

Environmental Audit Committee

Oral evidence: [UK progress on reducing F-gas emissions](#), HC 469

Tuesday 5 December 2017

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[Watch the meeting](#)

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

Questions 41-149

Witnesses

I: Professor Richard Macrory, University College London and UKELA; Dr Annalisa Savaresi, Stirling University; and Professor Panos Koutrakos, City University London.

II: Martyn Cooper, Commercial Manager, Federation of Environmental Trade Associations (FETA); Mr Mike Nankivell, Chairman, F-gas Implementation Group, Air Conditioning and Refrigeration Industry Board; Graeme Fox, Head of REFCOM Scheme; and Clare Perry, Climate Campaign Leader, Environmental Investigation Agency.

Written evidence from witnesses:

- [UKELA](#)
- [Federation of Environmental Trade Associations](#)
- [Air Conditioning and Refrigeration Industry Board](#)
- [REFCOM](#)
- [Environmental Investigation Agency](#)



Examination of Witnesses

Professor Richard Macrory, University College London and UKELA; Dr Annalisa Savaresi, Stirling University; and Professor Panos Koutrakos, City University London.

Q41 **Chair:** For the purposes of Hansard, can I ask you to introduce yourselves from left to right, please?

Professor Macrory: I am Richard Macrory, UK Environmental Law Association, and I am co-chair of the Association's Brexit task force.

Dr Savaresi: I am Dr Annalisa Savaresi, lecturer in environmental law, University of Stirling.

Professor Koutrakos: Panos Koutrakos, professor of European Union law at City University London and barrister at Monckton Chambers.

Q42 **Chair:** Thank you all very much for coming. We are a little ragged this morning, having been here until 1 o'clock voting, so apologies if we have to ask you things twice or ask you to slow down or explain things. We are not all running on full power, speaking personally. I am sure the Committee will be on its full power.

We are looking at F-gases and your evidence to our inquiry has suggested that there is a lack of consensus about what happens if/when we leave the EU and whether we remain bound by mixed multilateral agreements such as the Montreal protocol. Dr Koutrakos and Dr Savaresi, do you agree with the UK Environmental Law Association's assessment of that uncertainty? Do you think that where competencies are shared the UK's obligations could fall on exit day?

Dr Savaresi: I would like to start by saying that the UKELA has done an excellent job with its report on Brexit, especially in relation to the UK membership of international environmental agreements. It is, however, very important to be clear as to whether and where these uncertainties will fall. As a matter of international law, the issues are quite clear. The UK will remain a party to whatever international environmental agreement it has ratified, whether or not the EU is a party to those treaties. This applies to mixed agreements as well. There is, however, considerable uncertainty, as a matter of domestic law, on the implementation of the international obligations for the industry, because typically the way EU law works is that it implements international obligations into EU law. There will be a question of how the UK goes about implementing its international obligations after Brexit.

Professor Koutrakos: I think we have to answer this question by reference to specific agreements, and the answer may vary depending on the agreement. My answer would be different were we to compare multilateral environmental mixed agreements to economic mixed agreements. I think that there would have to be renegotiation for economic mixed agreements. Effectively, they are agreements of a



bilateral nature and with most of them we have territorial clauses. There are different considerations for the comprehensive economic and trade agreements with Canada, South Korea, and so on than for the agreements we are talking about here. We have to look at what are the terms of those agreements. The declaration of competence is supposed to help us. It is supposed to tell us which areas fall within EU competence and which do not, but they are not very helpful at all. The Montreal declaration, for instance, does not really tell us very much. It gives us a very broad account of the areas covered by EU competence, a couple of measures mentioned, and so the EU competence developed.

In order to answer the question, I think we need to look at a couple of things. The first one is to bear in mind that the environment is an area where, even as party to the European Union, we have more scope to do things. We have more scope to assume heavier obligations. That is the first thing.

The second thing is we need to look at the agreements we are talking about. In the case of the Montreal agreement, for instance, we have a set of horizontal obligations in order to achieve a common objective. I cannot see why this kind of obligation would not apply to the UK post Brexit. We do not have some kind of package deal that was reached between, on the one hand, the European Union and the UK and, on the other hand, the other parties. The WTO, for instance, is a multilateral agreement but we need to disaggregate tariff-rate quotas we share with the European Union. A degree of renegotiation is necessary there and we saw that with the experience in September and October when the European Union tried to do things with the UK and a number of other states as well. We cannot take this for granted. We have to give our consent. We do not have this with Montreal, so I do not see why Montreal would not be binding on the UK after Brexit.

In my view, that would not apply to all multilateral environmental agreements. We have multilateral environmental agreements where the UK has assumed obligations in the context of the European Union as part of a package deal, which would have been different had the other contracting parties dealt with the EU 27 only—Kyoto for instance—because this kind of adjustment would require the consent of the other parties.

Q43 Chair: You talked about the economic mixed agreements, but part of the phasedown is about quotas for the bad refrigerants that can come in or the gases that can be used for bad mobile air-conditioning in cars. That is part of a quota with third countries. They will be part of our trade deals that you have talked about with South Korea and Canada or other countries. With South Korea in particular I am thinking about refrigerants and lots of Samsung fridges coming in, for example—I have just bought one. Could that present problems for how it works on the ground and how this environmental agreement interfaces with economic agreements that you have just said will have to be renegotiated and pulled to bits a



little bit?

Professor Koutrakos: I am not being an environmental lawyer here. I am examining all this from the broad EU law perspective and international perspective. My sense is that when it comes to Montreal the kind of adjustment that we need to make has to do with the duties that have been assumed by the European Union. For instance, we know that reporting and licensing are part of the European Union duties and we know that we do not have to do enforcing customs legislation. This is part of what the member states do.

I do not see why this kind of adjustment cannot happen while we are still members of the European Union. This is not the kind of adjustment that would require a negotiation. Things are different in the case of WTO, for instance, where we have tariff-rate quotas that we share with the European Union. We decide with the European Union how to disaggregate them and the other member states say, "Hang on a second, we have a say in this because we may have done things differently had we known that we would be dealing with a different market". I do not see this consideration in the Montreal agreement where we have horizontal obligations that the UK has assumed as part of the group, which it would have been part of even if it was not a member of the European Union.

Dr Savaresi: I completely agree with Professor Koutrakos on this point. It is very important to distinguish between the international law implications and the domestic law implications. Insofar as fluorinated gases are concerned, the international obligations are simply related to the phasing down of these gases. How you do it is a matter for you to decide. In international law it is an obligation of results not an obligation of means; it is up to states to decide how to do this. The EU has decided how the member states do this. Now it is up to the UK to decide how to do it once it is on its own. It is as simple as that.

Q44 **Chair:** Are there any precedents we can draw upon to indicate what will happen when we leave?

Dr Savaresi: There are two core EU law instruments that deal with this specific matter presently. One of them has been implemented into UK law and the implementation of the MAC directive will continue for as long as the UK decides to keep it.

Chair: That is the mobile air-conditioning directive?

Dr Savaresi: Yes. It is different for the HFC regulation because that is directly implemented by member states without being transported into UK law. It is also managed centrally at Brussels by the EU Commission. Clearly the UK will not be able to use the HFC registry that does the reporting enforcement functions. The issue will be what the UK does instead of the HFC registry. It could establish its own registry or it could do something completely different; just something needs to be done in order to comply with international obligations under the Montreal protocol.



Professor Macrory: I thought you were talking about precedents for leaving the EU and what happens there. We have to separate out the question of whether we are bound by the agreements and to what extent we are bound by them, which as you say is a matter for international law, and then the implementation of international law, which I think is going to become much more important in this country post Brexit for obvious reasons.

In terms of one country leaving and being bound by the whole of the mixed agreement, the only examples I could think of in Europe is Algeria left France; it was part of the EU in 1962 but these international principles had not developed. The most recent example is Greenland, which although it is still part of Denmark, left the EU in 1985. One would have thought these questions, if it suddenly turned out it had not been bound by mixed agreements, would raise all sorts of issues. In preparation for this I consulted a leading Danish environmental lawyer to ask what did happen to the agreement and he said there were not any issues, this was not a problem.

Chair: What is the size of Greenland's economy and population?

Professor Macrory: No, but it is question of the principle of law, whether it was bound by the mixed agreements. He said as far as he knew there was no particular issue. They did not have to renegotiate. It is true on the international stage sometimes Denmark reserves Greenland and says Greenland is not included, but that is internal politics.

UKELA's main stance still—and you are probably hearing from the discussion—is there is a lot of uncertainty on the mixed agreements. The exclusive agreements, of which I think we identified 12 in our report, clearly fall because we are no longer part. In this report we identify 26 agreements where only the UK is a party—the EU never was a party to it—and those clearly carry on; we are obliged. It is the mixed agreements, which are the majority, where there seems to be uncertainty. My own view is that generally on mixed agreements we will be bound. We just assume the competencies. Since looking at this, I have talked to retired senior lawyers in DEFRA who have negotiated a lot of these treaties, retired officials in the EU and current officials, and they all think that.

There are occasional cases, and you are quite right, where the treaty, as in Kyoto, allowed the EU to take on the obligations of all the member states and then divvy it up. That would have to be readjusted on climate change. That is almost an internal adjustment. It is not having to renegotiate the whole treaty or sign up again. It is simply resolving that issue.

Q45 **Chair:** You suggest in your paper that this could lead to uncertainty and trade disruption.



Professor Macrory: I think it leads to uncertainty if we have 70 agreements. We can come back to what the Government have said so far. It is still not every clear what the position is and I would have thought that industry and the public would want to know very clearly what the position is after Brexit because this will be such an important area.

Q46 **Chair:** Your paper also is concerned about these ambiguities damaging the UK's reputation as a leader on environmental protection.

Professor Macrory: The Government keep saying we will be bound by our international environmental obligations. I am not doubting the good faith of that but that does not answer the question in this case. Until we are a bit more upfront about that and make it clearer, it could damage our reputation.

Q47 **Chair:** What do you think the future role of the European Court of Justice will be in all of this?

Professor Macrory: I have to be rather careful what I say. I think probably not very much. Let's take the Montreal protocol and there was an argument about whether the UK was bound by the whole thing after exit, if one party said, "I am not sure if you are actually" and we said that we are. The way you would resolve it is under the Vienna convention, which governs the protocol, and article 11 provides for a dispute resolution mechanism initially by negotiation and then by mediation before going to the International Court of Justice. I think at the end of the day that would be where the resolution on that international law would take place.

Dr Savaresi: Questions of treaty membership are resolved by the treaty bodies. In the case of the Montreal protocol, this would be the meeting of the parties to that protocol. However, questions of membership in multilateral environmental agreements like the Montreal protocol are extremely unlikely to arise. Why do I say that? Contrary to the trade agreements that Professor Koutrakos mentioned, multilateral environmental agreements are about inclusivity. It is in the interests of the parties to have as many parties as possible. The pressure is to include as many states as possible, rather than the opposite. I have a very hard time imagining anybody wanting the UK out of these agreements. The opposite is true. What the parties to these agreements typically expect is for the UK to stay on board. This applies to climate treaties, to the Montreal protocol and to many other multilateral environmental agreements. The issue is, of course, assessing the compliance of the UK with its international obligations. Again, it goes back to the question that I mentioned earlier: how will the UK implement its obligations after it has left the EU?

Q48 **Kerry McCarthy:** Professor Macrory, you have already strayed into the territory of what the Government have said and the clarity or lack of clarity that has accompanied some of their statements. Do you think it



needs to do more to clarify what the UK's position is under mixed agreements such as Montreal?

Professor Macrory: Yes. In an answer to a written question by Caroline Lucas that was focused on the status of mixed agreements, Dr Coffey said on 18 September, "The UK will continue to be bound by international multilateral environmental agreements to which it is party. We are committed to upholding our international obligations". It sounds patronising but if I had a student who answered a question like that I would have to mark it down, saying they have not quite answered the question. What I would like to see, or UKELA would like to see, is that the Government comes out much more clearly, perhaps with a legal analysis of precisely what they think it is. Maybe they have to look at slightly different conventions. In an ideal world, one would have a joint statement from the European Commission and the UK Government as to how it sees the position afterwards. That is probably hoping for too much at this stage but it seems to me we need to get down to the bottom of this in a much more focused way. As I said, I do not doubt the good intentions but I do not think that is not good enough, really.

Q49 **Kerry McCarthy:** Do you think it is that they do not appreciate the complexity of it, or they just have not got around to drilling into the complexity of it?

Professor Macrory: I cannot answer for that.

Professor Koutrakos: Professor Macrory talked about that both the European Council guidelines and the Council negotiating directives refer to what is going to happen with agreements where the European Union and the UK are parties. They say that ideally a common approach would be a good idea. There is a lot to be said about having a common approach at this stage, which would make the adjustment of these agreements much easier and will introduce a degree of certainty.

This is not as eccentric an idea as it might appear. Even in the current climate, the European Union and the UK have tried to adopt a common approach in the WTO in September when it came to tariff rate quotas and their apportionment. They got a nasty surprise when a number of other parties—the US, New Zealand and so on—said, "We have a say in all this". It has happened, but we are talking about an extraordinary exercise. We are talking about a great range of agreements of different content and different qualities with different effects, and all this has to be addressed now along with all the other issues while they are all in uncharted territory.

Q50 **Kerry McCarthy:** Is it possible to have a blanket statement to say that we have a certain approach and we feel that mixed agreements will cover it, or is it going to have to be going through them one by one and clarifying?

Dr Savaresi: Formally in international law statements such as those of the UK Government can be or have been historically imbued with some



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relevance. This has been the case, for example, in the nuclear test case, Australia and New Zealand against France. This is the exception rather than the rule so in order to dispel any uncertainty I would suggest the correct approach to this issue would be to issue a declaration with each and every single mixed agreement the UK is party to. This declaration would have to be quite simple, saying, "We are no longer a party to the EU and therefore any declaration of competence of the EU under this treaty no longer applies to us". The EU should do the same. That would dispel all uncertainty, as a matter of international law, as far as the UK is concerned.

As Professor Koutrakos suggests, an even better approach would be for the UK and the EU to negotiate what happens, for example for the implementation of the Kyoto protocol, on a bilateral level and enshrine this in whichever treaty form the exit agreement will be enshrined or by means of collateral arrangements, so that this is all black and white, formalised, and everybody is sure what everybody's position is. Unilateral declarations like the one of the UK Government presently are ambiguous and may be interpreted in different ways. Greater clarity would be desirable.

Professor Macrory: I think it is known as "constructive ambiguity" in the language. I certainly think that as a matter of general principle it should be possible to issue a statement, and maybe a joint statement is the right thing, that as a general approach in the mixed agreements the UK will assume all the competences, but there may have to be some adjustments or they may have to look at some individual environmental treaties. I think that is going to be very much the exception. The Kyoto mechanism, which is a bit out of date now anyway, about the EU taking on the burdens of everybody provided it all added up to 8% and then they could divvy it up, was very unusual. You do not find that very often. I do not think there are many where you would need to have to do a bit more. That is what I would like to see.

Dr Savaresi: Certainly in the timeframe available, that approach would be more helpful.

Professor Macrory: The only other thing I would say on this, and it may have started red herrings going, is that in the House of Commons Library briefing paper this year—I have fantastic respect for the House of Commons Library—they said, "On balance, most analysts believe that both exclusive and mixed agreements will fall on Brexit day". I have to say in relation to mixed agreements, that is not my experience. Most of the analysts I have talked to have said, maybe with a bit of complication, "Generally we think mixed agreements will not fall". I am not quite sure how that came about.

Professor Koutrakos: There is some disagreement about this and this does, to a certain extent, have to do with the wide range of agreements



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we have. It is very difficult to come up with just one formula that would apply to all mixed agreements.

I would like to add a qualification to what the EU and the UK may do on their own, as far as the UK's standing in a mixed agreement is concerned. While any kind of arrangement they reach may be enshrined in, say, the divorce settlement agreement, under international law this would not bind other parties. The obligations that have been assumed against other parties could not change on the basis of this arrangement. It is one thing to try to do this; it is quite another to try to negotiate any adjustment that might be necessary to ensure as smooth a transition as possible for the UK from an EU member state to an autonomous party under such agreements.

Professor Macrory: If you just took the simple example of Kyoto and the 8% reduction, if the EU did 8% on behalf of all member states and the UK took a bigger hit, after we withdraw the EU would still have to say, "We are going to do 8%" if that is what it wants to do. It would have to readjust among the existing member states. The UK would then be bound by 8% in its own right.

Q51 **Chair:** Kyoto is a mixed agreement?

Professor Macrory: That is a clear mixed agreement, yes.

Dr Savaresi: Possibly the most complex mixed agreement we are looking at in this specific sector. That is the exception rather than the rule, helpfully.

Q52 **Anna McMorris:** In your evidence to this inquiry, you said that other parties to the Montreal protocol may consider it necessary for the UK to renegotiate or reratify the agreement and suggested it might apply to other agreements such as the Kyoto protocol. Do you think it is a realistic possibility that other parties to the Montreal protocol and other international agreements will expect the UK to renegotiate or reratify them?

Professor Macrory: If by "renegotiation" we are talking about changing the terms of the treaty I think that is unrealistic, unless somebody thinks there is a general thing. I do not see it as particular problem for the UK to become a full party, if that is the analysis, to the treaty. As we heard earlier, I do not see why the other countries would say, "No, we do not want you to do that" because everybody wants these treaties to work. Unless there are very strong legal arguments saying this is not possible to do, my own view is that it should not be a problem.

Dr Savaresi: I completely agree, and it is really important that we do not put all international agreements in one bag. This applies to multilateral environmental agreements. The membership is as global as possible. We have 197 parties to the Montreal protocol. I do not imagine a scenario where the other parties want the UK out of this treaty. I do not think the UK will either have to renegotiate or reratify the treaty but even



if this happens, in the very, very unlikely scenario this happens, it is not difficult. All the UK will have to do under the Montreal protocol is to ratify the treaty again. I do not imagine this would be the case but if it was the case, it would not be a very complicated endeavour at all. It is not the same with trade agreements, as Professor Koutrakos has mentioned. You do not just join a trade agreement but in the case of multilateral environmental agreements like the Montreal protocol, joining is not difficult at all. There is no docket. There is no body preventing you from joining a treaty such as this.

Q53 **Anna McMorris:** If, for example, a dispute arose between the UK and other states as to whether renegotiation or ratification of an international treaty was required, who would in that instance resolve it?

Professor Macrory: As we said, most of the individual treaties themselves have some sort of dispute mechanism built in. I have given the example of the Montreal protocol here. You try to negotiate or you might provide for some sort of arbitration, but eventually it could be the International Court of Justice. One would hope it does not go that far but I think that is where it would go on these sorts of disputes.

Dr Savaresi: Formally the first entry point for these discussions would be the meetings of the parties of the treaty bodies, who would be looking at this question if any party should raise such a question. Then if a dispute ensues, a dispute settlement mechanism would be pursued. I have a very difficult time imagining this happening. Normally, membership of multilateral environmental agreements is not a subject for dispute so we have very limited precedents in connection with it. States normally do not argue about who is a party and who is not.

Q54 **Anna McMorris:** Just to follow-on from that to be absolutely sure, Professor Macrory, are there are precedents that would suggest the UK would have to renegotiate or reratify?

Professor Macrory: As I said, the only precedent in relation to the EU I could think of was Greenland and, as far as I know, Denmark did not have to renegotiate in respect of Greenland because it no longer was covered by the EU competences. That is the closest I can think of. Not on the international stage in other circumstances.

Dr Savaresi: We are in uncharted waters, I am afraid, so very limited precedents do exist. The closest proxy in international law would be state succession. The issue arose, as you may remember, in connection with the referendum on Scottish independence and the UK Government commissioned a report on state succession in connection with that. It is prepared by Professor Boyle and Professor Crawford. That is a very useful compilation on the practice of state succession but here we are not looking at an instance of state succession because the EU is not a state and the UK's statehood was never in question because of its EU membership. Nobody would dispute that the UK is a state. Nobody would dispute there is a case of succession here.



Q55 **Dr Matthew Offord:** I wanted to ask you about the Kigali amendment and if it is a sufficient backstop to the current regulation that comes from the EU.

Dr Savaresi: I would say no for this specific reason. As I already mentioned, the Kigali amendment, as far as it amends the Montreal protocol, imposes upon the parties an obligation of results in phasing down HFCs. How you do this is not enshrined in international law. It is enshrined in EU law. In order to comply with this obligation of results, the UK has to come up with a different or analogous scheme as a matter of UK law because it will have no legal regime on this, at least in part. The present legal regime relies on institutions in Brussels that will no longer service the UK after Brexit. This is why international obligations alone are hollow. You need to have a domestic system in the UK that enables you to phase down HFCs and you will not have that after Brexit.

Professor Macrory: I agree with that. The F-gas regulation, under the Withdrawal Bill, will become part of retained UK law but, as we have heard, there will have to be some adjustments because of EU registers. The basic principles are there. As you probably saw in our evidence, we have the mobile air-conditioning directive, which of course as a directive will not become part of retained UK law afterwards. There is a gap. Although that was transposed into UK law by various regulations, we have found gaps in that. Article 6 of the directive is clearly reflected in regulations but there are other obligations that we cannot find any national law for at the moment. That could be a gap under—

Q56 **Chair:** Could you give us examples, please?

Professor Macrory: Yes. For instance, article 4(2) of the mobile air-conditioning directive requires member states to ensure that manufacturers supply information on the type of refrigerant used in air-conditioning systems fitted to new motor vehicles. We cannot find—and I will have to blame my researcher if I get into trouble for saying this—any national legislation directly reflecting that.

Q57 **Chair:** Are you saying that has been incorrectly transposed—

Professor Macrory: Yes, and that is a potential problem with directives generally, although where they have been transposed that will be retained UK law. We may want to achieve Kigali by other means but we have that. Where a directive has not been transposed properly, there is a potential gap in the law. I have to say we have done the research for that and my plea is that I wish Government would have proper, accessible transposition tables. I know they supply them to the Commission so that you can see each directive and where it is in national law. There was none for this and one had to go around and around looking for gaps or non-gaps.

Q58 **Dr Matthew Offord:** The Kigali protocol goes further than the EU legislation after 2034.



Professor Macrory: Yes.

Dr Savaresi: I would argue the opposite is true. EU law goes further than the Kigali amendment because the EU decided on its own merit to move ahead of international obligations on the phasing down of HFCs, which means that the EU will, if everything goes to plan, achieve its obligation of results under the Montreal protocol ahead of the rest of the world. What the Kigali amendment does is bring the rest of the world on the same page. This is very good news for the EU of course because there is always this debate in international environmental diplomacy about whether you want to be a frontrunner or you want to be a laggard. The EU decided to lead the way on this issue. Arguably it could have done more but clearly compared with other states it has been a fast mover. This is one of those instances where we have EU law obligations that are more ambitious than international law obligations. This is why leaving the EU will require the UK to think carefully about where it wants to be. It is a UK-specific issue. Do we want to align ourselves with the EU or do we want to align ourselves just with the general level of obligation that is reflected in international treaties?

Q59 **Caroline Lucas:** I wanted to turn to the issue of penalties. Professor Macrory, you kindly shared with us your reply to the Government's consultation for introducing civil penalties for F-gas offences. You state that although you are in favour, I think, of the introduction of civil penalties, you have a number of concerns with the Government's proposals. Could you clarify for the record whether you think the F-gas regime needs criminal sanctions to be maintained for the worst offences?

Professor Macrory: I am a bit perplexed by what exactly is going on. As you know, I led the 2006 Cabinet Office review about regulatory sanctions across the board and at that point my view was that the criminal law but we were overusing it. We were using it for industries who were careless and it was devaluing the criminal law. I am very in favour of civil penalties but certainly in every area of regulation that I looked at then, there was at one end of the scale sharp operators who knew exactly what they were doing in breaching the law and I felt the criminal law should be used in those circumstances.

My other principle, which I do not think the consultation paper understands properly, was that I did not see civil penalties as an easy way to get quick hits or a way of getting around the criminal law. It was meant to be an appropriate regulatory response once one decides that is what you should do. You should have some sort of sanction. I am very uncomfortable with the way that there is a proposal here to get rid of the criminal offences and just rely on civil penalties. I think that is a mistake.

There is also inconsistency because at the same time DEFRA is consulting on implementing mercury regulations—they have just finished the consultation—which is also implementing an EU law, and there they are proposing to introduce civil penalties alongside existing criminal



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penalties. There is no reference to, “We have a policy of reducing offences” or anything like that. I do not understand the justification.

Q60 **Caroline Lucas:** Right. Thank you. I wanted to ask you about something else. You suggest that the Government should have used part 3 of RESA. Can you explain why that would have been particularly useful and why you think the Government chose not to do it?

Professor Macrory: Now that is an interesting question. In part 3 of RESA 2008, which then had all-party support, the idea was to have a common statutory framework for civil penalties in the regulatory field. One of the advantages of doing that is basically regulatory efficiency, that the regulators and the regulated community would operate across familiar terminology, common procedures and so on. That also has the advantage that court decisions interpreting that law cut across the board. We have had this summer the first decision of the upper tribunal, which is like the High Court, about stop notices under RESA. It is quite important, about the burden of proof, interpreting it. That will now apply across the board under any RESA regulation. We have that certainty. Here, because they have reinvented themselves and started all over again, those precedents will not apply.

It seems to me that in general, the more that you can avoid unnecessary drafting of regulatory enforcement regimes, the better for everybody. There should be a presumption that the RESA framework is used unless there is a very good reason for not doing so. Maybe in this case there is, and I will come back to you with what I think the reasons might be, but a clear justification should always be made. “We are not using RESA because of that”, or, “We have decided RESA is outdated,” which I do not think it is because it is working in lots of other areas. Again, the same argument could be made for Scotland because that now has a common framework in the environmental field, the Regulatory Reform (Scotland) Act, and again it is very strange that in the mercury regulations, civil penalties say, “We will use the Scottish Regulatory Reform Act”. They are a little bit ambiguous about RESA. Again, there are two different halves coming.

On the reference to, “We have a policy of reducing criminal offences”—I am not sure where that has come from; I think it was in the coalition agreement—I have to say that if you can achieve policy goals without regulation or sanctions I am all for that, but it seems to me that to say, “Yes, we have ticked the box of reduction of criminal offences by creating very severe civil penalties” is not really meeting the spirit of what, presumably, that goal is. It may meet a departmental goal but I think it is spurious.

Q61 **Caroline Lucas:** Why are they not doing it?

Professor Macrory: I think there are two reasons. The first is that there may be this tick-box thing in which every Department has to show it has



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reduced the number of criminal offences and this has done it. As I said, I think that is spurious in this case.

Secondly, RESA, as I said, had all-party support but then a few years ago Oliver Letwin at the Cabinet Office decided that regulators might bully smaller industries by using civil penalties. I know where his concerns came from and I built them into my review. There was a lot about that. He issued a policy that from now on, any new regulatory penalties under RESA would not apply to companies with less than 250 employees. I think that was wrong. A lot of people do. I have spoken to Oliver Letwin and we have discussed that. I do not know if that policy still applies and whether DEFRA were trying to get around that policy. Again, it is very odd there is no reference in either the mercury or these ones to whether that policy is applied to smaller companies or why they were not doing it. I feel there is confusion when at one point there was near-clarity on all of this.

Q62 Caroline Lucas: Finally, as you say, the Government did not include details of how the regime would be enforced or explicitly mention the standard of proof when civil sanctions were imposed. Have you had any thoughts on how the regime could best be enforced?

Professor Macrory: Again, I was very clear in the sanctions review and I am very conscious that giving civil penalty powers to regulators is giving them more powers and it is open to abuse. Built into RESA is a lot of what I call regulatory governance, which of course is not here at all. For instance, I think regulators need to publish a very clear enforcement policy stating when and in what circumstances they will think about applying these penalties, and secondly they should publish a policy about how they are going to calculate them. That is all, again, in the RESA legislation. It says, "Once you use this you are bound by these things". That does not appear to be in these draft regulations at all. There is no reference to that.

Sorry, I am going on a bit but this is one of my passions. The other aspect as to the standard of proof is that again, the regulation should be explicit. Are we talking about the criminal standard of proof or the civil, on the balance of probabilities? RESA introduced the criminal standard of proof even for civil penalties and that seems to work because there are not many cases where the standard is the problem. Scotland has the balance of probabilities. What I would not do, which I think is exactly what these do, is say, "We will leave that for the courts to work out", because that just introduces uncertainty for everybody.

The final one I would introduce, which again they have left out—it is so annoying—is when somebody is served with a penalty notice, they appeal to the tribunal system and the argument is that they have not breached the offence, the burden of proof should be on the regulator to prove that. You should not have to prove your innocence. It is a breach of presumption of innocence. It should have been on RESA but I had arguments with the Government lawyers on that. The regulations on civil



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penalties under RESA for the environment put that into the appeal mechanism. It says the regulator must prove, themselves, the offence. Again, I find nothing in these regulations dealing with that. They are quite defective in those examples.

Chair: To be continued. Thank you very much indeed. That concludes our first panel. Thank you all very much indeed for coming.



Examination of Witnesses

Martyn Cooper, Commercial Manager, Federation of Environmental Trade Associations (FETA); Mr Mike Nankivell, Chairman, F-gas Implementation Group, Air Conditioning and Refrigeration Industry Board; Graeme Fox, Head of REFCOM Scheme; and Clare Perry, Climate Campaign Leader, Environmental Investigation Agency.

Q63 **Chair:** Welcome to our F-gas investigation. For the benefit of Hansard, could you introduce yourselves from left to right, please?

Martyn Cooper: I am Martyn Cooper, Commercial Manager at the Federation of Environmental Trade Associations.

Mr Nankivell: I am Mike Nankivell. I represent ACRIB, the Air Conditioning and Refrigeration Industry Board, which is an umbrella body for industry associations and institutions interested in the air-conditioning, refrigeration and heat pump sector.

Clare Perry: Good morning, I am Clare Perry from the Environmental Investigation Agency, an NGO based in the UK, and I am the Climate Campaign Leader.

Graeme Fox: I am Graeme Fox. I am the head of the REFCOM Scheme. REFCOM are the registration body for companies in the refrigeration sector.

Q64 **Chair:** Thank you all very much indeed for being with us today. We heard from the Committee on Climate Change last week that progress in reducing HFCs in the UK is flatlining. Do you agree?

Mr Nankivell: Thus far, I was surprised a little by that comment because although we accepted under the original F-gas regulation that the emissions were expected to flatline, under the revised and new regulation that is not borne out. Of course we have not seen a full set of data to verify that one way or the other.

Q65 **Chair:** The National Atmospheric Emissions Inventory does show that it has gone up since 2011. It went up in 2012, 2013, 2014 and 2015. It was at a low in 2011 and then went up until 2015, and it has been the same for the last three years. Are you saying that it will have come down sharply in 2016 and 2017, or do you not know?

Mr Nankivell: I do not really know.

Q66 **Chair:** When they say it is flatlining, do you disagree even though it does show it is flatlining?



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Mr Nankivell: The flatlining was predicted under the original regulation, which is why the regulation was strengthened in 2014. It is perhaps a little early to say that trend will not reverse in coming years.

Clare Perry: I think what is happening at the moment is that there was a freeze in 2015, quite a small cut in 2016 and there was a lot of stockpiling in 2014. I do not think there is any reason to think that the UK or any other EU member states cannot meet the targets for 2015 and 2016. That seems to be fairly straightforward and easy to do. The question is whether we are making enough progress now to meet the next two steps in 2018 and 2021, which are much more significant in terms of the reduction in HFC consumption.

Q67 **Chair:** You are saying that the big push is yet to come?

Clare Perry: Yes, but the actions in order to achieve that push need to be happening now. I think there is a question. I am not so sure if it is in the UK. It seems to be going okay, as far as we know. It is quite difficult to know. But certainly in other European countries there is concern that a big sector like the supermarket sector, which has very high consumption, is not moving quickly enough into the low-GWP alternatives.

Q68 **Chair:** The European Commission's data shows that in 2015 there was an overachievement in the phasedown to reduce high greenhouse warming potential HFCs. This suggests the UK progress has been slower than the EU overall. Mr Fox, you are in charge of the—

Graeme Fox: I would say, if anything, certainly in the supermarket sector, the UK has led the way on moving to low-GWP alternatives, mainly because we were technically able to do that in the northern member states of the EU. The southern states have big problems with efficiency losses when they moved or tried to move to very low GWP gases, for example CO₂. The supermarket sector in the UK quite heavily went over towards CO₂ but they could not do that in Spain, Portugal, Italy and places like that.

Q69 **Chair:** You do not think that UK progress has been slower than the EU overall?

Graeme Fox: Not at all.

Martyn Cooper: I would certainly agree with that. We have a number of members who are large retailers. They have been very active in moving as fast as they are able to the lower-GWP alternatives and the low-GDP alternatives, and have been doing so for some years now. From my own personal experience in a previous job, I know that quite a lot of the rest of the European countries were quite a long way behind in that progress. Certainly we in the industry would be pretty proud of ourselves as to the progress we have made. It cannot happen overnight, there is a process that has to happen, but I think the whole industry is moving in that direction.



Q70 **Chair:** Thank you. At an EU level, it seems that the more damaging HFCs are increasing in price. Is this happening in the UK and if so, is it driving industry to invest in less damaging gases?

Martyn Cooper: Yes. I am getting a lot of comments from members. Basically, as Clare has just mentioned, when the F-gas phasedown started in 2015 that was the baseline. In 2016 and 2017 there were relatively small drops. Next year we are going to see a massive reduction in availability of product. Pre-empting that, we are seeing extremely high increases this year. The highest-GWP refrigerant, which is basically the most commonly used, has increased by something like 700%. Whereas three years ago it might have been less than £10 per kilogram, it is now up to £70, £80 or £90 per kilogram.

Q71 **Chair:** Why is the highest global warming refrigerant the mostly highly used?

Martyn Cooper: Unfortunately, that is history. It goes back to the days of CFC phaseout, when the focus on the alternatives then was to have non-ozone-depleting products. Frankly, the global warming potential of the refrigerant was not really looked at at all. It was ODP. This product, R404A, became universally adopted and, for better or for worse, it was the gas of choice in a vast amount of commercial refrigeration across the whole of Europe. Obviously in more recent times with the realisation of climate change and the global warming potential of refrigerants, it is clear that continuing use of that was untenable. That started the whole process of moving to lower-GWP refrigerants.

As I put in our submission, there are a number of options that certainly for existing equipment that runs on this refrigerant you have limited options for reducing your global warming potential. Now, there is a major retailer in the UK who started the process of converting away from 404A probably five or six years ago and completed that and thus was compliant with the 2020 ban on the use of refrigerants with a global warming potential of greater than 2,500. They have effectively halved the GWP of their main refrigerant in their existing estate. Graeme referred to CO₂, carbon dioxide. That requires you to completely change the system. It will not function in an existing system. Therefore there is a process, certainly if you are opening a new store. I would say probably every new store that has opened in the UK over the last three or four years will have gone in with a CO₂ refrigeration system.

Q72 **Chair:** Who is that supermarket? Are you able to say?

Martyn Cooper: It is Marks & Spencer.

Q73 **Chair:** They have been a first mover.

Martyn Cooper: They have effectively little to no 404A. I know that from, as I say, a previous job when I spoke to them around that subject. They have changed to another product called R407A. It is a different refrigerant but it halves the global warming potential. It comes in under



the barrier, it deals with your existing equipment, it allows you to develop new systems or, when a supermarket comes to the end of its life, the system, it can be then completely refurbished to an ultra low-GWP refrigerant, which, as we have said, is in almost every case now carbon dioxide.

Graeme Fox: In practical terms you have a situation where retailers have already invested heavily in their equipment and as Martyn rightly says, to go to the ultra low-GWP gases will be a wholesale strip-out and replacement of plant, which is not very environmentally friendly either from a total carbon footprint point of view. If they can improve leakage rates, and they have worked quite hard on in the last five or six years to do so, then it makes sense to go to that lower-GWP gas an interim measure, which they have done. As Martyn said, the newer stores are by and large going over to ultra low directly.

Q74 **Chair:** Thank you. The Chair of the Committee on Climate Change suggested last week that the EU figures indicating an overachievement in reduction might indicate that the original targets were not set at a high enough level. Do you agree?

Graeme Fox: The issue is about the investment that would be required to go further, or would have been required to go further five or six years ago when they were discussing it. It is less of an issue now because that investment is already being made.

Q75 **Chair:** Are the prices of the low-GWP refrigerants coming down as well?

Graeme Fox: Slowly. Not as quickly as the high-GWP are going up.

Clare Perry: The overachievement is partly due to the fact that there was so much stockpiling in 2014. That was a big concern to us because we think it created a sense of false security and also the initial cut, as we said, in 2016 was not very much. I think there has been a little bit of a slow reaction and, going back to the supermarkets, yes, maybe the bigger chains are all looking at CO₂ in new stores but maybe the smaller SMEs and convenience stores might be having more of a problem there. It is very important that we look at getting a bit more support for them because the upfront costs of carbon dioxide are still higher than putting in a new HSC system. Whether or not they are these transitional HSCs, which have a GWP of under 2,500, it is still very high and they are not a solution for new stores but they are still being promoted as the solution for new stores.

Q76 **Chair:** The prices are going up. That is obviously impacting on your members, your registrations. Is that having the effect? Is it driving industry to invest in these lower-GWP alternatives?

Martyn Cooper: The answer is yes. Certainly some of our members are reporting much more interest in the lower-GWP alternatives, in terms of a wholesaler who sells the refrigerant to the engineer, the consumer, but it has happened too late. I am afraid we are foreseeing problems next year



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where there will be people who will turn up at a trade counter asking for a bottle of refrigerant and there will not be any left and it will not matter how much they pay for it because the quota drops so dramatically next year.

One of the major quota holders has already announced they will not sell R404A next year because they want to supply their alternatives, and because of the way the quota works selling a ton, shall we say, of R404A, is equivalent to selling 3 tonnes of one of the lower-GWP, as Clare says, interim alternatives until people move to one of the much lower GWP alternatives. That is simply the way the European quota works.

Q77 **Chair:** They would be cannibalising their own new markets if they were to sell the old stuff?

Martyn Cooper: Yes. Basically, if I am a quota holder I do not want to sell a high-GWP gas because it is going to use up my ability, but if I am going to sell it I am certainly going to make sure I get enough revenue from it to compensate.

Q78 **Chair:** Do you see a crunch coming in 2018?

Martyn Cooper: The reality is not so much price, it is availability. That is certainly what our members are reporting.

Q79 **Chair:** Where do you think that crunch will bite? Is it going to be the smaller corner shops?

Martyn Cooper: Unfortunately, it could well be. Within our organisation, the British Refrigeration Association issued a report back in September 2015 that was entirely devoted to replacing R404A, talking about the alternatives and talking about the need to do it. That was just over two years ago. That will communicate itself to the industry, to what you might call the usual suspects. The trick, we found, which was very difficult, was to get the message out to—as Clare says—the corner store, the convenience store, the Nisas and so on, who probably rely on advice from their refrigeration engineer. That refrigeration engineer, again, is not necessarily going to be a member of one of the trade associations and may not be as well educated in the alternatives. There is potentially an issue there.

Q80 **Chair:** Are these your members, Mr Nankivell?

Mr Nankivell: In part, yes. Certainly one of the main thrusts of ACRIB as an organisation is to improve the training and education of the sector in the lower-GWP refrigerants and the effect on their customers.

Q81 **Chair:** How is that going? It sounds like there is a high degree of ignorance in the sector. It does not sound like that training and information is going too well.

Mr Nankivell: I think it is going extraordinarily well, given the circumstances. Currently the alternative refrigerants are covered by the



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mandatory qualification that the F-gas regulation introduced. It does not go far enough in terms of—

Q82 **Chair:** That is for new engineers. How many new engineers are you training in a year?

Mr Nankivell: So far we have had over 46,000 operatives who have taken the new qualifications.

Q83 **Chair:** Out of how many?

Mr Nankivell: We do not know. When we started, the estimate was less than 46,000. The estimated number of operatives was anywhere between 25,000 and 30,000. We have been rather taken aback at the number of operatives who sought the training. We are well above that number.

Q84 **Chair:** If they are all trained why are they not telling the corner shops about the crunch?

Graeme Fox: When they were trained most of them have been trained under the original F-gas regulation requirements, which did not have a requirement for training on alternative refrigerants. It was about HFC awareness. When the regulation was reviewed in 2015 the existing qualification standard was retained by the EU and, therefore, it was retained by us as well.

The addition was for anybody who was training after that point had to have knowledge of the alternatives made available to them as part of their training, but there was no practical part of training on the alternative gases. There is no requirement for retrospective training.

Q85 **Chair:** Thank you for explaining that. That is very clear. The chair of the Committee on Climate Change told us last week he would like to see a commitment by the Government to phase out HFCs entirely and in a much shorter timescale. What is your reaction to that?

Clare Perry: I would support that statement. We can go much faster. It is one of the lowest hanging fruits and it was a very hotly negotiated piece of legislation. We have all been saying that next year there is a big crunch so even we would not suggest that we should immediately change the legislation and phase down much quicker in the next couple of years because businesses do need some certainty. But there are other ways that you can strengthen the legislation, which will drive the market much quicker. Then at some point you can review the phasedown and move towards a fuller phaseout. We do think it can be strengthened and it can be quicker, but obviously these next couple of years are quite crucial and we should maintain the existing ambition in the near future.

Graeme Fox: From my perspective, it is not so much the regulation itself that needs improving or tightening. It is the implementation and compliance of the existing regulation that needs tightening up.

Chair: Compliance?



Graeme Fox: Compliance and enforcement, yes.

Chair: We will come on to that in a minute but we have some issues on compliance.

Martyn Cooper: It is obviously a good target and HFCs are on the way to being phased down not phased out. The issue is availability of alternatives and, at the moment, there are alternatives available for most of the current HFC applications. There are some significant ones for which there is no alternative currently. That is recognised in the F-gas regulation by a couple of exemptions.

As I tried to cover in my submission, there is a number of choices of low GWP alternatives. There are low GWP fluorocarbons, and basically we are at the end of the road with those and there are not any more molecules left. The problem you have with those products is that you do not get something for nothing. You reduce the GWP but the chemistry of the molecule means that in most cases you have a product that is of low flammability.

This is completely different to the flammability of a hydrocarbon. They are considerably different but they are classified as flammable. Again, that is a product that you cannot retrofit into an existing system because you obviously have to take into account flammability at the outset. There are what you might not in kind alternatives: there is CO₂ and ammonia, although that brings its own issues. Hydrocarbons are extremely good refrigerants but they are highly flammable. They can only be used in an appropriate application.

There are safety standards in place that are continually being developed to aid the wider use of these products. To phase HFCs out quicker than they are currently being phased out would risk the issue of potentially using products that might not be appropriate in that application. The real issues for a replacement are safety and practicality: is it retrofittable or does it require new equipment; are the technicians available to do the job in the timeframe? That is a key factor. But there are alternatives available and they are being worked on. The amount of development that has gone on in the last few years has been quite staggering with the industry offering alternatives.

Q86 **Chair:** We heard in the previous panel from Professor Macrory about the mobile air-conditioning directive not being correctly transposed into UK law. Why do you think there is not a sticker on a new car windscreen telling you what type of refrigerant is being used in it? What type of refrigerant would I get in my old car if I went along to get its gasses pumped?

Graeme Fox: There is a sticker on the engine.

Chair: On the engine?



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Graeme Fox: At the point where you connect your gauges to the air-conditioning system on a car there is a sticker that clearly says what refrigerant is in that system.

Q87 **Chair:** Do you think people go looking?

Graeme Fox: Mechanics that are working on it do, yes. You cannot physically connect—

Q88 **Chair:** We are talking about people buying it. They look at the inside and the radio system, in my experience, more than under the engine. That is certainly what I did. I have a cassette player.

Graeme Fox: From a safety point of view; that is not purchasing green cars. I understand that. But from a safety perspective that is my concern.

Q89 **Chair:** The mechanic will be able to see and will know what sort of refrigerant. When the mechanic comes to refill my 13-year-old Honda, will it be a bad gas or a good gas?

Martyn Cooper: He will have to refill it with the gas it was built with.

Chair: Which is probably a bad gas.

Graeme Fox: It is likely to be 134a.

Martyn Cooper: It will be refrigerant 134a, which is a GWP of just over 1400, so it is nowhere near as bad as 404A. The problem is if anyone around the table has a 67 reg car or even a late 17, the refrigerant that has replaced—R-134a—is of low flammability.

Chair: Is that a good thing or a bad thing?

Martyn Cooper: It is not a bad thing providing you understand how to handle it. It means the system has been redesigned to cope with that new refrigerant. The MAC directive specified that all vehicles produced after 1 January 2017 had to have a refrigerant in their system with a GWP of less than 150. This product that is now used has a GWP of about 1 or 2, depending on which scale you are looking at. It is a significant improvement in terms of GWP but in reality, for someone who is servicing, and for the actual filling process at the manufacturing point, you have to be aware that the product is of low flammability.

A vast amount of research and risk assessment was undertaken by the automotive industry when it knew it had to make this change to say, "This is a flammable refrigerant, albeit low flammable, what is the risk?" The assessment and the result of that risk was that it was no worse a risk than the product it was replacing.

Q90 **Chair:** Surely if it is low flammable in a car that is a good thing, is it not?

Martyn Cooper: Compared to a non-flammable.

Chair: Non-flammable. It is not high flame to low flame; it is no flame.



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Martyn Cooper: The only way you get to these GWP numbers is by having—

Chair: A slight risk of flammability.

Martyn Cooper: Yes.

Chair: I warned you at the beginning we were running a bit slow today.

Q91 **Anna McMorris:** The Environmental Investigation Agency has suggested a number of measures that could help speed up the process towards reducing or adoption of lower GWP alternatives, including using taxes on high GWP refrigerants, addressing outdated standards, preventing the adoption of lower GWP refrigerants and helping small companies—which we have touched on—use lower GWP alternatives. Also the agency has suggested the Government could take the lead and use green public procurement to promote such alternatives. Would you support the use of taxes for high GWP refrigerants?

Martyn Cooper: It is something that has been tried in Spain and I am not quite sure how successful it has been. It was phased in over a period of time. The tax was paid by the end user, so it was the person at the end of the chain who had to pay tax.

Norway introduced an HFC tax at the beginning of the 2000s, which more or less destroyed the business, not that it was very big in HFCs. The reality today is that with the way the commercial pricing has gone, adding a tax on top of that probably would not have any great increased effect. It is a moot point. Taxes were discussed at the time the current F-gas regulation was being consulted upon and introduced. It was left as something for the future possibly. Individual member states were able to do their own thing. Denmark has an HFC tax as well.

It is difficult to understand whether it has driven those markets towards low GWP alternatives quicker. Obviously I am not an expert in those markets.

Graeme Fox: The reality is that at the moment contractors are already looking for ways to circumvent prices rising so steeply. They are already looking at alternative ways of sourcing refrigerants, not from their existing routes. To put a tax on the official route would only make that worse. It would only exacerbate the non-compliance aspect.

Q92 **Anna McMorris:** Would it not just provide the balance between the different types of refrigerants, with one getting pricier and one not?

Graeme Fox: There is a scenario going on now where we have people who are retrofitting A2L refrigerants, so mildly flammable refrigerants into non-flammable systems. They are putting R-32, for example, into a R-410A air-conditioning system. That is potentially very dangerous. It is not advised by any manufacturer; no trade body would authorise something like that or encourage something like that. It is potentially



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very dangerous because the system is not built to cope with flammable refrigerants of any level.

That is already happening because the 410A has gone up 300% in the last three or four months. If you were to put a tax on the gases, particularly based on the GWP level, it would only encourage contractors to try doing things like that. It is potentially very dangerous and I would be very concerned about that.

Clare Perry: We did discuss having an allocation fee for the quotas because the quotas are being grandfathered for free to a very limited number of chemical producers, primarily, and some other big distributors. The companies that are making the gases that got us into this mess in the first place and are making some alternatives, which is slightly lower GWP or low GWP, have got these very valuable quotas for free and are now able to put up their prices. There are only five or six main HFC producers in Europe. They can put up their prices in any way they wish. They also have the certification, so if companies want to import equipment containing HFCs they have these things they can raise the price on, which apparently they are doing. This is causing consternation in Italy because they import a lot of their air-conditioning equipment.

If a tax could be designed in a way that somehow recoups some of these windfall profits and then uses that money to support the activities we need to ensure implementation is smoother that would be a very good thing. But there are many other things that we can do, of course.

Q93 **Anna McMorris:** Do you think the Government could use procurement power, for example, to promote adoption of lower GWP?

Clare Perry: Absolutely. This is one of the things that the Commission has looked at. There has been some guidance. We have talked a lot about refrigeration but air-conditioning is the big growing sector that is using these gases. China and India are producing air-conditioning units with propane, which is a hydrocarbon, highly flammable but small charges. Safety can be dealt with. Those units have been produced there for several years but they are not being imported into Europe. There is some issue about standards, which are being reviewed. Primarily, no one wants to be the first mover. Nobody is ordering a big enough bulk of this equipment for the Chinese producers to want to supply it. There is a real role for public procurement there.

Graeme Fox: To be fair, those systems you are talking about in India using hydrocarbons are very different types of systems to those we have in our estate here. Procurement would help to overcome something like that, but it is not as easy to transition. We have a very different way of delivering indoor air quality and indoor heating and cooling systems than they do somewhere like that.

Clare Perry: It is not the panacea, it is not the whole segment of the air-conditioning sector I am talking about. We are importing these types of



equipment with HFC 410A, which has a GWP of around 2,000, so there is a market for it. I do not know how much assistance the Government can give. For all of the sectors obviously—

Q94 **Anna McMorris:** If the Government imposed quite strict conditions on their public procurement that would have an impact. What about smaller companies—we did touch upon that earlier—needing more support in switching to lower GWP alternatives? Would you comment on that?

Martyn Cooper: As a trade association, we do our very best to give whatever support we can to the industry. Inevitably the smaller companies tend, generally speaking, not to be members of the trade associations. They do not have time to do that, but assistance for those companies would be good. Education about the alternatives and the real risk that companies run by not moving away from the high GWP products—which quite literally might not be available to them in the future—would be good. It is something that we, as trade organisations, try to do, and do our best to get the message across by whichever means we can and reinforce the need to move away from the high GWP products.

Q95 **Anna McMorris:** How easy do you think it would be to change standards that are holding back the introduction of lower GWP?

Graeme Fox: Changing international standards is notoriously difficult. The safety standards for refrigeration EN378, for example, took something like five or six years to review and update last year. Already they have started reviewing it again. That was just for Europe; the ISO standard body are being more notoriously difficult to get anything across them. The process of getting it changed is years long.

Clare Perry: There is a lot of activity on this now. The Montreal protocol held a workshop on this earlier in the year. It is unprecedented for them to take such an active interest in this issue because it is recognised by China and by the European Union. The Commission recently wrote a document about this that we cannot implement the F-gas regulation or the Kigali amendment without changing the standards. It is a long, horrible process that is very much dominated by those companies that do not want the alternatives in the market necessarily because they have always been producing HFCs. But it is changing and it is moving. Within the next few years we will see some real progress on that.

Q96 **Caroline Lucas:** The Committee on Climate Change in its report “Closing the Gap” was clear that we need to make rapid progress if we are to meet the 2030 targets for finding GWP alternatives. It accepts that there are various issues to be addressed but we were all struck when Lord Deben, the chair, came to the Committee last week that what is missing here is political will, that in almost every area these high GWP chemicals can be replaced. He spoke very passionately about metered dose inhalers as one example where there is an alternative that could be rolled out faster if there was a bit more push behind it.



I wanted to get to the crux of what blockages there are. The first point is: are alternative substances with lower GWPs becoming more generally viable, either technically or economically, or is progress dependent on very specific end users and sectors? Where do we need to be putting our energy in speeding up this whole thing?

Mr Nankivell: We do have to be conscious. There is a growing number of lower GWP refrigerants that can be applied across a broad range of equipment. Coinciding with the F-gas regulation are other regulations and directives pushing us towards improved energy efficiency. If we do not monitor the energy efficiency of our refrigeration, air-conditioning and heat-pumping products then you have the risk of falling foul of other regulations.

Q97 **Caroline Lucas:** Do you see it as a trade-off between efficiency and cost?

Mr Nankivell: It will be a trade-off applies because it is an issue if you adopt an alternative refrigerant and sacrifice the energy efficiency. If you have a less energy efficient product you have greater emissions from the first—

Q98 **Caroline Lucas:** Why does one lead to the other?

Mr Nankivell: It is a factor of the characteristics of the refrigerants, the compression technology, the heat exchanger technology. It is something we have to watch very closely.

There is a whole host of pieces of equipment that could be used more dominantly in Europe and in the UK operating with hydrocarbons, but we do have an issue with certain types of systems. The UK tends to look at air-conditioning and refrigeration systems on a larger scale than the small individual units that can operate effectively and safely with hydrocarbons and low GWP refrigerants. That does not translate to the larger systems that we currently adopt in the UK.

Q99 **Caroline Lucas:** Do you think there are any quick wins? The sense we got from Lord Deben was that, for example, with the metered dose inhalers there are things we could do fast. It would be straightforward and there would not be the downsides that you were describing.

Clare Perry: I would turn that on its head and say that as we phase down HFCs there are opportunities to reap additional climate benefits by ensuring energy efficiency is improved. With a lot of the systems we are talking about, most of the carbon footprint comes from the energy not from the refrigerant. There are many things you can do with the CO₂ system in a supermarket. You can have your basic system, you can put doors on those fridges, you can do all these kind of technology upgrades to get much higher efficiency, but everything you do costs a bit more money. This is why I am saying that some support to ensure that they got the best efficient equipment would be very important, especially for smaller companies.



To go back to Mike's point about other legislation, one of our concerns is about heat pumps. Heat pumps have not taken off here in the UK but are predicted to grow; that is part of the plan. But currently we have the new renewable heating initiative that is helping incentivise the growth in heat pumps. Primarily these heat pumps use HFC 401A, which is a very high GWP refrigerant, and there are no bans or markers within the F-gas regulation that will stop heat pumps being placed on the market with a high GWP refrigerant. The only thing that would stop it is the phasedown.

Given that these are generally brought by consumers who have no idea there is a phasedown, and do not want to know about or necessarily need to know about it, that could be a problem. There is a solution there, for example that tariffs could favour a low GWP, but that is currently not in that initiative. It should be looked at because if we have a massive growth in heat pumps it will be using up quotas that we did not expect to be used there and that will make it very difficult for other sectors to then comply with the F-gas regulation.

Graeme Fox: But it is the availability of the gas that will drive that in the long run because 410A refrigerant is already 300% the cost of what it was just three or four months ago. What is going to happen is the big step in the phasedown kicks in and it drops down to 63% of the baseline figure next year. The actual availability of 410A is going to be a big issue to the manufacturers. That will probably be the biggest driver towards manufacturers moving towards R-32 and heat pump systems.

Clare Perry: Is it not best to point the market in the right direction rather than wait to get a crunch and then you have a lack of supply and a real upheaval?

Graeme Fox: Hindsight is 20:20 vision. Possibly if we had pointed them in the right direction two or three years ago, fair enough, but we are where we are now.

Q100 **Caroline Lucas:** This needs to happen fast if it is going to happen?

Martyn Cooper: The issue is a lot of the alternatives are not like for like and it brings other implications in terms of systems. On your point on metered dose inhalers, you probably need to speak to the experts on that, which I did mention to one of your colleagues.

Caroline Lucas: Lord Deben was using one himself so he was an expert on that.

Martyn Cooper: Basically the standard refrigerant is a medical version of refrigerant R-134a that used to be in automotive air-conditioning. It is a much higher specification. It is released and analysed to a very high standard. It is a measure of how long it took for that product to be approved that CFCs were exempt for medical inhalers for nearly eight years after CFCs were phased out in all other applications. Basically, the propellant is treated as if it is an active ingredient and it goes through an



immense amount of testing. There are issues around compatibility with the actual thing.

Q101 **Caroline Lucas:** When Lord Deben was here it was like, “It is about political will; we can get stuff done”. What I am hearing from you a lot is about all the problems. I know there are problems. You are nearer to the coalface and you understand those problems. I want to get a sense of what could unblock some of those problems rather than giving me yet more problems. I feel like I am going down a black hole of complexities.

Martyn Cooper: I am not trying to give you more problems. I am just trying to state the situation. The industry has embraced the F-gas regulation and alternatives and is moving as quickly as it can.

Q102 **Caroline Lucas:** Would you accept though that at the current trajectory we will not be hitting those 2030 targets fast enough? Certainly the Committee on Climate Change says that. Given that we have to accelerate—we cannot just let things go along their current trajectory—what would you do, knowing what you know, to speed this up?

Martyn Cooper: We are doing as much as we can to encourage the market to move to the alternative.

Q103 **Caroline Lucas:** Do you think you are doing as much as you can, because as much as you can is not delivering us where we need to be?

Martyn Cooper: We have to make it clear to our members, to the market, that these products are available and they can be used. The issue with a lot of these alternatives is they have this slow flammability issue. That is something, “I have never dealt with those before”. We have to help that and that is why a lot of the training work we are doing with ACRIB is hopefully paving that way and we are working as fast as we can to do that.

On the standard side, the bottom line is safety. You cannot introduce products that have either low or high flammability if they are not going to be safe in use. That does limit the use of some of these products. I know the European Commission has already issued a request to the standards organisations in Europe to have a look at what they can do to speed up that process. That is already working. In particular, you would need to talk to those who are involved in the MDI field. I am by no means an expert. It is purely because of a previous job that I know about that.

I would certainly say that we, as an industry, are doing as much as we can to educate as many as we can of the need to move away from high GWP refrigerants to the much lower GWP refrigerants.

Graeme Fox: I would like to clarify something or correct something that Lord Deben said last week. At the outset of his evidence last week he was very clear in saying Coca-Cola had moved to be completely HFC free. It is a line that is often bandied about. It sounds very good and it makes Coca-Cola look very good. It is not the reality. They made their vending



machines HFC free, not their entire estate. The cooling plant in the factories is not HFC free. It may be moving towards it now but it was not when I visited the factory. The air-conditioning systems, the heating and cooling systems in their offices, were not HFC free. That was using 410A, standard VRF technology. It is a very misleading statement to say that Coca-Cola is HFC free because it is just not true.

Q104 **Colin Clark:** Is there an F-gas legacy issue that needs to be addressed for all the products that contain or use high GWP F-gas substances?

Martyn Cooper: Yes, because there is an enormous number of them out there. They will disappear by evolution because the system will wear out and it will be replaced by a low GWP alternative. What the industry is encouraging is people to retrofit to a lower GWP—obviously not the lowest possible—given the requirements of the system, and that can have benefits. To touch on what I mentioned earlier, when Marks & Spencer converted their estate to a lower GWP they also improved their energy efficiency to something like 8% to 10% purely by using a different refrigerant. GWP is not necessarily the best measure of the impact of a refrigerant on the environment. Its energy efficiency needs to be taken into account. Generally speaking, most of the HFC alternatives for existing systems are more energy efficient than the product they are replacing. Yes, there will be a lot of old systems. They will be replaced.

One topic we have not mentioned is that companies who are removing high-GWP refrigerant from their system and replacing it, that high-GWP refrigerant can be reclaimed and it can then be used to service other existing systems. Having been placed on the market once, it is outside the quota, so that is an important recycling process. Again, I would probably argue the UK is one of the leaders in that. There are certainly four companies capable of reclaiming refrigerant that has been taken out of a system for reuse in another system, which obviously reduces the number of molecules that are being used. It is just good sense, basically, and good management.

Graeme Fox: The UK is certainly well ahead on that in terms of reclaiming. Some countries in the EU cannot do anything with reclaimed gas because they are not allowed to take it across border because it is hazardous waste and they cannot afford to have their own reclamation factories to clean the gas and recycle it.

Q105 **Colin Clark:** Further to that then, you have mentioned retailers making very positive steps. Is industry doing enough to tackle this problem across the piece, not just a specific like Marks & Spencer?

Martyn Cooper: Certainly, the majors are all well aware of the issue and they are addressing it in their own way. It always comes down to the smaller operators, the smaller users, and getting that message through to them. I think there are probably still people who are carrying on in what my boss calls benign ignorance of the regulation and, unfortunately, they will suffer next year when the phasedown comes. They are not the



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big players, they are not the big purchasers; they are going to come at the end of the queue and will find that they will not be able to buy gas. That will be a major problem, but all we can do is just keep banging on and get the message out.

Certainly, one of the European organisations that we are members of has recently issued a very clear brochure and leaflet that it is circulating throughout Europe as to the absolute need to move away from high-GWP refrigerants. It is a bit of a reflection that the UK is further ahead than pretty much the rest of the Europe that that has had to be done, but it is vital that every communication avenue is used to get the message across.

Q106 **Colin Clark:** At that thin end of the wedge, will they end up scrapping the equipment?

Martyn Cooper: They will end up with a system that they do not have anything to service it with.

Q107 **Colin Clark:** So they will have to change it?

Martyn Cooper: You have to remember you only need gas when you have a problem with the system. If it is a decent system and it is not leaking, you only need to replace the gas if you have a problem, which, okay, may be a leak.

Q108 **Colin Clark:** There will be recyclable gas available?

Martyn Cooper: There will be reclaimed gas available and the trick there is how much will be available. That is anyone's guess, but if we hear that users are replacing the high-GWP refrigerants, then that means that there is availability of reclaimed gas. That is really vital. It was always clear that that was going to be part of the F-gas regulations function that that availability of reclaimed gas can be reused, without creating any more molecules, as a service medium.

Q109 **Chair:** What percentage of the market would that be? Or what percentage of the reclaimed fridges are getting gas that is recycled, perhaps?

Martyn Cooper: Given that this product has a distinct value, it would be pretty crazy for anyone—the only alternative is to incinerate it and that is destruction. That is probably throwing money down the drain, basically, at the moment. Certainly, a large retailer will plan, "I will remove R404A from this system and I will reclaim it. I will retrofit that with a lower GWP refrigerant. I have some reclaimed R404A. I can use that to service what might be a system that is two years away from its date of scrapping". There is a lot of planning going on but that is, again, with the large players, but then again they are probably 80% of the market. The 80/20 rule probably applies there. As to how much product is being reclaimed, that is a subject for a lot of debate at the moment.



Graeme Fox: I had a conversation with DG CLIMA at the start of the F-gas review process where they were of the opinion that HCFCs—because that was currently being phased out at the time—were being vented and I asked why they thought that. They said it was purely because the data for gas that is going back for destruction has gone down, until I pointed out that that is because contractors were stockpiling reclaimed R22 mainly, as it was at the time, because they could still use it for 10 years after that phase-out period. I think you have the same thing. The trouble is because these gases are maybe being reclaimed and kept at local level by the contractors they are not going into any system for any data to be available, so it is very difficult to put your finger on an exact figure.

Chair: Yes, there is no inventory. Okay, thank you.

Q110 **Zac Goldsmith:** My apologies for being late. I hope I am not duplicating stuff that has already been talked about when I was not here.

A number of the submissions that we have had tell us that there are issues with enforcement of F-gas regulations, including loopholes that can be circumnavigated, and the sense that companies who do comply are, therefore, at a disadvantage. We were told there has only been one conviction in the last year for non-compliance. The Government have acknowledged this and propose the introduction of civil penalties. Can I ask Clare Perry to start with? Is the current F-gas regime in the UK vulnerable to non-compliance and, if it is, what is the extent, in your view, of non-compliance? How big a problem is it?

Clare Perry: Yes, it is definitely vulnerable because basically there is no real-time quota information, for example, for customs to know that an HFC canister or ISO tank or piece of equipment containing HFCs has a quota. Yes, it is vulnerable and we are seeing now the price increases of the very high and medium GWP HFCs that are happening in Europe and the cut in availability, while at the same time China and other countries are producing massive amounts of these chemicals at very low prices. We are setting ourselves up for illegal trade in these gases, and certainly that happened as soon as we started to phase out CFCs in Europe. It is how EIA started working on this issue in the first place. We saw that a CFC illegal trade was starting to happen because it was very cheap, CFCs in China coming into Europe. It is happening with HCFCs now as well.

We know it is a likelihood. One of the things that we need to do, and we will need to do under the Kigali amendment, is have a proper licensing system. What we now have is reporting a year after, so it is wide open to abuse. A licensing system is what we have always had with HCFCs and CFCs and I think that is one of the first things that we could do.

Q111 **Zac Goldsmith:** Is that a matter of resources, though? Before you answer that, can I check with the panel: is there anything you want to add in terms of the scale of non-compliance and the scale of the problem? Do you agree with what Clare said?



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Graeme Fox: There are huge issues with non-compliance at a lower level. I am not talking about creating disparity between the UK and other EU member states. I am talking about disparity within the UK itself. In the review process, we got the clause in about selling split systems that were precharged with HFCs so they can only be sold to people who are qualified to install them. If they are sold to an end user, the end user must have evidence that they have a qualified person to install it. The problem is at enforcement level. The EA is saying that it can go and check with a wholesaler to see who they sold that system to, but the wholesaler has no requirement to keep those records. They are legally obliged to check the person is qualified to install it or buy it, but there is no record-keeping requirement.

Q112 **Zac Goldsmith:** Is that a change, then, that you would advocate, that they should be required to hold those records?

Graeme Fox: It is, yes. It is a change in enforcement rather than a change in regulation, yes.

Q113 **Zac Goldsmith:** How big a contribution to solving this problem would that make?

Graeme Fox: On a smaller split system, particularly if you think about domestic air-conditioning and heat pump, that side of the market, it would be a huge one. At the moment, you have sales of split systems going to non-qualified people. They are currently being installed by incompetent people. The gas is leaking out, so you have 2.5 kilos, for example, of 410A leaking out. The householder then tries to contact the cowboy installer, who will not come back because they do not know what they have done wrong anyway, and then a reputable company, one of our members, goes in and repairs it, leak tests it, puts it through its proper tests and charges it again, but that is 2.5 kilos of gas that has gone.

Q114 **Zac Goldsmith:** Keeping proper records as a requirement would be a big part of that?

Graeme Fox: And enforcing the sale.

Q115 **Zac Goldsmith:** Is it also an issue of resources, or that is not an issue?

Graeme Fox: Absolutely, the EA needs more resources. Again, I have been reporting various breaches to them for several months.

Q116 **Chair:** How many?

Graeme Fox: Off the top of my head, dozens.

Q117 **Chair:** Can you write to us, please?

Graeme Fox: I can do, yes.

Q118 **Zac Goldsmith:** What do they do when you report those breaches? What is their reaction? How do they deal with it?



Graeme Fox: At risk of upsetting the EA, not an awful lot because they do not have the resources to go and do spot checks. I think the civil penalties that are being proposed will be a big help. One of the big problems they are telling me and that DEFRA has told me is that going in and gathering sufficient evidence for a criminal trial is a problem and it is very, very resource heavy. They do not have the resources for that, whereas the domestic penalties route would help them to enforce it. In all honesty, not an awful lot. They are not doing an awful lot when I am reporting it, but I will certainly write to you with the evidence.

Q119 **Zac Goldsmith:** Does the panel want to add anything to that or to disagree with something that has just been said?

Martyn Cooper: I would agree with Graeme. The regulation is there and it needs to be enforced more strongly. We have members of our various associations who are refrigeration contractors, for example, and they see someone who is non-compliant quite happily carrying on doing things that are non-compliant. We invited a representative of the EA to one of our BRA contractor section meetings recently, which was a bit like asking him to come into the lion's den. In reality, it is exactly as Graeme says. The guy was there. He wants to help. He wants to apply it. He just does not have the resource. Okay, we can ask members to point them in the right direction, but there are commercial issues there. We would certainly echo the need for more oomph from the EA, if I could put it that way.

Q120 **Zac Goldsmith:** Lord Deben, head of the Climate Change Committee, told us that he is concerned that there is no serious thinking being done as to whether or not enforcement is working and whether or not this is an issue and, if it is, what needs to be done about it. Is that your view?

Martyn Cooper: I think enforcement and market surveillance for the F-gas regulation responsibility in England certainly lies with the EA, but it is a huge job if you are looking to ensure compliance of the entire refrigeration and air-conditioning industry. As Mike has mentioned, there are well over 40,000 engineers who are now F-gas compliant. They have been trained. They are, therefore, complying. There will be some who are not. You referred to the one conviction there has been and it is not this year, it is the one conviction there has ever been.

Q121 **Zac Goldsmith:** Ever?

Martyn Cooper: As we know as an industry, it was to do with sulphur hexafluoride, and the company who leaked the product admitted it and owned up themselves, so it is not really a terribly good example of investigation.

Q122 **Zac Goldsmith:** Unless anyone wants to add something, I want to move on. The Government are proposing to introduce civil penalties. Do you think that would provide a sufficient deterrent or is there a concern or a danger that it might make the authorities less likely to pursue criminal proceedings for the worst offenders?



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Graeme Fox: In itself it will not fix it, but it will help. Anything that helps draw attention to the need for compliance helps.

Q123 **Zac Goldsmith:** Why would it not, though? Why would it not be a deterrent?

Graeme Fox: There are always those who will look to circumvent rules and they need to see people being financially punished.

Q124 **Zac Goldsmith:** If you had that combined with further additional resources, if the EA was able to do its job, if you had your mandatory record keeping that you described earlier, then presumably it would be a deterrent because it would be much easier to identify people who were not compliant?

Graeme Fox: Yes. The trade press would very quickly pick up on the convictions and that word would very quickly spread. The same thing happened with CFCs. People were not reclaiming gases back in the 1970s and it was an incident where an engineer phoned up the local press and got them to come and take pictures of him decanting refrigerant into a milk bottle because his employer would not give him recovery equipment. It focused industry's mind. The industry press picked up on it. The mainstream press picked up on it, and to some extent that helped.

Q125 **Zac Goldsmith:** In summary, your view is that you think it would help but it would be more helpful in combination with those other two measures?

Graeme Fox: Yes.

Q126 **Zac Goldsmith:** Is that broadly your view as well?

Clare Perry: I think it was said in the last panel it is important we do not drop the criminal procedures as well. They can go hand in hand and you can choose the best method, or even at the same time you can apply them both. We think it is important that that is not dropped.

Mr Nankivell: It is also worth mentioning that we pointed out in our submission that there are certain articles within the regulation that are ambiguous. If this was addressed, it would reduce the possibility of non-compliance or increase the possibility of appropriate reporting. This is something that we as an industry body pointed out to the European Commission in the early days. They chose not to change the wording. A simple change of wording in article 11, paragraph 5, would mean that precharged equipment would need to be reported on further up the supply chain rather than just focusing on the end user.

Q127 **Zac Goldsmith:** Have you supplied us with that wording?

Mr Nankivell: Yes.

Q128 **Chair:** Mr Nankivell, what about this enforcement and compliance? It is your members that are where the rubber hits the road on this. Do they have a view?



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Mr Nankivell: The feedback we have had from industry for a number of years is that they would like to see more effective enforcement, more effective policing.

Q129 **Chair:** Is that because they are being undercut by the cowboys?

Mr Nankivell: That is the view.

Q130 **Chair:** It protects their trade status?

Mr Nankivell: Yes. The large proportion of industry, as we have said before, that are complying are naturally suspicious that they are suffering at the cost of those that choose not to comply. We have seen efforts by the Environment Agency over the years to list the actions that they have taken following reports of non-compliance, but in actual fact because it has not led to any meaningful prosecutions there is doubt that the enforcement is working, which is one of the reasons why we felt civil penalties might just tip the balance.

Q131 **Dr Matthew Offord:** In regards to F-gas regulation, there are really two options, aren't there? That is to stay with the EU reporting regime or for the United Kingdom to come up with its own regime. DEFRA has told us that it feels that there would be a very small administrative burden if the UK decided to have its own system. Which one would you like to go along with or would you propose an alternative?

Graeme Fox: It is very difficult to know until we know what the final terms of the Withdrawal Bill are and the negotiations with the EU on Brexit. We can say all we like that, yes, we would like to remain part of the EU as far as the phasedown is concerned—and I think that would probably be ideal in global terms from an equipment manufacturing point of view—but whether the EU would go along with that, how long is a piece of string?

Martyn Cooper: I think the key issue is quota. The rest of the F-gas regulation, certainly our members are quite happy. They have spent an awful lot of time and effort and money complying and to undo that would not really help. The key is the quota because that is allowing them access to refrigerant. Certainly, as FETA, we have been in close contact with the DEFRA F-gas team. In the ideal world, you carry on as if nothing had happened, but clearly that is not going to happen. Therefore, you need to have a UK system that mirrors as closely as possible the European system while not putting either party at a disadvantage.

The situation you have is that the largest quota holder under the EU system is a UK-based company. They do not just sell in the UK, they sell into Europe. Equally, European-based quota holders sell into the UK. You need some reciprocal agreement that mirrors the current situation certainly without increasing the amount of F-gases that would become available because clearly we are on a phasedown process. It is not beyond the wit of man to come up with a scheme in the UK that would



mirror the European scheme and would still allow all the parties to continue trading.

There is certainly a concern among some of our members who are small quota holders—these are typically distributors or repackagers of refrigerant—who could be at a distinct disadvantage if there was not a reciprocal arrangement. Basically, they may be buying from a European-based quota holder, and if there was no reciprocal agreement they might be at a disadvantage.

Q132 Dr Matthew Offord: You mentioned the introduction of a UK scheme. How much of an administrative and financial burden do you think that would introduce?

Martyn Cooper: Clearly, it would be a burden because you would have two lots of reporting. The important thing is there has been a proposal from the European Commission that DEFRA has circulated for comment to UK stakeholders. It is not quite reciprocal, put it that way. It could put more onus on the UK companies than EU companies. Yes, you would have to have a reporting mechanism that mirrored the European reporting mechanism, which is pretty tough. There is a lot of information there. To actually administer it I would not have thought would be too onerous. Clearly, those are discussions we are already having with DEFRA to make sure that whatever system it still allows UK companies access to the refrigerants they require.

Q133 Dr Matthew Offord: When the United Kingdom leaves the EU, are there any organisations, networks or funding sources that will not be available to UK producers?

Martyn Cooper: I mentioned in our submission there is a project that the UK Institute of Refrigeration run. It is called REAL Zero, which is all about leak reduction and communicating how you can reduce leaks. It also moves now into REAL Alternatives. I believe that is partly funded from the EU. Aside from that, I think it would not have a major effect. It is really the commercial implication of ensuring that there is a quota system that is not just opening the doors for the UK to become a dumping ground for, as Clare mentioned, cheap Chinese refrigerant. Potentially, with no control, that could easily happen.

Clare Perry: There are also some LIFE Plus projects looking at, for example, standards, which obviously would not be open to UK organisations. One would hope that the lessons learned from them we would obviously be able to find out what was going on, but I think there probably are some other programmes that we would not be able to be part of.

Q134 Chair: Mr Fox, would it affect any of your reporting?

Graeme Fox: Again, it depends very much on the terms. In particular, the phasedown implications of how we decide to go about it would be affected. To me, it all comes back to stricter compliance and enforcement



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because if you have the stricter compliance and enforcement, then you have a mechanism for reporting. At the moment, we do not have that mechanism for reporting because we have no common focal point to aggregate the data. I am talking purely for the stationary refrigeration and air-conditioning market. Again, there are very different sectors that use the HFCs.

At the moment, we have a focal point that probably covers 85% of the market, but that 15% is really the part that is the problem. Until we get better compliance and enforcement of the existing regulations, it is very hard to see why we should be pushed further down another route. Let's improve what we have and make that work.

Q135 **Chair:** Mr Cooper, you said there was one UK company that has the largest amount of quota. Who is it?

Martyn Cooper: Mexichem, which before that was INEOS and before that was ICI.

Chair: Okay, son of, son of, daughter of.

Martyn Cooper: It is the largest by a short head, put it that way.

Q136 **Chair:** Okay. Who are the others? Ms Perry, you mentioned there were about five big companies that do this.

Clare Perry: Daikin, Chemours, Honeywell and Arkema.

Q137 **Alex Sobel:** In its submission to this inquiry DEFRA indicated it intends to maintain the same level of environmental outcome as the present F-gas regime. Other evidence suggests that the present regime is already challenging. However, the chairman of the Committee on Climate Change, Lord Deben, last week said that he wanted the UK to go further than the EU if it left the EU system, which obviously is in doubt at the moment. Lord Deben, the chair of the CCC, said that if the UK was to leave the EU F-gas system it should offer a much tougher regime to set an example for others to follow. Do you agree with Lord Deben?

Graeme Fox: I think the UK is already going further than most of the rest of Europe and is already leading the way. A large part of the success that has been seen within the EU under the EU umbrella so far has been achieved by the UK, and the UK has been driving that market, very much so.

Q138 **Alex Sobel:** Do you agree with that?

Clare Perry: Yes, I said before I agree with Lord Deben. I think there are a number of things we can do to strengthen the regulation. One of the things is that for the different sectors, as I mentioned before, with heat pumps, there are no bans of placing heat pumps with HFCs on the market at any point. We have those kinds of bans for commercial refrigeration. We have those bans with a GWP limit of, I think, 750 for split air-conditioning units, for example, at certain years. All of those bans were



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very, very hard negotiations within the review. EIA and some other NGOs in some countries were really promoting these because they would signpost the direction of the industry so that you did not have to just rely on the phasedown and some sort of, "I wonder how much quota is going to be available".

Those bans could be moved forward. It would not change necessarily the phasedown, but it would mean that supermarkets, for example, are still allowed to put new HFC systems on the market until 2022. We know that we need to be putting only low-GWP new systems on the market now. This is just for new products. I am not talking about existing systems. I think we can bring those bans forward and that would help drive the market much more quickly. Then, at that point, you can ratchet down the quotas.

One of the things that they have in the F-gas regulations now is a review in 2022. That was put in there with the expectation that we would be able to tighten up the quotas. I very much hope we will do that.

Q139 **Chair:** Is there anything from industry on the heat pump thing? You are both involved with heat pumps.

Martyn Cooper: Yes, indeed. It is a slight oddity that heat pumps are not moving more quickly away from R410A to alternatives. R32 springs to mind, which is a lower GWP alternative. There are heat pumps on the market that contain hydrocarbons, albeit I think they are fairly large systems rather than, shall we say, a more domestic-sized heat pump.

The companies that produce heat pumps generally produce air-conditioning as well and are generally moving forward on a broad front in terms of reducing the GWP of the refrigerants they use. Obviously, with more encouragement to use heat pumps generally as a renewable heat source, the demand for that would, we would hope, drive the industry towards moving to lower GWP refrigerants.

I would agree with Clare. It is an exception within the F-gas regulation that heat pumps are not specifically referred to.

Mr Nankivell: There may be a certain category of heat pump that may be captured by the split system ban. The types of heat pumps that we are working with, renewable technologies predominantly for the residential sector, come in two categories. One is eminently more suitable for using the mildly flammable or highly flammable refrigerants than another type, and this is what is making the industry reluctant to decide which way to go.

The other concern is that the heat pump sector is something that is being promoted right across Europe, so if a different set of rules applied to the UK as applied to the rest of Europe, that might cause a problem within the market from the point of view of the manufacturers that are producing these products. There is evidence to suggest that two major



manufacturers have already said they are going to move towards the R32 mildly flammable refrigerant for a wide part of their range. Elsewhere in Europe they are working on CO₂ alternatives. The issue there with CO₂ is one of efficiency. They have to meet a minimum efficiency requirement to qualify as renewable technology and that has proved to be an issue over the years with CO₂. With mildly flammable refrigerants, R32 and hydrocarbons, that is less of an issue with heat pumps. There is probably more that could be done, but we have to look at it as a European problem rather than a UK problem.

Q140 **Chair:** It could soon be a UK problem, couldn't it?

Graeme Fox: It is a global problem because the manufacturers globally are looking to try to standardise their products globally. I have been working on a United Nations Environment Programme project for about three years now, which covers the global supply chain. What that is looking at is basic minimum competence requirements for technician level, starting out for article 5 countries. The move to flammable gases is a huge concern in article 5 countries where there is very little training and very little certification or enforcement of any kind of standards or regulations. That is something that is feeding right through the supply chain and the manufacturers are looking to globalise their products. It is not even something we can really look at any longer on an EU level, it is very much a global thing.

Q141 **Colin Clark:** Lord Deben warned that there would be pressures to lower environmental standards, including those for F-gases, while the UK was negotiating trade deals. Is he right to be concerned, particularly in light of the international obligations that we heard from the earlier panel?

Martyn Cooper: Our view would be we would not want to see environmental standards drop. We have a very good track record throughout Europe of having a very high standard. Obviously, they can always be better. To lower those in a new scenario of negotiating other trade agreements with countries that may already have a much lower standard I think would be detrimental to the industry and to the UK as a whole.

Being part of the EU presently, but we will still be part of Europe, a lot of our members who manufacture and sell into Europe will still be required to meet European standards, even though the UK is no longer part of the EU. To lower those standards and to run two parallel production lines—this is what I sell into the EU and this is what I sell into the rest of the world—would be counterproductive and ultimately it would cost the consumer money.

Q142 **Colin Clark:** It is practically unlikely?

Martyn Cooper: I would suggest so, yes.

Q143 **Chair:** As a follow-up to that, if we were to fall outside the EU's F-gas regulation, do you think the Kigali amendments to the Montreal protocol



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provide an adequate backstop?

Martyn Cooper: They are not as comprehensive as the EU regulations, so I think the answer to that is no. I would hope we would wish to stay within the bounds of the F-gas regulations as it exists, even if we are operating in parallel with those. To lower our standards it seems to me is a step backwards, frankly.

Graeme Fox: I am actually more concerned about what was mentioned in the earlier session about the mobile air-conditioning directive. I am more concerned about the transposition of that into UK law because I think the F-gas regulation, most of it apart from the phasedown, is quite simple for us to transpose. The MAC directive is where one of the big loopholes in enforcement has been historically.

Q144 **Chair:** It is already a loophole?

Graeme Fox: It is already a huge problem because it is outwith the F-gas regulation. The supply of refrigerant to MAC engineers, to car mechanics basically, for topping up car air-conditioning is not regulated in the same way.

Chair: That is what I am worried about.

Graeme Fox: Absolutely. I hear a lot of contractors doing refrigeration work who are complaining because they are getting charged £300 for a small bottle of gas for servicing their clients when the car mechanics are getting it for £85.

Q145 **Chair:** How come they are buying it cheaper? Why is it cheaper for car mechanics?

Graeme Fox: I don't know.

Q146 **Chair:** I thought it was all covered by a quota?

Graeme Fox: You would think so. It does not make any sense to me, but that is what is happening. Euro Car Parts in particular is selling and they are not checking if that person is qualified because they do not need to if they are a MAC engineer.

Q147 **Chair:** Who did you say is selling it?

Graeme Fox: Euro Car Parts, because they supply the motor industry. They are not used to having to ask for F-gas certificates and they do not need to if it is a car mechanic who is buying it, which does circumvent the rules from our sector's point of view. It is things like that, and Halfords selling little 1-kilogram top-up bottles of 134a, for example, that really undermine what we are trying to do. Anecdotally, that sort of stuff is all over the social media industry forums.

Q148 **Chair:** Do your members go to Halfords then to buy those little bottles cheaper?



Graeme Fox: No. I would hope not. I certainly know on social media chat forums that I monitor and sometimes chip into people frequently talk about that. It is undermining everything we are trying to do with the F-gas regulation. They ask, "Why are we bothering? Why am I bothering with registration?" because people can go and buy a 1-kilo bottle from Halfords.

Clare Perry: This is something that we raised a concern a long time ago about, the use of these new HFOs in car air-conditioning, because the HFO-1234yf, which is this new refrigerant that is being used, is basically a drop-in for 134a. You need to make some adjustments because it is mildly flammable, but it was developed as a drop-in for 134a. Even with the price hikes in higher GWP refrigerants, the HFO, this new patented chemical, is extremely expensive. We are very concerned that you have these new cars coming off the line but as soon as they are needing topping up they are going to be topped up with cheap, possibly illegal 134a, because that refrigerant is not going to go away at all quickly. It is not like we are banning the refrigerant. It is used widely. It is used in blends. It is used all over the place and it is always going to be there. If you look at any kind of servicing sector, if they cannot get the HFO or cannot afford the HFO, then that is what is going to happen.

Graeme Fox: You also have a complete lack of technical knowledge of what the refrigerants are at mechanic level. For example, there is a car that comes into a car dealership. Does the mechanic understand he cannot put 134a into a system that was designed for 1234yf? They do not know what you are talking about generally. They do not understand the terms HFCs or HFOs. There definitely needs to be an improvement in the enforcement of training at that level.

Clare Perry: I did want to just make a point on your original question. With the Kigali amendment and the F-gas regulation, there is a big difference in ambition and it is absolutely not acceptable to go back towards the Kigali amendment. By the time we do the first cut under Kigali—for example, the US, Canada and other A2 countries as they are called under the Montreal protocol are doing a cut of 10% in 2019—at that point we will have already cut by 37%, and because we include imported equipment it is more like 48%. As well, the baseline that we are using, the starting point for those cuts, is higher in the Kigali amendment, so there is a huge difference. It would be a very retrograde step to just rely on Kigali.

Q149 **Colin Clark:** I am conscious of time for the last question. The Government in their evidence to the Committee states that they are working with the devolved Administrations to ensure that EU F-gas regulations are operable following the UK's exit from the EU. This echoes the Secretary of State's acknowledgement in front of this Committee that it would be difficult to enforce policy convergence across the UK. The crunch is if different approaches were to be adopted across the UK in terms of F-gas regulation, would this present particular challenges or



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opportunities for those industries using F-gases?

Graeme Fox: It would be a huge challenge to implement it.

Colin Clark: I thought you would say that.

Martyn Cooper: I think it would be a nightmare, frankly. The objective has to be to maintain a single accepted regulation, which our organisation certainly agrees should be absolutely in line with the existing regulation.

Chair: My advice on that is to make sure you feed into the DEFRA consultation on the new environmental body. Thank you all very much indeed. It was an extremely illuminating session.