OFFICIAL REPORT
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Net Zero, Energy and Transport Committee

Tuesday 4 November 2025

Session 6

The Scottish Parliament
Pàrlamaid na h-Alba

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NET ZERO, ENERGY AND TRANSPORT COMMITTEE
32nd 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)
Chris Bryceland (Scottish Government)
Jim Fairlie (Minister for Agriculture and Connectivity)
Professor Campbell Gemmell
Ross Haggart (Scottish Environment Protection Agency)
Professor Sarah Hendry (University of Dundee)
Dr Clive Mitchell (NatureScot)
Mark Roberts (Environmental Standards Scotland)
Terry Shevlin (Transport Scotland)

CLERK TO THE COMMITTEE

Peter McGrath

LOCATION

The Mary Fairfax Somerville Room (CR2)

Scottish Parliament

Net Zero, Energy and Transport Committee

Tuesday 4 November 2025

[The Convener opened the meeting at 09:01]

Decision on Taking Business in Private

The Convener (Edward Mountain): Good morning and welcome to the 32nd meeting in 2025 of the Net Zero, Energy and Transport Committee.

Sarah Boyack will be joining the committee—shortly, hopefully—for items 2 and 3 on the Ecocide (Scotland) Bill, as a substitute for Monica Lennon. Under rule 9.13A of standing orders, Monica Lennon is not entitled to exercise the rights of a committee member in relation to those items because she is the member in charge of the bill. However, Monica will be present for the evidence session on the bill because, like all other members of the Scottish Parliament, she is entitled to attend our public evidence sessions and, importantly, to have the chance to ask questions. When we get to the later agenda items that do not concern the bill, Monica is entitled to rejoin and take part in those items in her capacity as a committee member. At that stage, Sarah Boyack will not take part in our business and will leave the meeting. I hope that that is all clear.

Our first item of business this morning is a decision on taking items 3, 5 and 6 in private. Item 3 is consideration of the evidence heard on the Ecocide (Scotland) Bill. Item 5 is consideration of the evidence heard on sustainable aviation fuel and item 6 is consideration of the committee's work programme. To ensure that we carefully adhere to the standing orders, I will split this item into two questions.

First, I will ask whether we all agree to take item 3 in private. Note that Monica Lennon may not participate in the decision, because, as I said, she is the member in charge of the bill.

I will then ask whether we agree to take items 5 and 6 in private. Monica may take part in that decision. I realise that it is rather complicated, but I am afraid that that is the way it is.

Do we agree to take item 3 in private?

Members *indicated agreement.*

The Convener: With Monica Lennon now taking part, do we agree to take items 5 and 6 in private?

Members *indicated agreement.*

The Convener: Gosh, that was a complicated start and we have not even got into the evidence.

Ecocide (Scotland) Bill: Stage 1

09:04

The Convener: Our second item of business is an evidence session on the Ecocide (Scotland) Bill. This will be our third evidence session on the bill, which has been referred to the committee for consideration at stage 1. We are gathering evidence on the general principles of the bill before we report to the Parliament. The Parliament has not yet set a stage 1 deadline.

We will hear from a panel of witnesses who have expertise in how we currently use the law and other forms of regulation to deal with serious environmental damage in Scotland. I welcome Ross Haggart, chief operating officer for regulation, business and environment at the Scottish Environment Protection Agency; Professor Sarah Hendry, chair of law at the University of Dundee; Professor Campbell Gemmell, environmental consultant and former chief executive officer of the South Australian Environment Protection Authority and SEPA; Dr Clive Mitchell, head of terrestrial science at NatureScot; and Mark Roberts, chief executive of Environmental Standards Scotland. Thank you for attending the meeting.

I have said to those who are present in the room that we have a large panel of five witnesses. Therefore, saying that you agree with someone who has already been asked a question is nothing to be ashamed of, and it would help me to manage the time for committee members who want to ask questions. If you can agree and keep it as simple as that, I would appreciate it but, obviously, if you want to add something that has been missed or needs to be added, that is fine.

The first questions will be from me. To what extent is the regulatory landscape in Scotland equipped to punish and deter instances of severe environmental damage? Is there a gap in the law that would justify us having the bill? I will start with Mark Roberts and work along, before I come to people online.

Mark Roberts (Environmental Standards Scotland): Thank you, convener, and good morning. ESS welcomes the principle and the intention behind the bill to establish a strong deterrent against the most serious environmental harms that may happen in future. We would be looking for some clarifications on how the bill would work in practice; however, in principle, we think that the bill is positive. It would sit at the top of the overall legislative and regulatory pyramid that already exists.

Professor Sarah Hendry (University of Dundee): I echo support for the bill and its intentions, although some points could be clarified. On whether the current regime is sufficient, the bill seeks to go beyond that to a more severe level of harm and to introduce significantly higher penalties, which would allow Scotland to align with the European Union's environmental crime directive, for example. It may be that there is a breach of the law for which the current penalties are not sufficient.

Ross Haggart (Scottish Environment Protection Agency): Good morning. Similarly to other panel members, SEPA is supportive of the bill's ambition to impose severe penalties on those individuals and organisations that cause more serious environmental harm, especially those that are acting recklessly or wilfully. From almost 30 years as Scotland's environmental regulator, we know that deterring and preventing environmental harm is much better for protecting people and nature than pursuing enforcement or prosecution after harm has occurred. Similarly to other panel members, we have some points about how the bill would integrate with existing legislation and we have some points of clarification.

Professor Campbell Gemmell: Thank you for the invitation. I agree with a significant part of what has already been said, but I disagree about the adequacy of the arrangements. In 2019, I produced a report for Scottish Environment LINK which outlined some of the strengths and weaknesses of the existing environmental governance framework. Without going into it in detail, those points still stand. A significant review of the effectiveness of the existing elements of the governance system is still missing. In addition, I further support the bill because I think that it would sit at the apex of the current arrangements, as Mark Roberts said. However, only actual enforcement in practice would show whether the bill would be adequate.

Dr Clive Mitchell (NatureScot): I will agree with mostly everything that everybody has said so far. The bill can provide important scaffolding for the existing environmental governance architecture, and, unsurprisingly, we support its aim of protecting Scotland's environment and all its natural resources—air, water, soil, and wild fauna and flora, including habitats.

Our main concern, particularly with regard to gaps, is that, according to the 2019 global assessment of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services—IPBES being to biodiversity what the Intergovernmental Panel on Climate Change is to climate change—the main drivers of biodiversity loss are habitat loss and fragmentation, overexploitation, climate change, pollution and invasive non-native species, all of which interact together and, most important, accumulate over

time. A lot of the current state of climate and nature, globally and in individual countries, is more to do with death by a thousand cuts, if you like, rather than a series of catastrophic steps towards the current situation. As far as I can see, that kind of accumulative attrition would not obviously be addressed by the bill as it stands.

The Convener: Thank you.

I have one further question in this area. I always think that, when we as parliamentarians are asked to do something, it is because either there is a deficiency or there will be some big improvement. Now, section 40 of the Regulatory Reform (Scotland) Act 2014 provides a way of prosecuting individuals who cause severe environmental damage, but it has never ever been used. Why do we need something else, if we are not using what we already have?

You do not all have to answer that question, but who would like to go first? By the way, if you all look away at the same time, I will nominate somebody. Ross, you were the slowest, so you can start us off.

Ross Haggart: Thanks very much, convener.

Section 40 of the 2014 act provides punishments for significant environmental harm and is obviously at the upper end of SEPA's enforcement arrangements. SEPA takes proportionate enforcement action based on the actions of individuals, the evidence that we are able to gather and the impact on the environment.

We have twice in the past reported individuals and companies to the Crown Office and Procurator Fiscal Service under section 40. One report was not taken forward and the other is still with it for marking. We use section 40, but it is for the most significant environmental harms within our regulatory sphere and we do not see those happening that often.

The number of events that we have seen and reported to the COPFS under our section 40 powers are of the magnitude set out in the bill's financial memorandum. They are once in 10 to 20-year events. We do see significant events on very similar timescales and we do report them to the COPFS, but, by their very nature, they do not happen hugely often.

The Convener: I will recap, so that I have this right in my mind. You said that there have been two events in 11 years, one of which was not taken forward and one of which is still waiting to be assessed. It does not strike me that there is a huge amount of urgency for more legislation in this area, given that we are not using what we already have.

Clive, do you want to come back on that?

Dr Mitchell: Yes. I agree with what Ross Haggart said. We have considered using section 40 powers for 11 incidents, including three that were referred to us by an interested party, and we have worked with various agencies to examine those cases. However, none has got to the point where we would involve either the police or the COPFS, so they have not progressed. The story is kind of similar to Ross's.

The Convener: I am still struggling to understand this in my mind. We are talking about adding something to the armoury to make up for a deficiency—or a perceived deficiency—when, for 11 years, we have not been using the weapons that we already have to resolve that perceived deficiency. The bill seems like an add-on that is not required. Am I missing something?

Sarah Hendry, you look as though you are about to disagree with me.

09:15

Professor Hendry: I was not going to disagree, but I suppose that one difference between the bill and section 40 of the 2014 act is that I can see no permit defence in the bill, whereas there is one in section 40. I also find it interesting that the definition in the bill is not, on the face of it, sufficiently different. Section 40 talks about "significant ... harm" and the bill talks about "severe ... harm", but both refer to "serious adverse effects". The bill could perhaps be clearer about the difference in scale, but there certainly are differences between it and section 40. To me, the offence in the bill is much more akin to a criminal one, in which there is a very high requirement for mens rea. However, there is no clear permit defence.

The Convener: Campbell, do you want to come in on that?

Professor Gemmell: Yes, please. Your initial question was very good. For me, the question is whether we are talking about absence of evidence or evidence of absence. Both the regulatory bodies in question have expressed—and people have expressed on their behalf—concerns about their ability to be effective, given the resources available to them. I find it curious that, over a decadal period, the number of public complaints and concerns about environmental conditions raised with both bodies has virtually doubled, while the number of prosecutions has significantly declined, almost to zero.

That raises a number of questions. For a start, have we all missed the fact that the environment has suddenly become absolutely perfect and that everyone is completely compliant with the law? Some of a more cynical nature—and who travel more widely, perhaps—might think that there are

still problems out there and that they need to be policed.

The essence of your question, though, is absolutely spot on. There is a need for a significantly clearer definition of what constitutes ecocide as opposed to some other, as it were, more run-of-the-mill environmental crime. We have a little bit further to go on that. The principle, especially as expressed in Belgium, Sweden and one or two other European countries where ecocide has been placed at the top of the regulatory structure, is highly desirable, but only if it and other pieces of environmental legislation are effectively enforced. I would seriously question whether that is the case at the moment.

The Convener: It looks to my brain as though we are getting a bigger stick to replace a stick that we have already but which is not being used properly, because we do not have enough resource. What you are suggesting, Campbell—unless I have got it wrong—is that we resource the use of the stick that we already have before taking up a bigger stick that we will not have the resources to use either.

Professor Gemmell: I would not make it a polar choice, because I think that both are appropriate. As I said, I raised the issue the best part of eight years ago and I had a number of discussions about the issue with colleagues in Strathclyde law school before I retired in March. There is a need for an offence of ecocide, not just to align with the European Union, which Scotland said that it would do, but because there is no such extreme or top example of systemic damage, and I think that that needs to be in place. That said, I see a need to properly implement—in parallel, and, frankly, rather faster and with a greater priority—that which we already have.

The Convener: Before I leave this point, I have one more question for you, Campbell—and I apologise to any committee member if I am standing on their toes and asking a question that they wanted to ask. If the bill had been introduced 30 years ago, how many times do you think that it would have been used?

Professor Gemmell: I would say a handful, at most. There are interesting issues about liability, and whether it is a forward-looking or a retrospective power. Previous witnesses have raised with you issues such as persistent organic pollutants, perfluoroalkyl and polyfluoroalkyl substances, perfluorooctanoic acid and microplastics as well as salmon farming and the way in which particularly questionable chemicals have been used to deal with sea lice. There is a handful of such issues on which evidentiary material could have been assembled to pursue an ecocide case, but it would have been just a handful.

The Convener: Thank you. The deputy convener, Michael Matheson, has some questions.

Michael Matheson (Falkirk West) (SNP): Good morning. I want to pick up on the theme that the convener identified around the existing provisions in section 40 of the 2014 act. A couple of you—Mark Roberts in particular—mentioned the potential deterrent effect of the legislation, and other panellists agreed. What evidence is there that, given the sanctions that are attached to them, the provisions in section 40 are working as a deterrent just now and that, if we ramp up those provisions in the bill, there will be an even bigger impact?

Mark Roberts: That is quite a difficult question to answer. We are dealing with a slightly unknown type of incident that would be subject to prosecution under the bill. The reason for having a big deterrent for significant environmental harm is to try to prevent that harm from happening. The type of event that the provisions would defend against is almost an unknown in the future, but that is not a reason for not going ahead with them. There are risks in the environment that are largely controlled and constrained by the existing regulatory and legislative system, but the big unknown unknown out there in the future should be prevented or ameliorated.

Michael Matheson: Sarah Hendry, given your legal expertise, do you think that there is a strong evidence base to demonstrate that regulations of this nature, or a bill containing an offence of this nature, would have a significant deterrent effect?

Mark Roberts: Our argument would be based on—

Michael Matheson: That question is to Sarah Hendry.

Mark Roberts: Oh, sorry.

Professor Hendry: I would tend to agree with Mark Roberts. It is difficult to have an evidence base for a deterrent effect but, instead of changing section 40, with its high penalties, the passage of a specific bill would probably attract some regulatory attention, press attention and corporate attention, which might strengthen the potential for a deterrent effect. I suppose that it is a question of whether such provisions are intended to capture one-off terrible incidents, in which case large corporations especially should be very mindful of that. An increased penalty might also increase the deterrent effect.

Michael Matheson: Is it fair to say that there is no evidence that a higher offence provided for in a bill would be a deterrent? It might be, but there is no evidence to demonstrate that.

Professor Hendry: I am not aware of an evidence base for that, as such, but it would be surprising if there was no deterrent effect on corporate behaviour, understanding and concern.

Ross Haggart: I agree with what has been said. It is difficult to speculate on what the specific offences that come under the scope of the bill might be. As I have stated, SEPA gathers all the evidence that is available, determines an appropriate course of action and, where appropriate, reports to the Crown Office and Procurator Fiscal Service.

Professor Gemmell mentioned keeping pace with European environmental law. That is a decision for Government and Parliament and not one that SEPA would form a view on. However, we acknowledge that criminals do not recognise boundaries. If one jurisdiction becomes harder to operate in, people might move into other jurisdictions. That is why we believe that having a deterrent effect in Scotland would be powerful in preventing criminals from moving here from other jurisdictions because we do not have a strong legislative framework in place.

Michael Matheson: Have you seen evidence of that happening in other jurisdictions?

Ross Haggart: I am not aware of any specific evidence

Michael Matheson: It is just your gut instinct.

Ross Haggart: We work with regulators and other enforcement bodies across the United Kingdom and Europe, and that is our professional view.

Michael Matheson: I am just trying to establish whether the points that panellists have made can be substantiated.

I want to stick with the theme of the existing regulatory environment and Professor Gemmell's suggestions about whether it is operating or being utilised effectively. Clive Mitchell, in the evidence from NatureScot, you stated that the Environmental Liability (Scotland) Regulations 2009 provide an existing route to require remediation for environmental damage. You said:

"The threshold for when the Regulations apply is very high and so the Regulations have been rarely used".

Can you expand on that? Is there a need for us to look at the fundamentals of the existing regulatory framework before we add anything new to it, in order to identify how it could be improved?

Dr Mitchell: The cases that I referred to earlier were to do with the operation of the environmental liability regulations. As I said, in the past several years we considered using the regulations for 11 incidents, including the three incidents that were referred to us by an interested party. We worked with other agencies, including local authorities and relevant national bodies but did not get to a point at which we thought that we could involve the police or the COPFS to progress those issues.

The cases that we have looked at have been complex. It has sometimes been difficult to prove that an individual potentially has liability.

The other point that I make about the difference between the proposed bill and the existing framework is that, for us, the option of prosecution is available under the Environmental Liability (Scotland) Regulations 2009 and the Nature Conservation (Scotland) Act 2004, and the Conservation (Natural Habitats, &c) Regulations 1994 for sites that are special areas of conservation and special protection areas under the EU habitats directive. All of those concern activities on protected areas and do not include any provisions for the harm being severe.

The problems that we have encountered in giving effect to that have been to do with attribution, as opposed to the severity of the incident. As proposed, the Ecocide (Scotland) Bill would consider the whole of Scotland rather than only those bits that fall under the protected area canopy.

Michael Matheson: Thank you. Campbell Gemmell, did you want to come in?

Professor Gemmell: Yes—it was partly to respond to an early point in what you said. Demonstrating deterrent is particularly challenging for others, although crime figures will be used in that way. The European Union Network for the Implementation and Enforcement of Environmental Law—IMPEL—which is a part of the European structure that looks at the way in which environmental legislation is implemented across member states, has produced a variety of reports. So has the Organisation for Economic Co-operation and Development, which produces annual performance reports for each member state against the existing environmental acquis. For example, for waste law, there is clear demonstration of a dramatic drop in waste offences in certain categories after the application of either new law or significant increases in penalties. So, there is a whole series of other—albeit, I admit, lesser—areas of environmental crime in which there has been a cultural change or a change in performance as a result of an elevation in fines or a change in law. I would be surprised were there not some similar deterrent effect in the case of this bill.

I worked on a project earlier this year with the World Bank in Moldova. One thing that Moldova particularly wanted to pursue in order to align with the EU before it started on its EU membership journey was a model for ecocide law, particularly

retrospective and forward-looking environmental liability directive implementation. It had had an egregious case of a combined refinery and metal-working plant that had got away with high levels of environmental harm over a long period. The World Bank felt that it did not have the tools, and could not see within the existing EU acquis an appropriate tool, to deal with the harm that had been caused there. I found it very interesting that, without being prompted by the consultant, it was focused on that.

09:30

Some of the evidence base is qualitative, I accept, but some of it is also quantitative and shows that dramatic change can be accomplished.

Michael Matheson: That is interesting. I suppose that you could get into a debate about the deterrent effect, as it might depend on the starting point of your environmental regulations and environmental law; once you create a criminal offence, there is the issue of how to enforce it, which also depends on your starting point.

I am interested to know what evidence base there is to support claims that the new offence will create a deterrent, compared with where we are just now. At one point, it was suggested that there has been an increase in the number of complaints but that the number of prosecutions has almost reached nil. Does that mean that a greater level of environmental harm is taking place now because there is not the level of enforcement that we would expect? There is an interesting relationship in there, which would need to be explored.

I will pick up on the issue of section 40 of the Regulatory Reform Act 2014. In its written evidence, SEPA suggests that an alternative route to the Ecocide (Scotland) Bill could be the creation of an offence that is equivalent to ecocide through amending the 2014 act. Would that be a preferable route to deal with the issue, rather than introducing a new piece of legislation?

Ross Haggart: One of our concerns is that, if you have two offences that overlap, that could cause some uncertainty regarding the legislative framework that we work within. There is an existing legislative framework, including section 40 of the 2014 act, and we believe that an alternative to having a separate ecocide bill could be to amend section 40 of the 2014 act to bring in the level of punishments set out in the ecocide bill. That would, I hope, provide greater clarity within the regulatory landscape.

The 2014 act talks about “significant environmental harm” and the bill talks about “severe environmental harm”. We think that there is an opportunity to amend the existing legislation to create a single offence that covers both significant and severe environmental harm, which would have the same effect as the bill is looking to achieve.

Michael Matheson: Are you concerned that, if the bill were to be introduced as drafted, with this new offence, there is a danger of confusion between the bill and section 40 of the 2014 act?

Ross Haggart: Yes. If the environmental harm is caused by an issue that is within SEPA’s regulatory powers, and if there were two separate offences, we could report both to the Crown Office and Procurator Fiscal Service; however, we think that it would be clearer if the existing legislation were amended rather than bringing in new legislation.

That approach is very much along the same lines as what we are doing at the moment with environmental regulation. Members might be aware that, on 1 November, we brought in a new integrated authorisations framework that brings our four biggest regimes—water, waste, industrial activities and radioactivity—into the same framework. That uses the existing legislation to streamline and make it more effective, which is better for us as a regulator and for businesses as well.

We think that amending existing legislation will continue that streamlining and simplification of legislation.

Michael Matheson: Mark, do you think that it would be simpler to amend the existing regulatory framework?

Mark Roberts: As I said in my answer to the convener’s opening question, one of our issues is about areas of clarification that we think are necessary. One of those areas is the overlap between the 2014 act and the bill. There is a question of which piece of legislation would be selected, and under which circumstances, as the mechanism for prosecution. We do not have a view on which piece of legislation would be preferable, but there is certainly a need to clarify which one would be the most appropriate mechanism for prosecution.

Michael Matheson: Do any of the other witnesses want to come in?

Professor Hendry: I agree that it would be possible to achieve most of the aims of the bill by amending section 40 of the 2014 act, which might give more regulatory clarity with regard to the differences. However, if the Parliament wants there to be a headline bill that would attract publicity in the best possible sense, the way to do that might be through a free-standing bill.

Michael Matheson: Thanks.

The Convener: I am not sure that that is what the Parliament wants; what we are trying to achieve is good legislation, and that is why we are considering the bill in some depth.

Mark Ruskell (Mid Scotland and Fife) (Green): I will turn to how ecocide is defined in the bill. NatureScot and SEPA have raised some thoughts about the definitions of "widespread" and "long-term" harm. I will go to Clive Mitchell and Ross Haggart, and then I will bring in other members of the panel.

Dr Mitchell: We felt that "widespread" could be hard to define in open and complex ecological systems. There is a question of what is meant by "impact" and what the consequences of impacts might be. All of that could be disputed if there is not clarity on the purpose of the action and what we take to be healthy ecosystems. Those definitions can vary a bit, depending on the purpose of the management of the area.

Therefore, as it stands, the provisions might be difficult to operate without having clarity or examples to illustrate how those terms might operate in practice. However, that could be addressed with some further guidance on what those terms mean, and what they might mean in different settings, in order to illustrate the scope and intent of the bill and what might be covered by it.

Mark Ruskell: Is 12 months an adequate definition of "long-term"?

Dr Mitchell: We felt that nearly all instances of damage to habitats and species would require a recovery time that was a lot longer than 12 months. For example, I was up in the flow country last week, looking at the effects of a significant fire in 2019. There are still signs of changes—there has been a recovery, but it is a slow recovery.

Ross Haggart: I will pick up on Professor Hendry's earlier point. If it is the will of the Parliament to have a separate offence and a separate bill, I think that clear guidance would be required for when section 40 of the 2014 act would apply and when the provisions in the bill would apply. As we have already discussed, between one and the other, there are slightly different definitions of "significant" and "severe" environmental harm. Definitions around "widespread" and "long-term" would also be helpful.

The bill also talks about acts causing "severe environmental harm". We suggest that it might be beneficial to include omissions, because omissions as well as acts could result in environmental harm. That would broaden out the definition in the bill and probably bring it more into line with the section 40 definition.

Mark Ruskell: That point was also raised by the Environmental Rights Centre for Scotland in its evidence.

Sarah Hendry, do you want to come in?

Professor Hendry: All that I would say on the definition of "widespread" is that section 40 refers to local as well as wider geographical areas, up to the national level, and I wonder whether the definition of "widespread" in the bill goes beyond a limited geographical area. I am not sure that it would not be possible for a severe event to affect a localised species badly that would not extend beyond that to the wider area. "Widespread" might be too widely defined.

Mark Roberts: I agree with everything that has been said about the need for additional clarification of some of the terms. I echo what Clive Mitchell said earlier about the importance of cumulative effects—that is, when a series of individual events build up over time to cause significant environmental harm. He used the phrase "death by a thousand cuts", I think. How that would fit into the legislation is also in need of clarification.

Mark Ruskell: Do you agree with the point that was made about omissions as well as acts?

Mark Roberts: Yes.

Professor Gemmell: I agree with what Mark Roberts and the others have just said. A scoping process and scoping documentation would be helpful, because we could become obsessed with the definitions of individual words. They need to be expanded into meaningful examples.

Clive Mitchell talked about wildfires. Whether they are a result of arson, occur naturally or whatever, proof of recovery can be very difficult, as it can depend on the timescales of environmental events such as rain. There are lots of other components, and persistent chemicals can reside in a groundwater body for 25 years before the effects become obvious. Look at what happened in the mining industry in Ayrshire, for example. After the pumps were switched off, flushes of extremely unpleasant waters took a considerable amount of time. Proof of recovery can also highlight how good our monitoring is, how effective the reporting networks are and whether we are actually paying attention to the monitoring data.

We need a much clearer set of scoping observations, limits and criteria to be able to apply the legislation. That is also why I am reluctant to turn the unicorn, if you like, of section 40 of the 2014 act into a palimpsest by adding further bits and pieces to it. We should use what we have, but define very carefully what we need in addition, while keeping in mind the outcomes that we are

trying to achieve. Messing around with that which we have is not the smartest way of dealing with the issue. It either needs a wholesale review, which could be time consuming and so on, or it needs to be left alone as is, and we create ecocide legislation, and make the definitions much clearer, separately.

Mark Ruskell: You are saying that applying surgery to section 40 of the 2014 act is problematic without there being a much wider review of environmental regulation and governance.

Professor Gemmell: Yes, that is my view. I accept that SEPA might have a different view, but I think that tinkering can be damaging. The process from 2010 to 2014 of creating the 2014 act was rightly slow and considered, and I am reluctant to see further tinkering at this point. As some of us have already said, there is a need for a separate piece of legislation to sit at the top of the current arrangements, rather than our fiddling with what we have.

Mark Ruskell: I move on to thresholds for liability in the bill. Section 1 requires intent or recklessness for the main offences or "consent or connivance" of responsible officials in organisations. We have had evidence that suggests that the bill should also look at provisions on negligence or strict liability. I would like to hear your thoughts on whether the thresholds in the bill are appropriate or whether they could be adjusted.

09:45

Professor Hendry: Intent and recklessness are high bars to meet, as is perhaps appropriate for criminal offences with high penalties. The offence has not been designed as a strict-liability offence. That is a difficult bar to reach in relation to corporate liability. I know that some would say that corporations should be subject to strict liability, but, in my reading of the bill, it holds corporations to the same standard.

If there is strict liability for corporations and there are such high penalties, there should be a permit defence. At the moment, you have to show that, whether it is a human person or a legal person, there was either intent or recklessness. That is probably the right level of culpability in relation to such high penalties, but it would be difficult to reach.

In relation to the responsible officials—the individuals within corporate liability—it would probably be appropriate to add neglect, in accordance with the standard formulation that involves consent, connivance or neglect. However, they will not be liable until the corporate body—the entity—has been held culpable to that much higher standard. I think that that is a challenge.

Mark Roberts: I do not have a lot to add to that. For very serious penalties, the bar needs to be very high, so I think that the definitions of intent and recklessness are appropriate.

Professor Gemmell: I do not have anything to add. I agree with Sarah Hendry.

Ross Haggart: I agree with what the other witnesses have said so far—the only thing that I would add is, as Professor Hendry mentioned, a permit defence. I would also like to highlight the fact that there is currently no defence in the bill for a permitting authority that authorises activities that result in ecocide. That defence protects regulators such as SEPA, which authorises activities in accordance with environmental law. That is something that section 40 currently includes.

Mark Ruskell: Is there a point about needing to hold regulators to account in a situation in which they were reckless? That might be a question for Mark Roberts.

Mark Roberts: That would come under Environmental Standards Scotland's remit in terms of its oversight and scrutiny of what SEPA or NatureScot as regulators do. However, the sanctions that are available to us are limited.

Mark Ruskell: Clive Mitchell, do you have anything to add on thresholds?

Dr Mitchell: In terms of intent and recklessness, the current drafting fits well with existing provisions in section 19 of the Nature Conservation (Scotland) Act 2004 and regulation 18 of the Conservation (Natural Habitats, &c) Regulations 1994.

The issues around cumulative damage, permitted activities and so on link back to the previous discussion about how, if there were to be separate ecocide legislation that provided a kind of signal of the direction and intent of the environmental regulations overall, those would need to be reviewed in that wider context.

The Convener: Kevin Stewart wants to ask a supplementary question.

Kevin Stewart (Aberdeen Central) (SNP): Good morning. There is a lot of talk by some about there being a two-tier justice system, which is commentary that I do not normally agree with. However, in terms of the thresholds for liability in the bill, many people think that employers or agents should be liable but employees should not be. If I was a director of a company that had put in place a huge number of safeguards around the business that I was carrying out and had invested a huge amount in the training of staff, yet a member of staff chose to not do all the things that they should be doing, why should I be held liable and not that member of staff, who has acted recklessly? Do you think that some of the

proposals that have been put forward by folk with regard to the bill create a two-tier justice system? Is that a danger?

Professor Hendry: I am not sure that I would describe it as two-tier justice but, in my view, given the severity of the problem that is being addressed and the high bar for criminal liability, it is appropriate that individuals can also be prosecuted for and found guilty of the offence, if that was what the evidence suggested. I understand the concerns about employees, but the corporate entity would also have to be found guilty if it was to be liable. I suggest that situations such as you have described of individuals acting recklessly or with intent to cause harm should be covered by the provisions of the bill.

Kevin Stewart: Does anyone else want to come in on that?

Ross Haggart: I agree with Professor Hendry.

Kevin Stewart: Does everyone agree with her? I am getting nods, but not from Dr Mitchell. Do you agree, Dr Mitchell?

Dr Mitchell: I do. There seems to be a parallel in what you have suggested and in Sarah Hendry's answer with the culture in some sectors, particularly the aviation and construction industries, where liabilities would cascade, as it were, throughout those sectors. They have a healthy approach to dealing with health and safety risks.

The Convener: I am pleased that that was clarified. I was concerned about that at our previous meeting on the bill.

Douglas Lumsden (North East Scotland) (Con): My question is for Ross Haggart. SEPA's written evidence says that, although it welcomes including vicarious liability, it could also be useful to add a provision for vicarious liability

"where a contractor ... committed the offence."

Can you expand on why that would enhance the bill?

Ross Haggart: It is simply to ensure that everyone who could have responsibilities and who may breach them could be held accountable under the bill. We used the example of a contractor, as they may be given responsibilities to undertake certain activities and could either act recklessly or omit to undertake the activities. We want to ensure that all the relevant people who could be involved in an act of recklessness or an omission are captured in the scope of the bill.

Douglas Lumsden: That is similar to the question that Mr Stewart asked about whether there should be some flow-down of responsibility.

Ross Haggart: Yes.

Douglas Lumsden: I will move on to defences. The committee has received a range of evidence about whether the defence of necessity is needed and how it might be applied in practice. What is your view on that?

Mark Roberts: We would be looking for greater clarification of that and we would want some examples of where it could be required. The point fits into the wider pattern of needing more specificity on the intent of the bill; we would need more information on what types of things would be deemed as necessary and what would not.

Douglas Lumsden: Would the clarification come from regulations, or should it be in the bill?

Mark Roberts: That could come later, through regulations or guidance.

Professor Hendry: I would prefer clarification to be in the bill, which is usually my position. In the 2014 act, necessity is described in terms of avoiding significant harm to human health. That is also in the new Environmental Authorisation (Scotland) Amendment Regulations 2025, along with natural causes. I wonder whether some thought should be given to a defence that is related to natural causes, such as when there are extreme natural events that could be linked to the causation of ecocide. There was some discussion at the previous committee meeting about the formulation of avoiding other "greater harm". That could come through in regulations or guidance if that is the formulation that is settled on, but it is not clear to me what it would mean.

Douglas Lumsden: Who would decide that? I presume that it would be a matter for the courts.

Professor Hendry: It would be, unless there was guidance that bound SEPA, perhaps.

Douglas Lumsden: Professor Gemmell, do you have a view on the defence of necessity?

Professor Gemmell: I agree with what has just been said. The argument, "It was bad but it could have been worse," has been heard so many times in the sheriff court and elsewhere that it is a wee bit tired. Therefore, I think that we probably need some help with what the provision means.

I agree in particular with the point about situations in which natural causes have been involved. I have just been in Portugal, where I was working extensively on wildfires. I think that there is a need to distinguish between deliberate acts of arson, for example, which the police and other parts of the system can handle, and natural events or natural events that have been exacerbated because of poor behaviours and so on.

In the case of the Land and Environment Court of New South Wales, such matters are often dealt with in pre-pleading discussions. If we had an

expert body acting as an intermediary, rather than cases coming cold to the COPFS or the sheriff court, that would make things a lot easier than they might be at the moment. In any case, I think that care needs to be taken about any attempted lessening of the seriousness of the offence on the basis of argumentation that could be seriously flawed. Guidance would be helpful, and refinement of the law would be necessary.

Douglas Lumsden: If there is no guidance, damage could be done, and people could say that it was necessary for food security or energy security reasons.

Professor Gemmell: Exactly. As Clive Mitchell mentioned, there have been examples of such cases that the Health and Safety Executive has looked at in significant detail, especially when the instruction may have been modified as it went towards the worker, and an argument along the lines of, "I thought I was doing the right thing, but I turned the wrong valve," has been made. Establishing who was responsible can become very messy in such circumstances. I think that a bit more help needs to be provided to ensure that we understand what is meant by "necessity" and "controlling mind", because that can be particularly difficult when those two terms are working together.

Douglas Lumsden: Does anyone else want to add to that?

Dr Mitchell: We could not think of any examples where, from a species habitats point of view, that claim could reasonably be met. For example, if someone was to burn some land in order to create a fire break for a wildfire, the scale of that burning would be much less than the scale that would be required to satisfy any concerns about ecocide.

I noticed another case related to the bill to do with water extractions under a permitted regime that might affect freshwater pearl mussels and so on during dry periods. Again, there might be alternatives involving the provision of water bowsers and so on to supply drinking water for those people who were immediately affected. Therefore, I agree that a lot more guidance needs to be provided on what the provision would mean in different settings.

Douglas Lumsden: That links to my next question. The bill does not explicitly set out that undertaking licensed or consented activities cannot constitute ecocide or provide a defence along those lines. That has raised concerns among different sectors, including farming, fishing and renewables. Is the approach in the bill appropriate? What implications might it have for SEPA and NatureScot, as bodies that are actively involved in consenting and permitting?

Perhaps we can hear from Dr Mitchell, as he raised that issue.

Dr Mitchell: I think that that links to the previous discussion about cumulative effects and the operation of activities that are currently permitted but which, cumulatively, are damaging to ecological systems. I am not clear how the bill deals with that.

The issue also relates to some of the other points that have been made about the situation that would exist, if the bill were to be passed, in relation to the operation of the rest of the environmental regulatory regime. Arguably, all of that is particularly pressing, in that a great deal of our policies and practices to do with uses of the land and sea that have been developed over the past 50 to 70 years—indeed, all of them—have assumed a stable and predictable climate. However, as we are seeing, that is not the world that we live in any more. The fact that the climate is warming and, importantly, becoming much more stochastic in terms of extreme events and unusual patterns of weather has a huge bearing on the operation of a lot of our environmental regulation. We have not previously really had cause to think about that new climate.

10:00

Douglas Lumsden: I will move on and ask Ross Haggart about licensing and consenting. If somebody is operating under licence, could they be brought to justice for ecocide?

Ross Haggart: To add to Dr Mitchell's points, I mentioned the integrated authorisations framework, and quite a lot of work has been done on streamlining licensing arrangements. As you have highlighted, it is not a defence under the bill that somebody was undertaking a licensed or permitted activity, but that is a defence under section 40 of the 2014 act. I just highlight that difference, which points to the need for guidance. If a separate ecocide law were introduced, there would need to be strong guidance regarding what is appropriate to report to the COPFS, so that we get the right offence and so that it can take whatever prosecution action it deems necessary.

On the necessity point that you raised earlier, whether it is in the regulations or in guidance, the threshold for an offence in the bill of "severe ... harm" makes it important that there is guidance. If you are trying to offset severe harm with a necessity argument, clearly, what you are offsetting with needs to be quite severe as well. Guidance on that would be really helpful, given the threshold of severe harm in the bill.

Douglas Lumsden: We spoke about responsibilities flowing down. You are responsible for licensing and consenting, so are you in danger

of committing ecocide if you permit too many things? Could the responsibility then go back up to SEPA or even to the Scottish Government?

Ross Haggart: That was the point that I made earlier in answer to Mr Ruskell's question. At the moment, in section 40 of the 2014 act, there is protection for those that permit activities, if that is through a regulated authorisation, and we issue licences and permits in line with environmental legislation. However, that defence is not currently available in the bill. It is a concern to SEPA as a regulator that we currently have that defence in section 40 but we do not have it in the bill.

Douglas Lumsden: Does anybody want to add to that?

Professor Hendry: The point is at the heart of some of the issues around the bill. With a one-off catastrophic event, it is entirely appropriate for there not to be a permit defence, and it is unlikely that a permit would have included that action. However, for long-term cumulative effects, to me, you could not look back retrospectively and say that Scottish Water or a farmer should be liable for what they have done for the past 20 years within the confines of their permit. That provision could only be forward looking, and even then the risks are high around things such as the harm to water and ecological status or climate, which are large and complex environmental issues.

There would need to be an awful lot of clarity about the lack of a permit defence both for regulators and operators, and that would certainly need to be forward looking.

The Convener: I am a little confused. Will the bill not put huge pressure on consenting authorities, given that what they are consenting to might have an effect that they are not entirely aware of at the time? Campbell Gemmell mentioned fish farming. The chemical Slice is used to kill sea lice, but it also kills other crustaceans.

What is the long-term effect of that? If the bill came in, would SEPA be able to consent to the use of a chemical that has an approved on-label use but where the long-term effects are completely unknown? SEPA would then be held liable for ecocide under the legislation.

Campbell, do you want to come in on that? Have I got that entirely wrong?

Professor Gemmell: You have not got it entirely wrong; I agree significantly with what you have said.

There are several levels to the issue. Clearly, a permit should never permit extreme widespread harm. We can assume that that is a reasonable starting point. The fact that a lot of agricultural activities are handled through guidance such as the prevention of environmental pollution from agricultural activity—PEPFAA—code, rather than through permits, has created a slightly grey area. Nitrate vulnerable zones were introduced, in part, because individual releases of high-nitrate output were identified as having cumulative as well as direct effects. The science needs to be sufficiently robust, although there will always be uncertainty. That is why the precautionary principle exists and why it should be applied in order to prevent harm, but it is impossible to completely remove the risk.

Yes, the regulator might well be liable. In Austria, there was a case in which the regulator was in the crosshairs for permitting something that was very quickly discovered to be pernicious to the environment, so we need to tread relatively carefully.

I noticed that the nature of permitting was questioned in a previous evidence session. It was said that permits need to be made as robust as possible in order that they can be applied, and it is great to hear that SEPA is going through a further process on integrated permitting. However, we need to be careful about the risks that we might open ourselves up to. There will be unknowns, so we will have to make subsequent adjustments. That is why permitting should be flexible and able to be updated regularly.

I am sure that Clive Mitchell has views on other parts of the legislative framework that relate to nature, but we already have in place relatively good arrangements for the brown environment. Permits should certainly not be used as a defence. That would be wholly inappropriate.

The Convener: Before Kevin Stewart asks a supplementary question, I will bring in Ross Haggart. Is SEPA nervous that, although it might be following procedures, it might automatically allow itself to be hit with an ecocide charge if the bill came into force? I would be. Are you?

Ross Haggart: I am not sure that I would characterise the feeling as nervous, but, as we say in our submission and as I have set out in my evidence, there is currently a gap in the bill in that regard. If section 40 of the 2014 act and the bill are to remain as separate entities, we would like a provision to be put in to the bill to reflect the provision in section 40 relating to permitting authorities.

The Convener: That was nicely answered.

Kevin Stewart: I will move the discussion beyond permitting and licensing. If, say, a council planning committee granted other permissions that led to an unexpected ecocide event, would it be liable, or would the planning minister be liable if they took a decision that led to perceived or actual ecocide?

Let me give an example. Planning committees, reporters and the planning minister are regularly told that something might have an impact on a particular species, or we might not know very much about a particular species that is prevalent only in certain areas. What would be the impact on those decision makers if they unwittingly agreed to a permission that led to what some people saw as an ecocide event?

Professor Hendry: I hesitate to give a confirmed view. The starting point has to be whether the decision makers intended to cause severe harm or were reckless in relation to the harm that was caused. I suppose that the question is: when that planning framework was designed or implemented by the planning authority, was due consideration given to the potential impact on that particular part of the environment or that particular species? There is a high criminal bar to be met under the bill as it stands.

That is probably all that I want to say.

Kevin Stewart: I would say that that would make folk wary in almost every single aspect of what they did in this regard, and I would suggest that some folks might well be unwilling to participate or take those kinds of decisions in the future. Would you agree?

Professor Hendry: Well, in that case, a lot of guidance would be required to reassure a planning authority. I note that the definition of "widespread" in the bill relates to harm extending

"beyond a limited geographic area, to impact on an ecosystem or species or significant number of human beings"—

Kevin Stewart: It comes back to definitions. What is "severe", for example? A species might well exist in only a very small area that could not be described as "widespread". Does the extinction of a species because of a decision that you have made unwittingly constitute ecocide? I am sorry to sound as if I am playing devil's advocate, but I think that these things are important when it comes to the bill.

Professor Hendry: Absolutely. I think that, because the bill includes the term "widespread" and because harm would have to extend

"beyond a limited geographic area"

that very situation would be ruled out. However, as I said earlier, you might have a very localised species. If the planning authority did not know that that species was there—indeed, if nobody knew that—I am not sure that what it did would be intentional or reckless in that respect. However, the provision might well have some chilling effect, if you want to put it that way, or might encourage a high degree of prudence with regard to the potential damage from a development.

Kevin Stewart: Or it might create complete stasis in certain places.

Professor Hendry: It might, if there were a fear that a species could be threatened in that very specific way.

Kevin Stewart: Does anyone else want to come in on that?

Professor Gemmell: I would have thought that any planning proposal would be met with a reasonable assessment by the planning officers, and that an environmental impact statement might be prepared, or, at least, the range of issues that might be relevant would be considered. That would define both the likely territorial impact and the nature of the impact.

An example that I can think of relates to SEPA's powers under section 85 of the Environment Act 1995, and the way in which it oversees local authorities in relation to air pollution. Has that actually been applied? That is another piece of legislation that has never been operationalised, despite its existing to help ensure that air pollution is managed.

There are ways in which the existing framework, properly applied, can constrain issues, and I would have thought there would be a perfectly reasonable expectation that that could be done under the bill. However, I would expect local government to take its responsibilities seriously and go through the triage and assessment processes in order to rule out things that are local, have a minor impact et cetera. There is no need to, as it were, catastrophise about the bill's potential impact, because simple assessment and proper science should clarify what is and is not relevant.

Kevin Stewart: I do not think that I am trying to catastrophise anything. I am just looking at the simple day-to-day business that people have to carry out and the possible impact of this proposed legislation.

I hand back to you, convener.

The Convener: I found that very interesting. The precautionary principle underpins a lot of what we do but, because of the fear that was referred to, that very principle might mean that nothing actually happens.

I see that the deputy convener wants to come in.

Michael Matheson: I want to pick up on that theme and come back, in particular, to Ross Haggart's comments about the provisions in section 40 of the 2014 act, the permit exemption aspect and the cause and effect of that type of change not being made to the bill. If that aspect is not introduced as part of the bill, might the

precautionary principle be, in effect, ramped up to the extent that SEPA gets so risk averse that any developments seeking permits will actually find it quite difficult to get them? Might you, as a regulator, become increasingly anxious about the liability that you might face at some future point and about being pursued for committing ecocide or for contributing to it? Is that a risk?

10:15

Ross Haggart: I refer to Professor Hendry's point. At present, we issue permits based on environmental regulations and legislation. It would very much be our preference for the bill to contain the same provisions as section 40 of the 2014 act. We should not be in a situation in which we are permitting activities that we reasonably believe could cause severe environmental harm. We would need to assess any new legislation that comes in, provide guidance and training to our staff, and ensure that we had appropriate safeguards in place. At this stage of the bill's progress, our wish would be for the protection in section 40 to be included in the bill.

Michael Matheson: If it is not?

Ross Haggart: If it is not, we will need to assess that and provide appropriate guidance, training and processes for our staff so that we are doubly sure that we are not permitting any activities that could result in severe environmental harm, which could have implications for us as a regulator.

Michael Matheson: I turn to you, Mark Roberts, as the regulator of the regulators, if you like. Is there a risk that, if such a provision is not included in the bill, it could inhibit developments from taking place, because a licence would be needed, which could lead to further environmental damage in some perverse way?

Mark Roberts: I hesitate to reply to that question. There is a risk that it could change regulatory behaviour and make regulators more risk averse but, as Ross Haggart said, all regulation comes with a degree of risk and a degree of judgment that has to be made. The provision would be a further component of what is already done by environmental regulators. As we have said, the bill has a high bar on intent and recklessness. For SEPA or local authorities to demonstrate intent and recklessness, a significant bar would have to be cleared before liability was proven. It is not without risk, but it is quite low risk.

Sarah Boyack (Lothian) (Lab): Questions have been raised about a course of conduct and failures that are not just a one-off incident or accident but harm caused over time. I was thinking about repeated failures—pollution in particular—in which existing environmental legislation has been breached but there has been no action and legal accountability has not been triggered. We have existing legislation and we have this bill proposal. Should the bill include the concept of a course of conduct, such as the impact of pollution over time? Would that fill the gap between failures under existing legislation and ecocide? There is a gap here, and no accountability.

Mark Roberts: As I said previously, we are not yet clear how the cumulative impact of a number of events over an extended period would be captured and how that gap, as you described it, would be filled. The bill envisages—or suggests that it envisages—acute and severe problems, but I am not quite clear how that relates to cumulative actions and impacts over an extended period. That is another area where we would suggest further clarification.

Sarah Boyack: Should that clarification be in the bill or in subsequent guidance? Guidance has been mentioned a few times.

Mark Roberts: We would be happy with it being in guidance, so that everyone who is subject to the legislation and is implementing those regulations is clear on what the expectations are.

Sarah Boyack: Does anyone else have a view?

Professor Hendry: The context that you spoke about was where somebody has been routinely in breach of licence conditions, which is slightly different from a situation where an operator has been complying with their permit but then disobeys it.

Sarah Boyack: That is why I raised the issue.

Professor Hendry: If there have been long-standing, routine breaches of licence conditions and they have resulted in the type of harm that we are talking about, what you suggest would be quite appropriate, assuming that one can show either intent or recklessness, which might be easier to show in the case of sustained breaches of licences.

Ross Haggart: On repeat breaches of licences or permits, I will say that, based on guidance that we have received from the Lord Advocate, a wide range of enforcement tools is available to SEPA. One thing that we take into account when determining an appropriate enforcement action and going up the hierarchy of enforcement action—which goes up to and includes reporting to the Crown Office and Procurator Fiscal Service—is the previous actions of the individuals or companies. We absolutely take those into account when we determine enforcement action. We often move individuals or companies up the enforcement hierarchy because of a history of a lot of non-compliance. That is underpinned by Lord Advocate guidance and, ultimately, it might lead

us to determine that we should report somebody to the Crown Office and Procurator Fiscal Service under the existing legislative regime.

Sarah Boyack: One of the points that was made in the earlier questions was about the lack of action in such cases—that such reporting happens, but without any legal consequence for the perpetrators.

Ross Haggart: A suite of enforcement measures is open to us, and we use them on a regular basis, up to and including reporting people to the Crown Office and Procurator Fiscal Service. There was a high-profile case at Kirkcaldy sheriff court last week, where we had reported an operator to the COPFS and the case resulted in a guilty verdict. We use those tools on an on-going basis.

Sarah Boyack: We had evidence at the start of today's session about the lack of enforcement. Do you think that there is no gap here at all? Would having a higher standard persuade some of those organisations not to break the law?

Ross Haggart: As I said earlier, we are supportive of the principles of the bill. We can provide some statistics, if that would help the committee—we have already provided some statistics to the Scottish Parliament information centre on the number of times that we have used different enforcement activities over the past few years. We use the tools that we have at our disposal on a regular basis in an appropriate manner, based on the evidence that we have been able to gather, in order to hold people to account when they have undertaken activities that damage the environment. I am more than happy to provide additional statistics to the committee, if that would help.

Sarah Boyack: That would be useful, because I am certainly aware of breaches where nothing happens, which has an impact on communities. Do other witnesses have any views on this?

Professor Gemmell: I completely agree with your point, Sarah. I have two observations. The first is that, whatever happens, were we to go down this path, further training for the COPFS, sheriffs and judges would be highly desirable in order for them to be able to interpret and apply the law appropriately. The second is that it would be helpful to have two different hooks within the bill: one for breaches of licence conditions by those who have not previously been taken through legal process, and one for the cumulative impacts that have essentially resulted from activity that is not directly regulated. They are different things and need to have different, tailored solutions applied to them. To my mind—and perhaps yours as well—there would be cases around the Coal Authority and former ownership of mines. For example, Longannet, Mossmorran and Grangemouth all breached the nitrogen dioxide 15-minute limits within their permits, and no action was taken.

Some cases were assembled and went forward, and the COPFS chose not to progress them. Some cases went forward to sheriffs, who essentially dismissed them because they were going to apply a £300 fine for something that could be considered egregious environmental harm. There are a number of flaws, in various forms, in the application of the existing system, and it is very important that we do not build those into the structure around ecocide.

As I said, it would be helpful to have those two differentiated hooks in order that subsequent guidance can be developed to support them.

Sarah Boyack: That is very helpful—thank you.

The Convener: The next questions fall to Mark Ruskell.

Mark Ruskell: Does the bill bring us into closer alignment with the European Union environmental crime directive? Reflecting on the earlier conversation about section 40 of the 2014 act, an alternative approach would be to amend the section 40 offence to increase the level of the penalties in order to bring that aspect in line with the environmental crime directive. I am interested in your thoughts on whether the bill results in alignment, and whether there are any alternatives to that.

Mark Roberts: Much of the language of the environmental crime directive aligns very much with the language of ecocide and international developments in that area. From that point of view, parallels can be drawn between the directive and the bill. The penalties that are envisaged in the bill go further than what is in the environmental crime directive, and the bill creates a new separate criminal offence whereas the directive is more about strengthening penalties for existing qualified offences. It is not like-for-like but, in our view, there is a parallel to be drawn between the two.

Professor Hendry: Broadly, the bill would allow Scotland to align with—and, with regard to penalties, go beyond—what the environmental crime directive requires. There should be provision for omissions as well as actions, which is also in the directive. Alternatively, a longer period of imprisonment could be built into section 40.

There is discussion in the crime directive about a permit defence and situations in which that would not be available. That could perhaps be looked at, but I think that, broadly, the bill aligns with, and goes beyond, the directive.

Mark Ruskell: Can you clarify that, under the EU crime directive, the permit defence is not applied?

Professor Hendry: It says something about where there is a manifest substantive failure to comply with the law, regardless of having a permit. That form of words would not normally be found in our domestic law. Specifically, it refers to a situation where there has been a

"manifest breach of ... substantive legal requirements",

or where a permit has been obtained by fraud or some improper action, such as corruption. That is intended to be focused on waste offences.

Mark Ruskell: So there would, potentially, be choices as to the extent to which a permit defence could be introduced into the bill and where the line is drawn—

Professor Hendry: That is my understanding of the directive.

Mark Ruskell: But your point is that a line has been drawn in the EU directive.

Ross, do you want to come in?

Ross Haggart: I have nothing specifically to add to what colleagues have said. I simply reiterate that it is not for SEPA, as an independent regulator, to comment on alignment with other jurisdictions; that is a matter for Parliament. However, as I mentioned, criminals do not particularly recognise boundaries, so if it becomes harder for criminals to operate in one jurisdiction, that could drive them into others. From a practical point of view, therefore, having a very strong legislative framework in Scotland is beneficial—given that environmental crime does not necessarily know borders, a strong jurisdiction here would be very helpful.

Professor Gemmell: I have just one point to add, because I agree with the observations from Mark Roberts and Professor Hendry. One element of the ECD that other European countries are underscoring is the way in which the lead agency and the supporting agencies can be empowered in taking forward prosecutions. That has been very popular in Spain, Portugal and Italy, because it has allowed the environment regulator to apply additional powers that are used for intelligence gathering and the court process to the national guard, local enforcement agencies and, for example, the hunting agency in Italy. I noticed Clive Mitchell's evidence that NatureScot was slightly concerned about its ability to take forward cases with a prosecutorial-type support power. It would be helpful to look at that bit of the ECD and see whether it could be beneficial in any way.

I would support all the other elements that have been mentioned.

10:30

Mark Ruskell: Clive, do you want to come in?

Dr Mitchell: I think that the bill would align with existing EU provisions. The environmental liability regulations also cover significant damage to habitats and species of European interest—the habitats regulations. However, the bill would extend that more widely, so that fit is potentially good, subject to the earlier discussion.

Mark Ruskell: Earlier, we covered aspects around including omissions as well as acts, which I think the EU directive does. Another area that has been raised with us is financial penalties and the fact that the EU directive references confiscation of proceeds of crime.

Sarah, do you have any thoughts on that?

Professor Hendry: That would be an appropriate penalty, but I think that it is already available under other legislation.

Mark Ruskell: Do you mean under other legislation in relation to section 40?

Professor Hendry: Yes, it is available to confiscate proceeds of crime. That would certainly be appropriate.

Mark Ruskell: Do witnesses have any further reflections on that?

Mark Roberts: We have not considered that element of the bill, so I have nothing to add.

The Convener: Clive Mitchell wants to come in, but I was going to ask him a question. I will let you come in, Clive, knowing that my next question is coming to you.

Dr Mitchell: Okay.

On penalties, whatever the custodial sentence might be or whether the penalties can involve proceeds of crime and so on, it is important also to have remedial actions. The perpetrator should restore the damage that has been done as far as possible, to avoid the instance where nature is just left to be restored by somebody else instead of the person who has committed the act.

Mark Ruskell: Is that approach reflected in the environmental crime directive?

Dr Mitchell: I would have to check that.

Mark Ruskell: Okay. Sarah, is reparation in the directive?

Professor Hendry: I think not. I think that that falls under the environmental liability directive, which focuses on operators being expected to remediate harm.

I assume that it was a deliberate choice that that is not in the bill, because it is in almost every other control regime that I can think of. The starting point for SEPA or the courts would be to require the operator or person who caused the harm to

make good. In the bill, as far as I can see, there has been a choice that that would not happen, perhaps because the perpetrator cannot be trusted to do it properly.

I would have thought, if only because of the financial consequences for SEPA, NatureScot or whoever, that, where appropriate, and assuming that the perpetrator was considered to be competent and reliable and would do the remediation, that that would be in the bill. They should take action first and only where they failed to do so or could not do so would a public authority step in and do it and then have to recover costs.

Mark Ruskell: That was a useful addition.

The Convener: Clive, I warned you that I was coming to you next.

It has been suggested that NatureScot does not have enough powers to investigate potentially severe damage to protected sites or species. Does NatureScot want more powers in the bill, or do you just generally want more powers?

Dr Mitchell: We can and do use the provisions for protected sites to prosecute those who damage sites. There is a combination of factors around the bill that might make things more challenging for us. The penalties in the other regulations are typically fines, and there is a lot of discussion about how they are levied in a way that deters activities and so on. Because the bill provides for a custodial sentence, the evidential bar is that much higher.

Given our experience with the Environmental Liability (Scotland) Regulations 2009, we envisage potential cases of ecocide being complicated and relatively infrequent, so they will be testing for those authorities who, like us, will not be using the provisions regularly—perhaps once in a career, for example. As the bill stands, we would need to act with SEPA to direct us to those investigatory powers. Normally, we rely on the police to do that sort of work for us, because they are much better at it. If we get it wrong because we are rusty or whatever, that threatens the case in court.

The Convener: We will leave it there at this stage.

Douglas Lumsden has some questions, and then I will go to Monica Lennon for a few questions at the end.

Douglas Lumsden: Have you had a chance to review the financial memorandum? Are the figures appropriate?

Mark Roberts: Yes, we have had a chance and we think that the figures are appropriate. My staff would need a small amount of familiarisation to understand the new legislation but, as we said to the Finance and Public Administration Committee, the figures are appropriate.

Douglas Lumsden: Is the on-going training figure enough for you to embed the bill into your organisation?

Mark Roberts: Yes.

Ross Haggart: We have looked at the financial memorandum and our only concern about it is the potential underestimation of the costs that SEPA might have to bear. It goes to Dr Mitchell's point about who will have investigatory powers under the legislation.

As the bill stands, the Environment Act 1995 would be amended to enable organisations to investigate ecocide-level offences, and that would fall on SEPA and local authorities or waste collection authorities. If SEPA was to investigate things that do not sit within our regulatory ambit, it might well mean additional costs. Alternatively, other agencies such as NatureScot could be given those investigatory powers, which would remove the requirement for SEPA to investigate issues that are outwith our regulatory ambit.

Douglas Lumsden: If no new money is coming for those investigations, I guess that SEPA would have to cut back on other things that it is doing.

Ross Haggart: Yes, and it is not so much about the investigations that are within our regulatory sphere because, as I said, we investigate those occurrences anyway. If there is uncertainty about whether the proposed ecocide act or section 40 of the 2014 act would apply, our options would be to report both to the COPFS or take guidance from it. There would be an issue, however, if we investigated things that are outwith our current regulatory responsibilities, because that would put an additional burden on SEPA and there would be a cost to the organisation.

Douglas Lumsden: You mentioned local authorities. I guess that they might also be asked to investigate.

Ross Haggart: I assume so.

Douglas Lumsden: I put the same question on finances to Dr Mitchell. Does the figure cover what you might have to do?

Dr Mitchell: Similarly to Ross Haggart, I think that the figures are probably okay. The difficulty is in the operation of the required training and maintaining that when the provision is being used only once in a blue moon. The proficiency with which any organisation can deliver training under the provisions of the law rests an awful lot on familiarity with cases, particularly as they progress through the courts and so on. I would worry that maintaining that level of training and proficiency

might cost quite a lot more than the figures display.

Douglas Lumsden: Thank you—that is helpful.

My last question is on reporting. The Scottish Government has said in its memorandum on the bill that it intends to seek to remove the reporting provision at stage 2. Do you agree with the Government's position on that? I will stick with Dr Mitchell first.

Dr Mitchell: I would have to come back to you in writing on that, I am afraid.

Douglas Lumsden: That is no problem.

Does anybody else want to come in on reporting? Are there no takers?

Professor Hendry: I am not sure, but there might be a reporting requirement in the EU environmental crime directive. If that is the case, reporting is possible. That is my only comment.

The Convener: I turn to Monica Lennon, in case she has a couple of questions to put to the panel.

Monica Lennon (Central Scotland) (Lab): Thank you, convener. I thank the panel members for their time today. The Scottish Government helpfully sent a letter about the bill to the committee a few weeks ago. It says that the

"Government is supportive of the proposal to introduce an offence of ecocide, properly understood as being for the most extreme, wilful and reckless cases of harm."

We have had a lot of discussion today about the potential overlap, or how the 2014 act and the bill can complement one another. On the point about the most extreme impact and harm against the environment, how important is it that the public, and everyone who is involved in looking after the environment, understands that we are talking about the most severe harm? Do you agree that having a stand-alone ecocide act—I hope—sends the important signal that we are talking about something that is really quite severe and distinct?

I do not know who would like to go first. Not everyone needs to answer, because I will be told off for taking up too much time.

Professor Hendry: I agree that the measures should be targeted at the most extreme harm. I would like to see more strongly expressed in the bill how "severe" is different from "significant". One benefit of a stand-alone act would be that it would bring attention to the issue more widely than just to SEPA or operators.

Monica Lennon: I see that Ross Haggart is nodding along. Are you in agreement with Professor Hendry?

Ross Haggart: Yes, very much so. Although we have said in our written evidence and I have stated today that our preference for clarity would be to amend section 40, we also recognise that a stand-alone piece of legislation would act as a very strong deterrent.

Monica Lennon: Thank you—that is helpful. I think that Professor Gemmell is also nodding. Is there anything that you want to add? Oh—he is giving a double thumbs up.

Professor Gemmell: I was simply showing my complete agreement with that. We require the impact that stand-alone legislation would bring. It would complete the system.

Public education and information would be really valuable at an appropriate point, because it would help people to understand that there is a regulatory pyramid structure and why ecocide would be at the top of that. That should be something that all the relevant bodies, including the Scottish Government, would put in place. I am completely supportive of that.

10:45

Monica Lennon: I will ask you a brief supplementary, Professor Gemmell, while we have you unmuted.

Obviously, this session is part of stage 1 scrutiny, and there has been a lot of consultation and front loading of the bill to get it to this stage. Given where we are in the parliamentary cycle, and the fact that we are looking at dissolution sometime in March, do you agree that there has been a benefit in having public discussion and engagement on the bill in order to make the process more transparent, particularly as we are talking about severe penalties and punishments? Do you agree that there has been a robust process to get public buy-in?

Professor Gemmell: That is leading the witness, m'lud, but yes, I agree with you. The process has felt slightly different in that sense, but that is important. I do not think that it ends the desirability of communication, and the responsibility to communicate, but it has been a very helpful differentiator.

This goes back to my earlier response to the convener, but I think that it is incredibly important to ensure that there is a good level of understanding and that the law is likely to be a rarity in its application. In a sense, though, that highlights how much more important it is to have it sitting at the top of the structure for the most egregious and high-impact acts.

I would say that the process has been good so far but, as ever, there is more to do.

Monica Lennon: I have two brief final questions, the first of which is on the planning system, which was mentioned earlier. As a former chartered town planner, I cannot help but ask for some clarity in that respect. Is it the case that planning authorities already have a legal and policy requirement to assess the impact on nature and climate of any developments, plans and decisions? Clearly, there is a role through, say, national planning framework 4, but can anyone put my mind at rest and confirm that planners and others in planning authorities are already well accustomed to that and that a range of tools are available to aid that decision-making process?

The Convener: I do not know whether you saw it, Monica, but Clive Mitchell was holding up his hand and indicating that he wanted to come in immediately.

Dr Mitchell: I can outline some basic provisions, but some of this links back to the earlier discussion involving Mr Stewart and the deputy convener.

Planning authorities have to consider the impacts on the environment, and they do so in a number of ways from policy level, through strategic environmental assessments, to project level, through environmental impact assessments for certain types of development. All applications are subject to that sort of scrutiny.

The point that I was going to make in relation to the earlier discussion on the precautionary principle and so on is that, under national planning framework 4, the proposal is to introduce the notion of positive effects for biodiversity to deal with the extent to which potential damage can be addressed on or off site in closely relevant habitats and species. Obviously, it is not easy to replicate ancient woodland, but there are other provisions that can remediate or alleviate some of the damage caused by particular developments.

Finally, I note that, under the habitats regulations, provisions to consider issues of overriding public interest are in place in order to align with EU law.

Monica Lennon: I will wrap things up with a couple of points. I have just come back from a conference in London on ecocide law, human rights and environmental justice, at which people from around the world were providing legal expertise. It is clear that there is momentum with regard to criminalising ecocide at international level and making it an international crime, but there is also a lot going on with domestic legislation coming forward, not just in the EU but in countries around the world.

Ross Haggart mentioned that criminals do not respect boundaries and that they look for what is sometimes seen as low-risk and high-value activity. Waste crime, for example, is a big issue; indeed, Interpol has been doing some work on it in recent weeks. The EU environmental crime directive has to come into effect in all member states next May, so things are moving very fast. We have been hearing reports, including recently from the House of Lords, that waste or environmental crime is a fast-growing area. What could be the risk to Scotland if we do not have an ecocide crime set out in criminal law, given that lots of our neighbours and partners around the world are being very active in this space?

I see Ross Haggart nodding, so I will come to him. If anyone wants to add anything briefly, that would be great.

Ross Haggart: I come back to the point that I made earlier, and which you have reiterated, that crime knows no borders or boundaries. If a jurisdiction makes things more difficult for criminals or ramps up the risk for those acting in a criminal manner, those people could move on to other jurisdictions. The risk is that, if other jurisdictions have stronger legislation than Scotland, criminals will see Scotland as an opportune place to move to in order to undertake crime.

Monica Lennon: I do not see anyone else signalling that they want to respond, so thank you for the opportunity to ask questions, convener.

The Convener: Thank you very much, Monica.

That brings us to the end of the evidence session. I know that Clive Mitchell has offered to write to the committee, and the clerks will follow that up to ensure that we get back from him, as it were, what he offered to do.

I will suspend the meeting for five minutes, and then we will move into private session before coming back into public session again. Therefore, I ask committee members to be back here at 10:56. Again, I thank the witnesses for the evidence that they have given this morning.

10:51

Meeting continued in private.

11:27

Meeting continued in public.

Sustainable Aviation Fuel Bill

The Convener: Welcome back. Our fourth item of business is consideration of two legislative consent memorandums on the UK Government's Sustainable Aviation Fuel Bill, the first of which was laid on 25 July. We are also taking the opportunity to look more broadly at the prospects for sustainable aviation fuel production in Scotland and at its potential role in reducing greenhouse gases from aviation, which is an issue that is bound to arise when we consider the transport chapter of the next climate change plan later this year.

I welcome to the meeting Jim Fairlie, Minister for Agriculture and Connectivity; Chris Bryceland, team leader, critical energy infrastructure, Scottish Government; Kirsty Ryan, solicitor, Scottish Government; and Terry Shevlin, aviation strategy and sustainable aviation team leader, Transport Scotland.

Minister, I invite you to make a short opening statement.

The Minister for Agriculture and Connectivity (Jim Fairlie): Thank you very much. I will be as brief as possible.

I welcome the opportunity to speak with the committee about the legislative consent memorandum and the supplementary legislative consent memorandum for the UK Government's Sustainable Aviation Fuel Bill, which was introduced in the House of Commons on 14 May 2025.

The Scottish Government strongly welcomes efforts to boost the production and use of sustainable aviation fuel, and therefore supports the overall policy intention of the bill. Sustainable aviation fuel is one of the most promising ways of reducing aviation emissions and it is therefore important in supporting the Scottish Government's commitment to achieve net zero by 2045.

If SAF were commercially produced at scale in Scotland, it could bring significant economic benefits, including the creation of green jobs and investment in infrastructure. Therefore, the Scottish Government recommends that the Scottish Parliament consents to clauses 2, 4, 5 and 12 to 19 of the bill. The Scottish Government has had extensive engagement with the UK Government at both official and ministerial level to resolve concerns around the regulation-making powers in the bill that may be exercised for a devolved purpose in Scotland.

Although my meeting in the summer with Mike Kane MP, then Minister for Aviation, Maritime and Security at the Department for Transport, did not result in agreement, I am encouraged by the more productive discussions that have been had with his successor, Keir Mather MP, Minister for Aviation, Maritime and Decarbonisation, and I remain hopeful that a solution can be reached that respects the devolution settlement and ensures that a formal role for the Scottish ministers is set out in the bill.

11:30

As things stand, the bill does not provide the Scottish ministers with a statutory role and we continue to press for amendments that would provide appropriate safeguards and accountability. We believe that a statutory consultation or consent mechanism would offer reassurance and transparency, especially given the early stage of development of the UK sustainable aviation fuel industry.

Until agreement is reached and the necessary amendments have been secured, the Scottish Government is recommending that the Parliament withhold consent for clauses 1, 3, 10, 11(2) to 11(5) and the schedule. The Scottish ministers remain committed to constructive engagement and to supporting measures that could lead to the increased production and use of SAF in Scotland.

The Convener: Thank you. I think that the Scottish Government is happy to support parts of the bill in the LCM because it believes that, by doing so, it will increase opportunities for the production of SAF in Scotland. What gives you that opinion? Where will that happen?

Jim Fairlie: The whole world is looking at how to reduce the impacts of aviation on our climate as we know it. If there is a global push that will allow us to reduce our emissions into the atmosphere while not having a negative impact on our connectivity, that is a global effort that we should all get behind.

Scotland is perfectly placed to be part of that process. We are talking about not only SAF, but hydrogen and zero-emissions aircraft, which could be developed in Scotland. We are in the very early stages of the process. I recognise that we have been talking about it for a long time, but we are in the very early stages of determining what that revolutionary project will look like. I think that Scotland is in an ideal position to take advantage of it.

The Convener: I agree with you in principle, but you are saying that the bill will help to increase SAF production in Scotland. You have spoken about why you think that that should happen. I want to know what concrete evidence you have

that the bill will help to increase SAF production in Scotland and where that SAF will be produced. Where do you see the SAF coming from?

Jim Fairlie: As you know, there are a number of on-going projects. Project willow is looking at what we could do in Grangemouth, and a project is under way in Orkney. Regular conversations take place between Scottish Government officials and UK Government officials. However, this is largely a reserved area, so you are right in what you say. There are many things that we cannot control in this country, but we are having on-going discussions to see how we can maximise the opportunities for people in Scotland.

The Convener: We have been told in evidence that SAF will probably be produced near where it will be used the most, or in that locality. That will not necessarily be Orkney or Aberdeen, will it? Will the bill—the LCM on which you would like us to agree to—help with the production of SAF in both those areas, for example?

Jim Fairlie: There is discussion to be had on all those matters. Consumers may want the SAF to be produced as close to their point of consumption as they can get it, but producers may want to produce it closer to their centres of production. We need to have negotiations and conversations at a UK-wide level to ensure that Scotland can be a beneficiary of what the new technology will deliver. It is only right that the Scottish Government explores every avenue to see how we can take advantage of that.

The Convener: I am obviously doing this very badly, so I will ask my question again. How will the bill help us to do that? You have not told me how the bill will make what you have set out happen, which is why you are saying that we should agree to a legislative consent motion.

Jim Fairlie: The LCM represents the UK Government's position, which is that it will ensure that SAF is developed, and that other emission-reducing aviation projects are progressed, across the UK. Agreeing in principle to an LCM will allow us to be part of that conversation. Where the Government has concerns is where the bill touches on devolution and removes the ability of the Parliament and of the NZET Committee to scrutinise what comes next. That is why we have revised some parts of the legislative consent memorandum.

The Convener: I am not sure that I am getting any further, so I will hand over to the deputy convener.

Michael Matheson: Good morning. I will turn to the Scottish Government's position in the legislative consent memorandums, which is to consent to the bill but to withhold consent on four or five clauses of the bill as it stands. That includes clauses 1 and 3, which relate to the revenue certainty contracts and how they are allocated to SAF producers. For each of the clauses from which you recommend withholding consent, will you explain the particular points that touch on devolution that you feel need to be addressed in order to get agreement with the UK Government?

Jim Fairlie: The UK Government accepts that the clauses touch on devolution but, at the same time, it says, "We do not really need to bother you with it." Clause 1 is about revenue certainty contracts that will be set over a 10-year period. We have no idea what will happen between now and then—the vast majority of us will not be sitting in this Parliament in 10 years' time. It is only right that, for devolved areas, this Parliament has the right to say, "Okay, what does that actually mean?" We have no idea what changes there will be or what the outcomes will be of the various discussions that are going on within the UK and globally as to how SAF will develop.

The UK Government's position is that, "The bill is about a technical thing and we do not need to worry you about it." Why would we not just consent if the issue were that small? The only reason why a Scottish minister or the Scottish Parliament would refuse consent would be if there were a concern. If the UK Government says to us, "These are minor technical issues and you don't need to worry about them," we will agree—if they are minor technical issues.

Convener, I remember you raising the issue about members not getting the time to scrutinise things properly—I believe that you raised that in the chamber last week.

The Convener: I did.

Jim Fairlie: There are already issues with us not being given information in time. How do we know what the detail will be when we are looking at something that could be 10 years down the line? It is important that we protect the right of this Parliament to be able to have a say on things that will touch on devolution.

Michael Matheson: Would it therefore be fair to characterise the Scottish Government's position in the LCMs as an interim position? That is, the Scottish Government supports the intention behind the bill and supports agreeing to a legislative consent motion, but, if the outstanding areas that you have concerns about are not sufficiently addressed by the UK Government, the potential final position of the Scottish Government could be to withhold consent. Am I understanding that correctly?

Jim Fairlie: I do not want Scotland to somehow become isolated in the project to develop sustainable aviation fuels. However, where there

are areas that touch on devolution, we can have a negotiated position. As I said, I have a better relationship with the current minister, who seems to get that these are genuine issues that we need to get over. I hope that we can negotiate a position where we will get a satisfactory agreement on the clauses that we have concerns about. If we get that agreement, great; we will move on. If we do not get that agreement, we will come back to the committee about our position at that point.

Michael Matheson: If you do not get agreement on those clauses—I do not know what the timeframe looks like—is it possible that the Scottish Government would recommend that legislative consent be withheld?

Jim Fairlie: I am optimistic that we will get a satisfactory conclusion. I will leave it at that.

Michael Matheson: Okay. You have taken a negotiating position.

I turn to the issue of SAF. You correctly pointed out that there is significant potential for the manufacturing of SAF in Scotland. From the Scottish Government's perspective, will you give us a sense of where the greatest potential is for sustainable aviation fuel? Is it in the first, second or third generation of SAF? Will the timeframe for the development of those three generations of SAF be different over the course of the next 10 years?

Jim Fairlie: I will bring in Terry Shevlin to speak about the technical sides of that.

Terry Shevlin (Transport Scotland): As you have alluded to, there are different types of SAF. It is worth highlighting that Scottish Enterprise is doing an economic impact assessment of SAF potential for Scotland. It hopes to have completed that by the end of the year. Once ministers have that information, they will be far better placed to consider some of the questions that you have talked about.

Having read the committee's previous evidence sessions, it seems to me that there is, if not a consensus, a general view that power to liquid—what you would call third generation SAF—has the greatest potential. Equally, it appears to be the type that is, perhaps, furthest out in time. There is already production of first generation or HEFA—hydro-treated esters and fatty acids—SAF in various countries across the UK.

There are on-going discussions following project willow at Grangemouth and Scottish Enterprise is involved in those. The Scottish Government has responded to the recommendations from project willow on the crops that could be used for first generation SAF. Chris Bryceland can pick up on the work that has been commissioned on that.

Chris Bryceland (Scottish Government): In answer to your question, all the SAF projects globally that are at commercial scale are HEFA-based. That means that they rely on waste oils, fats and greases. Obviously, the supply of waste oils, fats and greases is limited for a sector that is as big as aviation, so we will need future-type fuels.

There are several examples of the commerciality of such projects and how long they take to get to market. The refinery in Rodeo, California, is looking to use soya beans as a feedstock source to make aviation fuel. It took four years to get from concept and the conversion of a refinery to commercial production. Similarly, in Singapore, Neste took five years from concept to producing fuels. If we are looking at that pathway for places such as Grangemouth, we have to be realistic about the timescales. A lot of project development work is required before businesses are able to invest and there are a lot of things that businesses need to see to give certainty.

Project willow recommended some key actions for the Scottish Government. The prime recommendation was on feedstock. In Scotland, there is not enough feedstock—waste oils, greases and fats—to meet the demands of a commercial-scale biorefinery. It recommended—

Jim Fairlie: And that is in a country that apparently fries all its food.

Chris Bryceland: Project willow recommended that we consider a cover crop called camelina. A cover crop is a crop that grows off season—that is, in the autumn and winter months. Camelina has been grown successfully in America and Canada and fuel from it was used by Delta Air Lines for a test flight last year, so it is proven. However, we do not know yet whether it is suitable for Scottish conditions. We asked the James Hutton Institute and Scotland's Rural College to do a desk-based review, which they have completed. The Scottish Government asked whether we could produce the crop at the scale required and what implications the Government should consider. The results are on the Scottish Environment, Food and Agriculture Research Institutes—SEFARI—website.

Based on the results of that desk-based study, we are conducting field trials—seeds went into the ground in September—led by the Hutton Institute and the Rural College, to answer some of the questions that arose from the review. Can camelina grow in Scotland? Do you get the yields? What is the impact on soil conditions and on the rotational crops? It will take a couple of growing seasons before we get the answers, but they will add to the evidence base on whether we can get enough oily material to get a commercial SAF plant up and running. That is what is happening in

the near term. In the future, the opportunities are around power to liquid.

When we look at where refineries and people who make fuel locate, we see one of two things. They locate either where there is significant demand for the fuel—that is, near a big airport like Heathrow—or in a place where they have feedstock advantages. The Rodeo refinery in California has lots of soya beans nearby; Preem in Sweden has access to tree material. That is where the refineries are locating. In relation to power to liquid, the opportunity may lie in Scotland's potential for renewables. That is where we hope that the Scottish Enterprise work looking at the economic impact of the SAF industry will come to bear.

11:45

Michael Matheson: That is very helpful—thanks very much. I must confess that I am a bit conflicted about the idea of investing in HEFA, given that the UK Government's SAF mandate means that, by 2030, HEFA should decrease to 71 per cent of our SAF production and that, by 2040, it should decrease to 35 per cent. That says to me that the future will be power to liquid, so why should we bother spending hundreds of millions of pounds on investing in a SAF refinery facility? You have mentioned the timeframes. To be perfectly frank, I wonder whether Scottish Enterprise is wasting everybody's time in looking at some of this, because I cannot see how it will make any business sense whatsoever, given the UK Government's SAF mandate. Maybe Scottish Enterprise should reflect on that, because it might just be wasting everybody's time.

I will turn to another issue, which is the funding that the UK Government has made available so far through its advanced fuels fund to support SAF project development. From looking in the paperwork that the committee has received, and joining the dots, I think that 19 projects have been awarded funding. Only one of those is in Scotland, in Orkney. Why has only one project in Scotland been allocated AFF?

Jim Fairlie: We have talked about that. I will turn to Terry Shevlin.

Terry Shevlin: What you said is a matter of fact, Mr Matheson; there is only one project, and it is up in Orkney. Earlier this year, I asked Department for Transport officials whether they could provide any feedback about the third round of AFF and whether there had been any bids from Scotland, but they were not able to confirm that. I spoke to Scottish Enterprise, which is engaging with the companies that were not successful in securing the latest round of funding from that source in order to find ways forward. It would have theoretically been possible for Petroineos at Grangemouth to try to access that funding—maybe Chris Bryceland will speak to that.

From the conversation that I have had with Scottish Enterprise—this is second-hand information—it is speaking to prospective SAF investors in Scotland. I cannot get into the details of the companies, for obvious reasons. Scottish Enterprise provided a bit of feedback about the AFF. This is anecdotal, rather than hard-and-fast evidence. Some of the points that were made include that there have been three awards of funding so far and that sometimes that has gone to the same recipients, and that a broader strategy and policy about carbon usage at a UK level needs to be in place to try to ensure that the AFF is allocated as efficiently as possible.

As I said, those points are anecdotal, so I do not want to place too much weight on them. Scottish Enterprise has been talking to investors about what it can do to help them to get better access to that funding. However, as I say, it would have been at least theoretically possible for Petroineos at Grangemouth to try to access that funding for its purposes.

Chris Bryceland: It is down to the advanced fuels fund. HEFA-based SAF projects are probably not what the UK Government is looking for; it is looking at next-generation projects. The launch of project willow in March has really stimulated demand from the market. Scottish Enterprise has received more than 120 inquiries from project developers that are looking to develop projects at Grangemouth. Of those, 20 relate to SAF projects. We would like to think that, with a fair wind, there will be access to some of that funding, depending on the project. I cannot go into any details on specific projects due to commercial sensitivities, but there is definitely appetite from the industry.

Michael Matheson: Looking at the timeframe and the capital investment that is needed for some of those projects, I wish that I could share your optimism on what will come from project willow, to be perfectly frank. I am not aware that Scottish Enterprise has created any new jobs in Grangemouth as yet. Most of the stuff from project willow is five, six or, in some cases, 10 years away, so I do not share your optimism on that.

Is there Government-to-Government engagement on the advanced fuels fund and whether more could be deployed for Scotland-based projects? The evidence that we heard yesterday was very much that power to liquids is where the real growth area will be in the future. The best place to do that is where there is significant access to renewable energy at low cost, and that is Scotland. Are there Government-to-Government discussions about the deployment of that fund?

Jim Fairlie: There are a lot of Government-to-Government conversations. They are more at official level. I have met both of the aviation ministers in my time in office, but Terry Shevlin and his team are in regular contact with UK Government officials.

Terry Shevlin: In general, we speak to UK Government officials about decarbonisation. As I said, the contact that we had previously was to try to understand why bids were not coming from Scotland, but they could not go into that. That is why I went to Scottish Enterprise to get feedback.

I do not know what the committee intends to do other than reporting on the LCM, but if you intend to follow up on this piece of work, it might be worth expressing general concern about the lack of funding coming to Scotland. There might be reasons for that that we are unaware of. Chris Bryceland gave one reason in relation to Petroineos, but there is currently no SAF production in Scotland. We can certainly continue to convey the concern that there is a lack of funding.

Douglas Lumsden: In my questions, I will continue to ask about project willow, which the deputy convener raised with you. There are two SAF projects in project willow. One is about first-generation SAF—the HEFA one—and the other is about third-generation SAF. Should we still be pursuing the first-generation project, especially when we look at the mandates that are coming forward? That is almost like a bridge to other fuels in the future. Is it still feasible to have that project within project willow?

Jim Fairlie: Earlier this year, with the cabinet secretary, I hosted a round-table event with the aviation industry. There is huge uncertainty in the sector about what the right way to go is. It depends on the airline and its objective. At the moment, we need to have every tool in the box, because we need to know that we have potential whichever way it goes. It feels like we have been in this position before. Should we go with Betamax or with VHS? We do not know at this stage.

I absolutely take on board the deputy convener's point. He probably knows more about this than anyone else in the room other than the officials. Is there scope to continue with that project? That decision will have to be taken by those who are working on the projects, who will then advise the Government as to whether we are in the right space.

Douglas Lumsden: How far away do you think that we are from producing SAF at Grangemouth? Is it still five or 10 years away, or is the period shorter than that?

Chris Bryceland: In project willow, the SAF projects are mid-term projects. It will be around 2030 before a HEFA project can be realised, and it is the most mature technology.

It is worth noting that we are not restricted to the nine buckets in project willow. If there are opportunities from other technologies—there are many ways of producing SAF that can generate an economic value case for Grangemouth and help with our aviation decarbonisation targets—we are open to speaking with developers about them. Those are the conversations that Scottish Enterprise is having. It is not solely about the nine technology options.

Douglas Lumsden: The UK Sustainable Aviation Bill will produce levies from traditional aviation fuel that can be spent on SAF. Will Grangemouth be able to bid for that money for a HEFA project or will it be excluded under the proposals in the bill?

Jim Fairlie: My understanding is that it is not excluded and that it could bid for that, but I think that it is a bit more technical than that, is it not?

Terry Shevlin: The bill is designed to reduce key risks to investors; indeed, I think that that was the point that the convener was getting at right at the very start. This is a framework bill, really, and the UK Government is consulting on the detail of the levy; I think that it launched the consultation within the past couple of weeks. Therefore, there is no accompanying analysis from the UK Government in, for example, the bill's explanatory notes on the extent to which or where SAF production in the UK might increase as a direct result of the legislation.

The bill is designed to create a revenue certainty mechanism to give confidence to investors, and the whole point is that that should, thereafter, lead to more SAF plants. We do not know exactly what will happen at Grangemouth—we can have a conversation about that—but there are, of course, no guarantees.

Douglas Lumsden: Can that money be spent on first-generation SAF, or is that excluded from what the bill covers?

Terry Shevlin: The bill does not get into that. The explanatory notes say that it is about getting "first-of-a-kind plants" built commercially, and I have asked what exactly would be covered by that. As you know, two of the project willow projects were SAF-related, and the latter is not first of a kind by any means. However, the question whether the definition would apply to the former is something that I have asked about.

Douglas Lumsden: We still do not have any clarity on that.

Terry Shevlin: We should get a response from the DFT on that soon, but it is not something that the explanatory notes go into in great detail. They

just refer to “first-of-a-kind plants”, but there are not really many SAF plants in the UK as it stands anyway.

Douglas Lumsden: I will move on to my next question. We have heard that, for third-generation SAF, we need green hydrogen and a functioning carbon capture industry. Is there a risk of the Scottish SAF industry relying on those uncertain net zero industries, minister?

Jim Fairlie: Are you asking whether there is a threat to SAF production as a result of the uncertainties?

Douglas Lumsden: Yes. What do you think is the biggest risk to successful SAF production in Scotland?

Jim Fairlie: That it does not come to Scotland. We wanted a carbon capture project in the north-east—as you will be well aware and were very supportive of—but it did not happen. Is that a threat? Anything that gets in the road and slows up our opportunities is a threat to Scotland being able to capture that opportunity. After all, this is an opportunity, and it is an opportunity in this time, so I am very much looking to ensure that we work with the UK Government as much as we can in order to get as much of this natural cohesion to come to Scotland as we can. After all, you are absolutely right—we have all the ability here to do it, so let us do it in Scotland.

Douglas Lumsden: Do we need the Acorn project in place before we can produce SAF?

Jim Fairlie: Do we need Acorn in place? Do we, Terry, technically?

Terry Shevlin: That is a big question. Certainly, if you are looking to make third-generation SAF, you need that supply of carbon. Can you do that without Acorn? Well, that is a highly technical question, but you certainly need a source of carbon.

As I have said, the economic analysis that Scottish Enterprise is doing should, I hope, shed some light on those questions. Last year, the Scottish Government set up a SAF working group and it has done work on that. It got into some of those questions at a fairly early stage, but then project willow came along. It was quite interesting to hear one of the witnesses at your previous meeting say that, although it was commonly held that power to liquid would be very expensive, he did not hold the same view, I think. He is the first person I have heard say that power to liquid would not be as expensive.

I think that a witness in your first evidence session referred to this, but a SAF mapping exercise was previously carried out on behalf of Scottish Enterprise, and it pointed to Scotland’s relative strengths in renewable energy, skills, infrastructure and so on. Answering your detailed question, though, would be difficult at this stage.

The Convener: I suggest, minister, that it might help you and your officials to reflect on that and perhaps come back to the committee when you have had a chance to do so. It would help us with our consideration of SAF’s role in the climate change plan, and I think that it would be useful to have some considered thought process.

Jim Fairlie: We will provide you with as much information as we can possibly provide you with, but there is an awful lot of information that we just do not have.

The Convener: I am grateful for that. I am sorry for interrupting, Douglas.

Douglas Lumsden: No, that is fine. That was all from me for now, convener.

The Convener: I think that Mark Ruskell has questions.

Mark Ruskell: Yes, convener. I want to ask about the Scottish Government’s wider approaches to aviation, particularly in relation to an air departure tax. What are the plans for that? I believe that there was discussion about an exemption for lifeline flights to the Highlands and Islands. I am interested in how that differs from air passenger duty, which is being introduced at the UK level.

12:00

Jim Fairlie: The lifeline services to the islands is the sticking point from the Scottish Government’s point of view. If there is going to be an ADT, it would have to comply with the subsidy control legislation. Until we have bottomed that out—we have not bottomed it out at this stage—we will continue to make sure that our islands stay as connected as they possibly can be. You know as well as I do that island connectivity is vital, so we are not going to jeopardise that in any way, because we do not have certainty about the subsidy control issues.

Mark Ruskell: I do not think that the importance of lifeline flights has ever been in dispute. Do you have a sense of when that issue will be resolved? We have been talking about it for a number of years now, although I understand that it is largely on the UK Westminster Government to address the issue with the subsidy control regime. Is there a sense of when it might be resolved so that there is at least certainty about the options that the Scottish Government has at its disposal?

Jim Fairlie: I missed the first part of what you said about lifeline services.

Mark Ruskell: I was just agreeing with you and underlining your point.

Jim Fairlie: I see—gotcha. Terry Shevlin has had more conversations about the timeline with UK Government officials than we have. My understanding is that we are no further forward and it is still being looked at.

Terry Shevlin: Taxation officials lead on that. Air departure tax will be the Scottish replacement for air passenger duty and tax officials are working on it as we speak. As the minister said, what ministers want for Scotland is an air departure tax that maintains vital Highlands and Islands connectivity. We are under a new subsidy control regime and that is being tested by tax officials as we speak.

As has been said, the Government will commit to reviewing air departure tax bands and rates before it is introduced. The high-level principles of the air departure tax were published in the summer by tax colleagues, one of which said that it could be used for environmental reasons.

The issue is under discussion so there is not much more that we can say at this stage, I am afraid.

Mark Ruskell: Thank you.

The Convener: Mark, do you have any more questions?

Mark Ruskell: No.

The Convener: Douglas Lumsden has a question about pricing.

Douglas Lumsden: I just want to understand whether there will be any increase in fare prices as a result of this bill.

Jim Fairlie: I would imagine that the commercial operators will decide how they are going to price their services for their profit margins. That will be entirely up to them.

There is a whole thing about how SAF is going to be an expensive product to use. If, however, we get into a position where we have a single product that is used globally, the market will drive the price down. I cannot tell you what the price will do in the short term as airlines start to develop their price ranges, given what they have to put in, but as you know—indeed, the committee has heard more about this than anybody else—there is a control mechanism that will help with that. In any case, decisions about pricing will be commercial decisions made by commercial airlines.

Douglas Lumsden: I guess that there will be a levy that will have to be paid, and airlines will have to use more SAF, which is more expensive than aviation fuel. Therefore, we should expect air travel to become more expensive, because of some of the subsidies and levies that will be coming through.

Jim Fairlie: SAF might be more expensive as the technology is developed but, as it is used more, the price should come down.

We cannot not do this; we need to do whatever we can to drive down emissions from aviation. If SAF is more expensive for a period of time, the airlines will work out what that means for their businesses and how they will manage it.

Douglas Lumsden: I think that we heard last week that SAF is three to five times more expensive than aviation fuel.

Jim Fairlie: I am sorry—I missed that. Can you say it again?

Douglas Lumsden: SAF is three to five times more expensive than aviation fuel—that is what we heard from witnesses last week. I guess that that will have to be passed on to passengers. Should we expect air travel to become more expensive as we move to SAF, given that we will be using more expensive fuel and given the levies that will come in on top of that?

Jim Fairlie: As I have said, it will be for airlines to work out how they will continue to provide air travel.

Douglas Lumsden: Thank you.

The Convener: Monica Lennon has some questions.

Monica Lennon: Good afternoon. We know that the Scottish Government will be publishing its climate change plan imminently—I think that the Government told us that in writing today. However, I want to take us back to the previous climate change plan update in 2020, which included a commitment to decarbonise scheduled flights within Scotland by 2040. Minister, are you able to confirm whether that is still Scottish Government policy?

Jim Fairlie: The climate change plan will be published very shortly. Terry Shevlin can come in on that question.

Terry Shevlin: That is still a commitment. It might be worth going back to the event earlier this year that the minister has alluded to. It was held in June, I think, and was jointly chaired by the minister and Ms Hyslop; the point of it was to bring together aviation representatives to talk about the possibility of electric, hydrogen-powered and hybrid aircraft. We have seen some positive news in that respect—we might come back to that—but it raises the question of how airports are preparing for it. Clearly, in order to have hydrogen and electric aircraft, you will have to have the infrastructure in place.

The event involved not only Highlands and Islands Airports Ltd, which the ministers own and largely fund, but other airports and major players.

The point was to understand the state of discussions, who would potentially pay for what, the current state of the market and so on.

I wanted to highlight all of that, because meeting the commitment that you have mentioned will largely rely on a number of things. Although those types of aircraft are in development, no such aircraft are certified for commercial passenger flight anywhere. That is a large obstacle that has to be overcome. Because ministers fund—and, in effect, own—HIAL, there might be funding implications, too. HIAL has 11 airports across the country, and we do not yet know exactly what infrastructure for hydrogen or electric will be needed at each of them.

The event was a starting point to bring everybody together, and there will be a follow-up. It was a core part of trying to hit the 2040 commitment and get some of the wheels in motion.

Jim Fairlie: We have already made investments. I have also attended a meeting of Sustainable Aviation in Scotland, which is made up of the operators.

I come back to Mr Lumsden's question about pricing. The industry is looking at this and asking "How are we going to make this work? How are we going to make this viable and make sure that we are driving down emissions?" A concerted effort is being made across Government and industry, as well as by passengers, to find out how we are going to do that. It is an exciting and positive thing that is happening.

I hope that we are reaching a position where Scotland has the ability to capitalise on all of this, because there are huge opportunities for Scotland to be right at the centre of it.

Monica Lennon: Thank you for clarifying the policy intention, but can you give us more detail on how it will be achieved? When it comes to decarbonising scheduled flights within Scotland by 2040, does the Government expect that to happen through the use of low-carbon technology or low-carbon fuel, or will offsetting be used to achieve that target? Perhaps you can help us understand what the Government means by decarbonising scheduled flights.

Jim Fairlie: On you go, Terry.

Terry Shevlin: Consideration of all those questions is at a fairly early stage, because we do not yet have the aircraft available that would be needed to deliver that commitment. The committee recently heard Loganair set out some of its ambitions, and I think that it has a target date of 2040, too.

ZeroAvia, which is one of the leaders in the development of zero-emission aircraft, was recently provided with a total of almost £30 million of funding by the Scottish National Investment Bank and Scottish Enterprise. In the short term, there will be some manufacturing near Glasgow airport.

In our aviation statement, which we published last year, we set out various commitments that ministers would undertake, in part to help meet the 2040 commitment. For example, ministers said in the aviation statement that they would be willing to consider buying low and zero-emission aircraft, when they become available, for the public service obligation flights that they help to operate.

There is a lot of stuff that needs to come together. To be honest, a lot of that will rely on the private sector and on certification, which would be done by the Civil Aviation Authority, which is the reserved body. However, the discussion that we had at the ministerial event was a very useful starting point.

The minister mentioned Sustainable Aviation in Scotland, which is a new group that has been set up. An awful lot of work is being done in relation to SAF and low and zero-emission aircraft. That group has been set up as a Scottish body to make sure that Scotland-specific issues are aired. The minister was at its launch, and we hope to continue to have engagement with that group to make sure that Scotland's voice is heard by the UK Government, because its jet zero strategy applies to Scotland, too.

Jim Fairlie: We are actively seeking to ensure that we have Scottish Government officials in the jet zero task force, so that we are completely up to date with everything that is going on at UK level.

Monica Lennon: That was all very helpful. I imagine that having certainty on policy will help with the private sector investment and buy-in that you mentioned.

The expert SAF working group has been mentioned a couple of times. Can you give us an update on the work of the working group, which I believe was convened by the Scottish Government? What advice has the group given the Government in relation to the forthcoming climate change plan?

Jim Fairlie: The SAF working group was put into abeyance as a result of project willow. We are now having a conversation about whether to stand it up again so that it can look specifically at SAF. We are still discussing that.

Monica Lennon: Was the working group a useful forum? Did it give good advice to the Government? I do not know how often it met.

Jim Fairlie: Terry was a member of the group.

Terry Shevlin: It was chaired by Transport Scotland. At that point—last year—the UK SAF mandate was being developed. As you know, different types of SAF can be produced, and—bearing in mind that the SAF mandate would include biomass, power to liquid, waste and so on—the idea was to bring together experts in Scotland to consider what could be done in a Scottish policy context in those areas.

It is fair to say that officials are fully cognisant of the fact that there is the SAF mandate, the Sustainable Aviation Fuel Bill, the advanced fuels fund and the UK SAF Clearing House. There is a lot going on at UK level. It is a case of trying to clearly identify where Scottish ministers can add value.

In brief, the work of the group covered some of the issues that we have talked about already. The group did not publish a report, for the reason that the minister gave; in effect, project willow superseded the group's work. The general sentiment was that although biofuels would be useful, there are competing demands for them. Chris Bryceland has already spoken about HEFA. Power to liquid was seen to be the option that would be most beneficial in the long term, but it was stressed that it could be a very high-cost option.

I think that ministers will want to wait for Scottish Enterprise's report so that they can understand what has been happening with project willow and consider whether the SAF working group needs to be stood up again to home in on where Government can add value.

Monica Lennon: The minister mentioned that the working group was in abeyance. Have the members of that group been stood down or are they on standby to come back?

Terry Shevlin: In effect, the working group has been stood down. Its last meeting was last year, and then things quickly moved on to project willow. That was a real-life situation, if you like, in which SAF was put forward as a potential option, whereas the SAF working group had been more involved in looking at the options for what was theoretically possible for Scotland, building on the earlier SAF mapping exercise.

The working group could be stood up again. There is a lot of good will, as the minister has said, because there is an almost universal desire for more SAF.

12:15

Monica Lennon: I have a last question on that point, just so that I am clear about this. The committee has a huge interest in the climate change plan, which we know will be coming out very soon. Did the expert SAF working group feed into that plan in any way, or had it already been put into abeyance before that work had developed?

Terry Shevlin: The plan is coming out soon and the work of the group, on which there were a number of experts, was definitely helpful. One of the things that the Transport Scotland aviation team was keen to do was to bring in relevant officials from across Government—experts on hydrogen, wind power and so on—because it is a real cross-cutting topic and we do not hold individual expertise on any of those matters. It is about making the potential of SAF clear to hydrogen colleagues, wind colleagues and so on. A lot of specialist groups and organisations took part in those meetings and the work was extremely useful.

The Convener: Thank you. I think that the last question falls to me—

Kevin Stewart: You missed me, convener.

The Convener: Did I? Oh, I did, Kevin. That was a huge mistake—I apologise profusely.

Kevin Stewart: Folk do not often miss me, convener.

The Convener: No, and I will not do it again.

Kevin Stewart: Good morning, minister. Earlier, you said that you hoped that Scotland will be in a position to capitalise on those issues. I would go much further than that and say that Scotland must capitalise on them, and to do so we could look at the commentary that some of the witnesses made last week. One witness suggested that there should be an audit of all our existing infrastructure to see how we could move quickly to develop sustainable aviation fuel, the best of which is the power-to-liquids scenario. The UK Government has failed to do an audit of infrastructure. Can the Scottish Government do such an audit to see where we can move forward on the matter much quicker and at less cost?

Jim Fairlie: Before we came here, we had a fairly extensive meeting to talk about a lot of those issues. One of the things that came out of that meeting was that we wanted to ask the committee what it thought. We do not have the exclusive rights to knowledge and information, and I am more than happy to hear ideas from the committee. If the committee thinks that that suggestion has great value, let us have a look at it. We could do an audit if it would be of value.

Kevin Stewart: I think that the committee would be very grateful and some of the possible future investors would be glad if we had an audit. The UK Government seems to be slow in that respect. Where we can use existing infrastructure to make the change, we should do so.

Jim Fairlie: We will look at that suggestion.

Kevin Stewart: You and your officials have already touched on the other opportunities to decarbonise air travel, including the use of liquid hydrogen and battery, and Mr Shevlin talked about some of the on-going work. Are we doing enough in our exploration of those possible technologies to ensure the future of our lifeline island links in particular?

Jim Fairlie: I do not know whether we are doing enough, but we are certainly doing plenty. Is the work going fast enough? I cannot give you a direct answer to that right now—Terry Shevlin might know more than I do. We are alive to the fact that we must ensure that island connectivity is at the forefront of our thinking. Loganair, which was at the round table that I hosted in the summer with Ms Hyslop, is clearly the biggest player in that area. The work with ZeroAvia, which Terry mentioned, is on-going. An awful lot of work is going on; whether it is going fast enough remains to be seen.

Kevin Stewart: I wonder whether Mr Shevlin wants to comment on that.

Terry Shevlin: You have probably heard this from witnesses already, but every expert I have heard has said that, when hydrogen, electric and hybrid aircraft are certified as being safe for scheduled passenger services, they are most likely to be used on routes in Scotland. That is why they are so exciting.

As I have said, there is an awful lot of discussion going on. At the ministerial event that the minister referred to, we spoke to airports, airlines and other groups in Scotland and asked where we can best add value. UK discussions et cetera are going on, too, but those people made it quite clear that, if possible, having a Scottish discussion to identify Scotland-specific issues would be useful. The next step, as the minister has said, is to try to convey that to the UK Government through the task force.

Kevin Stewart: I want to come back on a point that you made earlier, Mr Shevlin, and the question is for you or the minister. You talked about where Scottish ministers can add value. I recognise that aviation is a reserved issue, but quite frankly, I think that we should not just be adding value; we should be in the driving seat and forcing the UK Government into certain positions. It does not have to think to the same degree about short-haul flights to the islands, which would not be able to operate without those lifeline links. Can we as a committee be assured that, instead of just adding value, the Scottish Government and its officials will, on certain issues, be driving things much more swiftly?

Jim Fairlie: Let me answer so that Terry Shevlin does not have to. Terry speaks as a Government official, but when it comes to adding value as a Government minister, I can say that I will be pushing as hard as I possibly can to ensure that Scottish interests are very high on the agenda in anything that goes forward from here.

Kevin Stewart: Another thing that you have talked about, minister—and it is something that I have talked about myself—is where we fall in all of this. Is it SAF, is it liquid hydrogen or is it battery for certain short-haul flights? Obviously, it is not going to be liquid hydrogen or battery for long-haul flights. You gave the analogy of old video cassettes; I have used that in the past, too, but the reality is that, with video, we ended up with one of the worst technologies and market control over something that was not quite as good. Is there a danger here that we put all our eggs in one basket, which is never a good thing? How do you and the Scottish Government ensure that, on all these fronts, we are at the vanguard of developing these technologies?

Jim Fairlie: Going back to your point about island connectivity, I would point out that the almost £30 million investment from SNIB and Scottish Enterprise in ZeroAvia is not about SAF but about other technologies. We are already looking at what those technologies are and what they can do for Scotland.

I reiterate my ambition—which is your ambition, too—for Scotland to be at the forefront of all of this. We have to accept that this is a reserved area, but I will certainly be pushing as hard as I can to make sure that we get as much out of it as we possibly can.

Kevin Stewart: Thank you.

The Convener: I apologise again for forgetting you, Kevin. I will not make that mistake again.

Douglas, I think that you wanted to come back with a supplementary question before I ask my question.

Douglas Lumsden: Yes, thank you, convener. I want to ask about the SAF working group again. How many times did it meet, and when did it last meet?

Terry Shevlin: It met three times. I can dig out the last date for you after the meeting, but I think that it was around last May.

Douglas Lumsden: I am just struggling to understand why it was put on hold. When we know that SAF is so important and project willow has two SAF projects, why was it decided to park that group at that time? Given that it is all about looking at supply chains and everything else, we probably needed the group more than ever at that point.

Terry Shevlin: It is a question of resources. I am from Transport Scotland's aviation team, and the question about economic investment in SAF in Scotland is a much bigger one. Officials from across the Government were involved in the SAF working group. I have already said that Scottish Enterprise is doing further work on that.

You have the real-life example of project willow, which is on-going, with two possible SAF options. I have not been directly involved in project willow, but I know that a lot of resources have been put into that. I said that there was no final report from the SAF working group, but the conversations were certainly summarised for ministers, and the main points that came out were shared, as appropriate, with people who were working on project willow and with Scottish Enterprise, so there has been that connection. Now that people are learning from project willow and now that Scottish Enterprise is nearing the end of its work to look at the economic impact of SAF, it will be up to ministers to determine whether now is a good time to stand the working group back up and what, specifically, we should be focusing on.

Douglas Lumsden: Were most of the people who were on the SAF expert working group redeployed or working on project willow instead, or were those different people?

Terry Shevlin: The people on the SAF working group were a mixture of Government officials and external stakeholders, so they are not full-time SAF officials. They were people from hydrogen, for example, who would talk about the potential for hydrogen for SAF and so on. They were not dedicated SAF officials. Chris Bryceland might want to say more, but project willow is where the focus on SAF has been for Scotland, because it is a live viable option, if you like.

Douglas Lumsden: I am sorry because I do not want to labour the point too much, but are you talking about Scottish Government resources or are you talking about external people who were helping and who were involved in the expert group?

Terry Shevlin: When I am talking about resources, I am talking about Scottish Government officials. They were involved in the SAF working group. I have talked about the first part of the working group's remit, which looked at how Scottish Government policy on, for example, waste or power to liquids could be adjusted as a consequence of the fact that the UK SAF mandate will focus on certain feedstocks. Just to be clear, the second part of the group's remit was more about what potential support the Scottish Government could give for SAF, with "support" not being defined, so it could be financial or other support. Given that that was fairly close to what project willow was looking at, there did not seem to be much point continuing with the SAF working group—because there was a live real-life question to discuss.

However, now that there is more experience of project willow, Scottish Enterprise has been speaking to many prospective SAF producers, and there is a chance to learn from that. However, that will be advice that goes to ministers—it will not be led by our team. We are the aviation team and we do other stuff. It is a much bigger-picture cross-cutting question.

Douglas Lumsden: Minister, do you think that the SAF working group should be reconvened?

Jim Fairlie: The answer to that will depend very much on the report that comes back from Scottish Enterprise as things get wound up, but I am very keen to ensure that we keep the progress going.

The Convener: I am looking around the room to make sure that I have not missed anyone else. It appears that I have not, so I will come to you with my question, minister.

What I think that I have heard over the past few evidence sessions on this matter is that electricity-powered planes will offer some short-haul flights—they will be useful for that—but that there is still quite a lot of work to do before hydrogen is a viable fuel. People have talked about aeroplane fleet upgrades, but, as I think that we heard in the previous meeting, that will take a minimum of 10 years. Fuel-consumption figures are being driven by the way that aeroplanes are flown, and we are talking about the introduction of SAF, which will make a difference. However, on what SAF will do, I think that, by your own admission, the evidence that we have heard today is that it will increase the price of travel but that that will be a commercial decision. Surely you are not saying that, to achieve the emissions targets that the Scottish Government will be looking for from the aviation sector, the only thing that we can rely on is for people in Scotland to fly less. Is that your policy, minister?

Jim Fairlie: No.

12:30

The Convener: So you are happy for people to continue to fly as and when they want and to disregard the emissions from that?

Jim Fairlie: I am happy for people to be connected. I very much believe that we will find the technological answers. There was an example of that when I attended the—I have forgotten the name of it. I am trying to think of the name of the airline in Edinburgh airport that has introduced the new route to Dubai. Terry Shevlin, can you remind me?

Terry Shevlin: It is Emirates.

Jim Fairlie: It is Emirates—my apologies.

The Convener: I am sure that it will be delighted that you forgot its name—

Jim Fairlie: It will be delighted, given that I have been to see it twice. Emirates has designed a plane that has wings that come in at a certain level. It is a wee bit like a falcon when it is swooping—it pulls its wings in so that it has less drag. It sounds like a silly wee thing, but that is just drag that is using up more fuel. The technology, including the technologies involved in the fuels that we are using, will help us to drive down emissions, because everybody is making a concerted effort to do so. Do I want to cut connectivity? I would think that, if I were to ask my colleagues in the tourism sector whether they wanted to cut connectivity, the answer would be no. It is not about stopping people from flying; it is about ensuring that we use all the technologies and abilities that we have to allow us to continue to fly but to bring emissions down.

The Convener: Therefore, with regard to the emissions targets—the parts that relate to the transport section of the draft climate change plan, when it is finally laid in the Parliament; we are still waiting for it, but I heard today that it is imminent—we will rely on technology on emissions reduction to reduce aviation emissions, we will continue to be able to use aeroplanes, and the Government has no intention of reducing people's ability to be connected and to go on holiday by flying.

Jim Fairlie: I am not going to pre-empt anything that will be in the plan, but my understanding is that there is no desire for us to stop people flying.

The Convener: I am sure that that will make some people very happy, minister. Thank you. On that note, we have reached the end of the evidence session. I thank you and your officials for attending.

The committee will consider and agree a report to the Scottish Parliament on the two LCMs to the UK bill in the near future. If there is to be another supplementary LCM, we will also reflect on that.

Minister, I will just say that I stood up clearly and criticised the UK Government with regard to previous LCMs, but I also made the point that it is for the Scottish Government to let us have LCMs as soon as is reasonably possible—I think that those were my words. I just remind you that I said that and that, if something comes up that the committee should know about, the sooner we get it, the better.

Jim Fairlie: That would be selective quoting.

The Convener: No—I was honest, and attacked in both directions.

Thank you very much, minister. We now move into private session.

12:32

Meeting continued in private until 12:52.

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