropriate UK sites would be for building our first plants. He is recommending, as part of the Sustainable Aviation Fuel Bill, that additional work be done to identify such sites. We used our AFF funding to evaluate six UK sites. They are all suitable, but that does not mean that they are ideal. We are a very small company, so we cannot do a thorough survey.

**The Convener:** I think that we all accept—I believe this anyway—that demand will probably determine where production is. We will want production to be close to where demand is.

I have a question for Simon McNamara, although anyone can come in on it. We have heard that power to liquids is the long-term prospect and objective. When do you think that it will make a meaningful contribution to UK air travel? I know that you will say that the work has already started—I am expecting you to say that—

but when will others follow Loganair's lead, if that is the right expression?

**Simon McNamara:** Are you talking about on the SAF side?

**The Convener:** Yes.

**Simon McNamara:** There is a SAF mandate, with which the industry is obliged to comply. Those are the first steps, and the industry has set itself a target to get to net zero by 2050. Loganair has set itself a stronger target to get there by 2040, which means that we will need to use more SAF than the mandate requires, so we would like that fuel to come online as soon as possible.

The other half of the issue is the affordability of third-generation fuels, which is a factor. We might come on to that. I am not sure that I agree 100 per cent with Doug McKiernan that SAF will not be expensive. If we can solve the problems with transportation and energy wastage, perhaps it will not be expensive. However, cost is our biggest concern; according to industry statistics, SAF will be between three and five times more expensive than existing jet fuel. Part of that is because SAF is in short supply, so the rules of supply and demand mean that there will be higher prices. If we can resolve that issue, the price will come down, but we have to bear in mind the affordability factor, because people need to travel—in Scotland, that is particularly important for island connectivity—and to do so at an affordable rate.

At the moment, the SAF that we are incorporating into our tanks is about three times the price of conventional fuel. We are happy to take that, but it will flow through to prices, so a balance must be struck. Whatever we can do to drive up volume will help to drive down the price—which will help everybody—and increase uptake.

09:30

Finally, I will address your point about where the biggest demand is: without a doubt, the biggest demand in the UK is further south—whether we like it or not, there is a big south-east centricity. Loganair is an important provider in Scotland, but we are a small airline and a relatively small user of SAF. The centre of gravity is south, so it is important that we drag it further north and show the importance of Scotland, particularly for air connectivity on which Scotland relies. Around 70 per cent of our flights are over water so, with the exception of ferries, there is no alternative, but there are alternatives if you are taking another domestic flight.

We need to drive up investment in order to drive up volumes of SAF; we will take it as soon as it is there, but affordability is key.

**The Convener:** Ralph Lavery, do you want to come back on that? I would be interested to hear your views on the price restrictions that are placed on SAF. We have heard that the cost of hydrogen is preventing its use by many people. Do you think that it is up to regulation to say that more has to be used, which would drive the price down? How do you stimulate price reductions?

**Ralph Lavery:** There are two important aspects when we talk about the price of new energy vectors such as hydrogen and sustainable fuels. The first is the new technologies that are used to make them. Conventional production of fuel is centralised, large scale and focuses on economies of scale using incumbent technology. We are starting to see a shift away from that, and new technologies such as Zero's have an opportunity to innovate rapidly and massively reduce the costs of producing fuels from them.

We are seeing more distributed, closer-to-primary generation solutions coming to the market, which means that the electron can be captured closer to where it is generated, reducing the cost of electricity transmission to a centralised location. The other key aspect is the capital investment that is required to make the vectors becomes smaller, because the plant size will be smaller and more distributed, which speaks to Simon McNamara's point about the focus on the UK's south-east. If fuel production is distributed across the United Kingdom, we would have more equal economic opportunities. That is very important to Zero as we are based in Northern Ireland, which is sometimes excluded from some of the conversations at a UK level.

There is an understanding that sustainable fuels are more expensive. As an example, the shipping industry in Europe was recently incorporated into the European Union's emissions trading system, which has effectively doubled the price of conventional fossil fuels in that industry. It is managing that through a combination of policy and supportive economic vehicles such as the International Maritime Organization's universal carbon price. We think that something similar will happen in the aviation sector through bodies such as the International Air Transport Association and the carbon offsetting introduction scheme for international aviation arrangement—CORSA. We do not think that there is one solution, but the combination of new technology and the cost-down curve that comes with it, as opposed to the small iterative changes that we are seeing with conventional refinery technology, will play a big part.

Another key aspect will be the ability to access energy closer to where it is generated, which will reduce things such as constraint payments and curtailment costs for the electricity and would

therefore reduce input price. Ultimately, all those can be drawn back to renewable electricity. If you bring the price of your renewable electricity down, by extension, the cost of the fuel that you produce with it will reduce. That is a key aspect of what we are trying to do with our technology.

**Bob Doris (Glasgow Maryhill and Springburn) (SNP):** I am trying to get my head around the issues and how we can better understand them as a committee. Power-to-liquid or third-generation SAF can require CO<sub>2</sub> feedstock. How secure is the CO<sub>2</sub> feedstock, and are there sufficient quantities of it? What are the best sources currently, and will they change in the longer term as we need greater supply? What will the challenges be around that?

**Doug McKiernan:** The pathway is that, for the first six or seven plants, there is plenty of CO<sub>2</sub> from distilleries and agri-waste. They are very pure feedstocks, so they could be used. That would be enough for the next three to five years' production and would easily meet the 0.5 per cent mandate by 2030. After that, we will really need direct air capture technologies to start coming online. That is a realistic timeline for those technologies to scale up. We really need point-source carbon capture and direct air capture to come in from 2030.

**Bob Doris:** I will ask Ralph Lavery the same question. Before I do, can I check that you are confident that the new technologies that are being developed will be good to go by 2030 and able to bring the next target in sight?

**Doug McKiernan:** Is that question for me or for Ralph Lavery?

**Bob Doris:** It is for you, but Ralph can reply, too. You mentioned that that is enough time for those new technologies to develop sufficiently. What was that based on?

**Doug McKiernan:** We are working with a large original equipment manufacturer—I believe that it is one of the world's largest automotive manufacturers—that is very keen on direct air capture technology and is planning to bring one of its units to our facility in quarter 3 or quarter 4 next year. One of the major airlines is also very big in direct air capture and is scaling up its capabilities in that area. There are also some quite unique start-up companies. "Start-up" is probably a bit rude—they have been going for four or five years and have attracted quite a bit of funding from the UK Government. There are very large corporations and some small companies that are building.

**Bob Doris:** That is helpful. It was not a gut feeling that the timescale would be sufficient—you have direct business experience that this area is developing.

**Doug McKiernan:** Absolutely, and it is doing so at serious scale. If I have got this right, one of the plants is producing thousands of tonnes a day.

**Bob Doris:** It is helpful to get that on the record, which is why I wanted to follow up on that.

Ralph, do you want to add anything to what you have heard?

**Ralph Lavery:** Scotland is better positioned as a region than most others when it comes to CO<sub>2</sub> supply for sustainable fuels. Doug McKiernan has mentioned that distilleries are a large source of sustainable carbon molecules, and the management of large agri and forestry sinks of carbon will be important. That speaks to how bioenergy policy develops in Scotland and its recognition of SAF. Further, projects such as Acorn mean that Scotland has the experience of movement and use of CO<sub>2</sub> in the region, which will be really important in transporting CO<sub>2</sub> to where it is needed to make these fuels.

I agree with Doug McKiernan about the quantity of carbon. We are not overly concerned. We have looked at the carbon potential of the island of Ireland, as well as a similar economy and a similar region, and we see lots of opportunity to capture CO<sub>2</sub> and change it into sustainable fuel molecules. The development of direct air carbon capture is a really important part of that. We are working with several companies that have been part of the UK's Department for Energy Security and Net Zero programmes in that area, to see how we can work with them and their new technologies. I do not want to repeat myself, but I think that the development of those new technologies in the UK is strategically important for the supply of CO<sub>2</sub>.

**Bob Doris:** Thank you for reinforcing that. I will come to you, Simon McNamara, but I first want to explore this a wee bit further. That is one way in which we can get power-to-liquid SAF. I am treading carefully, because my knowledge base is pretty low—Ralph Lavery, you can help me out here—but I believe that low-carbon hydrogen feedstock can also be used for the production of SAF. We have heard that there is confidence in the CO<sub>2</sub> feedstock. How should that sector develop? Where should production be sited as it develops?

It is also important to say a little bit more about the transportation of hydrogen, because this committee has asked about it previously and there are challenges in relation to that. It would be helpful if you could say a little bit more about that, Ralph.

**Ralph Lavery:** We develop our own hydrogen production technologies, and we are seeing more and more of a shift to the use of hydrogen at the point of creation. Rather than transporting hydrogen, which is a very difficult molecule to

manage and make behave, production of hydrogen close to where you consume it works best. That means that where we are primarily seeing demand growing is in heavy industry—steel, cement and glass manufacture—but we also think that the SAF space is becoming important for the hydrogen economy, because it provides a large demand case for sustainable hydrogen and low-carbon hydrogen.

**Bob Doris:** Can you say a little bit more about that? I asked where production should be sited, and you said that you are doing it directly in relation to SAF. How does that work? Where do these sites go for the production? Simon McNamara is here because he wants to use it for his fleet of aircraft. How does that co-location and production feed in?

**Ralph Lavery:** We see two different hydrogen production models emerging in relation to SAF. More widely, we think that hydrogen should be made close to where it is used. If you are using it in transport applications such as a bus network, for example, hydrogen production should be close to where you are refuelling the bus fleet.

If you have technology that allows you to generate SAF close to renewables sites, your hydrogen needs to be co-located with that, and that is where the PTL sector becomes really important. However, people such as Simon ultimately need a finished fuel or a blended fuel, which that means that the fuel needs to go through some form of centralised processing facility. Grangemouth was mentioned, and it is a good example of such a location. Those seem to us to be sensible first locations for hydrogen production.

**Bob Doris:** Okay. Thank you. Doug McKiernan, I will bring you in, but I will ask my final question first.

A thread running throughout this is that a lot of the generation is very electricity intensive, and UK industry has some of the highest electricity costs in the world. How can the sector drive down electricity costs? Those costs must feed in quite directly to the overall cost of the production of SAF. Do you have any reflections on what Ralph Lavery has said? Also, how can we get on top of rising electricity prices, which might hamper the development of this market?

**Doug McKiernan:** One of the problems with energy generation per se is that it involves three major parts of the process—the generation of it, the storage of it and then the transmission or transportation of it. That represents the entire cost of energy. How we then get it from the point of generation to the consumer is the total cost. This is where power-to-liquid SAFs are a solution, because you need to bring in all the parts to understand the cost of energy. We have a good

example with the wind turbines and the curtailment. If, where there are landfill sites, there are brownfield sites not too far away—we have had a look at that, and there are—where that cable comes in, you can co-locate hydrogen and a power-to-liquids plant, and then you can use the existing infrastructure to pipe that fuel to wherever you want it.

That is how you get the cost of the energy down—by ensuring that every watt that is generated is converted into a fuel that can be stored and transported. That is a well-documented and extremely important point about the cost of energy. The cost of energy is not in the generation of it—there are examples of that globally. The cost of energy is in how you ensure that you can utilise all the energy that is generated and get it to the consumer. We looked at that globally, and there are plenty of examples of it around the world. The cost of getting energy from the generation point to the consumer is far more expensive than the cost of the generation of energy, so that is what we need to be good at.

The UK has some very talented chemists, chemical engineers and process engineers. We need to use those people and get them to come up with even better solutions than we have today to deliver the technology. We will get energy costs down by improving the efficiency that we have been talking about at the point of converting it from energy to power-to-liquid SAF.

09:45

**Bob Doris:** Simon McNamara, I was taking your name in vain. Having heard the answers from Ralph Lavery and Doug McKiernan, is Loganair reassured that the jigsaw is coming together and that Loganair is well placed to use those new technologies, producers and suppliers to decarbonise its fleet?

**Simon McNamara:** We are concerned about whether there will be enough SAF—that is the whole industry, not just Loganair. There is not enough just now. It has already been mentioned that IATA, which is global, is looking at the global supply of SAF. It doubled to 2 million tonnes in 2025, but that represents only 0.7 per cent of the fuel that is needed globally.

It is great that plans are in place, but we are concerned about whether SAF will arrive at the pumps for us to put it into the aircraft, and about the price of it. That is an overriding concern for us at Loganair, as well as for the industry as a whole. It is great that it is being discussed and that all these things are happening, but will it flow through to the final product at the right price? That is our concern.

**Bob Doris:** Thank you for that. It is very helpful.

**Michael Matheson (Falkirk West) (SNP):** I want to pick up on what type of SAF you think will be able to meet the aviation sector's demands. Doug McKiernan, from your earlier comments, I got the impression that you feel that the only one of the three generations of SAF that is likely to meet the aviation industry's demands is power to liquids. Is that the case? I am also interested in hearing Ralph Lavery's views on that. Is that the only scalable option that can meet the demands of the aviation industry in the next 10, 20 or 30 years?

**Doug McKiernan:** The problem is feedstock for the technologies. There are only so many crops and so much displaced food that people can use for hydroprocessed esters and fatty acid fuels. When you start to look at the numbers and the footprint required for that, it is not scalable. Ultimately, we need to get to net zero by 2050, and, when we look at the amount of aviation fuel that is being used globally, the numbers do not stack up. HEFA is a stepping stone, as are the alcohol-to-jets process and the second-generation fuel.

Everybody wants to use waste, but we do not want to not use waste. Is it a complete solution? It can be part of the solution, but it will not be the majority of it. The key point is that there are three or four horses in the race but only one horse has enough legs to finish it. We can get on the first two or three horses for the next three, four or five years, but we will need to jump horses at some point.

It is also important that people recognise that what I am talking about is a proper solution to achieving net zero. We cannot have policies and an industry that take a short-termist view by backing the bio-based solutions when, at the end of the day, there is not enough feedstock to deliver them. That precludes the development of the power-to-liquid SAF infrastructure and those technologies. We need to get people's heads into the right sort of space. Yes, HEFA is good for now, and there are other stepping stones, but by 2035 HEFA should be a small percentage of supply and power-to-liquid SAF should be running.

Power to liquids solves a lot of problems, such as the cost of the country's energy, which Bob Doris asked about earlier. Why is energy so expensive in the UK? It is quite simple: we waste a lot of energy and there is no solution for transporting it or storing it. It is as simple as that—that is why energy is so expensive.

If we use the technology, we not only will bring down the cost of energy but bring economic growth to the country, because we will not have one arm tied behind our back by the cost of energy. At the same time, we can become global leaders in selling the IP to other countries, which

will bring money back into the country through licences. That is the bigger picture that we should be thinking about.

I sort of went off topic there, but I wanted to get that point in.

**Michael Matheson:** That is helpful.

**Doug McKiernan:** There is a bigger picture there. Power to liquids is powerful not just in solving the SAF problem, but in solving the cost of energy problem, as well as in relation to the UK's economic growth.

**Michael Matheson:** Doug McKiernan, can you tell us, from your expertise and knowledge, what percentage of the SAF that is used by the aviation industry will come from the power-to-liquids sector by, say, 2040?

**Doug McKiernan:** It very much depends on Government policy. I would love to say that it will be an enormous percentage of it, but, at the moment, it is a bit like where the internet was back in the late 1980s and early 1990s. The internet was around, but people did not think that it was of much use. However, five or six years later, they realised that the internet was absolutely brilliant and that there were some really good search engines, such as Google. I think that we are at that stage with power to liquids—there are lots of different people doing it, but nobody has really said that it is the way forward. That is what I am trying to say.

How much and how far we can scale is really determined by Government policy. I have said that there is a skilled workforce here, in Scotland, particularly in the oil and gas industry, and those skills are almost indistinguishable from the skills that you need to build out the plants. We have all of this capability in the UK to demonstrate the technology; the issue is more about how Government policy can give investors the confidence that, when they back this approach, it will deliver.

I cannot answer the question, because I do not know what the policies will be or whether it will happen.

**Michael Matheson:** Thanks. Ralph Lavery?

**Ralph Lavery:** Doug's analogy of a marathon is a useful way to think about it. We think that all SAF is better than no SAF—a more sustainable option is better than nothing—but the second-generation, or non-HEFA, SAFs that come from biological wastes or feedstocks are more like a middle-distance runner. They will be really important in the next 10 to 15 years, to get us on the track to decarbonisation, but, in the longer term, power to liquids is the only one that can scale.

It is almost difficult to comprehend the volume of fuel that will be needed. IATA estimates that, by 2050, the global demand for SAF will increase three hundred and sixtyfold. Our current SAF supply chain will therefore have to increase production by more than 300 times to meet that demand. Once you start to bring biomasses or wastes into that, the pure logistical challenge of trying to transport that much material around to make a fuel out of it becomes challenging.

In relation to policy that has already set that out, our neighbours in the EU have a sub-mandate for eSAF—or power to liquids, as we call it in the UK. There is a sub-mandate in the UK as well, but the European one is much more aggressive.

We think that, given the opportunity cost of converting biomasses or wastes into a fuel for combustion, that might not, ultimately, be the best use for them. That is why I mentioned at the start of the meeting that the use of biomasses in SAF needs to be incorporated into a wider biomass strategy for Scotland. There needs to be a decision about where the value of that use of biomasses sits compared with other uses, such as the making of other sustainable chemicals, which might have a longer lifetime than combustion fuel. Ultimately, the direct use of electrons to synthesise a fuel will be more energy efficient than growing a biomass and then converting it into a fuel, purely because there are fewer steps in that conversion chain.

I agree with Doug McKiernan. We see a clear place for bio-based SAFs that are non-HEFA—non-food-competitive sources of feedstock—in the next two decades, but, when we start to get to the volumes of 50, 60 or 70 per cent SAF, in the second half of this century, power to liquids is the only solution that we can see scaling to provide the volumes of fuel that will be needed to provide decarbonisation.

**Michael Matheson:** Ralph Lavery touched on SAF production earlier. Is it more likely that there will be a larger number of smaller sites producing it or a smaller number of large sites? Given what Doug McKiernan said about electricity and getting close to landfill sites, that leads me to think that it will be a larger number of smaller sites.

**Ralph Lavery:** I think that two different models will develop. Doug McKiernan is correct. Take offshore wind for example. When we have large offshore wind sites with tens of megawatts of electricity landing in a single location, we are likely to see some centralised production around that. That is where the major nodes or the motorways to distribute the fuel will be. However, over the past 20 to 30 years, we have developed a distributed energy generation system in the UK, because we have wind farms across very large

geographical areas, so those smaller sites will become really important.

I will give an example. There are about 9,000 onshore wind farms in the UK. The quantitative value—the output—of half of those is under two megawatts. That output is tiny compared with that of a large fuel plant such as the one at Grangemouth. With electricity pricing, we are seeing—this speaks to Bob Doris's point—that that distributed nature of generation makes it difficult to capture that electricity effectively. That is because people tend not to live where it is very windy or where it is very sunny at a global level, which means that all that energy is being generated far away from consumer points. Consequently, I think that there will be a blended approach. We will have large centralised plants in key strategic locations. Hydroelectric power is another great example for Scotland. Where there are more concentrated power-generation opportunities, there will be larger production facilities.

I think that we would see a hub-and-spoke model develop off of that—we call that the milk run, internally—in which smaller sites will make primary fuel that might need upgrading or blending. That would be taken from a distributed network into a centralised point that might have a larger production capacity. Grangemouth would be a great example of that. We have looked at that in other locations across the UK such as Flotta and Immingham, where you can have large centralised technology making very large volumes of fuel that is supplemented in the surrounding geography by smaller plants from where fuel is transported into the central location. In that model, the infrastructure for transport is shared.

**Michael Matheson:** Doug McKiernan, do you have a view on the type of production model that will develop in the future?

**Doug McKiernan:** Ralph Lavery is absolutely right. In the short term, there will be a lot of smaller modular plants. Investors will want to gain confidence in the technology, too.

Modularisation is a very good approach. We have designed a containerised version of our power-to-liquids plant. It is quite helpful that that modular design can be tailored to whatever the renewable energy level is at the site. For example, if you have a two megawatt site or a four megawatt site, you just multiply the number of containers and generate the appropriate amount of power to make liquid fuel. In the short term, investors will want to see that those units are up and running. That will give confidence in the complete technology.

However, that will not work when dealing with the larger-scale volumes. You will use any energy

source for that, and you will co-locate the hydrogen production to wherever the energy source is, get in the CO<sub>2</sub> and then make the fuel at that site. It has been mentioned before that the hydrogen does not get transported anywhere because doing so would be extremely costly. It needs to be made on site and converted into a liquid.

**Michael Matheson:** I am looking at the detail that we have been provided with on SAF production across the UK. From what I can see in the papers that the Royal Aeronautical Society has provided, around 19 sites across the UK where SAF production or development is taking place have been given support through the UK Government's advanced fuels fund. Despite what you have said about what you think will be the likely model of production, particularly in the earlier stages—that is, modular and probably smaller scale—and despite Scotland's natural attributes, it appears from this data that only one site in Scotland has secured funding from the UK Government's advanced fuels fund. It is the one in Orkney that you mentioned earlier. Why do you think that that is the case?

10:00

**Doug McKiernan:** That is a very good question, and I honestly do not know the answer to it or why such decisions are made. We have been going for over six years now as a company developing e-fuels and, when we looked, we thought that the European Marine Energy Centre up in the Orkneys was way ahead of anywhere else when it came to understanding the renewable energies scenario. It had tidal power, wind power and hydrogen on site. Indeed, our first Guinness world record-breaking 100 per cent synthetic fuel was made on Orkney.

Moreover, when we have looked at our scale-up plans, we have used a company in Aberdeen, because it has all the skill sets that we want; it is the right size; and it is quite dynamic. It is not some massive EPC company, but it is also not too small for us. As I have said, it has the skill sets that we need.

I honestly cannot answer your question as to why more advanced fuel funding has not gone to Scotland—I do not know.

**Michael Matheson:** That was helpful. Ralph, do you have a view on this question?

**Simon McNamara:** Yes, I was going to comment on that. I think that it comes back to what we were talking about before—

**Michael Matheson:** I was actually asking Ralph first.

**Simon McNamara:** Oh, sorry.

**Michael Matheson:** But on you go, Simon.

**Simon McNamara:** I thought that you were pointing at me—I do apologise. I suspect that you were looking at the screen. Ralph, carry on.

**Michael Matheson:** I will come to you next, Ralph. Simon, did you want to comment?

**Simon McNamara:** I was just going to come back to my previous point, because I think that some of this is driven by south-east centricity, and where the debate—and the big noise—is around SAF for aviation. Some very big airlines in the UK need SAF, so a big debate is happening down there.

Where Scotland benefits is in having an abundance of renewable energy and the potential to produce it. There is a debate to be had about what more could be done in Scotland, but the noise is further south, and that is not necessarily a good thing, I would say.

**Michael Matheson:** Ralph?

**Ralph Lavery:** We were quite disappointed with some of the outcomes from AFF, and we do not understand why the more renewably rich parts of the UK were overlooked.

**Michael Matheson:** I cannot see anything for Northern Ireland, either.

**Ralph Lavery:** No. No bid for AFF funding for Northern Ireland was successful, much to our chagrin.

We think that that comes from a conventional attitude towards centralised production, and that model is not going to work in the future. We talk about looking back in 20 years at what the energy system looked like; centralised production of fuel is really important at the moment, but that is going to change. We think that a lot of the mindset has been focused on existing facilities and how they can transition to a more sustainable model, instead of thinking about what a sustainable model in the future might look like.

We do not know why, ultimately, but we were very disappointed that more projects in Northern Ireland or Scotland did not receive funding.

**Michael Matheson:** That was helpful, because it brings me on to my next question. Do you think that the UK Government's advanced fuels fund and the way in which it is being allocated properly reflect the way in which the SAF sector is likely to develop over the next 10 to 20 years?

**Ralph Lavery:** I think that the fund definitely overlooks a key consideration when you look globally at SAF projects, which is that they are located where there is abundant renewable energy at a relatively low price. That is the key driver from

a business model perspective, because it is the largest input cost for those facilities.

For us, consideration needs to be given to what is being missed in those applications. Part of that is, as Doug McKiernan mentioned, the transmission of electricity costs to the consumer. We are actually paying to not receive renewable electricity at a network level. We feel that that is the key aspect that we need to figure out a solution to, in order to unlock a SAF industry. That will benefit Scotland as a region the most, because it is where most of the electricity that cannot currently be used effectively is generated.

**Doug McKiernan:** I agree with what Ralph Lavery says. I use the Moray East and Moray West wind farms as an example, because they generate so much power. Those are the sort of numbers that we need to be looking at in relation to making SAF and turning that wasted or unused energy into something of value, and that is why Scotland is very well positioned on this. Something like 4.6 terawatts was wasted in the first half of the year in the UK. Four terawatts of that was in Scotland, which shows you the proportion of the potential benefit. That is why I keep saying that Scotland is very well positioned to make the most out of this.

**The Convener:** Sarah, do you want to come in on that? Then I will go to Douglas Lumsden, and then I will come back to you for your other questions.

**Sarah Boyack (Lothian) (Lab):** That is great. I will follow up on Michael Matheson's questions.

At Grangemouth, there is the refinery that shut this year, and there are proposals for green hydrogen production. Just to nail the issue about curtailment payments, the figure for Scotland was £125 million for the first six months of the year, so that is £250 million a year. However, the UK figure is £1 billion a year. There is something about how we repurpose that money and get it invested. The renewables sector always talks about confidence and uncertainty in relation to investment, so do we have an opportunity at Grangemouth?

Also, given that Grangemouth is quite close to Glasgow and Edinburgh airports, it would have the production capacity and the power. It would have the tech and the people, and it would be close to where you want to take that power. If we do not do it, we are going to miss out—and I do not just mean in Scotland, but globally.

We now have the Sustainable Aviation Fuel Bill. What do we need next to trigger the delivery that would bring the benefits that you have all been talking about quite effectively?

**Doug McKiernan:** It is about getting everybody around the table, and by that I mean investors,

producers, Government and people who can make those decisions.

I feel like I am preaching all the time. As I said, it is a bit like in the early days of the internet when people did not really believe in it. It is about trying to get people to recognise that when you zoom out, SAF is the kick-starter of power to liquids, because nobody would argue that long-haul flights are going to be done with electric vehicles or hydrogen. It is not going to happen. Airbus this year kicked its hydrogen ideas down the road by five to 10 years—it knows what the score is there.

For me, it is about getting all those parties around a table and making the argument—or not, as the case may be—and properly thrashing the issue out. I have started drawing up models of different energy sources coming online over the next 25 years, and those models include where the energy sources would be positioned in the UK, the power-to-liquids market and where we could use existing infrastructure.

The Department for Transport should be doing that. It should be pulling people together, and pulling in Scotland and you guys. To be honest, it is only in the past six months that I have been pulled into meetings such as this. This is the first time that I have come to this sort of thing.

For me, it is very much about getting big investors, particularly the National Wealth Fund. We meet all of its criteria, but it is very risk averse, even though it has the biggest mandate—it has £28 billion with which it is supposed to kick-start the UK economy. From what I have seen of what that has been put to, the National Wealth Fund is very risk averse and will not kick-start any economy. People need to work out a proper solution to kick-start an economy. For me, that starts with getting the cost of energy down, and power to liquids is the way to go about doing that. We need the National Wealth Fund and other investors, with everybody round the table.

**Sarah Boyack:** So is the key thing getting a proposal on the table? I see that Simon McNamara wants to come in.

**Simon McNamara:** I was going to comment on that. The revenue certainty mechanism in the bill is the tool that everyone is hoping will work. We were cynical about that when the bill came out, and the Government had better be sure that it does work. In other words, does it drive investment? Does it lower the cost of capital and allow people to invest in plants to produce the SAF that is needed? At first, we were not sure about that, because the mechanism will potentially add cost and complexity. There is a levy in there and there is the whole issue of to and from. Could the system end up as one where the industry, through the levy, is perpetually funding producers?

There is a real question as to whether that policy alone is the right one that will bring the SAF investment that is needed. That is a question of scrutiny of the bill specifically. Will it work, and is there enough evidence to show that it will work? That is about not just the design but the final mechanics, and particularly the levy and the strike price, which have to be agreed.

**Doug McKiernan:** Simon McNamara's point is absolutely right. Do I believe that the mechanism will kick-start the real solution? There needs to be differentiation within the mechanism. Everybody round the table recognises that there are stepping stones such as HEFA and the alcohol-to-jet process. There is an issue about what is allowed for those and how the revenue certainty mechanism works for them. Also, the real horse to back is power to liquids, because that will create economic growth. For HEFA, it is more than likely that we will have to import all the feedstocks, so taxpayers are just going to be paying for something that we should be making here in the UK.

A point about power to liquids that I have not made today is that it gives us a sovereign capability, which is also extremely important for the UK. We can generate energy and put it into a form that can be used by our military and domestically.

**Sarah Boyack:** Yes. Your points about the National Wealth Fund are critical, because there is the issue of investment, but there is also the issue of saving money from curtailment costs. We need joined-up thinking.

**Doug McKiernan:** Exactly.

**Sarah Boyack:** Do you want to come in, Ralph?

**Ralph Lavery:** Simon McNamara's point about reducing the cost of capital is key, and that is ultimately what the revenue certainty mechanism is designed to do. However, there are other ways to make the investments more attractive, and particularly to rebalance the distribution of SAF across the UK. The EU has taken quite an interesting approach to that. As a parallel to its SAF strategy, it has an anti-tankering policy, which essentially means that airlines cannot overfuel their flights in key hub airports; they have to uplift fuel at the right time, at the right amount. That basically means that they are not flying additional fuel around to avoid having to refuel in less well-connected airports.

Along with the EU's SAF strategy, that has resulted in the fact that, by 2035, SAF will physically have to be supplied into all European Economic Area airports. That has changed the conversation on SAF in the EU, because regional airports that are not near a large fuel producer will have to find a way to get SAF to the airlines to

allow them to uplift effectively. There are other levers such as that that could be used to make areas such as Scotland more attractive and to move the bias further north, away from the south-east, where there is a huge demand that is currently pulling in a lot of activity.

Another point, which Sarah Boyack raised very well, is that Grangemouth is almost an ideal test case for the SAF industry in the UK. We have looked at it for a long time. For me, as a chemical engineer, Grangemouth is a huge heritage location for process chemistry and chemical engineering, and there is an opportunity there to show how it can be a model for a just transition—which, historically, has not been particularly successful—for people who work in the oil and gas sector, because they would be using exactly the same molecules.

10:15

One of the key aspects that is important for me is that, from a chemical point of view, sustainable aviation fuel is no different at a high level from the traditional fossil fuels that we use. That means that the skill sets, capabilities, and manufacturing and maintenance understanding are already there.

The industry is currently crying out for more primary molecules to come in to secure and future proof those jobs. SAF is one of the solutions to that and has the ability to scale beyond the current capabilities in the region. It offers a way not only to reinforce and secure existing jobs but to grow those industries that have seen a significant decline in the past few decades in Scotland.

**Sarah Boyack:** All of your comments have been very helpful. The choice is between doing it ourselves or importing it from somewhere else.

**Douglas Lumsden (North East Scotland) (Con):** I have a question for Simon McNamara. To go back to the economics of SAF, should we, as passengers, expect to pay increased costs for air travel in the future, as we use more and more SAF?

**Simon McNamara:** That is a key question. At the moment, under our mandate, SAF costs around three times as much as conventional jet A1. Those costs have to be absorbed somewhere. We are making around £4.50 profit per passenger at the moment. As you can imagine, that can easily be eaten up if the fuel price trebles or goes up by five times, which is the potential prediction for third generation.

Unless the price of SAF comes down through volume increases, there will be more cost. If the price does not come down, ultimately all that will happen is that air fare prices will be driven up.

For regional airlines in particular, there is a really important difference. There are other pathways than SAF, and one of those is new technology. In the UK road map, new aircraft technology can deliver up to 16 per cent of the decarbonisation that is needed. In some of the other road maps out there, it can deliver as much as 30 per cent. For an airline such as Loganair, in the very long term, our entire fleet could use alternative technology—not SAF, but hydrogen, pure electric or battery. That topic does not get the airtime that it deserves. Rightly, we spend a lot of time talking about SAF, because it is a very important solution, particularly for long haul, as Doug McKiernan said. However, for regional operators, particularly in Scotland, the potential for new technology in the 2030s is very ripe. We should be talking about that much more, particularly at a political level.

**Douglas Lumsden:** Therefore, you do not so much see SAF as the future for your airline, but other technologies, because you are doing shorter journeys?

**Simon McNamara:** Exactly. We are doing shorter journeys of up to 300 or 400km with smaller aircraft, so that is where the technology will move first. As Doug McKiernan said, in all our lifetimes, we will not see a hydrogen or battery-powered long-haul aircraft, but we will see a hydrogen, electric or hybrid-electric long-haul aircraft. We are working with multiple producers, one of which I worked with before I joined Loganair. I am convinced that we will see that technology move in the 2030s.

**Douglas Lumsden:** However, if you were—

**The Convener:** Douglas, I am conscious that Kevin Stewart is keen to ask about future technologies. At some stage, we will go into the areas in which he indicated an interest, but would it be appropriate to bring him in now?

**Douglas Lumsden:** Go for it.

**Kevin Stewart (Aberdeen Central) (SNP):** It is fine, convener—I will wait.

**Douglas Lumsden:** To go back to the economics, if you were moving just to SAF, what would that mean for the prices?

**Simon McNamara:** That is a difficult thing to pitch, because it depends where new technology and the price of SAF go. All we can say for certain just now is that the price of SAF will be anywhere between three and five times what it is for conventional fuel. For a typical airline such as ours, fuel represents around 20 to 30 per cent of our direct operating costs, so you can work out what the impact will be. I am not going to give a precise figure, but it will follow through to higher air fares.

**Douglas Lumsden:** Doug, you said that the key to all of this is getting the cost of energy down. How should we go about doing that? You are right to say that we have an abundance of energy, but if we look at the contracts for difference prices for offshore wind, we can see that it is not cheap. Given that the CFD prices are pegged in for the next 10 or 15 years, how can we reduce energy prices to make things such as hydrogen production and SAF production economical?

**Doug McKiernan:** I agree. That is why we need to have a proper think tank on how to get energy costs down. Power to liquids is simply the storage and transportation solution, whatever the form of energy generation.

When it comes to getting the cost of energy down, I do not know what the solution is. As you said, offshore wind energy is quite expensive here compared with other parts of the world. One of the challenges that we will have will be in competing globally at a cost-effective price, if we decide to go down that route in the UK. At the moment, there are places in the United Arab Emirates where big hydrogen hubs are being put in. There are lots of solar installations being put up in the deserts. Those will be even bigger hubs for power to liquids.

**Douglas Lumsden:** How could we ever compete when we have very high CFD prices? I imagine that energy from a solar farm in the middle east would be a lot less expensive.

**Doug McKiernan:** I totally agree. I do not know what the solution to that is. There is a way of getting our energy costs down from their present level. Our costs are the fourth most expensive in Europe at the moment, and I think that we could probably bring those down so that we were about halfway down the pecking order by using power to liquids to address that. However, I do not know whether Europe could ever compete with a UAE solar farm.

**Douglas Lumsden:** You said that curtailment energy could be used, but that is not constant. It is a very windy day today, so I am sure that there is plenty of curtailed energy, but over the past two weeks, basically, there has been no wind. How could the industry survive when it does not have an almost guaranteed—or steady—source of energy?

**Doug McKiernan:** Understood. We have done modelling. We put wind farm-type power generation through our electrolyzers and work out how we would model that in a theoretical way. It all relates to buffering. During those periods, some of the power to liquids would be used to power the system. There would be a turndown on the plant, and when the wind came back, the level would be kicked up again.

**Douglas Lumsden:** So it is really just a case of storing more of the fuel at the end.

**Doug McKiernan:** Yes—basically, you just have a buffer tank. There is a debate about whether you do that with hydrogen or with your power to liquids.

**Douglas Lumsden:** Would zonal pricing have meant that SAF production was much more attractive for Scotland, because there could have been cheaper electricity closer to where the source was?

**Doug McKiernan:** I am sorry—could you say that again?

**Douglas Lumsden:** Would zonal pricing have made a difference for SAF production in Scotland?

**Doug McKiernan:** Sorry, what pricing?

**Douglas Lumsden:** Zonal pricing.

**The Convener:** Basically, a zonal pricing system was supposed to reduce the price of electricity in areas where it was produced.

**Doug McKiernan:** Oh, zonal—apologies.

**The Convener:** I think that that was a hearing issue.

**Doug McKiernan:** I will have to get my ear in.

**Douglas Lumsden:** Maybe it is my accent.

**Doug McKiernan:** I am sorry—I am slightly deaf in that ear.

**Douglas Lumsden:** Would zonal pricing have made a difference for SAF production in Scotland?

**Doug McKiernan:** I am sorry, but I am not familiar with zonal pricing.

**Douglas Lumsden:** Ralph, do you have a view on whether zonal pricing would have helped Scotland with SAF production?

**Ralph Lavery:** I think that cheaper electricity would help any renewable energy-related project in Scotland. When it comes to the specifics of such mechanisms, the devil is always in the detail.

To return to your original question about whether the cost will be passed on to the consumer, we are not sure, but, with early projects, we are deliberately targeting lower-volume production so that the capital and the onset cost to the end consumer—the airline—is lower while we develop and refine those products for the market. Instead of going for as much SAF as possible straight away and locking in 15-year offtake agreements at very high prices, as was the case with the CFD model that you mentioned, we are trying to attract smaller-scale projects that are at a scale that is relevant for decarbonisation but

which do not lock companies such as Simon's into paying a very high fuel price for 15 years.

We see that as an early way to develop capability and supply and to work through some of the efficiency savings, which would mean that the onset cost would become as low as possible.

The other thing that it does is to crowd in potential investors: we are not talking about a half-billion-pound SAF plan; the investment is of an order of magnitude less than that, which means that new people can become involved in the conversation. There could be not only the very large primary oil and gas movers but airlines, fuel producers and fuel suppliers investing in those projects. That is an important part of the solution.

There is an incumbent thinking that only the current large fuel producers can resolve the issue, which means that we are beholden to how they think it is best to do that. We agree with some of their thinking, but there are other parts that, being a net zero company, we might disagree with. There is not an easy answer to pass on to consumers. People such as those in IADA say, "Yes, flying will cost more." However, that is going to happen anyway because the aviation sector will have to pay ETS fines for using fossil fuels. It is impossible to figure out whether the ETS costs will be higher or there will be more use of SAF. Ultimately, people in the fuel space who are much more intelligent than me will figure out the best way to keep the prices down.

**Douglas Lumsden:** Ralph, you mentioned Acorn. Where would that fit into the SAF jigsaw, so to speak?

**Ralph Lavery:** Early pilot or lighthouse projects such as Acorn are important because they get you familiar with the logistics and the unseen issues with developing new energy systems. For incumbent electricity or oil and gas, we have more than a century of familiarity with the skills, the people and the systems that work well. Projects such as Acorn are crucial to understanding how to move carbon and store it successfully, and understanding the skills and technology that are needed to be able to action and create value from that.

We are sceptical about carbon capture and storage being a long-term solution for some industries. For others—cement manufacture, for example—it will be really important. However, the ability to capture, use and transport very large volumes of carbon is one of the two things that underpin making a SAF industry. The other thing is access to cheap and readily available renewable electricity. If you have both those things in abundance, you have the building blocks to make an industry that can be built on sustainable molecules, like SAF.

**Douglas Lumsden:** I guess that, in Acorn, you would capture that SAF would be produced, but the carbon would still be released when the fuel was burned by the aircraft, would it not?

**Ralph Lavery:** Yes. There is a separate designation for such fuels: recycled carbon fuels. That recognises that, essentially, you are using the carbon molecule twice rather than once. There is some sustainability benefit, but it is marginal. It is a more efficient use of the molecule, but it is not the most efficient use. That is where PTL becomes an important part of the puzzle.

However, projects such as Acorn create the industry, skill set and people who can use the knowledge about capturing and moving CO<sub>2</sub> at large scales and volumes. That starts to create the underlying knowledge base that is needed to create a SAF industry.

**Douglas Lumsden:** Thank you.

**The Convener:** Thank you, Douglas. I was going to say that it might be time to let somebody else in.

I will bring in Kevin Stewart now—Simon McNamara, you strayed into an area that he would like to ask you questions about.

**Kevin Stewart:** Thank you, convener.

We have touched on some of the other alternatives to SAF, such as battery and hydrogen. Simon, can you give us an indication of how far advanced Loganair is in looking at some of those alternative technologies—particularly given the fact that you operate lifeline short-haul services? Although we recognise that battery storage and hydrogen will not necessarily be able to be utilised on long-haul flights, they will be able to be used by the likes of Loganair. Can you give us an indication of where you are at?

10:30

**Simon McNamara:** This is a really exciting area, and Loganair is very forward looking. I say that from the perspective of having come into Loganair six weeks ago, having previously worked in this space, but also having worked in regional aviation for many years.

On the regional airlines across Europe that are looking at new technology, Loganair is a perfect example of an airline where it could be deployed, first, because of its network, which you mentioned—the short, lifeline routes—and, secondly, because of the aircraft that it is operating and the business model that it has. It has got ahead of the game. We have two quite public engagements with two companies—one with a company that is developing a 30-seat hybrid-electric aircraft called Heart Aerospace, and

another with a hydrogen engine developer called ZeroAvia. Obviously, you are also familiar with our existing aircraft, probably ATR—it is developing a future generation of that aircraft that could be either hydrogen fuel cell or hybrid.

We are actively looking at those technologies and we are working with those companies in particular to look at the suitability of the aircraft on our network and what would be needed by way of infrastructure, because a key enabler is the hydrogen infrastructure or the electricity infrastructure, particularly out in the islands, so we need to look at how that can be achieved.

There is also the near-term opportunity. If you look at the technology pathways, there are three—pure electric, hybrid electric and hydrogen—and they are all in sequence in terms of time. Hydrogen is probably the last to come and hybrid electric is in the middle. There are opportunities with pure electric, but that tends to be for smaller vehicles and shorter distances. We are interested in all of them. You will hear our chief executive officer saying that we are technology agnostic. We want one or all of them to succeed because we see a lot of potential for our airline there.

**Kevin Stewart:** That is very interesting. One of the things that is extremely concerning is the “all the eggs in one basket” scenario, or picking the wrong technology, a bit like VHS and Betamax in the video world. In terms of the work that you are doing, you are looking at everything that is available—and that probably comes at a greater cost. Are Governments supporting the likes of yourselves as well as they could be in the hunt for those technologies?

**Simon McNamara:** The simple answer is, “Probably not enough”. There is a lot of debate, as I said to Douglas Lumsden, and there is a lot of absolutely justifiable discussion around SAF, because it is absolutely essential. I quoted some numbers about what new technology can deliver—in the long run, it can deliver as much as 30 per cent of the decarbonisation that is needed to hit the net zero targets. However, it does not necessarily get the air time that it deserves because of the focus on SAF. I would say that that is the case in Scotland, in the UK and globally.

We need to talk about new technology more. Governments need to talk about new technology more. For the Scottish Government, as we spoke about with SAF, there is a massive opportunity in Scotland for this tech to move, so I think that it should be discussed more, along with incentives for the investment needed to bring these aircraft to market. For a typical aircraft developer, it is a 10-year cycle to bring these types of aircraft to market. The rough order of magnitude is about \$1 billion to bring a new aircraft type to market, so we need to be talking about how that can be

incentivised. We then need incentives to bring the aircraft into operation as well, looking at mundane things such as route charges, airport fees, and infrastructure at the remote points to refuel.

**Kevin Stewart:** Okay. Let us look at the infrastructure, in terms of not just electricity or hydrogen, but SAF. You have said that we have to look at all of this in some depth and there have been various discussions during the course of the morning about where folk believe that Governments have not been looking as they should at opportunities.

This is a question for all of you guys. At this stage, should there be an audit of where we are at, what the current infrastructure is and what can be reutilised, as Doug McKiernan suggested earlier, to ensure that, right across these islands, we can grasp the ultimate opportunities, whether those are—for Loganair—for electric or hydrogen-powered aircraft, or for SAF as a whole?

I will come to Simon McNamara first and then Doug McKiernan.

**Simon McNamara:** The infrastructure piece is really important for new tech. It is a bit like the situation with cars: unless the charging infrastructure is there, people are not going to buy electric vehicles, because they are anxious about finding somewhere to charge them. It is a bit of a chicken-and-egg thing: unless the infrastructure is there, we will not buy the aeroplanes in order to operate them.

Kevin Stewart described it as an audit, but I think that there has to be a look at how industry, particularly the airport industry, is developing—specifically, when it comes to Scotland, out in the islands—and is looking long term at investing in the infrastructure that will be needed when these aircraft come online. Doug McKiernan mentioned the Airbus timeline. We are looking at this technology coming in in the 2030s, so there is time to develop the infrastructure. However, there is not a tonne of time, so that debate needs to be had now.

I should also point out that we cannot drive the infrastructure. We will procure and operate the aircraft, but, in general, the infrastructure is, as happens with fuel, provided by the airport or the handlers. Therefore, I would say that this is a timely moment to get everybody together—in particular, to look at infrastructure development out in the islands.

**Doug McKiernan:** I would agree with that. I think that an audit would be very useful, because there is nothing worse than getting three or four years down the road with a project and somebody coming along and going, “Why didn’t you go and do it over there?” That would be awful, so an audit is always a good idea, especially if there is a new

lens and set of criteria by which to evaluate the new technologies, and a complete cost understanding. By that, I mean the cost of the infrastructure and the practicalities of doing whatever it is that we decide to do with that particular technology, because that will mean that everybody around the table—the investors, the National Wealth Fund and so on—will understand why we have gone in a particular direction.

**Kevin Stewart:** By the sounds of it, you have already done some of your own auditing of existing infrastructure. If you have been doing that anyway, there is no reason why the UK Government should not be doing the same right across the board.

**Doug McKiernan:** When Calum Miller, MP for Bicester and Woodstock, came to visit a couple of weeks ago, he suggested exactly the same thing that you have suggested. I did not prompt him; he said, “Well, what about an audit? This doesn’t sound right.” I totally agree.

**Kevin Stewart:** It sounds like the logical way forward to me. Ralph, do you want to comment?

**Ralph Lavery:** It would be more than worth while. We innovate not just in the aviation space, but across transport; our company has been operating for 15 years, starting primarily in the automotive sector, and we have seen the shift to electrification there. The thing that frustrates us is that the people who need to be in those audits do not actually know that they need to be there.

We are talking about the complete overhaul of an energy system as well as about cheap renewables, and that means that not just renewables developers but other users of those renewable assets need to be included in those conversations. There is a real issue with the siloing of decarbonisation strategies. I do not think that that is a UK or Scotland-specific issue; it is all about finding the right people who can contribute useful information in that respect. There is no point in decarbonising our aviation sector at the cost of heavy industry and road transport, because that approach is not going to work.

**Kevin Stewart:** That is a good point. Thank you.

My final question is probably mainly for Simon McNamara. There have been considerable improvements in the fuel efficiency of aircraft over the past while, but do you think that there is potential for even more improvement?

**Simon McNamara:** Perhaps I can split my answer into existing aircraft technology—that is, gas turbine-powered aircraft—and new technology. I would say that, with existing gas turbine-powered aircraft, you are reaching the bottom of the bathtub curve when it comes to

getting more fuel efficiency. That is not to say that there is no more that can be done, but there will be no step change.

**Kevin Stewart:** Sure.

**Simon McNamara:** The big difference with new tech is the potential for that step change, because you are changing the propulsion system and, in almost every case, moving away from a gas turbine engine to an electric engine.

One of the most complicated things for those who run airlines is the engines. They are expensive, have lots of moving parts and are difficult and expensive to maintain. Moving to an electric model means moving to a much simpler propulsion device. All of the modelling shows that that will bring efficiencies in maintenance and cost. A lot of the new technology providers are talking about 15, 20 or 30 per cent reductions in operating costs as a result of a switch to that technology.

To answer your question, the new technology represents a potential step change in aircraft operating costs and efficiency.

**Doug McKiernan:** I agree. I have some background, in that I am an aerospace engineer, so I have some understanding of what Simon McNamara said about the cost of running the engines. Electrification could massively simplify that and make it significantly cheaper. That applies not just to aircraft, as there are places in Europe where it applies to short-haul ferries that have such a short run over the water that they charge while they are loading and offloading. The ferries go continuously and are then charged overnight. There is definitely a market for those technologies in such scenarios.

**The Convener:** I will bring in the deputy convener in a moment. The trouble is that we overrun when it is an interesting subject and everyone has lots of questions. That is fine—I do not mind that we have delayed the cabinet secretary. She can wait, because this is interesting and informative. However, I encourage the witnesses to give short answers. If you agree with one another, you can just say, “So-and-so is right”, instead of each person answering the question slightly differently. That is a gentle push for timekeeping.

**Michael Matheson:** I have a quick question about project willow in Grangemouth, which the witnesses will be aware of. It has two potential SAF projects, project 6 and project 8. Project 6 is on HEFA and project 8 is on e-methanol and methanol to jet. It is suggested that the HEFA project could be operational by 2032 and project 8 by 2035. Are the timelines that have been suggested for those projects and project willow reasonable, or are they optimistic?

**Ralph Lavery:** What we are seeing across large SAF projects is that infrastructure skills and ground works are causing large cost and time increases. There are projects in the US that have quoted a 200 per cent increase in costs and a 60 per cent increase in delivery schedules. A lot of the larger projects are now post-2030; we are targeting the smaller ones for pre-2030. It is important that we find ways to make SAF before the mandate wrap-up in 2030.

**Doug McKiernan:** I agree with Ralph Lavery. There is a reasonable amount of optimism around those timelines.

**Michael Matheson:** It was suggested in our previous evidence session that 2035 is optimistic, but you think that it is probably broadly in line.

**Doug McKiernan:** At the end of the day, there are three things that we play with: time, quality and—I said that there are three things, but I have forgotten the third one.

**Michael Matheson:** It will come back to you after the meeting.

**Doug McKiernan:** It is time, cost and quality. At the end of the day, it depends on investment. If you throw more money at it, you can typically bring the timeline down.

**The Convener:** Sarah Boyack has a brief question.

**Sarah Boyack:** How do we get on with this and get the investment that we are going to need? If we do not invest in SAF, we will, presumably, just import it from other countries. What are your thoughts about the costs for companies and passengers if we do not start producing SAF?

10:45

**Doug McKiernan:** I do not know what the mechanisms are and what we should do next, but we have tried very hard to lobby the National Wealth Fund. We have been lucky enough to be funded by the Ministry of Defence to develop our sustainable aviation fuel, and we have actually developed a 100 per cent drop-in fuel. We can actually develop a fuel that enables the military to mix any blend that it wants and run that in its aircraft—the technology exists.

The MOD has also tried to lobby the National Wealth Fund and help us to get funding. We are talking about economic growth. The advanced fuels fund was just under £200 million, and it was spread across an enormous number of horses in the race. We need plants that are going to cost, in the short term, £100 million to build out, so we need some proper players around the table to make the decisions, and to be confident, from a

technical point of view, that the process is properly de-risked.

I cannot answer your question on what we do next—you are probably better placed than I am in that respect. However, I know that we need to get all the other players in the UK, such as OXCCU Tech, CATAGEN and anyone who is doing power to liquids, around the table and have a discussion about what the Government, and specifically the Department for Transport, thinks about the solution in terms of enabling economic growth. That is the key thing; SAF just happens to be the kick-starter for it, if you see what I mean. The bigger picture is about getting the cost of energy down and creating economic growth. If that was the focus, everything else would flow from it, because stimulating economic growth is what the National Wealth Fund is about.

**Sarah Boyack:** Thank you—I see that Ralph Lavery is nodding his head, as is Simon McNamara. Ralph, do you want to come in first?

**Ralph Lavery:** Yes. I agree with Doug McKiernan—in the short term, SAF projects are trying to bring down the capital costs so that it is easier to get over the capital hump. The principle of the revenue certainty mechanism is about trying to address that but, as I said earlier, the devil will be in the detail of how that works. We are hearing from airlines, which are ultimately the consumers of SAF, that it creates a layer of transparency issues, and they are concerned that they are not getting the best-value fuel. It really comes down to how those mechanisms are going to function.

**Sarah Boyack:** Simon, do you want to come in?

**Simon McNamara:** In the interests of time, I simply say that I agree 100 per cent with the point that Ralph Lavery just made.

**The Convener:** I congratulate you, Simon, on following my prompt to nod if you agree with what has been said—thank you.

We now move to Mark Ruskell, who has been waiting patiently—some of his questions may have been asked already, I fear.

**Mark Ruskell (Mid Scotland and Fife) (Green):** In part, convener, but I want to come back on Ralph Lavery's comments about the United Kingdom emissions trading scheme.

Ralph, perhaps you can explain further, because I am struggling to understand how the ETS will work alongside the measures that are in the bill in order to assist the roll-out of SAF. It would be good if you could offer some views on that, in particular in relation to the current change in the ETS with the withdrawal of the free allocation for aviation. That would be useful; I will probably ask Simon McNamara to come in as well.

**Ralph Lavery:** As a very brief overview, the UK emissions trading system essentially puts the cost of polluting on certain industries. Some industries are obligated to be part of it: steel is a good example, as is cement production, and aviation is also being included—it is currently being onboarded in both the UK and the European Union emissions trading schemes.

The ETS operator recognises that, at present, emissions from some industries are inevitable, because the technology is not there, or the fuel is not there, as an alternative. Those industries are allocated what is known as a free allowance, which is basically a pass on what is considered to be state-of-the-art, unavoidable emissions for that industry, but that mechanism is declining over time.

The aviation sector is uniquely positioned, in that it does not have the readily available alternatives that other industries do. For instance, as Simon McNamara mentioned, direct electrification is not available for long-haul flights. Those happen to be the most carbon-intensive flights because they burn the most fuel. We are concerned that the aviation sector is being unfairly penalised by the ETS purely because it does not have the levers to decarbonise as effectively as other sectors.

In other transport sectors, such as the maritime sector in the EU, we can see that direct onboarding into such schemes can cause huge spikes in the price of fuel. In effect, that means that operators have to either stomach the price themselves or pass it on to their consumers. We are concerned that that will ultimately limit people's ability to afford to fly—and flying is crucial for some people, for work and for life—and that a viable alternative is not currently available, so it is an unfair penalty on the industry.

Simon McNamara is in a better position to speak on this than I am, but we feel that SAF is a key enabler, in all its forms. PTL is the lowest-carbon option, and the ETS mechanism has the potential to support and fund some of the technology development and project development that is needed by the industry to help it decarbonise.

**Mark Ruskell:** Has there been enough alignment between the development of the bill and the on-going policy discussions and decisions that are being made on the UK ETS and now, presumably, the European Union ETS?

**Ralph Lavery:** That is where the global nature of modern life and modern industries such as aviation intersects with national policy. There are overarching agreements, including CORSIA, which is a global voluntary scheme that allows airlines to attribute carbon reduction and offsetting

across the globe. There is an important interplay in how international sectors such as aviation interact with national decarbonisation objectives.

I do not have all the answers to that question—Simon McNamara is probably in a better position to answer.

**Simon McNamara:** As an operator that is looking at getting to the 2050 target, we have four tools. We have spoken a lot about the first two, which are SAF and new technology. The third is improvements in operating, which include airspace improvements and other ways of reducing direct fuel burn; and the fourth is emissions trading schemes and offsets.

**Mark Ruskell:** Is there not a fifth one—demand reduction?

**Simon McNamara:** There is—you are right.

**Mark Ruskell:** Do you see a role for that?

**Simon McNamara:** If we consider all the pathways, demand reduction is in there, but as an operator, I would say that it is the least best, because we do not want to restrict people's ability to fly. That applies here in Scotland, in particular—we were just talking about lifeline routes. I did not mention demand reduction because it does not feature on our radar, although it is part of some of the pathways.

I think that we need to increase the development of SAF and the use of new technology, and we spoke about trying to increase SAF production in that regard. Ralph Lavery mentioned that as well. Emissions trading schemes and the CORSIA international scheme are third in line, if you like, with demand reduction in last place.

We should do our best to develop SAF and new tech so that we do not need emissions trading schemes, because they are effectively a form of offsetting, although not direct offsetting. They are not as efficient in terms of pure, actual, real decarbonisation as the other tools.

**Mark Ruskell:** Okay. I go back to my question about alignment between ETS policy development and the measures that are in the bill. What does that conversation look like for you as an operator on one side of the table? Do the calculations on economic impacts or other particular choices get discussed, or are they developed in isolation?

**Simon McNamara:** At the moment, I would describe them as parallel streams that are being used as separate tools. Maybe there is a case for bringing them into alignment more, because to the operator, decarbonisation is a cost of doing business. When I consider the costs of abating our emissions, I see ETS very much in there as one of those costs. Investing in new aircraft technology is

another cost, as is buying SAF. For an operator, they fall into the same stream, but at the moment, as policy tools, they are discussed as separate streams.

**Mark Ruskell:** That is useful to know.

The modelling that we have had in front of us suggests that the bill's provisions would add about £1.50 to an average ticket price. Is that your understanding of the revenue impact?

**Simon McNamara:** Lots of numbers are being bandied around. The aviation minister said that it would not cost more than a cup of coffee. Well, that is a range—

**Mark Ruskell:** Half a cup of coffee.

**Simon McNamara:** Was it half a cup of coffee?

**Mark Ruskell:** Yes, if it is an airport coffee.

**Simon McNamara:** I come back to the point that, whether we like it or not, the aviation industry is a very marginal business. I have worked in it for 30 years and I love it, but if I wanted to make a fortune, I probably would not have chosen it as the business to work in. I work in it because I love aviation.

We published our accounts. We make a profit of £4.50 per passenger, most of which we reinvest. To put that into perspective, if £1.50 is the number—it could be more—it could have a detrimental impact on our cost base. The key question is what the cost of the revenue certainty mechanism will be. That is not yet clear. The bill needs to pin that down a little bit more. That is driven by the strike price and the levy.

**Mark Ruskell:** Again, that is useful. As a business that supplies a lifeline service to remote and island communities, do you distinguish between the lifeline flights and financial measures such as the air departure tax on those flights, and other parts of your business, including supplying the tourism market, which creates the economic demand for aviation and routes?

**Simon McNamara:** Are you asking how we approach sustainability or—

**Mark Ruskell:** I am looking for your thoughts on pricing and any other aspects. Do you see it as all the same and part of your business?

**Simon McNamara:** At the end of the day, we operate a range of routes and we try to make sure that each of them is economically sustainable, unless it is supported. There are some Government-supported mechanisms, such as the discount scheme for islanders. Ultimately, however, Loganair is a privately owned commercial company, so we have to deliver some profitability to reinvest in the company.

We look at our route network as a whole and try to make sure that it is environmentally and economically sustainable, and that we continue to deliver those lifeline routes that are so very important. For example, we carry an awful lot of national health service passengers, as you know, and we provide mail and freight services to the islanders. Those are very important things that Loganair and every other regional carrier does. We transport people because they need to travel, not necessarily because they want to. That is a big distinction between an airline such as Loganair and some of the others.

**Mark Ruskell:** Is that distinction between wants and needs reflected in Government policy and the jet zero strategy? We acknowledge that demand reduction will inevitably be part of the picture in the future, but is there enough of a distinction between lifeline flights and flights for people who might find it desirable to have four holidays a year—although that is probably beyond most people's means? It is, however, absolutely critical to be able to travel to an NHS appointment, for example.

**Simon McNamara:** In the discussions on decarbonising the industry, we do not look at particular routes and networks, but at the industry as a whole or at the airline level. We need to hit those 2050 targets.

You are describing a different debate about the importance of lifeline routes and how Governments support them, and that is worthy of debate although it is not often linked to sustainability. However, if we can deliver SAF or new technology, we will also deliver significant environmental benefits for those lifeline routes.

I mentioned earlier that new technology has the potential to move first on shorter flights, which tend to be the lifeline routes that are short flights to island communities. If we can get that new tech on those routes, we will improve sustainability and costs. However, this is not all debated in the same forums.

**Mark Ruskell:** We are not entirely sure about the costs of SAF. We have a figure of a £1.50 increase in the price of a ticket and you say that that is hotly debated, but that increase will be spread across all the tickets and seats that you sell. There will not be a focus on particular flights that might or might not use more or less SAF than others.

**Simon McNamara:** No, and the number that you are talking about is for the levy that funds the revenue certainty mechanism. The cost of SAF is a different question and, as I said, at the moment, for us it is three times the cost of jet A1. IATA, which is a very good reference for industry data, is talking about SAF being between three and five times more expensive.

It also depends on buying power. We are a relatively small airline. If we ask a fuel producer for a certain amount of SAF, we have less buying power than very big network carriers such as the KLMs or Lufthansas of this world. That factor will drive the cost of SAF, as well as the levy for the revenue certainty mechanism.

**Mark Ruskell:** That is all useful. Thank you.

11:00

**The Convener:** I have a very simple question. Will you prioritise the two biggest threats to the production of SAF? I do not need the reasons, because you have already had a chance to explain those. Which are the two biggest threats to an increase in the production of SAF?

**Doug McKiernan:** I would say that Government policy does not understand the importance that kick-starting SAF could have for power to liquids, in terms of kick-starting economic growth for the country. That is the most important thing. It is about Government policy.

The second thing—did you ask for two things?

**The Convener:** Yes.

**Doug McKiernan:** The first one is about getting Government policy right. The second would be about getting everybody around a table to make sure that all the stakeholders who are involved in making it work are engaged.

**The Convener:** The threat is the lack of co-ordinated investment.

**Doug McKiernan:** Lack of co-ordinated investment, yes.

**The Convener:** Keeping it simple and short works for me.

**Simon McNamara:** What I want to say is broadly similar, but I will say it. It is about making sure that there is enough private capital out there that wants to invest in SAF and that it is not going to invest in any other industry. That is number one.

Number two is about making sure that Government policy ensures that that private capital invests in SAF and not something else. The two are linked. Those are the most important things for me.

**The Convener:** Ralph, you have the option of agreeing with Doug and Simon or coming up with two other things. Which would you like to do?

**Ralph Lavery:** For me, policy and a lack of crowding in investment are the two biggest threats.

**The Convener:** That is interesting; price seems to have been dropped as a priority.

**Simon McNamara:** If we solve those first two points, the price should drop.

**The Convener:** Perfect. That is understood.

Sarah Boyack, you can have a very brief question at the end, unless you think that it has already been answered.

**Sarah Boyack:** I think that it has been answered. It is not just about the bill passing, but about all the action that will need to be taken afterwards to make it work for everybody by reducing emissions and investing in our economy—joining the dots.

**The Convener:** Thank you for coming to give evidence. I am sorry that the session ran on a bit, but that happens when the subject enthuses committee members. Thank you very much for that and for your time.

I suspend the meeting to allow for a change of witnesses.

11:02

*Meeting suspended.*

11:07

*On resuming—*

## Subordinate Legislation

### Equality Act 2010 (Specific Duties) (Scotland) Amendment Regulations 2025 [Draft]

#### Equality Act 2010 (Specification of Public Authorities) (Scotland) Order 2025 [Draft]

**The Convener:** Welcome back to the meeting. The third item on our agenda is the consideration of two draft statutory instruments.

The instruments confer responsibilities on Zero Waste Scotland in relation to the public sector equality duty in the Equality Act 2010. Following Zero Waste Scotland's reclassification as a non-departmental public body in October 2024, the instruments aim to align its legal responsibilities with that status. The Delegated Powers and Law Reform Committee has raised no points in relation to either instrument.

I welcome Gillian Martin, Cabinet Secretary for Climate Action and Energy, who is joined by supporting Scottish Government officials Andrew Mackie, who is head of environment and forestry sponsorship hub; Carolyn Boyd, who is a lawyer; and Russell Bain, the deputy director for international futures and brand Scotland policy.

The instruments are laid under the affirmative procedure, which means that they cannot come into force unless the Parliament approves them.

Following the evidence session, the committee will be invited to consider two motions recommending that the instruments be approved. I remind everyone that Scottish Government officials can speak under this item but not in the debates that follow.

I invite the cabinet secretary to make a short opening statement.

**The Cabinet Secretary for Climate Action and Energy (Gillian Martin):** Thank you. I am pleased to speak in support of two draft instruments that were laid before the Parliament last month. The instruments are technical in nature but are nonetheless important measures that reinforce our commitment to equality and inclusion across Scotland's public sector. They will ensure that Zero Waste Scotland, following its transition to a non-departmental public body in October last year, will be subject to the same statutory equality obligations as other public authorities.

The schedule to the Circular Economy (Scotland) Act 2024 applied the majority of public sector duties to Zero Waste Scotland, such as

those in the Freedom of Information (Scotland) Act 2002 and the Public Appointments and Public Bodies etc (Scotland) Act 2003. However, making Zero Waste Scotland subject to the public sector equality duty under the Equality Act 2010, and the related duties under the 2025 regulations, must be done separately by way of an SSI, given the terms of the 2010 act.

The draft Equality Act 2010 (Specification of Public Authorities) (Scotland) Order 2025 formally designates Zero Waste Scotland as a listed authority under section 149 of the Equality Act 2010. That means that the organisation must now comply with the public sector equality duty, which requires public bodies to consider how their policies and practices affect people with protected characteristics. The duty is central to promoting fairness, dignity and inclusion in the delivery of public services.

The draft Equality Act 2010 (Specific Duties) (Scotland) Amendment Regulations 2025 apply to Zero Waste Scotland the specific duties that are set out in the Equality Act 2010 (Specific Duties) (Scotland) Regulations 2012 (SSI 2012/162). The duties are designed to support public authorities in meeting the public sector equality duty in a transparent and accountable way. That includes the collection and publication of workforce diversity data; the setting of equality outcomes; and regular reporting on progress against those outcomes.

The measures are not only about compliance; they are about embedding equality into the culture and operations of public bodies. They help to ensure that decisions are informed by evidence, that services are responsive to the needs of all communities and that public bodies are held to account for their performance on equality.

Zero Waste Scotland, which employs around 160 staff, plays a central role in delivering Scotland's circular economy strategy. In doing so, it is helping to reduce waste, promote resource efficiency and drive sustainable economic growth by keeping materials in use for as long as possible. It will be an integral part of the Scottish Government's aim to reach net zero by 2045. It is right, therefore, that we extend the duties to the organisation, which will strengthen our objective to ensure that our public services are representative of the people of Scotland.

I recommend the two instruments to the committee and to the Parliament as necessary and proportionate steps to uphold equality standards across Scotland's public sector.

**The Convener:** As no member has any questions on the instruments, we move on to agenda item 4, which is a debate on motion S6M-

18943. Cabinet secretary, do you want to speak to and move the motion?

11:14

*Meeting continued in private until 12:12.*

**Gillian Martin:** I will simply move the motion—I think that I have said enough.

I move,

That the Net Zero, Energy and Transport Committee recommends that the Equality Act 2010 (Specific Duties) (Scotland) Amendment Regulations 2025 [draft] be approved.

**The Convener:** Does anyone wish to contribute? I see that no one does. Cabinet secretary, I do not believe that you will have much to sum up on, but you can sum up and respond if you like.

**Gillian Martin:** No, thank you.

*Motion agreed to.*

**The Convener:** The committee will report on the outcome of the instrument in due course. I invite the committee to delegate authority to me as convener to approve the draft of the report for publication. Are you happy to do so?

**Members indicated agreement.**

**The Convener:** We move on to agenda item 5, which is a debate on motion S6M-18944. Cabinet secretary, I ask you to move the motion and to speak to it if you so desire.

**Gillian Martin:** I will simply move the motion.

I move,

That the Net Zero, Energy and Transport Committee recommends that the Equality Act 2010 (Specification of Public Authorities) (Scotland) Order 2025 [draft] be approved.

**The Convener:** Does any member want to contribute? No one does. Cabinet secretary, do you wish to sum up in any way?

**Gillian Martin:** No, thank you.

*Motion agreed to.*

**The Convener:** We will have to report on the outcome of the instrument in due course. I suggest that both the instruments that we have considered today are dealt with in a single report, given that they are so closely related, and that the committee delegate authority to me, as convener, to approve the draft of that report for publication. Are you happy to do so?

**Members indicated agreement.**

**The Convener:** I thank the cabinet secretary and her officials for turning up to give evidence on the instruments.



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