Environmental Audit Committee

Oral evidence: UK progress on reducing F-gas emissions, HC 469

Tuesday 12 December 2017

Ordered by the House of Commons to be published on 12 December 2017.

Watch the meeting

Members present: Mary Creagh (Chair); Colin Clark; Zac Goldsmith; Caroline Lucas; Kerry McCarthy; Anna McMorrin; John Mc Nally; Dr Matthew Offord; Alex Sobel.

Questions 150 - 316

Witnesses

I: Dr Thérèse Coffey MP, Parliamentary Under Secretary of State, Department for Environment, Food and Rural Affairs, Liz Parkes, Deputy Director for Climate Change and Business Services, Environment Agency, Davinder Lail, Team Leader, Ozone Depleting Substances and Fluorinated Gases, Department for Environment, Food and Rural Affairs.

II: Jerome Baddley, Head of NHS Sustainable Development Unit, Richard Lomax, Sustainability Projects Analyst and Programme Manager, NHS Sustainable Development Unit, Neil Barnes, Global Franchise Medical Head, Respiratory Franchise, GlaxoSmithKline, Stuart Corr, Mexichem UK Ltd, Techno-Commercial Director, and Dr Noel Baxter, Clinical Director for Quality and Service Improvement, NHS Southwark Clinical Commissioning Group.

Written evidence from witnesses:

- Department for Environment, Food and Rural Affairs
- GlaxoSmithKline
- Mexichem UK Ltd

Examination of witnesses

Witnesses: Dr Thérèse Coffey MP and Liz Parkes.

Q150 **Chair:** Good morning, some of us have had already had a pretty brisk start out and about with the weather. This is our final session into our inquiry into fluorinated gases. For the purposes of *Hansard*, can I ask the panel to introduce themselves, please, starting with Liz Parkes?

Liz Parkes: I am Liz Parkes; I am Deputy Director of Climate Change and Business Services at the Environment Agency.

Dr Thérèse Coffey: I am Thérèse Coffey, Minister for the Environment.

Davinder Lail: I am Davinder Lail, Head of the Ozone and Fluorinated Gases Team at DEFRA.

Q151 **Chair:** It is great to have you all here with us this morning. We understand that the Minister has to leave for a Westminster Hall debate but we are very grateful that the officials will be able to stay and do any other questions that we may have. So thank you very much, Minister, and thank you for your offer to come back as well after the animal welfare debate, with one of the members of this Committee who has gone off to rewrite his speech.

Let me begin. We have heard evidence from the Committee on Climate Change that since 2007 there has been a broad upward trend in F-gas emissions and the Chair, when he came to this Committee, said that recent progress has flatlined and we are in danger of failing to meet the trajectory to hit the climate change targets to phase out these gases at the lowest possible cost to the economy. He said it was down to a lack of urgency from the Government. So, Minister, what do you say in reply to that?

Dr Thérèse Coffey: The Chair of Committee on Climate Change is my predecessor as an MP in this place and I know Lord Deben is very passionate about this element. He should be assured that actually the policies are working, the progress in phasing down of F-gas emissions. We recognise that it wasn't making the progress that we needed and wanted to do and that is why in 2014 we basically had new EU regulations, which set out a series of steps of a quota phase-down, which will take us to our required and desired target of reducing the use of these F-gases. The data were published just last week by the European Environment Agency and it shows that HFC supply has fallen by 18% since 2010. We are working in steady progress and I believe that one of my officials is happy to share a projected graph of where we are, which reflects the step down points to which we have agreed.

Q152 **Chair:** We have the European Environment Agency figures, which say that the F-gases are 3% of overall greenhouse gas emissions in the EU but 3.4% of greenhouse gas emissions in the UK, so it is quite a big percentage increase compared with our European colleagues.

We have been shown evidence that members of the public can purchase,

over the counter in Halfords, aerosol refrigerants containing HFCs with a greenhouse gas warming potential of 1,430. Why is that still allowed if we are serious about curbing these gases?

Dr Thérèse Coffey: In terms of the overall approach that the suppliers take, they have a quota; it is up to them to use it. They have a phase-down approach. Regulations are in effect that are supposed to be restricting most sales of F-gases to qualified and certified people. But I can assure you that the quota is the main approach and we are in the process—and have been steadily—of banning certain gases and specified applications, increasing training, there is a duty on operators to check for leaks. The trajectory is clear on where we are heading and we are seeing changes in that already within the last year.

Q153 **Chair:** You said you are restricting sales to qualified and certified persons.

Dr Thérèse Coffey: Most sales, yes.

Q154 **Chair:** Most sales but not all sales. I can go into Halfords and buy this stuff, I am neither qualified, certified nor in any way competent to deal with it and there is no need for me to show I am qualified. There is something in the regulations to say you must keep a register but then there is no requirement to show the register and show that the register has been kept.

Dr Thérèse Coffey: I am aware of the evidence given. There is no particular suggestion of the fact that there is a problem in this regard. I believe about 44 tip-offs have been given to the Environment Agency since 2010; all have been investigated. None of them showed either a breach or sufficient evidence of a breach. There is a risk of creating a whole lot of bureaucracy for something that is not necessarily needed. There might technically be a gap, but in effect there has not been an issue.

If you think about the way that somebody can buy a product off the shelf, what has happened is that a supplier has got that gas into a particular product to be used for a specific thing by a consumer in that case. I do not know the example of exactly which product it is you are referring to.

Q155 **Chair:** It is all to do with car air conditioning. What is clear from our evidence is that the refrigeration industry does have systems and processes and understands this problem very well. What is clear from the evidence is that the car air conditioning sector doesn't have a clue about this and does videos that give out the wrong information. With some of new lower global warming potential gases, which have a flammability issue, if we use some of those to top up an old car then there could be some dangers involved.

Dr Thérèse Coffey: That is right, but the market is innovating to get to some alternatives.

Q156 **Chair:** Those innovations cannot go into an old car. That is my point. If they do, it is dangerous. Those are the problems, particularly in the car

industry.

Dr Thérèse Coffey: You will be aware of the mobile air conditioning directive, so we are seeing changes and phases out. You are right, if people put the wrong thing into a system there will be a problem. People who go and get their air conditioning topped up—or refreshed, I think the phrase is—will, I am sure, have that dealt with properly. Yes, there will be issues I guess if people are doing the wrong thing with the wrong products.

Q157 **Chair:** The refrigeration industry last week was absolutely emphatic about the problems around this, and we do have evidence that we will be putting in our report around that.

Can I move on to the Environment Agency? What are you doing to raise awareness about the impact that products have on climate change, particularly with these garage car mechanics?

Liz Parkes: We have a dedicated team working on fluorinated gases and we do a number of things. We provide a help desk and we take lots of inquiries from retailers, from local authorities and other regulators. We also do targeted compliance campaigns, so we are trying to raise awareness with different sectors. Then we will also act on information that we receive and the Minister has referred to the fact that since 2015 we have received 44 tip-offs, which we have investigated. We have seven investigations in hand as a result. As you are all aware, we did bring a prosecution for an offence committed in 2013. Unfortunately it did take a little time to bring that prosecution and the fine that was levied by the court was £3,000. We are taking action with the powers that we have now and we take this very seriously.

Q158 **Chair:** The prosecution that you brought, is that where the company came to you and said that they had accidentally emitted the gas?

Liz Parkes: That was a self-declaration.

Q159 **Chair:** Okay. Have any of these tip-offs or compliance campaigns taken place in the car industry?

Liz Parkes: We work with a number of sectors and particularly what we do is integrate some of this work with other work that the Environment Agency does. We are doing work with the end-of-life vehicle sector. We do work with the food and drink sector. At different times we will target those sectors where we feel they need most help in coming to compliance. It is very important to note that the emphasis of our work is on bringing people into compliance. The enforcement panel is a helpful part of that but the object is to secure compliance because the aim is to stop breaches in the regulations.

Q160 **Chair:** Are any of your seven investigations in the automobile or car sector?

Liz Parkes: I do not have that detail but I believe they are to do with self-reported disclosures to us of failure to properly recover the F-gases.

Q161 **Chair:** Could you write to us on the tip-offs, the compliance campaigns, and the investigations and which sectors they cover? That would be helpful.

I will come back to you, Minister. Don't you think that these products should be restricted to qualified operators? Don't you think it is a poor show that any one of us can go into Halfords, as totally incompetent people—incompetent in F-gases, but competent in many other ways—and just get a canister of this gas and buy it over the counter?

Dr Thérèse Coffey: It is the first time I have heard this issue raised, that it is a problem. I am not aware of any plans so far—Davinder might correct me—to consider retail restrictions because we believe that the products have been put into a format that is safe and appropriate to use. Otherwise we would not be allowing that product to be there.

If it is a case you would like us to consider—how better for people to handle these particular products—we would be open to considering that.

Davinder Lail: Yes, it is something that we are aware of. It is in the EU regulation that these products can continue to be sold. It was raised with us and we looked at it from a legal perspective on whether we could restrict the sales and our legal advice was no: under the EU regulation, sales for just topping up air conditioning were still allowed. What the EU regulation restricts is sales for recovery. Taking the gas out of a car is restricted and can only be done by a certified person, but as long as canisters comply with the MAC Directive rules, which are about being in a recyclable container, then they can still be sold to the public. We could not enforce that because it was not part of the EU regulation.

Dr Thérèse Coffey: It could be something we could consider once we have left the European Union and then we can make some of those choices ourselves.

Chair: Thank you very much, that has been very helpful.

Q162 **Caroline Lucas:** On that very subject of leaving the EU, the evidence submitted to the inquiry so far indicates there are two options facing the UK in terms of F-gas regulation. One is to remain within the EUs HFC phase-down and reporting regime, and the other is for the UK to set up its own system. Minister, can you tell us whether you are seeking to remain within the entire system, including reporting, registration and the existing quota?

Dr Thérèse Coffey: We are still considering the options of what to do in terms of the ongoing negotiations. We might stay in a single EU quota system either for a transitional period, an implementation period, until the end of the phase-down in 2030 or we might be splitting our existing quota and systems into separate UK and EU 27 ones. That has not yet been finalised. It is one of our ongoing discussions with the Commission and the EU.

Early next year, in order to progress some of the thinking on this, both we and the European Commission are writing to businesses early to

gather the data on how much HFC has been placed by the quota holders within the UK and within the EU 27 markets. That could form the baseline of the split of quotas for the future. In other terms of preparation, the Environment Agency is developing the IT systems needed to run a UK-only quota system and it will be given powers courtesy of the European withdrawal Bill in order to be, in effect, the responsible body in doing that.

I know that they have recruited staff and we will need to add future resource needs into future budgets but in essence there is a process that could be ready for day one. You are confident of that happening, Liz. Then there is potentially something a bit whizzier that could be done in the future. At the moment we are preparing for something that works.

Q163 **Caroline Lucas:** I like whizzier; it is a good technical term.

You mention costs and also the extra resources that the Environment Agency would need, but could you tell us in any more detail what assessment you have made on the costs to both the taxpayer and to industry of establishing a UK only regime? We had evidence from some of the industry bodies who were concerned about the extra costs for them of having to report to both different regimes.

Dr Thérèse Coffey: I am not aware that we have done that. I don't know if Davinder has done any sector analysis in that regard.

Davinder Lail: We have looked at potential direct costs. We canvassed the industry basically and the responses were that they would be relatively small, for the quota holders to work with two systems, particularly if the data that we required was similar to the data that they currently provide.

Q164 **Caroline Lucas:** Would it be true to say that the industry was pretty much against having to report to two different regimes? That is what we have heard.

Davinder Lail: Their preference certainly is to stay in a single EU system. That is what they have told us, yes.

Q165 **Caroline Lucas:** Do you have a sense of when you will have made the decision on that?

Dr Thérèse Coffey: It is going to be part of phase 2 of the discussions with the EU.

Caroline Lucas: I have hit a nerve.

Dr Thérèse Coffey: Some time next year, I thought the Prime Minister indicated.

Q166 **Caroline Lucas:** We had some very good evidence from Lord Deben and he has warned there will be pressures to lower environment standards, including those for F-gases while the UK negotiates trade deals. Minister, what assurance could you give us that that would not happen?

Dr Thérèse Coffey: We have no intention of lowering any EU emission standards, it is non-negotiable. We were the first EU nation to sign up to the Kigali amendment, managed to get that through. We also in that same week encouraged other EU nations to send their ratification papers so we managed to get it over the line. It will come into effect in 2019. We will be carrying on as a signatory of the Montreal Protocol and the Kigali Amendment and the direction of travel is very clear.

Q167 **Caroline Lucas:** Thank you for that. In terms of international trade in fridges and freezers containing high GWP HFCs, how can you be really vigilant against the UK getting involved in that?

Dr Thérèse Coffey: The way new equipment is coming in—this Kigali amendment will kick in around the world, so there is a general step down approach and we will enforce the rules that we have.

Q168 **Caroline Lucas:** Will there be more resources needed to do that, to be more vigilant?

Dr Thérèse Coffey: Do you think that more resource than we have today is particularly needed?

Liz Parkes: It is important that we focus on the quota and make sure the quota system works because this is about restricting what is placed in the market. It is also important that we continue to take timely enforcement action to bring people into compliance. That will change over time according to the price and value of the F-gases and we are always vigilant when it comes to enforcement, looking at what is happening with the market so that we can understand if there is likely to be more illegal activity going on.

Dr Thérèse Coffey: We have some new regulations coming next year, haven't we, about data sharing between HMRC and other Government bodies, including the Environment Agency as an arm's length body, to be able to do some of that data analysis or checking on imports.

Q169 **Caroline Lucas:** On the role of the Environment Agency overseeing the UK-based system, we have had quite a few witnesses who have raised concerns about whether the EA is sufficiently resourced to be able to do that. I hear what the Minister has said—I think you said more staff and more funding?

Dr Thérèse Coffey: I know some staff have been recruited.

Q170 **Caroline Lucas:** Sorry, being recruited?

Liz Parkes: Have been.

Q171 **Caroline Lucas:** Can you give us any sense of—

Liz Parkes: Yes. I am feeling confident that the resources that we have asked for from DEFRA have been forthcoming. That is both in terms of people and also the money we would need to develop the IT system should we need to set up a separate UK system. Obviously it is really important we do that in a way that minimises the impact on business. In

the great scheme of things, this is not the most complex of regimes. There are others that are more complex. We have brought some of our most experienced regulators into this area who can apply thinking from administering some of those other more complex regimes.

While we have to work very much on the basis of contingencies, I am confident that we can be ready with a system. Ideally that would mirror the current arrangements, which would be less disruptive for business, but we are prepared for contingencies because what is important is that we have something in place that works. If we were just to put in place a very basic system. That would not cost as much as a whizzy IT system.

Q172 **Caroline Lucas:** Do you have figures for the assessment of the additional costs that you think the agency will incur through doing that?

Liz Parkes: We have the ability to spend up to an additional £250,000 if we should need to on the IT system. That is what we have agreed with DEFRA. I am hopeful that we can keep the costs very much below that.

Dr Thérèse Coffey: Another thing we want to try is to have one system for the UK if we can, so we are sharing our thoughts with the devolved Administrations. It would be good for businesses across this country to have one system.

Liz Parkes: It is worth my adding that the Environment Agency is already the administrator for other systems that operate UK wide, such as the EU Emissions Trading Scheme. We are very used to working as the administrator for the UK when our counterpart regulators in those countries are the enforcement body. We are very used to those arrangements and we have very good relationships.

Q173 **Caroline Lucas:** Can you say a bit more about the staff resource? You are talking about having seconded a couple of people from another part of Government, or is it like a team of people? I do not get a sense of the scale of what you required to be able to—

Liz Parkes: What we have put in place is a couple of people to focus specifically on designing the future of this regime but obviously—

Q174 **Caroline Lucas:** Have they come from elsewhere in Government?

Liz Parkes: In the Environment Agency. In my experience the people that have to implement this and make it work are often the best placed to help design the future. Then what they are able to do is pull on, for instance, some extremely experienced lawyers in the Environment Agency that can look across all the regimes and help identify the best possible way of doing it, and draw on the experience of colleagues across various teams so we can make sure this is the best possible regime.

Q175 **Caroline Lucas:** What I am concerned about is that we have had several years where staff have been cut from the Environment Agency and I want to be sure that you really are reassuring us that you have no doubt that you have the resource that you need to do this.

Liz Parkes: I am feeling confident that we are applying appropriate resources to this regime.

Q176 **Caroline Lucas:** I have one last question about the oversight that is currently provided by the EU institutions in terms of monitoring, implementing and so forth. How will the Environment Agency be able to replicate those enforcement and oversight capacities that currently are being done by the Commission and the ECJ?

Liz Parkes: Obviously, we would be the enforcement body in England—other regulators would be the enforcement body for those countries—but overall, in terms of the oversight, that would be a matter for the European Court of Justice.

Dr Thérèse Coffey: Were you aware of the proposals by the Secretary of State that we will consult on early next year about environmental principles, about the scrutiny body?

Q177 **Caroline Lucas:** Yes. Could you clarify one thing? I don't know whether you have put this in the public domain—forgive me—but in terms of a new environmental body, would the Environment Agency and Natural England be folded into any new environment body?

Dr Thérèse Coffey: That is not in our proposal, no.

Q178 **Chair:** I would like to come back to the Minister, although you may not be able to answer. Does the principle of full regulatory alignment with the Republic of Ireland and Northern Ireland mean that fridges, Halfords' gases, and so on will be able to flow freely across the Irish border, even in the event of no deal? That is the inference of what the Prime Minister's deal is, is it not?

Dr Thérèse Coffey: That is an interesting suggestion of the outcome of that. The Prime Minister has been clear that this is about regulatory outcomes and how we achieve the outcomes but the good news is that we are all signed up to the same proposals of how we get a phase-down. We are not planning to change our approach in that. There is an opportunity for a review point in 2022, at the same time as the rest of the EU, to see if we are still on track and take corrective action if required.

I am not saying to you here today that all of a sudden something might change. I do not know the answer to that, but I do know that the Prime Minister has been clear, that outcomes are where we are getting alignment.

Q179 **Chair:** Her deal is a legally enforceable deal—that is what we have been told over the weekend—to allow that cross-border trade to take place. The sectors that she said on the Floor of the House yesterday were specifically waste, water, and transport. They are mostly the environmental sectors, aren't they?

Dr Thérèse Coffey: She also talked about the outcomes as being the alignment. That is what she said or is what she has said is the approach.

Q180 **Chair:** The outcome would be we would still—

Dr Thérèse Coffey: The outcome would be to phase down F-gases.

Chair: Okay, thank you.

Q181 **Kerry McCarthy:** As one might expect, when we took evidence from trade bodies their view was that the current regime is extremely challenging, tough enough, and they do not want it to go any further. When we took evidence from environmentalists, including Lord Deben and also the Environmental Investigation Agency, they thought that we should be far more ambitious when we are freed up to do that. What is your view?

Dr Thérèse Coffey: I think we have the balance right. We are ambitious. These proposals are ambitious and the Kigali amendment takes it further, so it is the right direction.

In terms of accelerating, a lot of some of the little changes would be very minimal if you were trying to accelerate a particular step down by a few extra points. I think we have the right approach. I would say we will review it in 2022.

Q182 **Kerry McCarthy:** You do not agree with Lord Deben, not to adopt a much tougher regime that would set an example for others to follow? He said that would risk complacency.

Dr Thérèse Coffey: We have adopted a tough regime.

Q183 **Kerry McCarthy:** He thinks it should go further.

Dr Thérèse Coffey: We have adopted a tough regime. We have the balance right. Businesses have invested on the basis of a current phase-down. There are smaller businesses that will have less resource to comply, but innovation is changing—we are seeing the cost of certain products, especially in refrigeration units, fall—and we would like our retail suppliers and others to continue their phase-out of those particularly bad uses of GWPs and to use the ones that are better today.

I think that our pace of ambition is appropriate. It is faster than the current Kigali phases for the first element, but we have now agreed to these further targets, which will make progress. If we think about how, in the overall approach, even just these changes to the Kigali amendment will contribute, they expect—about a half a degree Celsius in terms of the warming challenge, which we need to phase to fulfil the Paris Agreement—I think that is a pretty good show if the world adopts this and we pay money into the Montreal Protocol fund to help smaller states as well. I think our ambition and pace is good.

Q184 **Chair:** I think I misheard what you said. You said this is going to reduce global warming by half a degree?

Dr Thérèse Coffey: Sorry, I apologise, to restrict. Of the 2 degrees restriction that was discussed at Paris, the Kigali amendment is expected to be half a degree.

Chair: That is very helpful, thank you.

Q185 **Kerry McCarthy:** Just acting on this would be enough to slow warming by half a degree? That is quite significant.

Dr Thérèse Coffey: That is why it is great news.

Kerry McCarthy: If it was adopted globally.

Dr Thérèse Coffey: It does come into effect globally and I think it is important to state very clearly that we contribute something like £9 million a year, just about, to multilateral funds through the Montreal Protocol so that we help some of the developing countries around the world to achieve this. We are doing it at home with our own regulation but also helping to pay other countries around the world to achieve this as well.

Kerry McCarthy: It requires them to act upon it, enforce it, and so on.

Dr Thérèse Coffey: Yes.

Q186 **Kerry McCarthy:** The Environmental Investigation Agency suggested imposing a tax on the high GWP HFCs. Is that something that you would support?

Dr Thérèse Coffey: The slight risk of that is that it would certainly accelerate prices here, or push up prices, and it is not necessarily—

Q187 **Kerry McCarthy:** Would it not encourage people to go for the more environmentally friendly products with the lower GWP?

Dr Thérèse Coffey: That is starting to happen anyway, but at the moment the way the quota works, the UK quota holders could just sell it to other parts of the EU market so it might have an impact here but it would not necessarily generate overall environmental benefits.

Q188 **Kerry McCarthy:** Have you done an analysis of how you think that would play out?

Dr Thérèse Coffey: That is the headline that I have been given, that the team have looked at this and they believe the way the industry would work is that they would then sell their quota elsewhere to maximise—

Q189 **Kerry McCarthy:** You might need an impact assessment, dare I say.

Dr Thérèse Coffey: We are not proposing regulation in this field.

Q190 **Kerry McCarthy:** Before you do the review, that might be something to carry out. In terms of Government procurement, what are you doing to ensure that that promotes the uptake of the lowest GWP alternatives?

Dr Thérèse Coffey: Our buying standards ban the purchase of refrigeration and air conditioning units that have HFCs in them, and indeed any furniture with foam manufactured with HFCs. There are also other things that we have been doing in our procurement but also in our encouragement of significant infrastructure. At the 2012 Olympics, HFCs were banned unless there was no alternative and terminal 5 at Heathrow

has done the cooling based on an ammonia-based system. I am still always a bit nervous about ammonia as well because we know that is another pollutant but nevertheless. We are taking the lead ourselves and we will continue to encourage significant projects to drop the use of these where possible.

Q191 **Kerry McCarthy:** They are quite firmly identified as part of the Government's green commitments.

Dr Thérèse Coffey: They are in the buying standards, yes.

Kerry McCarthy: In the buying standards. Okay, I think that meets the rests of the questions, thank you.

Q192 **John Mc Nally:** If I can take you on to devolved matters, Minister, as you know, EU gas regulations are applied equally across the UK, although the enforcement matters are devolved. Your submission to this inquiry states that you are working with the devolved Administrations to ensure that EU gas regulation are operable following UK's exit from the EU. Last week the Committee heard from industry stakeholders that there could be serious problems with policy divergence on such regulations and to quote them they said, "It could be a nightmare, it could be a huge challenge". What assurances could you give the Committee here to allay these concerns?

Dr Thérèse Coffey: Officials from the Department are in contact with our opposite numbers in the devolved Administrations. I will not pretend that at the moment all the devolved Administrations have signed up to agree to one system but I think it is likely because it is in the general interest of whether you create separate regulations. The impact on businesses would be quite challenging. There have not been any issues raised to say we are heading off in a different direction. The overall progress that we are making and will make we need to achieve at a UK level anyway in terms of our international commitments. Of course I do not want to put words in the mouths of Ministers of other Governments, but so far there has been no indication that they want to diverge.

Q193 **John Mc Nally:** You mentioned the industry a bit there. What steps could UK industries be taking to prepare for the uncertainties that lie ahead of them? Are you telling us that the devolved Administrations are nearly at that stage now of reaching an agreement?

Dr Thérèse Coffey: It is fair to say that on a wider scale there are a number of frameworks on some of these matters that need to be agreed across our four nations. Not all of those have been tied down. I would encourage industry to speak to the Governments of Scotland, Wales and Northern Ireland to encourage to them to say one system would be good.

Q194 **John Mc Nally:** Would matters not be simplified if powers to negotiate and conclude international agreements that relate to the exercise of devolved competencies were just simply devolved to the devolved Administrations?

Dr Thérèse Coffey: I do not think that is possible. It is not possible in international law for a start. We are the Government of the United Kingdom and the Parliament here has devolved certain matters to other Parliaments and other Governments but in terms of international agreements, it will always be the UK Government that does that.

Q195 **Anna McMorrin:** To comment on that, could I ask Liz Parkes what conversations you have had with NRW—Natural Resources Wales—on looking at the regulations?

Liz Parkes: I have not personally had a conversation with Natural Resources Wales on these regulations but my team do work very closely with the regulators across the UK and are talking about how this can be made to work practically. On a number of regimes, we are the UK administrator. We work very closely around each individual body being able to take their own enforcement action and we produce guidance that works together for the whole of the UK.

Q196 **Anna McMorrin:** You say you are the UK administrator but in fact this is devolved, so you are actually acting for England.

Liz Parkes: We are the enforcement—

Dr Thérèse Coffey: There is a difference between enforcement and administration.

Liz Parkes: Yes. We are not the UK administrator currently but DEFRA has indicated that it is something we should look at as part of the preparation of looking all the options that might pertain.

Q197 **Anna McMorrin:** NRW would be enforcing this, though?

Liz Parkes: Yes.

Q198 **Anna McMorrin:** You would not be the enforcement agency?

Liz Parkes: No. We would never take enforcement action in Wales, Scotland or Northern Ireland but if that is Government's wish, we would administer the system centrally, which would be first the most cost effective approach and, secondly, make it simpler for business to know there is one scheme and that it is as closely aligned to the EU scheme as possible. Then each individual enforcement body would take its own action and that is exactly how it works for a number of regimes across the UK.

Q199 **Anna McMorrin:** Minister, you just said in your answer to John that you wanted industry to lobby the devolved Administrations in order to ensure one regulatory regime. Do you think that is just passing the buck?

Dr Thérèse Coffey: No, we have had those discussions. I was asked the question about industry being worried and I am saying that if industry is worried about having four separate systems, they should also pursue the Government of each nation. It is a fairly standard thing. I do not see why it is passing the buck. We are already having those discussions and, as I

have indicated, there has been no indications from the other nations that they would want to diverge.

Q200 **Dr Matthew Offord:** The UK Environmental Law Association has said that there is a lack of agreement with multilateral environmental agreements, particularly the Montreal and Kyoto Protocols. Do you agree with their assessment of that?

Dr Thérèse Coffey: No, I do not. I have said before to another Select Committees, when we leave we will take up the obligations that are currently a competence of the EU, or a shared competence, and we will carry on with that.

Very specifically, the obligations fall on each party individually. In UN terms, the EU is a regional economic integration organisation and once we leave the EU, we will notify the UN secretariat that we will meet all the obligations in our own right rather than collectively and that is the process that we intend to follow.

Q201 **Dr Matthew Offord:** That is reassuring to hear. I am aware there are 756 treaties. Will you establish those into UK law because you cannot just transpose them?

Dr Thérèse Coffey: Normally it is a case of notification to the secretariat where we have had a situation that the EU has had the lead competence; I think is the best way of putting it. It is not a case of needing to change loads of law; it is quite literally a fairly bureaucratic exercise, but at least now, apparently, they take e-signatures on PDFs, so that will make life a lot easier.

Q202 **Dr Matthew Offord:** Professor Richard Macrory gave evidence in the House of Lords Committee. He says that we need a detailed analysis, a legal analysis, of what the position is with the treaties. Has the Department undertaken that? You have given your view but—

Dr Thérèse Coffey: The Department for Transport has said there is no gap in the transposition. The obligations in the article of the directive were put into domestic regulations in 2007.

I am afraid I think I need to go to my debate. What time is it?

Dr Matthew Offord: Three minutes, Minister.

Dr Thérèse Coffey: Okay, two more minutes. I am not as quick a sprinter as you, Dr Offord.

We asked the Department for Transport very deliberately because we had heard the question being raised. Apparently the obligations were carried forward when the separate car and van approvals were appealed in 2009 and were replaced by a new set of approvals so we do believe that those are in place. Indeed HFCs with a GWP of more than 150 have been banned in new designs of cars and vans for the last four years, since 2013.

Q203 **Dr Matthew Offord:** To remove some of the uncertainty, it has also

been said that the EU and the UK could issue a joint statement. Is that something the Department has considered?

Dr Thérèse Coffey: I am not sure what effect that would really have.

Dr Matthew Offord: Just to provide some certainty.

Dr Thérèse Coffey: I have a UK Government Minister say it is there.

Dr Matthew Offord: It was really just to provide certainty. I can leave it at that.

Q204 **Chair:** It is basically to say how mixed agreements will work in the future—all mixed agreements, not just this one—so that there is a process that says all of this stuff will get brought across in this way and there is a legal certainty of which—

Dr Thérèse Coffey: So, the transposition of the MAC directive; I have tried to say as straightforwardly as I can that all these multilateral environmental agreements, we are going through them, there are a handful of some of them that we are considering whether we have any interest in them at all because the EU signed up to some agreements that are not directly—we have not had that final discussion yet but the vast majority we are ready to do the appropriate notifications at the right time in order to say that we will be making those adjustments. I know there have been things happening on timber as well.

Chair: Minister, you must go. Thank you very much.

Dr Thérèse Coffey: Thank you. I will leave my papers so I will come back for them.

Chair: Do come back, please do. We are going to move on now with a question from Colin, please.

Q205 **Colin Clark:** The Committee on Climate Change has been very clear that the UK needs to make progress in finding lower GWP alternatives to F-gases. So what actions are you taking to ensure that lower GWP HFCs become the refrigerant of choice in heat pumps? Would it not be ironic that a means of heating could become a cause of HFCs?

Davinder Lail: It will be the same incentive for heat pumps that is driving the switch to alternatives in other sectors as well. So the switch that we are seeing in the supermarkets and other sectors. It is principally that the price will be going up as the quota comes down. As supply dwindles then prices going up and the anticipation of that is what has been driving sectors to change. There are no specific additional levers on heat pumps but that is part of the refrigerant change process generally.

Q206 **Colin Clark:** On that point, what funding and support is the UK Government giving to the research, development and deployment of lower GWP alternatives?

Davinder Lail: There is no specific fund for this sector from a research perspective. Again, the policy principle is that we put the regulation in place, we put the quota phase-down in place, and it drives the industry to

innovate. We are seeing evidence that that is happening in the sectors, that they are switching, that chemical producers are looking into new, lower GWP alternatives for certain things and so on. So the indication we are getting is that there is no need for the added incentive but it is starting to happen as anticipated.

Q207 **Colin Clark:** Specifically there are a number of exemptions to the EU's HFC phase-down and one relates to military applications. What are these applications? Are the Government looking for lower GWP alternatives?

Davinder Lail: That was a general exemption in the EU regulations for military purposes. It applies to any use that the military might want to use. My understanding is that MoD, although they know they can make use of that exemption, try to comply as if they did not have an exemption wherever that is feasible. They have a sustainable development team that tries to comply with the civil law, the civil requirements. There may be some cases where they decide that is not feasible. Aircraft fire extinguishers is one area that is particular difficult and that may be the same for military vehicles.

Q208 **Colin Clark:** Moving on to another area, there appears to be support for the wider use of dried powder inhalers as a low-GWP alternative to multi-dose inhalers. Do you support this move and what policy levers can you use to promote their wider use?

Davinder Lail: Again, this is an area where industry is moving. There are drug companies that are producing, in the dry powder equivalent now, drugs that were not previously available in that form. We know that Mexichem, from the evidence it has provided, is looking into developing a low-GWP inhaler, a new kind of propellant to replace in the MDIs. So, again, it is something where things are moving. At the moment the cost of the DPIs per dose, I understand, is still about 40% higher than the MDIs, so there would be a cost implication for the NHS if that was promoted more.

Q209 **Colin Clark:** On that same point, we have obviously heard evidence that NHS doctors are prescribing new types of MDI, which have double the GWP of an existing MDI. Does that suggest there is some sort of regression?

Davinder Lail: I am not aware of that. That is interesting and I would like to know more.

Colin Clark: You could follow up on the evidence we have heard perhaps.

Q210 **Chair:** I want to follow up on the GWP refrigerants in the heat pumps. I want to press you on this. It is part of the new renewal heating incentive. We are subsiding this, as taxpayers and we are allowing HFC401A, which has very high global warming potential refrigerant; there is no ban, no markers in this regulation, that stops this. People buy into heat pumps because they think they are doing their bit for the climate and then they are being sold something that has a massive greenhouse gas—it is bizarre and wrong, isn't it?

Davinder Lail: Yes, it is a ban that is not included in the EU regulation.

Q211 **Chair:** Can we not do our own ban? Can we not do more than the EU? They are de minimis; can we not do more? Why are we not doing more?

Davinder Lail: I guess it is something to look at post-exit

Q212 **Chair:** But pre-exit, do they not provide a de minimis, not a de maximis? They set a baseline. What is stopping us going higher?

Davinder Lail: I do not know whether we could do something more on the regulation, I would have to look into that.

Q213 **Chair:** My point is, we are subsidising allegedly low-carbon alternative energy sources with a very high global warming element to them and that is bizarre, wrong and bad public policy, is it not?

Davinder Lail: My assumption is that it was not banned like other products with high GWP refrigerants because of concerns about stifling the developing heat pump market. That would be my assumption of why it was not included in the EU regulation. I think if we were to look at taking it further that would be a key issue to examine, whether this might stifle the market and lead to bigger losses environmentally if you reduce the speed at which heat pumps are taken up.

Chair: Thank you, we will move on.

Q214 **Anna McMorrin:** You recently closed consultation on the introduction of civil penalties for F-gas offences and a number of the witnesses here giving evidence questioned why you proposed to largely remove criminal offences in favour of civil penalties. Why did you decide to do this?

Davinder Lail: It was a case of which was likely to be more effective at deterrence, and also looking at what approach had been taken in similar systems. Civil penalties already exist for the Emissions Trading Scheme, the CRC and a few other schemes, and in those cases they had replaced criminal sanctions rather than being a duplicate penalty system sitting side by side. Our view was that because civil penalties can be issued more easily, they would have a lower burden of proof—the balance of probabilities rather than beyond reasonable doubt—and likely as well to have a higher fine than courts generally would impose. We felt that they would provide more of a deterrent than criminal sanctions and therefore there is no need to have criminal sanctions that would be largely redundant. They would not be adding any value.

Q215 **Anna McMorrin:** Why did you not use part 3 of the RESA Act for framing civil penalties? Last week Professor Macrory said this would have helped provide consistency and certainty for these offences.

Davinder Lail: My understanding is that the Act has the higher burden of proof—it has the beyond-reasonable-doubt burden of proof—and the whole point of civil penalties really was to provide a lever that was more easily enforceable and more easily useable. If we used the same standard of proof, it would not be any different to the current level of deterrents under criminal sanctions.

Q216 **Anna McMorrin:** Why did you not include an outline of how the regime would be enforced or explicit mention of the standard of proof to be applied when civil sanctions are imposed?

Davinder Lail: I may be wrong but I think that is in the draft statutory instrument that was published alongside the consultation. It may not have been in the consultation paper itself but it should be part of the draft statutory instrument. If it is not, we will check that.

Liz Parkes: If I may add, in parallel with Government consulting on the new regulations that would introduce civil penalties, the Environment Agency is also consulting on its own enforcement and sanctions policy. This covers all the regimes that we are responsible for and there is a specific annex in there that refers to the climate change regimes. The F-gas provisions are within there. In anticipation that Government may bring forward these regulations, we are consulting on how we would apply these so it is very clear to business as to what test we would apply.

Our intention is that we would bring that into effect at the same time as amending regulations giving us the power to use civil sanctions. We thought it was really important to put that out there so that business would be very clear on how these would work in practice.

Anna McMorrin: Thank you.

Q217 **Alex Sobel:** The European Commission and the European Environment Agency show that the EU's HFC phase-down overachieved by 8% in 2015 and 4% in 2016, which obviously is great news. However, even larger step-downs in the HFC quota are due in 2018—so just next year—and 2021. We know that prices for high global warming potential HFCs have already risen and the industry is concerned about shortages and that small businesses might not know what is coming. Are you aware of shortages of certain high global warming potential HFCs already?

Davinder Lail: Supply is going down, yes, that is right so you could describe that as a shortage, but that was the intention of the regulation, that is how it works. It is a mandatory quota reduction. The important thing was that business had enough notice this was happening and enough time to prepare. The Environment Agency has run campaigns over the past few years to inform businesses, to get that message out.

Q218 **Alex Sobel:** What was specifically done to inform businesses to make sure they are ready?

Davinder Lail: We worked with the trading associations themselves. We have also published guidance on the gov.uk website and have commissioned more detailed guidance from consultants, which is available. The Environment Agency also runs information-type campaigns with different sectors at different times, depending on what is coming up in the next few years for that particular sector.

Q219 **Alex Sobel:** Have you particularly targeted SMEs, because obviously it is more difficult for smaller businesses to make the transition?

Davinder Lail: It is harder and we have talked with the trade press and the other routes that they receive their information from. It is always more difficult when there is less participation in industry bodies for some sectors, but, yes, we are trying to communicate to all the sectors involved.

Q220 **Alex Sobel:** Because of the reduced availability and higher prices, are you concerned this might lead to non-compliance and are you monitoring non-compliance as we have the step-down?

Davinder Lail: Yes. There is always the risk potentially of illegal trade. That is probably the biggest area of non-compliance that this might have an impact on. We are working with HMRC on monitoring imports and HRMC will be getting new powers to share data with the Environment Agency on imports that will help track it in real time, which is something that cannot be done at the moment under the EU regulation.

Q221 **Alex Sobel:** When do you think that will be in place?

Davinder Lail: That will be part of the statutory instrument introducing civil penalties, so early next year hopefully.

Q222 **Anna McMorrin:** This Committee has taken evidence that suggests that there are issues with enforcement of F-gas Regulations and there has only been one conviction of an F-gas offence through the Environment Agency. A number of our witnesses here have said that the Environment Agency is not resourced to deal with compliance and enforcement issues. Can I ask you how many officers are involved in ensuring compliance work within the Environment Agency in England and what budget is assigned to this work?

Liz Parkes: As I explained earlier, we have a small team focused on this but they are able to pull on a much larger group of expertise and experience within our organisation. For instance, we have very good relationships with HRMC, which has been referred to for other regimes like shipments, so we pull on that expertise.

In terms of enforcement activity, as I explained earlier, it does take a long time to bring a criminal prosecution and that is why we have been working very hard with DEFRA to look at introducing civil penalties. I personally think that will make a huge difference. If I can perhaps give you examples of how we have used those in other regimes, some of the issues or concerns raised by Richard Macrory were about whether we had used these sanctions. I can say that the regimes that I am responsible for within the Environment Agency, so things like the EU Emissions Trading Scheme, the CRC Energy Efficiency Scheme, since 2015 we have served 180 civil sanctions. We do not do that lightly. We apply very strict criteria and hence the importance of us publishing our sanctions policy for consultation, so people can see what those requirements are. Those sanctions that we have served will range from—the average is about 25,000, but we have served ones that are hundreds of thousands.

So you can see that by comparison with a criminal sanction of £3,000 that has taken a number of years to bring, we do consider that civil sanctions will have a much greater deterrent effect, both in taking them and the publicity that results from taking those sanctions. That is one of the things we are very pleased that DEFRA are consulting on bringing forward, those regulations.

Another aspect contained within those is the ability for us to recover some of our costs. That is very important. With just about all of our regulatory regimes we have the ability to charge in accordance with the polluter-pays principle. We do not have a mechanism for this regime but introducing the ability for us to recover the costs of bringing both the investigation and bringing the compliance activity and enforcement activity I think will be a very useful power. I am hoping that is going to go some way towards addressing some of the industry concerns about resourcing for the future. That is the power we used very successfully under other regimes.

Q223 **Anna McMorrin:** In looking at ensuring compliance one witness provided evidence of non-compliance taking place on social media websites, such as eBay. What do you do to monitor such activities?

Liz Parkes: We do monitor Amazon and eBay and we will contact people if we see products being placed on the market that should not be offered. That is an important part of what we do. Reference has been made already to the fact we received 44 tip-offs over the last year and we do act on those. Some of those tip-offs will not be about contraventions or offences so there some confusion about when we can take action. Obviously it needs to be an illegal activity, first. It needs to be a breach of the regulation. Secondly, there needs to be evidence enough for us to bring forward a prosecution. Now we are moving to civil penalties, that test is lower so it should be more straightforward for us to bring forward those actions, as will our having very clear criteria to apply, and bigger fines. We will have access to four different strands of penalties. For the highest, we have access to fines of up to £200,000. That shows the importance that we all attach to this. Obviously we would start at that level and then work down according to the mitigating factors that are in force.

Q224 **Anna McMorrin:** Do you think it should be mandatory for wholesalers to record who they sell F-gas products to, to ensure that they go to qualified operators? Could that be something that is legislated for?

Liz Parkes: There is a range of offences. With the new civil sanctions, we will have access to up to 80 breaches, which is quite a number. I know the issue of recordkeeping has been raised. It is important to say that if there are breaches, there are other things that we can take action against. The sanctions that we will have access to flow from the European regulation. We cannot go beyond that now but we will have access to 80, which is a large number and a considerable improvement on where we are now.

We are hoping that through that we can target the offences that matter most and use this as a deterrent to bring more people into compliance.

Q225 **Anna McMorrin:** Lord Deben told this Committee that no serious thinking had taken place in terms of how enforcement was working. Do you think that is fair?

Liz Parkes: I can assure you that we have put a lot of effort—I refer the Committee to our consultation on our enforcement sanctions—and this is something we take very seriously. In fact, I refer to the number of civil sanctions that we have served over the last couple of years in other regimes. Our executive directors meet, when they need to, fortnightly, to consider the cases that we put before them and we have taken a large number of actions against, for example, international aviation operators. You can imagine those are not necessarily straightforward sanctions to apply but the Environment Agency takes enforcement very seriously. We are a firm but fair regulator and once we have these powers available to us we will be looking to use them in an appropriate way.

Q226 **Chair:** Is plumbing one of the exempted sectors. On Amazon, you can find arctic spray pipe freezing cans to freeze your pipes. Is that cool with the EU? They are okay with that as well?

Davinder Lail: If they contain HFCs and they are aerosols then, no, they are subject to a ban.

Q227 **Chair:** I can get them on Amazon, so how come your ban is not working on Amazon?

Davinder Lail: As Liz says, the Environment Agency looks at Amazon and eBay regularly and if they see products like that and they are being sold illegally, they will take action.

Q228 **Chair:** Amazon is selling these things illegally at the moment?

Davinder Lail: I do not know the exact details of that product, but if you look at the regulations, technical aerosols that contain HFCs are subject to a ban.

Q229 **Chair:** They are also for sale on eBay. How many compliance or enforcement notifications have you issued against eBay or Amazon?

Liz Parkes: At the moment we have a limited range of offences available to us and they are criminal so they take a long time to bring, but in the future with the civil sanctions we will be able to take action wherever we feel it is appropriate. Obviously with eBay you are talking about targeting individuals, although obviously we can serve civil sanctions against individuals as well as companies. We will look to apply those powers where it is appropriate.

What is important is that we all want to see greater compliance. Enforcement is about dealing with things after the event but civil sanctions, I think, will be a very effective mechanism to show people how important it is to comply with these regulations.

Q230 **Chair:** That only works if they are enforced.

Liz Parkes: Absolutely.

Q231 **Chair:** There is a massive backdoor illegal trade in this stuff, isn't there, that is going on in plain view, on our computers?

Liz Parkes: Well, we take action against any cases that are notified to us and, as I said, we have seven investigations under way.

Q232 **Chair:** You don't proactively look on a website?

Liz Parkes: We do.

Chair: You do?

Liz Parkes: We do, absolutely.

Q233 **Chair:** You do. How many compliance complaints have you taken against Amazon or eBay traders?

Liz Parkes: At the moment we only have criminal sanctions available to us.

Q234 **Chair:** None?

Liz Parkes: None, no. In the future we would look to target where we can have most effect.

Q235 **Chair:** To get this clear: you are aware of criminal activity, you see it and then you do not take any action?

Liz Parkes: No. What we do is bring people into compliance, and we will continue to do that, so the focus of the—

Q236 **Chair:** How have you got these eBay traders into compliance? Can you give me one example?

Liz Parkes: Certainly with Amazon, we will ask them to take down products which should not be there.

Q237 **Chair:** How many times has that happened?

Liz Parkes: A number of times. We can include some further information in there.

Q238 **Chair:** Okay. Can you write to us with the eBay and Amazon take-downs, please?

Liz Parkes: Yes.

Chair: Thank you. That will be very helpful.

Davinder Lail: It may be that is classed as a technical aerosol. The ban for that comes in in January 2018, so that may be why it is still being sold at the moment. There are different types of aerosols: those used for entertainment purposes, that were banned several years ago, but that sounds like it might be a technical aerosol, so the ban for that would be from January rather than-

Q239 **Chair:** For freezing spray pipes?

Davinder Lail: Probably. It sounds like a technical aerosol to me; I do not know the exact product.

Q240 **Chair:** What about blowing off keyboards? Maplin sells an aerosol for, "Blowing off keyboards", whatever that is.

Davinder Lail: It is for cleaning computer keyboards; blowing the dust away. Again, that sounds like a technical aerosol.

Chair: All those of you sniggering at the back—

Davinder Lail: Yes. It sounds like a technical aerosol so that, again, would be banned from January.

Q241 **Chair:** What, cleaning a keyboard is a technical aerosol?

Davinder Lail: If it is a computer keyboard.

Chair: That one uses R-134a. Okay.

Davinder Lail: That would be banned from January.

Q242 **Chair:** Can we get definitions of what these technical aerosols are as well, please? Cleaning a keyboard is different to freezing a pipe. Okay. We have concerns: Professor Macrory said that the MAC Directive had not been correctly transposed. He had doubts about Article 4(2) of it, which requires manufacturers to supply information on the type of refrigerant used in air conditioning systems for new cars. Can you confirm that it is working as intended?

Davinder Lail: Yes. We spoke to DfT after we heard Professor Macrory's point, and they said there is no gap. He was referring to the obligation in Article 4(2) of the Directive.

Chair: That is right. Yes.

Davinder Lail: That was implemented into domestic regulations in 2007 and then updated in a regulation from 2009. I have the details of the regulation specifically, if you would like, then I can—

Q243 **Chair:** He was concerned. This is a professor of environmental law. He says, "We have not been able to locate legislation transposing provisions, Article 4(2), to ensure that manufacturers supply information on the type of refrigerant used in air conditioning systems."

Davinder Lail: Okay. Yes. The regulations that DfT are citing: the Motor Vehicles (EC Type Approval) (Amendment No. 2) Regulations from 2007, which is SI 2007/3135, and the Motor Vehicles (Type Approval for Goods Vehicles) (Great Britain) Regulations, which is SI 1982/1271.

Q244 **Chair:** Okay. You have the legislation in front of you—we have not had the privilege of seeing it—who is this information reported to at the moment? Does the information about the refrigerants go to VOSA or does it just appear on the engine? How does it work?

Davinder Lail: I do not know, I am afraid, on the MAC Directive. I would have to talk to DfT colleagues to find out about that.

Q245 **Chair:** Okay, right. Can you provide the Committee with a transposition table which indicates exactly how the MAC Directive was transposed into law?

Davinder Lail: We can ask for that, yes, certainly.

Q246 **Chair:** Thank you. You supply that to the Commission, do you not? He said that there was not a transposition table for this, so he had to go through and do it manually.

Davinder Lail: Okay. I will have a look, talk to DfT and see if they have one.

Q247 **Chair:** Our witnesses last week suggested the biggest examples of non-compliance are coming with the MAC Directive. How is that being policed by you? Car mechanics topping up air conditioning is not regulated, is what we are told.

Davinder Lail: It is subject to the same enforcement activity for any other aspects of the regulation, so—

Q248 **Chair:** One of our witnesses said that R-134a was being sold illegally through Euro Car Parts.

Davinder Lail: Again, if people have evidence of such things then informing the Environment Agency is the best thing to do, and they will follow it up.

Q249 **Chair:** He was concerned that the increasing price of some refrigerants, the old school, high-GWP ones, might be leading to untrained mechanics fitting these old air conditioning systems with cheaper, newer, better but mildly flammable refrigerants. Is that something you are concerned about?

Davinder Lail: Yes. Certainly, no one should be putting a mildly flammable refrigerant into a system that is not capable of using it safely, so that would be of concern. Again, if people have evidence of this happening, they need to tell the Environment Agency.

Q250 **Chair:** Can I ask the Environment Agency: how many breaches of the MAC Directive have there been?

Liz Parkes: I am not aware of us being notified of any, but I have already committed to coming back with some further details from the tip-offs we have received and the breakdowns, so I will certainly look at which sectors those are arising from.

Q251 **Chair:** Does your review and update of the F-gas Regulation read across to the MAC Directive, which seems to be the area where the problems are occurring?

Davinder Lail: The 2022 review in the F-gas Regulation-

Chair: No, I am talking about the one that you are doing now.

Davinder Lail: Yes. The statutory instrument.

Chair: Yes.

Davinder Lail: It is not a review of the F-gas Regulation itself; it is an update of the enforcement powers.

Chair: A new insight.

Davinder Lail: There have been several implementing Acts under the F-gas Regulation covering bits of detail around labelling, and that kind of thing, which the Environment Agency needs the powers to enforce. It is bringing those enforcement powers in place and then introducing civil penalties. It is not—

Q252 **Chair:** Given that there has been no enforcement or compliance activity under MAC, does it not need the same enforcement and compliance powers for the MAC Directive?

Davinder Lail: It repeats the current enforcement powers and extends them to new areas. The MAC Directive is something that is already in force and so it is not adding to the enforcement of the MAC Directive, other than applying civil penalties where there are breaches of the regulations.

Q253 **Chair:** Are you responsible for the MAC Directive or is it Department for Transport?

Davinder Lail: No, it is Department for Transport.

Q254 **Chair:** Okay. Given that there has been no enforcement, do your new F-gas Regulations enable the Environment Agency to do better enforcement and compliance of mobile air conditioning?

Davinder Lail: Where the infringement is a breach of the F-gas Regulation, which does cover some aspects of mobile air conditioning, yes, they will be able to apply civil penalties in those cases. If the infringement is only a breach of the MAC Directive but not covered by the F-gas Regulation, then no.

Q255 **Chair:** Okay. Let us use a real-world example. Let us say that you are Euro Car Parts and you are selling a 134 refrigerant, which this witness alleges is being sold illegally. He says, basically, that is not illegal under the MAC Directive. Is it illegal under the F-gas Directive?

Davinder Lail: If they have imported 134a without a quota—that is the part of the F-gas Regulation—yes, that is illegal. That will be covered by the new civil penalties.

Q256 **Chair:** Okay. I do not want to put words in your mouth, but your new SI may help the Environment Agency better enforce some of these loopholes in the MAP Directive.

Davinder Lail: It depends. Yes, if what is being talked about is a breach of the F-gas Regulation then, yes, it will.

Q257 **Chair:** We are going to have to finish, but can you take this offline with our Clerks and examine the evidence that we have been given? What I think would be helpful to the Committee is, rather than us working out two different directives, one of which is in the middle of updating, with a bunch of social media issues that may or may not be breaches, I think it would be good for you to sit down, have a look at the examples we have been given. Then give us a yes or no about you have the powers now, you will have the powers under the new SI. Is that something that you think you will be able to do?

Davinder Lail: Yes, certainly.

Chair: I think that will be very helpful. Thank you all very much indeed.

Examination of witnesses

Witnesses: Jerome Baddley, Richard Lomax, Neil Barnes, Stuart Corr and Dr Noel Baxter.

Q258 **Chair:** Welcome to our second panel. Can I welcome our guests, one of whom has very sensibly brought his own plastic water bottle, for which he will get a small non-cash prize at the end of the session or just an honourable mention. For the purposes of *Hansard*, can I ask you to introduce yourselves, from left to right, please, starting with Mr Corr?

Stuart Corr: I am Stuart Corr, I work for Mexichem Fluor UK, one of the world's leading manufacturers of metered dose inhaler propellants. My role is to lead the technical development programme for Mexichem's low GWP medical propellant.

Neil Barnes: My name is Neil Barnes. I am the global franchise head for respiratory at GSK, but until four years ago I was a consultant respiratory physician and professor of respiratory medicine at Barts and The London.

Richard Lomax: Richard Lomax. I work for the Sustainable Development Unit and I am their project analyst.

Chair: Can you move your chair forward a bit, because otherwise we are going to struggle to hear you? Thanks, Mr Lomax.

Richard Lomax: Yes, sure.

Jerome Baddley: Jerome Baddley. I also work at the Sustainable Development Unit. I am the head of the Sustainable Development Unit for the health and social care system in England.

Q259 **Chair:** Thank you all very much; perhaps I can kick off. The ratio between high GWP inhalers and low GWP alternatives appears to have remained stubbornly resilient at about 70:30. Why do you think this is?

Neil Barnes: A lot of it is to do with the conservatism of prescribing habits in the UK which tend to move more slowly than other countries. One of the other major issues is a perception, which is usually wrong,

that metered dose inhalers are more expensive than dry powder inhalers. That perception persists, despite the fact that, in some instances, the opposite is the case.

Q260 **Chair:** What is the price of these things?

Neil Barnes: I cannot give you the exact price, but I can tell you that there are instances where the dry powder equivalent to a metered dose inhaler is cheaper, and yet the metered dose inhaler is used more widely.

Q261 **Chair:** Can someone give me a price?

Jerome Baddley: We have looked at various pieces of work that have been done. There was one done by Grampian Strategic Health Authority in Scotland that looked at a subsection of metered dose inhalers and dry powder inhalers and compared the price between the two different clinically equivalent alternatives. It showed from that subsection there was some fair equivalence in terms of cost, though the point was made earlier, in some cases, MDIs do appear to be more expensive, but it is just where you look. We can submit into evidence, if you wish, the Grampian inhaler results, which give you some comparative costs.

Q262 **Chair:** Okay. Mr Corr, you are obviously benefiting from this; you make the MDIs, your company benefits from this GP inertia or unawareness. What steps are you taking as a company to educate people about the benefits of lower greenhouse gas alternatives?

Stuart Corr: We do not make MDIs as devices; we simply make the propellant that goes into MDIs to give the power to disperse the drug into the patient's lungs. The cost of an MDI, if I could just comment on that, is composed of several factors: there is the platform, the device itself, which has an essential basic cost, and then there is the cost of drugs themselves that go into it, or the drug formulation. Depending on which particular drug formulation you choose, the drug can be the dominant factor in terms of the cost. GPs prescribe metered dose inhalers or dry powder technologies on the basis of what they believe their patient needs are. There are differences in usability between the technologies, and cost is one factor that comes in here, but clinical efficacy and patient choice also play factors. I believe that GPs have the responsibility to decide what's appropriate for their particular patient in the particular circumstances.

You asked what Mexichem is doing about more GWP alternatives. We have been working for several years looking at the potential for more GWP propellants for metered dose inhalers. To give you an idea of the context here, I am sure you have heard figures—and the latest reporting figures under F-gas reinforced this—for HFCs as a whole, all the uses ranging from refrigeration, heat pumps, air conditioning and metered dose inhalers, account for around 3% of the greenhouse gas emissions of the UK. That is every single use.

Q263 **Chair:** Yes, we have had evidence on that; you are our final panel, so assume that we know that.

Stuart Corr: Exactly, yes. MDI accounts for around 6% of that 3%, so it is a very, very small contributor—

Q264 **Chair:** It is growing though, is it not? The number being prescribed has gone up on the last 10 years from 30 million a year to about 37 million a year. It is going in the wrong direction.

Stuart Corr: Yes, it certainly is growing, but again, we have to look at the magnitude of that effect opposite the health benefits that that metered dose platform brings.

Q265 **Chair:** We have just heard from the professor that there is a clinical equivalence, apart from in the very young and the very old, who may struggle with the inspiration—I think we have all struggled with inspiration at one time or another. For most adults that may need it, the dry powder works just as well; there is no clinical difference.

Stuart Corr: That is perhaps true in many respects, but there is also patient preference. Before I get on to what we are doing about new propellants, I will just say that adherence to medication is a critical thing in all sectors of medicine, and patient preference for a particular delivery type does have a role to play in patient conformance to prescription.

Q266 **Chair:** Are most patients not blissfully ignorant; they just do whatever the GP tells them?

Stuart Corr: I would not necessarily say that, no. As far as what Mexichem is doing to develop a low-GWP alternative, we have been working for several years looking at the development of such an alternative. Only last week a study was published by the University of Manchester that compared the cradle-to-grave carbon footprint, taking into account all the manufacturing of devices, propellants and so on, for a 134a metered dose inhaler compared to our new developmental product, a molecule called 152a, in comparison with a typical dry powder device. The conclusion they drew—and we can provide you with a copy of that document, the paper, after this session—was that the 152a metered dose inhaler had more than an order of magnitude reduction in carbon footprint compared to the current MDIs, and that the carbon footprint of this new MDI propellant system was broadly equivalent to a dry powder device. From our perspective, if ultimately approved by the medical regulators—and that is a little bit away yet-a 152a—propelled MDI has the potential to take the environmental issues out of the equation and allow health care providers to prescribe on a basis of clinical efficacy, cost-effectiveness and patient preference.

Neil Barnes: The evidence is growing that you get better clinical outcomes with dry powder inhalers than with metered dose inhalers. One of the big problems with all inhalers is patients make errors; they make mistakes when they take them. In general, the error rate is far higher with metered dose inhalers than it is with the dry powder inhalers, particularly the modern dry powder inhalers. You are looking at error rates—

Q267 **Chair:** Why?

Neil Barnes: When you take a metered dose inhaler you have to co-ordinate pressing and breathing in, whereas with the dry powder inhalers they are what is called breath-actuated, so you breathe them in, so the error rate is far less. The error rate with a metered dose inhaler in clinical practice is that about 50% of patients cannot use them properly, whereas with the modern dry powder inhalers the error rate is down at about 10% or 20%. There are a number of really good studies—we are just writing a review article on this at the moment—that show the number of errors you make correlate with outcome. In other words, if you use an inhaler with a low error rate, even though in head-to-head clinical trials where they are used perfectly, there is no difference, in clinical practice you get a better outcome, for instance, better symptom control, less exacerbations of disease. If patients can use both inhalers, ideally, you do not find a difference; in practice, they find it easier to use the dry powder inhalers and have a better clinical outcome.

Q268 **Chair:** Okay. Sustainable Development Unit of the NHS, you are meant to be embedding good practice across clinical commissioning groups. Why is it not working?

Jerome Baddley: Some of the barriers that have been mentioned already around patient choice and prescription practice seem to be where we are falling down in this, in that there is no visibility of the impacts of inhalers that are using HFAs. If there was informed patient choice, I suspect there would be more interest in the DPI alternatives. Over the last couple of weeks we have had conversations with NICE; in fact, we have been working with NICE over the past year or more around this area, about how we might create more visibility for the impacts between DPIs and MDIs with HFA propellants. NICE's comments leading up to this presentation back up what had been said by GSK around the clinical effectiveness and the problems with patient use around MDIs to get effective dose from those sorts of inhalers. That issue around poor technique, co-ordination of inhaling with a spray, is a real issue, and there is good evidence to back that up. There are a number of good clinical reasons why we should be shifting towards a DPI route, as well as good environmental reasons. The cost reasons that have been discussed are part of the picture. There are also additional costs potentially around the training involved with using MDIs, which has involved a little bit more training and education. Potentially there are time cost issues in there for the NHS.

Q269 **Chair:** Is there not an issue though with NHS? You talk about sustainability; it has typically been left to estates and facilities management and you are not really penetrating the clinical commissioning side of things.

Jerome Baddley: That is a fair comment. In the first instance, the low-hanging fruit with the quick cashable savings in sustainability, have sat largely within estates. Over the last couple of years, we have seen an evolution of this area of work out into better clinical practice, and that is

an ongoing process. Legislation, like the Public Services (Social Value) Act, should be driving that. In this instance, the evidence as to whether they are or not is fairly limited, but the higher environmental impacts of inhalers—as I say, with this work we have been doing with NICE—is an area where we are trying to increase that visibility, which then should make it easier for that to be considered in line with the considerations of the Public Services (Social Value) Act at commissioning stage. We still do not have that visibility to make it easier for clinicians to make that consideration at the point of service design.

Stuart Corr: I want to comment on the usability aspect. I totally agree that if everyone is compliant to the correct usage of an MDI or a DPI, they are equally effective for a particular medicine type. MDI has not stayed static. There are a number of programmes in place with MDI manufacturers to improve the delivery efficiency of metered dose inhalers, and it certainly is improving. You also have to recognise that there is a range of dry power devices out on the market; it is not a homogeneous market there. Some are easier to use than others, but MDI is not static. It is recognised that compliance and performance are issues that can be addressed, and there have been significant developments in that area going forward.

Q270 **Chair:** You talked about your new 1528 propellant; how long does it typically take for a medical device to get medical approval?

Stuart Corr: For a medical propellant, it has to go through all the same rigorous safety testing as a new drug would do; it is all done to the same sorts of standards. It takes a similar time and a similar cost.

Q271 **Chair:** Which is how long?

Stuart Corr: You are looking at a programme that can take around about five years to go from start to completion. Mexichem has been working in this area for a couple of years now and we are looking, if all things go well going forward-we have had very good results from the testing done to date-we would be looking at around 2021 for the availability of commercial-scale 152a as a medical propellant.

Q272 **Chair:** Can I come back to the Sustainable Development Unit—thank you Mr Corr—on what Mr Corr said about the different MDIs? As well as there being different dry powder inhalers, there are also different MDIs. One of them is using an even higher GWP than that of R1348. Why are you not writing out to CCGs and asking them to no longer fund this? CCGs have control of the purse strings on all this and if they write out to their GPs to review locally these very destructive inhalers.

Jerome Baddley: This is new information. It is not part of the prescribing data; it is data we have derived from the prescribing data in consultation with respiratory professionals who have identified which propellants—and this is only in the last month—are associated with which inhaler types. We have cross-referenced that ourselves with the prescribing data from NHS Digital to ascertain the changes in the propellants being used in the market. It is a bit early-days for us to have

had that sort of conversation with the question groups about that shift, but it is an alarming shift: doubling the global warming potential of the inhalers and the steady increase since 2012, which is inherent, is something that we certainly need to be mindful of. We will be building that into our conversations with NICE around potentially getting this into more visible statements and in guidelines.

Chair: Okay, thank you. We are going to move on to a question from Alex.

Q273 **Alex Sobel:** A frequently quoted statistic is that only 10% of inhalers prescribed in Sweden are high global-warming potential metered dose inhalers, so why has Sweden been able to reduce its reliance on these types of inhalers?

Neil Barnes: It is not just Sweden; it is across most of Europe that the dry powder inhaler is the predominant inhaler. It is a combination of things. As I said earlier, it is the conservatism of prescribing habits in the UK; it is cost. In Sweden, one of the first really good dry powder inhalers was introduced there, and you do find the local companies often are very influential in prescribing habits.

Stuart Corr: Dry powder inhalers have grown. Perhaps not all European countries are at the 10% level of MDI usage that Sweden is at; it is perhaps a bit more balanced on a European perspective. There are several factors that contribute to prescription choice by GPs: some of them include policy—whether that is Government policy on HFC use, for example, whether it is budgetary constraints, for example, on prescription. There are differences in incidence rates of respiratory disease and the nature of the disease across the population, and other environmental factors, including climate and air quality. All of these combine to give an optimum prescription policy in a particular country. It is not necessarily a one-size-fits-all.

Jerome Baddley: It is interesting that across Europe there is a broadly consistent regulatory space with the F-gas and the Montreal Protocol, but there is quite a considerable difference between nations around the proportions of DPIs versus MDIs, and others. The UK does stand out as being significantly higher in its use of MDIs versus DPIs, versus the rest of Europe, the Nordic countries do well, and Sweden particularly well. We are an unusual case in the proportional space for the UK. The regulatory background is similar but, as I said earlier, a lot of it may be down to visibility, local policy making, visibility of prescription to GPs and to patients in terms of informed choice. We have not yet been able to dig into the policy background any deeper than that to ascertain the difference.

Neil Barnes: There is no evidence that in Europe management of respiratory disease—asthma and COPD—is detrimental because they are using more dry powder inhalers. In fact, the initiative in Finland—which is probably the best example of improvement of asthma care—was based largely around dry powder inhalers and showed a huge reduction in

hospital admissions and overall cost. I would emphasise that it was a whole-systems process, and dry powder inhalers was one part of that, but there is no evidence that if the NHS moved from the situation it is in now to greater use of dry powder inhalers, it would be detrimental. If anything, the evidence would suggest it would be a beneficial thing.

Q274 **Alex Sobel:** Is what you are saying that if the NHS moved to the dry powder inhalers, as a whole system, costs are reduced to the NHS?

Neil Barnes: Yes. I would emphasise in the asthma initiative in Finland, that was part of it, they used dry powder inhalers, so there really is not any evidence of a detrimental effect. Many of the newer inhalers that have been introduced both by GSK and by other companies are only available as dry powder inhalers and there has not been any pushback or resistance of the medical profession to those.

Q275 **Alex Sobel:** Has the cost of dry powder inhalers dropped in those Scandinavian countries as use has risen?

Neil Barnes: Yes.

Q276 **Alex Sobel:** We would expect the same with that in the UK.

Neil Barnes: It is complicated, because the costs of these drugs fall over time anyway.

Alex Sobel: Fall. Okay, all right.

Jerome Baddley: While NICE in their statements to us have said there was potentially a small cost premium—and my earlier caveat around that is it depends on which inhalers you look at—they have also said that poor technique in co-ordination results in more of the drop being deposited in the mouth and the throat rather than the lower small airways, and that can result in oral thrush, and other medical implications as well, with poor use. With the incidence of poor use, there is a potential additional systemic impact in terms of cost to the NHS. Whether those balance out, I could not tell you, but certainly there is a potential unintended cost that sits with poor use in MDIs.

Stuart Corr: And in DPI.

Jerome Baddley: That is not what I have from NICE.

Q277 **Chair:** You have not heard the DPI—

Jerome Baddley: I have not heard that from NICE, no.

Q278 **Chair:** Okay. Where did you get your DPI comment from?

Stuart Corr: The international conferences where the efficacy or the conformance to technique for dry powder has been discussed, and yes, it is not 100%.

Jerome Baddley: That is absolutely correct. There is no inhaler that is perfect, but in an overview of the literature, it is quite clear that dry powder inhalers have fewer errors than metered dose inhalers.

Q279 **Chair:** You said it is a 10% to 20% error rate, whereas up to 50% with the MDIs?

Jerome Baddley: Yes. As with metered dose inhalers, dry powder inhalers have evolved over the last 20 years. With the modern dry powder inhalers, some made by GSK some made by other companies, the error rate is really very low, because they have been designed specifically in collaboration with patients to make the error rate low and to engineer out of them some of the features that make patients not like to take them or make mistakes.

Stuart Corr: It is also worth pointing out that metered dose inhalers are universal in applicability across the patient regime. It has been acknowledged that dry powder cannot be used by the most lung-challenged people in groups—young children, the very old, and those suffering from extreme lung function disorders. That has to be taken into account in terms of that compliance aspect.

Q280 **Zac Goldsmith:** Sorry to interrupt. Could I ask you to clarify? You said they cannot be used. Is that an absolute or is it for the moment? Is the technology improving in such a way that it would be used in the future?

Stuart Corr: As Dr Barnes pointed out, dry powders are breath-actuated: you are depending on the patient to breathe in with a certain amount of force in order to disperse the dry powder into an aerosol format so it can be inhaled. Metered dose inhalers use the propellant to do that job such that, effectively, the patient only has to breathe to get the material into the lung.

Chair: Okay, thank you. We are going to move on with a question from John.

Q281 **John Mc Nally:** Thank you. Can I just go back because I use these things and I have never learnt so much in all my life as I have in the last week while reading through the papers, to be honest with you. I just want to take you back. You talk here about a lot of GP practices have specialist nurses in asthma and, as an older person-thank you Mary-I go along regularly to have a review done, and she will watch the technique that I use to take my inhaler. Sometimes you do not realise you are doing anything wrong until somebody points it out. My question was: do companies host events with NHS staff to alert them and give them an update on what they are doing and the potential way in which the nurses and the doctors are advising how to use these products to the best of their ability?

Stuart Corr: At Mexichem, we are a step away from the devices themselves, so no, we are not involved in that kind of activity.

Neil Barnes: Again, we provide a lot of educational advice about using inhalers, so we have an asthma strategy with four components to it and one of those is making sure that inhaler technique is correct. If you have a marvellous drug, unless a patient inhales it properly, they do not benefit from it.

Q282 **John Mc Nally:** Yes, I understand that. There is constant work within the NHS themselves and the manufacturers?

Neil Barnes: Yes. I have to say, you are obviously in a practice that is very good, and that—

John Mc Nally: All practices in Scotland are excellent, and my wife is in the NHS. I believe that, generally speaking, most of them are of a very high standard.

Neil Barnes: Yes. We know from surveys that a lot of patients are not shown how to use inhalers. Another problem arises when patients have different inhalers, particularly if they mix dry powder and metered dose inhalers, because the technique for inhaling them is different.

Q283 **John Mc Nally:** Okay. I will go back to the briefing. What options are there to reduce reliance on GWP metered dose inhalers?

Jerome Baddley: There are a lot of opportunities to raise awareness of the potential. If more people are aware of the options, there is informed patient choice, there is informed clinician awareness at the point of prescribing, I think we would see a bit of a shift anyway. At the moment it is a bit of an invisible issue. Having said that, we have done some analysis of a good subset of the GPs in terms of prescribing practice—the caveat is that this is very early-stage in terms of our analysis of the data—across 7,000 of the 14,000-odd GPs' practices, there is quite a lot of variation in the balance of prescribing at a GP level between DPI and MDI. You will get some which prescribe a lot more DPIs and some which prescribe a lot more MDIs. That cannot be on the basis of just clinical need, so it must be on the basis of awareness. Identifying the best and least best practice in the system, and why there is that sort of unwarranted variation in clinical practice, could present us with some opportunities. The point of engagement should be through the Royal College of GPs and through others, like the British Thoracic Society, to see whether that good practice can be cascaded across the system. Certainly, that is something we are interested in pursuing from the SDU's point of view.

Chair: We did have a witness who was supposed to come from the Royal College of GPs for precisely that reason, we wanted to go straight to them, but unfortunately he has not been able to attend. Zac?

Q284 **Zac Goldsmith:** Thank you very much. First of all, apologies for coming in late; I have been doing a debate in Westminster Hall on different issues. You may have covered some of what I am about to ask. We have covered some of the ground also that has just been discussed. The NHS strategy, "Sustainable, Resilient, Healthy P & Places" cites high GWP inhalers as a, "Carbon hot spot", as you will know, and there are various Government initiatives: greening committees, sustainable procurement guidance, and so on, as well. Why, despite all that—and I know you half answered this a second ago, and this is for you, first if you do not mind, SDU—are we still prescribing so many GWP MDIs? Why do you think that is the case?

Jerome Baddley: It is a challenging question and, as I say, this issue of clinician and patient awareness is critical. Embedding the visibility into the guidelines, which I mentioned earlier with NICE—we have some work that is ongoing with NICE, which started just about a year ago looking at a broad picture of embedding social, and particularly environmental impacts within NICE guidelines on a pilot basis. That is a first for NICE, but the first part of that conversation we had was around the potential around asthma and asthma inhalers. In terms of the broader picture, we are working to try and raise the profile of environmental impacts and we are having that conversation about inhalers. That is really putting it into the DNA of the health system so it makes it visible from the top down. It is a lot easier to have that follow-on conversation through organisations like the RCGP.

Q285 **Zac Goldsmith:** I am not sure if you gave a figure, but you mentioned there is a huge discrepancy between the different GP practices, and that the only conclusion about it has to be that it is about information duplication. Does that therefore mean that message has not got all the way through to the frontline?

Jerome Baddley: That is fair.

Q286 **Zac Goldsmith:** How are you going to rectify that?

Jerome Baddley: As I say in the first point, starting at the top with NICE and working through collaboration with colleagues in the Royal Colleges would seem like the most sensible route to take. Having identified it as a carbon hotspot in the Sustainable Development Strategy was the firing gun on this, and we have been working at this steadily over the last couple of years. In anything where you have to affect a large amount of individuals' choices, it takes time to get things embedded into a system then replicated across the system. We have seen a falling amount of HFA—

Q287 **Zac Goldsmith:** There are a huge number of sustainability issues within the NHS; how important is this?

Jerome Baddley: They do constitute 3.5% of the total footprint of the NHS, but of course energy, travel, wastewater; other areas of clinical practice, even anaesthetic gases, are 2% of our entire footprint. We have a very broad area of work, and also looking at the social and economic impacts of the health and social care system in terms of the wider determinants of health. Focusing in on this issue—identifying it as an issue, making sure that those who have the capacity to take it forward beyond the national interventions that we can support—is certainly something that has been on our work plan, and is on our work plan for next year. It is important, but we have to see it in terms of the work of the Unit, and we do have to sometimes prioritise other areas of work, like transport and air pollution, which results in asthma and inhaler demand.

Q288 **Zac Goldsmith:** That is a very good point. As a general question, are there any other policy levers that you think would help support low GWP alternatives? Is there anything that you would ask of Government?

Jerome Baddley: We intend to pursue this ourselves within the NHS, and the interest of this Committee is very important in giving weight behind that concerted and convenient work within the system, so we are grateful for that. Ensuring visibility, either through labelling or through ensuring better data collection and availability; we have had challenges in terms of identifying the mix of different HFAs within the propellants in MDIs, because it does not exist in the British National Formulary datasets. Ensuring that visibility is high for these sorts of higher greenhouse gas or global warming potential propellants on products might be quite a useful intervention. At other points within the system as well, the point of prescription, that it is red-flagged that these are high environmental impact products may well be a relevant consideration for informed patient choice.

Q289 **Chair:** You work with NICE. Is it changing the guidance? Surely that is what you need: NICE to change the guidance based on clinical evidence, which you say is there, and then the prescribing guidelines change. Until the prescribing guidelines change, why would I, as a GP, change? Is NICE changing those guidelines?

Jerome Baddley: I cannot speak for NICE on that basis. I do know that it is looking at asthma care pathways now and we have discussed potentially integrating the environmental impacts into that. That is an area that we have discussed.

Q290 **Chair:** When will that work be completed?

Jerome Baddley: I cannot speak for NICE on that basis.

Chair: Dr Barnes, what do you think?

Dr Barnes: In a former life, I was the secondary care expert for one of NICE's analyses of inhalers. What NICE do is look at randomised control trials. These are very, very tightly controlled. Essentially you cannot get into a trial unless you can use both of the comparator inhalers correctly, so if you cannot use the inhaler, you do not take part in the trial. In those trials, you cannot find any difference between them. NICE has to accept evidence from clinical practice and database studies that it views as a lower grade of evidence. I think it is doing that. This was six or seven years ago and it may have moved on, but it is a question of the way you evaluate evidence, because these problems of errors only really come out in clinical practice, they do not come out in these strictly controlled randomised control trials.

Q291 **Chair:** Thank you for explaining, that is helpful. Obviously now in your new life you are working for GSK. What do you do with the end of life inhalers? What are the take-back schemes? This is perhaps more for MDIs, is it? Mexichem, how are you monitoring the safe disposal?

Dr Barnes: We have a scheme for recycling both MDIs and DPIs.

Chair: In GSK?

Dr Barnes: The scheme is run by GSK, but we will accept inhalers of any type, so other manufacturers' inhalers can take part in that scheme.

Chair: What does Mr Mc Nally do with his inhaler? Have you ever taken it back, John?

John Mc Nally: I am scared to reply to that.

Q292 **Chair:** I thought everything was excellent in Scotland, but perhaps the take-back schemes are less excellent. Mr Barnes, talk us through how it works.

Dr Barnes: The recycling scheme is available through pharmacies. I have to hold my hand up; when I was in clinical practice, I never told patients to take them back and I do not think it is something that clinicians are aware of. I think if they were more aware of it, they would do more.

Q293 **Chair:** We know there is about—I do not know—50 million or 60 million of these a year. How many are your schemes collecting in the take-back scheme?

Dr Barnes: I cannot give you exact numbers. It is a low percentage though.

Q294 **Chair:** One, 3, 5, 10?

Dr Barnes: Something below 10.

Chair: I think you will get a note passed to you. If you have a more detailed answer—

John Mc Nally: That was a great question. That was a fabulous question that you have asked, because I have never heard of that. You do worry, because you are putting them into your disposable bins.

Dr Barnes: Apparently 1 million have been recycled since the scheme started.

Q295 **Chair:** Which was when?

Dr Barnes: Five years.

Q296 **Chair:** That is 250,000 a year or perhaps 10,000 in the first year, 100,000 in the second year and now we are getting up to some sort of critical—well, how many are prescribed a year?

Jerome Baddley: I can answer the question in terms of a percentage, if it helps. First, I should commend the scheme, it is a great scheme.

Q297 **Chair:** It is great, but it is—

Jerome Baddley: It is limited in terms of its scale.

Chair: Yes, it is great, but it is not great.

Jerome Baddley: In principle. In terms of practice, I think we have calculated about 0.5% have come back through the scheme. But I think

that the carbon savings have been substantial, even with 0.5% with the prescribed inhalers.

Q298 **Chair:** Have you calculated the carbon savings?

Jerome Baddley: Do we have that figure—

Chair: Could you write to us with the figure?

Jerome Baddley: GSK might have that figure.

Dr Barnes: We probably would have that. If we have, we can let you have that.

Q299 **Chair:** Because this stuff, it is on a quota now, so it is valuable. If the NHS got patients to bring it back and recaptured the gas—medical devices, I think, are exempt. We still have the DEFRA colleagues with us. Medical devices are exempt, but this stuff has a value, these F-gases. You could be selling back to Mexichem to refill the new—you are a purchaser, are you not, Mr Corr?

Stuart Corr: Primarily recycle and recovery activities and related—

Q300 **Chair:** Yes. You would accept these recycled gases off the NHS, were they to come to you?

Stuart Corr: Either us or those who recycle material on our behalf. Most recycle and recovery is really for, if you like, industrial applications, refrigeration, air-conditioning and so on.

Q301 **Chair:** Would there be any barrier to it being recycled into an MDI?

Stuart Corr: It could not be used in an MDI, we believe, because of the pharmaceutical restrictions. These things have to be made to good manufacturing practice.

Q302 **Chair:** You have systems all the way through your processes, so it is super high quality?

Stuart Corr: Absolutely. It is very, very tightly controlled.

Q303 **Chair:** But they could be sold on to a fridge manufacturer?

Stuart Corr: In principle, yes.

Q304 **Chair:** You are going to write to us with the metric tonnes. Does anyone have anything to say about take-back schemes?

Jerome Baddley: Can I just say that I think take-back schemes are a great initiative with a lot more potential.

Q305 **Chair:** Are they in every chemist's, in every nation and region?

Jerome Baddley: I am not sure if it is every region. In fact, I have the number here, it is 7,000 tonnes of CO_2 equivalent, I think, by our calculations.

Richard Lomax: No, that is from GSK.

Jerome Baddley: However, the take-back schemes, obviously the primary interest in moving away from using these propellants in the first place should be our real focus. As we move ideally to a sort of Swedish proportion of MDIs versus DPIs, with a residual maybe 10% or 20%—somewhere around that region—for the very young and the very old, who cannot use these products, ideally in those cases there might be lower greenhouse or global warming potential propellants for those, but does that leave us enough of a market for encouraging a recycling process to develop around these products?

Q306 **Chair:** The market as it exists certainly does. All the evidence suggests that the market is going to change very slowly over time and all the evidence also suggests there is a user error. We heard evidence that a lot of these pumps are disposed of when they are not empty, so they might be 10% or 20% full and clearly if they are being repurposed—could you get us, Dr Barnes, the amount of gas that has been recovered from those pumps over the—

Dr Barnes: I will.

Q307 **Chair:** You have it and you will write? Behind you there are nods and encouraging head gestures, so on that happy note, does anyone have anything that they want to say to the panel?

Stuart Corr: We seem to be working on the assumption that the only low-GWP solution to high-GWP MDIs is dry powder. We have been working for several years on a low-GWP MDI that we believe will maintain all of the benefits that the MDI platform, as a drug delivery platform, can bring, but with good environmental sustainability that is competitive with dry powder.

Q308 **Chair:** Excellent, but we have heard from you that that will take about another five years to do, so there is clearly a—

Dr Barnes: From drug development, it would be more like seven years.

Stuart Corr: We have already been working for a few years on this, so it ongoing.

Q309 **Chair:** So you are down that path?

Stuart Corr: Absolutely, yes.

Chair: Your estimate was about five years.

Jerome Baddley: Can I just say, from our point of view, obviously we already intend to focus on this work over the next year and we have done. It is already in our business plan for next year to a convene cross-system group to focus on this particular issue. If you would like us to report back on progress from that working group, we would be very happy to.

Q310 **Chair:** We would be very interested to hear that.

Final question: what steps are both companies taking—and the NHS—to

make sure that these inhalers do not end up in landfill? Because they are very brittle plastics, they are mixed. What is happening to these things at end of life?

Dr Barnes: The recycling scheme that we run is for both MDIs and dry powder inhalers, so we recycle both.

Q311 **Chair:** Yes, that is 1 million out of the 60 million that are prescribed each year. So 300 million will have been prescribed since your scheme started, of which 1 million; that is 0.3%.

Dr Barnes: I would emphasise though that the scheme we run is for all companies. We are the only company that run such a scheme. Obviously only a proportion of the inhalers that are prescribed, both dry power and MDI, are GSK.

Q312 **Chair:** Yes, so you are taking those inhalers apart, separating out the metal and the plastic bits and the different types of plastics. Mr Corr, are any of the companies that you sell into doing similar schemes?

Stuart Corr: Not that I am aware of. GSK's scheme seems to be world leading in this respect and we are fully supportive of what they are doing on MDI and DPI recycling.

Q313 **Chair:** But are you supporting any of the companies that you sell to to do something similar?

Stuart Corr: We certainly encourage recycling whenever we can. It is part of just good sustainable business.

Q314 **Chair:** What have they said to you when you have encouraged them to recycle?

Stuart Corr: We have had very limited—

Q315 **Chair:** Given that the market is dominated by these metered dose inhalers, they are just letting GSK do the work?

Stuart Corr: To a certain extent. As I say, we are at least one step removed from the final devices themselves. We do not have routes to market, for example, through the pharmacies and so on. I think all we can do is encourage recycling and awareness wherever possible.

Q316 **Chair:** But they just do not do it, do they?

Stuart Corr: Whether the company does it or whether it is lack of consumer concern or interest, I could not say.

Chair: I think the consumers would be very interested if they knew what was happening to these things. We cannot deny that many of them will be going out in the trash, possibly in Scotland, and in other nations and regions and where eventually they will break up and those valuable gases are being released into the atmosphere. That is not good for anybody, is it?

Thank you all very much indeed. It has been very interesting.