



Public Accounts Committee

Oral evidence: Renewable Heat Incentive in Great Britain, HC 696

Wednesday 21 March 2018

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[Watch the meeting](#)

Members present: Sir Geoffrey Clifton-Brown (Chair); Martyn Day; Chris Evans; Caroline Flint; Robert Jenrick; Gillian Keegan; Anne Marie Morris; Bridget Phillipson; Lee Rowley.

Sir Amyas Morse, Comptroller and Auditor General, Adrian Jenner, Director of Parliamentary Relations, National Audit Office, Michael Kell, Director, NAO, and Marius Gallaher, Alternate Treasury Officer of Accounts, HM Treasury, were in attendance.

Questions 1-97

Witnesses

[I](#): Alex Chisholm, Permanent Secretary, Department for Business, Energy and Industrial Strategy, Dan Osgood, Director for Heat and Business Energy, BEIS, Dermot Nolan, Chief Executive, Office for Gas and Electricity Markets, and Chris Poulton, Managing Director for E-Serve, Ofgem.

Report by the Comptroller and Auditor General

Low carbon heating of homes and businesses and the Renewable Heat Incentive (HC 779)

Examination of witnesses

Witnesses: Alex Chisholm, Dan Osgood, Dermot Nolan and Chris Poulton.

Chair: Good afternoon, everybody. Welcome to this afternoon's session, which is on the renewable heat incentive in Great Britain. We are particularly pleased to see our ex officio member, the Exchequer Secretary, Robert Jenrick, the Member for Newark, with us this afternoon. Welcome, Robert. Congratulations on your appointment. I am pleased that you are able to be with us this afternoon. We have all had a look at your declarations. Can you confirm that they are as in the Member's declarations?

Robert Jenrick: I can.

Chair: Great. Would you like to say a few words?

Robert Jenrick: With pleasure. Thank you. I am very grateful and pleased that you are in the Chair, Sir Geoffrey. I give my best wishes to Ms Hillier. It is a pleasure to be here—I suspect that this is one of the easiest appearances before a Committee that a Minister will ever get to do.

I am pleased to join the Committee briefly, in my ex officio capacity. I believe that I am the fifth holder of my office in five years, so I hope that we will enter a period of stability in your

relationship with the Treasury, but that may be out of my hands. I am really here to say how much we appreciate the work that you do, to thank all the members of the Committee, its staff and all those who work with the Committee from other organisations, and to stress that we in the Treasury want to continue to have as productive a relationship with you as possible.

We take very seriously, and are consistently impressed by, the Reports produced. I hope that you will see, by looking at the Treasury minutes and the work that goes on afterwards, that at least 90% of the Committee's recommendations are acted upon by the Treasury and the rest of Government. That has been the case under Conservative and Labour Governments, so Governments have consistently been extremely impressed over the years by the work that you do and have taken it forward. Obviously, for my part, I would like to see that continue.

If there is anything further that my team at the Treasury can do to assist the Committee going forward, please do not hesitate to ask me to weigh in behind that. Other than that, I simply wanted to thank you all and to encourage you to keep up the good work that you do.

Q1 Chair: That is generous of you. Thank you very much. I should say that we are very ably supported in our endeavours by the Comptroller and Auditor General, Sir Amyas Morse, and his excellent team. We are incredibly grateful for the close co-operation that we have with the Treasury, and indeed the very close scrutiny of our Reports and the high rate of acceptance, as you have already alluded to. Thank you for all of that. I understand that you are a very busy Minister. Please stay at the session for as long or as little as you are able to, given your very pressurised diary.

Before I move on to the main purpose of this afternoon's hearing, which is on the renewable heat incentive in Great Britain, I should declare to everybody present that I am a recipient of the renewable heat incentive in my partnership and I will obviously be getting income from that application.

This afternoon, we are considering the NAO's Report on the renewable heat incentive. The RHI, as I will now refer to it, is a noble but expensive policy experiment launched by what is now BEIS in 2011 to start tackling the huge challenge of cutting carbon emissions from the heating of homes and businesses. The Department's ambition when it launched the scheme in 2011 was to have over half a million participants by 2020. However, to date the taxpayer-funded scheme has recruited less than 80,000 participants. Latest estimates are that a further 30,000 participants may join the scheme between now and 2021.

One thing that the Committee will want to explore today is why the Department's initial forecasts were so over-optimistic, which is an issue we have identified with the green deal scheme going back to 2016. Despite the much reduced take-up, the RHI will continue to make payments until at least 2040, at which point the taxpayer will have spent £23 billion, so this is a significant scheme in the Government's carbon-reduction policy.

As the NAO's Report highlights, it is worrying that BEIS and Ofgem do not have reliable estimates of overpayments as a result of fraud, non-compliance and gaming of the scheme, particularly given the long-term nature of the scheme and its importance in cutting carbon emissions for the long term. So this afternoon we will be asking our witnesses, both BEIS and Ofgem, questions on how the approach to managing fraud, non-compliance and gaming will be improved, on plans for reducing carbon emissions from the heating of homes and businesses, on growing the supply chains—one of the scheme's objectives—and, finally, on how sufficient oversight of the scheme through to its end in 2040 will be maintained.

That is what we want to achieve this afternoon, so let me now introduce our witnesses. Dan Osgood is director for heat at the Department for Business, Energy and Industrial Strategy. That's the last time I will say that in longhand; it is now known as BEIS—the acronym I shall use. We have Alex Chisholm, permanent secretary at BEIS. Next to him are Dermot Nolan, chief executive of Ofgem, who is the SRO for this project, and Chris Poulton, managing director of Ofgem E-Serve. So we have a very good team, well capable of answering our questions.

I have one or two general issues to ask you about, Alex Chisholm, to start with. We now have

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the answer from Robert's colleague, the Chief Secretary to the Treasury, that your allocation for Brexit is £185 million. Is that what you were expecting, and will it be sufficient to recruit the at least 100 extra staff I think you require to deal with the Brexit negotiations and implementation?

Alex Chisholm: Thank you, Chair, for your introduction and that first question. Before I answer it, can I just offer a word of explanation? I was feeling very well prepared for today's session until this morning, when I managed to rick my back, so if at some point I have to stand up or I am wincing a little bit more than normal during the questioning by the Committee, that will be the explanation.

Chair: It will not be the effect of our questions, then, if you wince.

Alex Chisholm: Also, I will bring in my colleagues as much as possible. The short answer to your question is yes, we are satisfied with that allocation; we think it is adequate.

Q2 **Chair:** Good. So your recruitment of staff will be basically as you informed us in the BEIS Brexit hearing.

Alex Chisholm: Yes, we have been absolutely on track this year for recruitment, so I think we have got quite good at it, and not only recruiting people but, obviously, inducting and training them when they join the Department. We would expect to be able to continue that performance in the next financial year.

Q3 **Chair:** The next subject, which is very much in the news at the moment, is Russia. We are considering energy issues this afternoon, and we know that there have been three LNG shipments since January and a fourth one landed last Tuesday. Are our gas storage facilities adequate in this country, so that we are not reliant on Russia? Has your Department reviewed its energy policy since the Prime Minister's announcements?

Alex Chisholm: Again, the short answer is yes. We are satisfied with the adequacy of our gas storage, and not only in the UK, but on the continent, because we benefit from gas interconnectors. Obviously there is also the ability to add additional gas through LPG deliveries. We have reconsidered that in the light of recent events with Russia and remain satisfied. We have a very low level of dependence on Russian gas imports. We are over half self-sufficient and have a very wide range of alternative supplies, from Norway, Qatar, the United States and elsewhere.

Q4 **Chair:** It would seem that there are plenty of other suppliers in the world, and that we do not necessarily need to rely, particularly in the current political climate, on Russia. I know that they are very small—about 4% of our total supply—but it does seem strange in the current environment that we are using any Russian gas.

May I move you on to a different subject? This April landlords are required to meet the energy performance rating E on all of their let properties. Yet the knowledge among landlords is pretty low, let alone the actual implementation of the number of properties. Does this concern you and are you planning to do anything about it?

Alex Chisholm: If I may, I will look into that and get back to you. It is obviously an important objective for us and we will work on it together with the Ministry of Housing, Communities and Local Government. I don't have information to hand about what programmes of communication we are undertaking, but I would certainly be delighted to drop you a note to that effect, if that would be useful.

Q5 **Chair:** I appreciate that you might not necessarily be briefed on these opening subjects. The final one I want to ask you about is the roll-out of smart meters. The programme, moving on from smart meter 1 to smart meter 2, has been extended. According to the trade, that means that a significant number of smart meters are not necessarily going to be able to be transferred between one energy supplier and another, putting hundreds of thousands of households potentially into having a meter installed that is not going to make their portability of gas supplier easy. Does your Department have any policy on that?

Alex Chisholm: The date for moving from the first generation of smart meters—known as SMETS 1—to SMETS 2 is now set at October of this year. Furthermore, we are making the changes necessary to ensure that there will be interoperability between SMETS 1 and SMETS 2, so there won't be stranded assets, so to speak, for the customers and it will be possible to switch between energy suppliers.

Chair: Just to be absolutely clear, all those millions of households that have smart meter 1 at the current time should have sufficient interoperability in them to enable them to be fully portable from one gas supplier to another.

Alex Chisholm: That is my understanding, yes.

Q6 **Chair:** Thank you. If there is any difference to that, you will let us know.

Alex Chisholm: I will let you know.

Q7 **Martyn Day:** Mr Chisholm, we know from the report that there is not a reliable estimate of the amount of overpayment and there is a question mark over the extent of giving. What is BEIS doing to make the management of fraud and non-compliance fit for purpose?

Alex Chisholm: If I may, I will start to answer that and then I will turn to my colleague, Dr Nolan, because the administration of the scheme is in the hands of Ofgem, for the Department. Certainly, from my perspective, fraud is a very significant matter. We take a lot of measures up front in the design of the scheme to make it very difficult for people to get involved in fraud. Furthermore, we are very active—Ofgem, on our behalf, is very active—in accessing cases of non-compliance and the most serious cases wherever there are any examples of fraud. To give you a sense of that volume of auditing activity, in the last year I think that Ofgem would have conducted about 1,700 audits, following an increase in the budget that we give them to do that on our behalf. Around 37% of those were non-domestic and 63% were domestic.

In terms of the effects of those audits, they have resulted in the year 2016-17 with 79 people having their accreditation to the schemes revoked and some £360,000 being recovered. Most of those would be financial non-compliance, not necessarily meeting the standard of fraud, which you will appreciate is a criminal offence in this country under the Fraud Act 2006, and prosecutions for that obviously have to meet the necessary standards for that.

Looking at the data here, I think that Ofgem has made 30 referrals to Action Fraud so far, and that has resulted in a successful prosecution. They have some 45 ongoing cases, and if I may I will invite Dr Nolan to talk a little bit more about the team they have within Ofgem's E-Serve specifically aimed at dealing with fraud.

Dermot Nolan: I am happy to do that. We have a team specifically devoted to fraud—fraud on the scheme, both domestic and non-domestic. Ten staff work full time on that area. They obviously take fraud very seriously. We have a zero-tolerance approach to fraud; it is a criminal offence. So in that sense we take it extremely seriously.

We open investigations if there is ever a perception of fraud. Some of our tracks for determining whether to open an investigation are obviously some of the audits we do—the general compliance work. We have various trackers that we have developed over the years to determine whether we think there might be some alert system for the possibility of fraud. So we have an active team.

If we think that there is a possibility that fraud is taking place, we open an investigation. We have opened about 150 investigations over the course of the schemes. As Mr Chisholm has said, we have sent about 30 of those to the police—via the police to Action Fraud, which is the body designed to have the referrals service, although we obviously stay in communication with the police on any fraud issues as well. We have sent 30 references to them.

We have 45 cases currently ongoing on open fraud cases and, by and large, we will be continually at work to make sure that the fraud function is as resilient as possible. I want to

emphasise that we have a zero-tolerance approach to fraud, because it is in fact a criminal offence.

Q8 **Chair:** We have received evidence that your fraud work would be enhanced if you worked more closely with local authorities, the Environment Agency and other bodies. I don't know how you would react to that.

Dermot Nolan: I have seen some of the evidence referred to. By the way, I do accept the general NAO recommendation that Ofgem should work more with local authorities and environmental agencies, and we will be seeking to do that more actively in all aspects of work.

I think that will include fraud, but I would say specifically that fraud is a criminal offence. If we think there is a serious issue, we would obviously discuss things with local authorities and other bodies, but if it is a criminal offence, we are talking to the police, bringing them in and potentially bringing in Action Fraud.

On that level, while I fully accept the NAO recommendation—we will be working to implement it as effectively as possible—to talk with all manner of bodies, such as the local authorities, on fraud I think it will be very much us doing an investigation, putting resources into it and, if necessary, bringing in the police.

Q9 **Martyn Day:** There is obviously a big difference between fraud and non-compliance, but when we look at the figures on non-compliance, we see that in 2016-17 for non-domestic 52% were non-compliant and for domestic 34% were non-compliant. Should there not be a clear difference between trivial non-compliance and material non-compliance? Why isn't there?

Dermot Nolan: Many of these issues are non-material incidents. I think there is a higher rate in the non-domestic scheme, because it is inherently somewhat more complex. I mean, when applying for the scheme, there would be 70 or 80 questions to fill out, and it is important that they are filled out, because public money is at stake.

All aspects of compliance are tracked, but compliance could be having a meter upside down. I suspect that would be an example of what you said is a non-material compliance. We track and record all that, because all data is useful in ensuring that overall we have a good approach to compliance. We obviously pursue all aspects of non-compliance, because it is important that they are corrected, but we take most seriously and function our audit and compliance work generally on those aspects where compliance is having a material difference.

As I said, I accept that the rates are high. There are reasons for that, but we focus in our compliance work on both ensuring that any applicants come into compliance and that our further audit and compliance work focuses on the most material aspects.

Q10 **Martyn Day:** I am aware that Ofgem administered the Northern Irish scheme, which was suspended. Why were we not getting lessons from that scheme with similar problems sooner?

Dermot Nolan: There were lessons learnt from Northern Ireland. I should state for the record that there is a judicial inquiry going on into the scheme in Northern Ireland, which Ofgem is participating in. I am not suggesting that I can't discuss it—I will discuss it—but I want to make that clear to the panel. Lessons were learnt. The Northern Ireland scheme is functioned in a different way in the sense that heat is a devolved matter given to Northern Ireland. Our view in submissions made to the judicial inquiry have been that the primary flaws in that scheme, which have been widely discussed, do not function in GB. There were no cost control schemes—no essential cost control. In our view, the reason the scheme became significantly over budget was predominantly because of a lack of cost controls put in place at the time, which is not the case in GB. I think there are very different learning lessons in that sense.

Having said that, we have learnt from Northern Ireland in many ways. I can give two examples. Between BEIS and Ofgem we have learnt that once a scheme is put in place it is hugely important to keep track of the scheme and to make changes as necessary. The way the scheme is set out, BEIS sets the regulations, which Ofgem uses to operate the scheme. Through

interaction between Ofgem, through our learning and BEIS's learning, there have been more than 10 changes in the regulations over the course of the scheme in GB. In my view that did not function so effectively as in Northern Ireland, so one thing we clearly learned was that once a scheme is put in place, we have to gather as much intelligence and experience as we can and adjust its operations going forward. I think we have done a reasonable job on that in GB.

A more specific lesson in Northern Ireland was where we have started to do more unannounced audits. Traditionally audits were announced: we will come and audit you at a specific time. That is perfectly reasonable audit practice in many cases, but through Northern Ireland and some examples there, we have started doing a significantly greater number of unannounced audits. So we are doing more of that and we have learnt from the scheme in that regard. There are fundamental differences in the set-up of the scheme that means they operate it in quite different ways.

Q11 Chair: There was clearly gaming going on in the Northern Ireland scheme, more so than in the GB scheme. As the regulator and operator of this scheme, how reactive were you at making the necessary changes to stop this going on?

Dermot Nolan: Chair, I will do my best to answer that, but I should say that this is the question that will probably be asked of us in a judicial inquiry at some point.

Q12 Chair: I do not want you to prejudice that inquiry, so please don't say anything that would do so.

Dermot Nolan: Thank you, Chair. All I would say is that we did try and monitor things as carefully as we could throughout and inform the relevant Department there. But as I said, that will be the subject of considerable scrutiny in the inquiry.

Q13 Chair: But in terms of the GB scheme, which you can talk about, you have mentioned the 10 changes you have made to the scheme, yet the number of people who have taken it up is considerably less than was expected. Have you made any recommendations to the Government during the course of the scheme that would improve that take-up? We have had lots of evidence and we will come on to questions about how it could have been improved, but did you, as the operator of the scheme, make any recommendations to the Government as to how it could be improved to encourage greater take-up?

Dermot Nolan: I would say two things to that. I suspect most of our recommendations to and discussions with BEIS—we have had good contact with BEIS throughout—have been about the operations and making sure that compliance, fraud and gaming is dealt with appropriately. A lot of our recommendations have been in the area of what I would broadly define as gaming, where we felt that perhaps the spirit of the scheme is not being best served by these regulations and talked to BEIS about potentially changing them. I don't think our discussions have been specifically about the policy issue of increasing uptake on the scheme, but throughout our operation of the scheme we have tried to learn as much as possible to make the process as easy as possible, subject to the fact that public money is being given away.

In that sense, we have tried to make the scheme as effective as possible for applicants. That is not necessarily for the explicit purpose of increasing take-up; I don't think that is our function. It is trying to make the scheme as flexible as possible while still ensuring that there are reasonable controls, given that public money is being distributed.

Alex Chisholm: If I could add to that a little bit, we have taken some steps between us to try to address the take-up issues. Those include trying to address awareness of the scheme among consumers. That has now got up to about one in five consumers, which is quite good, especially when one considers that you only change a boiler typically every 15 years. That has increased a lot and we have had some campaigns to stimulate it.

Secondly, as Dr Nolan was saying, it is a matter of streamlining the application process. For example, in 2016 the requirement to have a green deal assessment was removed, which reduces the time taken to apply. Probably most importantly, by continuing to adjust the

economic case so that the funds we have are targeted where they are most needed, since the scheme was introduced we have reduced the tariffs payable for biomass boilers 13 times, for an overall reduction of about 60% in the level of tariffs paid. In other cases, notably heat pumps, we have increased them, because we are not satisfied with the take-up of heat pumps. We are trying to use the economics of the scheme to adjust the take-up in the most efficient way.

Q14 Chair: Nevertheless, despite all that, Mr Chisholm, you announced on Monday a completely new consultation and said that this scheme may be closed in March 2021. Clearly, you and your Department are not satisfied with the way it is currently operating. Why did it take the NAO Report and this hearing to get you to the place, on Monday, of saying that we needed that completely new consultation?

Alex Chisholm: I will turn in a second to my colleague, Mr Osgood, to talk about this latest set of changes, but it has not come as a response to the NAO Report, although we will respond to it. The whole scheme of the management of RHI has been one of making constant fine-tuning adjustments to make sure it is as effective as possible. I make no apology for that, because it is appropriate to have that type of flexibility. Indeed, the NAO's own framework to review programmes notes that it is important to have sufficient flexibility to be able to deal with changes in the operating context. We have shown that flexibility to make those changes, continue to improve the value for money and make sure the scheme operates in the way it should. In terms of this latest set of changes that have just been put before Parliament, perhaps I could turn to Mr Osgood to set it out.

Dan Osgood: There are a couple of recent developments. The first, which the permanent secretary has just referred to, is a further set of regulatory changes to the scheme to try to better target it and increase take-up of the kinds of technologies that we want to see. For instance, that would be changes to bring forward larger plant, which tends to be better value for money because there are greater economies of scale. The second thing, which I think was in your original question, Chair, was the call for evidence that the Department published, I think also on Monday this week. As the permanent secretary has said, the RHI has a budget until 2021 and it will be for Ministers to decide what happens after that. With the call for evidence published on Monday, we are looking to gather views on the mix of policy instruments we are likely to need during the 2020s, as we continue to try to reduce carbon emissions from the heating sector.

Q15 Chair: So are we likely to see a continuum from March 2021 to whatever the new scheme is going to be? Will there be a pause between the existing scheme and the new scheme, or is it your intention that there should be a smooth flow between them?

Dan Osgood: Obviously decisions about the future policy framework will ultimately be for Ministers to make, but we are mindful of the need to preserve the benefits we have secured so far through the renewable heat incentive and to try to manage as smooth a transition as we can, particularly for those technologies that we think will be particularly important as we look out to 2050 and the longer term, legally binding targets that Parliament has set.

Alex Chisholm: If it helps, let me draw the Committee's attention to the fact that the clean growth strategy, which we published in October last year, sets out a number of possible options for further improving the take-up of renewable heat. It also commits the Department to doing a wider review of all the possible options for reducing carbon emissions in the heat system in the course of 2018. That is timely because, as you know, the Government will have a spending round next year—2019. In each of the last three spending rounds the budget and the approach for RHI has been adjusted for the period ahead.

Chair: I am sure that colleagues will have lots of questions about that. Back to Martyn Day.

Q16 Martyn Day: Going back to the scheme for non-compliance, Mr Nolan, do you have the required resources and systems in place to tackle the most costly aspects to the taxpayer of that non-compliance?

Dermot Nolan: I believe we do. I believe we have sufficient powers and resources. We have

worked with BEIS, and we are well resourced to deal with the schemes. They obviously involved a fair number of set-up costs, but we have been subject to challenging budget requirements from BEIS on that, while still ensuring we have resources.

We obviously take non-compliance extremely seriously. Let me say a bit about the way we check non-compliance. A lot of it is initially through the accreditation for the scheme. That is one of the most basic ways in which we ensure compliance. When someone is trying to get on to the scheme, either non-domestic or domestic, they go through a fairly exhaustive list of questions to be answered, all of which are legally binding. In the non-dom case, that is particularly extensive. We also do some pre-accreditation audits. About 10% of the sites will be subject to site visits before accreditation. That is one way in which we ensure strongly that we have compliance.

Another way is that audits and compliance work for the scheme are ongoing. As I said earlier, I believe we are resourced for that. We have done audits in a variety of different ways in the past. I am not trying to be oleaginous here, but I thank the NAO for the work they have done with us in the last few months in clarifying the most effective audit policy. As a result of that work, we probably have a more robust overall approach to audit. We have two prongs, if you will, to our audit approach. We look at an overall average sample of the sector—the NAO asked us to do that—so at any given time we can provide an accurate measure of non-compliance across the entire sample of sites.

Simultaneously, the other half of our audit programme will focus on targeted audits. Based on the new devices we have seen coming on, based on the highest value issues—the things that could cost the taxpayer the most money—and based on our experience of compliance over the life of the scheme, we will specifically conduct targeted audits where we think the most value is at stake. We will have both approaches going forward, and I think they will strengthen our audit regime.

Q17 **Martyn Day:** Thank you. Your own organisation's estimate of the financial impact of non-compliance is 4.4% for non-domestic and 2.5% for domestic. What would be an acceptable level of non-compliance to get that down to?

Dermot Nolan: BEIS's own guidelines are 1% and 3% respectively, and those are the goals we will meet. Without getting too nerdy, that 4.4% figure for non-dom was derived from the 2016-17 results, but as I said we were targeting a particular type of plant in that audit. Over the last year, a large number of what are called biomethane plants had joined the scheme. In many ways, the take-up of that has been very high—it is quite positive—but because they had grown very quickly, and because we had certain triggers about what was happening, we conducted audit very much on those particular plants. That 4.4% was higher than what we had found historically, possibly because they were new plants.

Because it was an estimate, it was a high estimate. We used a methodology we call maximum potential loss. That estimate of 4.4% turned out to be lower in practice. As a result, the real level of the cost of non-compliance was probably less than that exposed. Going back to your question, perhaps in a rather long-winded way, I believe that we can and will get down to at least 1% for non-domestic. That would be very much our target—and to do better than that going forward.

Q18 **Martyn Day:** Would you be prepared to put a timescale on getting to that point?

Dermot Nolan: There are a number of points on timescales—one is that I spoke earlier about having learned from the NAO study and having an approach that looks at both a formal average sample and targets. We will have a methodology fully established for that by June this year. We will write to the Committee and to the NAO with formal updates of what that looks like. In terms of timescales, on the basis of applying such an estimate I would very much hope that we would be at that 1% immediately—there is a good chance we will be—and in any case I would suggest that over the next two or three years, we should clearly be in that.

Q19 **Chair:** Mr Nolan, will that timescale be in any way affected by the reorganisation within your organisation?

Dermot Nolan: No, it will not. Ofgem is being restructured at the moment, but merely the energy regulatory side. There has been some restructuring of E-Serve itself, which is the delivery arm of Ofgem, but I am fully confident that there will be no delay in that.

Q20 **Chair:** Sadly, Chris Poulton, you will lose your job in that restructuring. Do you have any recommendations? I appreciate that this is slightly invidious, with your boss sitting alongside you, but nevertheless it would be very helpful to the Committee. Clearly, fraud gaming is a very important issue for this Committee—we do not like to see taxpayers' money wasted in any circumstances. Do you have any recommendations for us in the light of your experience as to how the system can be improved?

Chris Poulton: A lot of the improvements are part of project plans already, so the recommendations from the NAO have formed part of a project to oversee those improvements. There is continuity within the fraud team, and I think our response to fraud is very good. Notwithstanding the issues with the calculation of non-compliance, where we fully acknowledge that improvements can be made, and they are the improvements and the numbers that we can come back to in June.

I believe we have a strong record on tackling non-compliance that has a financial impact, so that would include nearly 12,000 applications being rejected or withdrawn from the scheme because they cannot meet the criteria that we set out for them. We have suspended payments on 3,000 accounts on the scheme while we have investigated issues of non-compliance, and we have revoked 600 accounts—we have essentially kicked 600 people off the scheme because they do not meet the standards required to be on the scheme.

As long as the work is carried forward from the NAO recommendations, as Dr Nolan says, I am actually very confident about our non-compliance and fraud regimes doing that work.

Chair: Thank you for that candid answer.

Q21 **Martyn Day:** Moving on to gaming, which was a new concept for me when I read the Report, we see that we have only had just over 8,000 installations. Do we have any concept as to how many of those are multiple installations at the same location that would perhaps fall into the gaming category?

Dermot Nolan: I will start on that, but I might hand over to Mr Poulton at some point. On gaming specifically, just to confirm to the Committee what we view gaming as: something where there is a technical compliance with the scheme, where we are required to make payments, but it seems to us not to be in the spirit of the scheme. As such, obviously they are the kinds of things we refer to BEIS on. We have taken a number of steps, as I said earlier, that saw regulations being changed—the interchange between Ofgem and BEIS is quite good at that. I think there will always be attempts at gaming, and that's understandable. There will always be attempts at gaming and, as I said, one of the important things about the scheme is to ensure from now until, frankly, 2041 there are continued attempts to enforce compliance and stop gaming—to ensure there is compliance and there is no gaming. On the specific examples you referred to, I will ask Mr Poulton to speak to that specific point.

Chris Poulton: Obviously there are reasons why multiple boilers can be eligible for the scheme. In circumstances where they are perhaps gaming the tariffs, and the tariffs that have been set out, action has been taken to bring those tariffs to the same level to resolve the issue of undersizing or oversizing the boilers. So action is taken. I think one of the key things is that there is regular dialogue between ourselves and the Department, so that what we are seeing on the ground, on the applications that come to us, and what people are declaring to us when they apply, is known and understood. There is a central gaming register, which we hold with BEIS, which gives us the opportunity to discuss in regular governance sessions what areas to tackle next.

I think one of the key things from the NAO Report, which we support, as well, as a finding, is we need to do more to try and quantify the value of that gaming, to assist BEIS in prioritising what they would like to fix next. It is difficult, because some of these areas, they are legitimate installations, and we need to try and work out where we might be stifling an organisation's requirement to have redundancy in their system or to provide back-up or to successfully heat different sites, which may be best done with separate boilers; but we need to quantify as much as possible to assist in that decision making.

Q22 Martyn Day: Thank you for that. Just to round up on the whole general thing, if I can come back to Mr Chisholm: can you reassure us that the Department is on top of the problem of fraud, gaming and non-compliance?

Alex Chisholm: Yes, we feel that we are on top of it, but we do really, just to emphasise what Dr Nolan said, welcome this Report. It has been extremely helpful to us. It is a good quality Report and we expect—not over-anticipating the formal response we give, but we do expect to respond very positively to it. There are lots of helpful suggestions and recommendations in here, so that will further improve our efforts; but I am very comfortable with the approach we are taking.

Q23 Caroline Flint: Mr Osgood, I want to ask some questions about the forecast for the renewable heat incentive. Why did you get your original forecast so wrong?

Dan Osgood: The original forecasts for the scheme, which were when it was set up back in 2011—I am afraid I cannot speak to that time precisely because I joined the team at the start of 2015.

Q24 Caroline Flint: I am sorry; I thought you were there in 2014. Is that not correct?

Dan Osgood: December 2014.

Caroline Flint: Okay, thank you.

Dan Osgood: I cannot speak for the thinking behind the original forecasts. Clearly, with hindsight, they have proved over-optimistic. I think there are some good reasons for that, which are mentioned in the NAO Report, in terms of the Department actually taking the time—one of the decisions that was taken was actually to pause roll-out of the domestic scheme and, instead, to concentrate on putting proper cost controls in the non-domestic scheme.

Q25 Caroline Flint: Let me just stop you: you must have had some discussions in the Department about looking at the data that was coming in and just seeing—I would say relatively quickly—how out of kilter it was, because, just for the record, Chair, the original ambition for the number of installations by 2020, which was made in 2012, was 513,000. The total number of installations in December 2017 was 78,048. The NAO Report estimates the number of installations likely to be achieved by 2020, based on current rates of take-up, to be 111,000. That is around an 80% reduction in the expected take-up of renewable heat technologies through the RHI. That must have led to discussions in the Department. Why were those forecasts so wrong?

Dan Osgood: As I have said, with hindsight those forecasts were too optimistic.

Q26 Caroline Flint: Why?

Dan Osgood: I am afraid that was before my time in the Department, so—

Q27 Caroline Flint: But you are in the Department, Mr Osgood, and you have been there from December 2014. I do think there is a responsibility on people coming in to take over a job to do a pretty good assessment of the state of play, look at the ways in which the methodology was arrived at to make those assumptions and forecasts, and therefore be able to intelligently input into a Department something that is more than, "With hindsight, I wasn't there." So what have you learned, having arrived in the Department, about where DECC and BEIS have got it wrong in terms of the forecast?

Dan Osgood: There is a chart in the NAO Report looking at uptake of the scheme against budget. That shows that for the first few years of the scheme, until 2014-15, uptake was significantly below the forecast. We then realised that that was the case; we adjusted the forecasts and since then the spend has been within 10% or 15% of the budget for each of the years since 2015-16. Corrective action was taken to address the previous over-optimism. That is the first point I would make.

The second point I would make is on using the number of installations as a metric of success. I know that that was used back when the scheme was first set up, in 2011-12—you have identified those numbers—but I think the Department's thinking has moved on since then to the number of installations not in itself being the best metric to use.

We have instead focused on the outcomes we are achieving, in terms of the amount of carbon saved or the amount of renewable energy generated. For instance, I think there are roughly 80 biomethane plants in the scheme at the moment. Together they generate more heat than 50,000 or 60,000 installations on the domestic scheme.

Q28 **Caroline Flint:** Can I just stop you there, Mr Osgood? Figure 7 on page 25 of the NAO Report helpfully outlines what the starting ambitions in different areas were and what the current ambitions are. Interestingly, for the first heading, "Renewable heating not eligible for the RHI by 2020", the starting ambition was 10 TWh—terawatt-hours—but the current ambition is 37 TWh. That is among renewable heating that was not even eligible for the RHI. That has gone beyond expectations.

However, we then move down to "Renewable heating funded by the RHI by 2020", which had a starting ambition of 61 TWh but has a current ambition of 21 TWh. It seems that, actually, a scheme to pay people to do it is doing worse than a scheme that wasn't there to encourage people to put in renewable heating.

We then have "Total renewable heating by 2020", which had a starting ambition of 71 TWh and a current ambition that is down to 58 TWh, and so on. In terms of "Lifetime carbon emission reductions funded by the RHI", the starting ambition was originally 246 metric tonnes of carbon dioxide equivalent, which went down to 137. Is it fair to say that, overall, the renewable heat incentive has failed?

Dan Osgood: Since the scheme was set up in 2011, there has been a change in the Government's understanding of how best to decarbonise heat and what the right strategy should be for the long term. When the scheme was set up in 2011, and in strategy documents published in 2012 and 2013, the prevailing understanding was that the way to decarbonise heat was through electrification, with every building having its own heat pump. The challenge was thought to be how to get from close to zero to 30 million households by 2050. That is how numbers like the 513,000 installations were arrived at.

Q29 **Caroline Flint:** How many households in the UK are covered by gas boilers?

Dan Osgood: Some 85% of homes get their heat through gas. Roughly 80% of total heat in the UK is from gas.

Alex Chisholm: Can I just come in, if that is possible?

Caroline Flint: I will come to you, Mr Chisholm.

Alex Chisholm: This will be in answer to your question.

Q30 **Caroline Flint:** About gas boilers?

Alex Chisholm: No, your overall question about the difference between—

Q31 **Caroline Flint:** Let me just pursue this. Around 80% to 85% probably rely on gas boilers and gas appliances for their cooking and heating. Do you agree that there was an over-optimistic assumption, to say the least, that, on domestic installations, people would move from that to

heat pumps?

Dan Osgood: The understanding at the time was that that was going to be the future for heat.

Q32 **Caroline Flint:** Do you think there was an over-optimistic assumption, based on what we know about the actual implementation and take-up of the scheme, in regard to heat pumps?

Dan Osgood: I think there have been two things. One is that the strategy has changed. It is not just that the Government have changed their view on how heat might be decarbonised by 2050. For instance, the Committee on Climate Change—as you know, it is the statutory independent adviser to the Government on this—has reduced its projections for how many heat pumps there needed to be by 2030 by 65% over five years.

Q33 **Caroline Flint:** Why do you think people didn't take up heat pumps under the RHI?

Dan Osgood: Some of the learning we have got from the scheme is around, for instance, awareness of the technology, or the fact that a heat pump performs differently from a gas or oil boiler.

Q34 **Caroline Flint:** It obviously performs differently from a biomass boiler—I get that—but why do you think the public were not interested in heat pumps? If you look at the number of gas boilers bought each year, it is still massive. What was putting people off installing heat pumps through the RHI?

Dan Osgood: Awareness has been relatively low. I think the fact that heat pumps perform differently—

Q35 **Caroline Flint:** We know they perform differently, but what is it stopping someone deciding? Have you done any research into consumer views on moving from gas to heat pumps?

Dan Osgood: The consumer work that we have done suggests that people who have heat pumps are actually quite happy with them. They are happy with how they perform, and their ability to heat their homes.

Q36 **Caroline Flint:** Yes, but what about people who are not choosing the heat pumps? If you have moved to a heat pump, there is a process that someone has gone through, and I hope that they are happy with it. I am talking about the fact that the installations are down in terms of the forecasts in this area. Interestingly, in some ways biomass/biogas has over-delivered against the original forecasts, but heat pumps have clearly under-delivered—98% of the heat under the RHI non-domestic is biomass and biogas; heat pumps are 1%. Under domestic, although it is more even, it is still a fact that biomass heat is a lot higher. What do you know about why people are not attracted to heat pumps? What is getting in the way?

Dan Osgood: There are a number of barriers, many of which we are trying to address through the RHI. The first is the upfront cost. Obviously, a heat pump is more expensive than a gas boiler. That is part of what we try to take account of in setting the payments. They perform differently. Quite often there need to be in-house works—for instance, changing radiators or insulating the property—that are additional cost and hassle. We have made changes to the scheme already to try to get greater uptake of heat pumps.

Q37 **Caroline Flint:** Mr Osgood, that is interesting because upfront costs will be important. It is all very well having a tariff that you can gain back over time as you produce the energy, but if upfront costs are prohibitive that is an issue. If you already have piping and everything in your homes to suit a gas boiler, the changes to the heat pump will be another factor that comes in. I do not quite understand, if the Department had done its research, why you know that now, but did not know that before you set up the scheme.

Dan Osgood: This is one of the changes in the Department's understanding since the scheme has been set up—that electrification of heat through heat pumps is only one way through which we might arrive, ultimately, at our 2050 targets. That shift in understanding is based on the learning from the renewable heat incentive, and on discussions with stakeholders. Various reports have been published recently. As I say, it is not just the Government's understanding

that has evolved; the Energy and Climate Change Committee's understanding has also evolved, and its ambitions for heat pump deployment have been scaled back quite significantly.

Q38 Caroline Flint: Do you think that the Department did not do enough consumer-related research into what consumers might choose to change, and that is a lesson learnt?

Dan Osgood: I think we definitely learned lessons about the importance of consumer engagement.

Q39 Caroline Flint: Yes/no: do you think the Department, based on what we know now, did not do enough research related to consumer-engagement, and looking at upfront costs and the impact that that might have on people taking up the scheme? Do you think that not enough work was done in those areas?

Dan Osgood: Yes, that would be one of the lessons that I would take from this.

Q40 Caroline Flint: Okay. Mr Chisolm, what do you think about the over-optimism? It stands out like a beacon. Nobody could deny that.

Alex Chisholm: I think it is an excellent question, and I have tried to look into the matter, because that is obviously very striking when you go back to the original plan for the scheme and how it has played out. What I have understood from that—maybe it will help the Committee to understand it—is that, first, it is important to realise that we needed to be very ambitious when we were setting off on this journey back in 2010. Unlike other European countries, the UK did not have very much renewable heat. In fact it had hardly any—less than 1%. There are countries in Europe that have 30%, 40%, or even 50%, and they have had that going back to the 1970s and even before that. We had a lot of catching up, and we had statutory obligations—not only the Climate Change Act for de-carbonisation overall, but the renewable energy directive. It is understandable that the Department, going back to 2010, was extremely ambitious.

Secondly, it is important to recognise that there was no pre-existing guide to refer to. The RHI scheme is a novel one, as recognised by the NAO Report. It has since been copied by other countries, notably the Netherlands, but there wasn't somebody else who had done one before that. We could not simply look for examples elsewhere and see what the effect had been.

If you look at the roll-out, you see that the main reason why the scheme underachieved in its early years is because the Department was cautious—properly so. They launched the non-domestic scheme and then there was just less than three years before they launched the domestic one. That was because they wanted to apply all these cost control measures, which had been so important in keeping it within budget.

Having said all that, I do think that I detect—as I think you are searching for—an optimism bias. It is quite often seen in Government projects. Indeed, major projects are systematically applied to a discount to allow for this optimism bias-type factor. That has been introduced since that time. You are also right to suggest that when civil servants like ourselves plan schemes, we sometimes underestimate the exact way in which consumers will react to them. Take-up was a bit slow. It took longer for awareness to build. Things like up-front costs did provide a significant deterrent. The actual ease of applying, the amount of time it takes to apply and the time it then takes to get an answer all make quite a big difference. Lessons have absolutely been learned from that.

However, probably the most important thing is to recognise that the market has changed a lot over that time. As you rightly say, the unpaid-for renewable heating market has done remarkably well—wood stoves, and so on. That is something to feel good about, because it means we do not need to pay for that useful effect. The renewable heat incentive scheme itself has been changed to take account of differences in the availability and cost of different heating technologies; to ensure, crucially, that it is targeted strategically on off-gas grid on the bigger installations; and lastly to recognise that we are not fixed to a particular model for how much of any heating technology we have or the what the overall contribution of heating does to the

overall decarbonisation goal.

We need to ensure that we hit our renewable energy targets—we are on track to do so, and we have hit every interim measure so far—and we deliver against our overall goals of reducing carbon emissions by 80% by 2050 and in every carbon budget until then. Again, we have over-delivered so far. It has been an extremely successful scheme from that perspective. We are on track now, since 2015. The most recent independent assessment done by the Committee on Climate Change in their October 2016 report “Next steps for UK heat policy” said that the level of RHI funding was sufficient to be consistent with their scenarios up to 2020. The scheme that we have, as well as being on track, appears to be correctly funded to deliver against our goals.

Q41 Chair: If it was all so marvellous, why did you launch a consultation on a new scheme on Monday?

Alex Chisholm: It isn't a new scheme. It is small changes to the scheme. As I tried to emphasise earlier, we have made changes to the scheme the whole way along to continue to refine it and to target this precious taxpayer resource to where it will achieve the biggest benefit.

Q42 Chair: Can I put it to you that if a consumer needs a new boiler, they will go for the cheapest option. If there is a scheme that is very little-known called the RHI—it is relatively little-known—giving them some money towards a much more expensive installation, such as a biomass boiler, a renewable heat pump or whatever, the average consumer, who let's face it, is pretty strapped for cash, will go for the cheapest option. Was the scheme ever likely to have the take-up that you thought it would?

Alex Chisholm: Could I come back on a couple of those points? First, on awareness, the most recent survey we did showed that about 19% of people were aware of the scheme. I would suggest that is a reasonably high figure. People's attachment to their boiler is probably much lower than their attachment to their mobile device or other items around the house. As I mentioned, people typically change their boiler only once every 15 years. An approximately 20% level of awareness is actually quite good.

Q43 Caroline Flint: Sorry, could you clarify the 19% or 20% level of awareness? What was that sample? Where was that poll done?

Alex Chisholm: That was from a survey.

Q44 Caroline Flint: What survey? Can you tell us about that survey?

Alex Chisholm: It's in the NAO Report. While we look up the page reference for that, your other point, Chair, was that the typical consumer wants the cheapest option, so why would they go for a more expensive one? The whole design of the scheme means that the decision to move from an oil boiler to a renewable one should be neutral, because the incremental costs of that are addressed by the stream of payments from RHI. That is the exact purpose of the scheme—to mean that people who want to move to renewables should not be financially penalised for it. It should be equivalent. We are just looking up—so yes, the Department's quarterly energy and climate change public attitudes survey is referenced in figure 5, on page 21 of the Report. It undertook around 2,000 face-to-face interviews. Between 63% and 78% of people, and 21% of businesses, said they were aware of renewable heating.

Q45 Caroline Flint: But it also says in figure 5: “Public awareness and familiarity: People are aware of renewable heating technology but are unlikely to install it. The Department also acknowledges in its 2015 and 2016 surveys that awareness of the RHI is ‘low’ and there is a ‘current lack of public knowledge’”. It would be interesting to know what the advertising and marketing spend has been on smart meters, Chair, compared with the renewable heat incentive. I imagine that smart meters have had a lot more investment in that area.

Chair: Sorry, but before I allow you to get on, I want to come back to my typical consumer, who desperately needed money. This scheme, despite your optimistic objectives for it—you say it should be cost neutral—is not cost neutral, because you have to put the capital up front. One

of the ways of encouraging people to put the capital up front and then get repaid by the RHI scheme would have been to have a realistic green investment loan, but they were not realistic—they were way above the current rate of interest. I put it to you that that was a further disincentive for the average consumer to opt in to the scheme, and it rather suggests that your Department does not have a properly thought through heating carbon policy.

Alex Chisholm: Could I come back on the question of the cost to the consumer and that being a barrier? Economically speaking, it is neutral, but that is based on your rate of return. I appreciate that a lot of consumers may not be thinking about—

Chair: They put the money up front.

Alex Chisholm: It is an up-front cost, so although they will be no worse off financially speaking, they will have the sticker shock of the up-front cost.

Chair: But if you haven't got the money to put up front.

Alex Chisholm: Understood. That is recognised as an issue for some consumers. To address that, our latest idea is that for domestic RHI, we should enable the assignment of rights, which is designed to mean that somebody else could meet that upfront cost and have the benefit of that ongoing stream of payments. We have just done a call for evidence and a public consultation on that, which addressed the public consumer protection issues that obviously apply there as well, and that is something that we are now looking to introduce to deal with the exact issue that you mentioned. We are also talking with the Financial Conduct Authority about whether there are other safeguards that we can introduce.

Q46 **Chair:** Could I just put the fundamental part of my question about your Department's policy in carbon reductions on heating in the UK? Does that not really show that your Department needs to come up with an overall policy as to how you are going to reduce carbon from heating in the UK?

Alex Chisholm: Yes. As I say, I think the scheme has been very effective to date in helping to get us up to the level of around 6% of heat coming from renewable and low carbon sources in 2016. Looking forward, the picture has changed compared with what the original expectations were. At that time, as my colleague, Mr Osgood, was saying, the assumption was that there would be a sort of mass roll-out of heat pumps and things like that. That is looking less likely now. Heat networks look like they will play an important part, and we are also in the process of a very key strategic review being undertaken this year about what to do with the gas network. One option, for example, is to use hydrogen in the gas network, which has its own costs and other issues, but we need to address that more fundamental question about where the heating is going to come from.

Q47 **Chair:** I'm going to stop you, Mr Chisholm. I would just like to get a fundamental answer to a very simple question. Doesn't this whole episode demonstrate that your Department needs a policy on carbon reductions in heating in the UK?

Alex Chisholm: We are reviewing, this year, exactly that overall strategic perspective about what is the optimum mix of low carbon heating technologies for the future.

Q48 **Chair:** So when would we expect to see an overall review of that matter?

Alex Chisholm: That is to be conducted in 2018—that is our commitment—so by the end of the year.

Q49 **Chair:** So by the end of the year we can expect a letter from you, or presumably a ministerial announcement in Parliament, about what this is going to be.

Alex Chisholm: Yes, I expect so.

Chair: Thank you.

Q50 **Anne Marie Morris:** I am interested in your new policy direction. It is good that you are going to have a strategy on carbon, but in your consultation you say that you want a viable supply chain for clean heating systems. My understanding is that heating systems give out a number of pollutants. Clearly one is carbon, but there is also nitrous oxide, particulates, etc., and we learned the hard way, with regard to vehicle emissions, that those are equally harmful. Given our policy of clean air, is your strategy going to extend to looking at the impact of those other chemicals?

Dan Osgood: Yes, there are already rules within the renewable heat incentive, particularly in relation to the sustainability of biomass. There are also standards, in terms of the performance of boilers. People installing boilers need to make sure they have got a valid emissions performance certificate. That is one of the things that Ofgem's auditors will check when they come and visit. Many of the boilers going in under the RHI are probably replacing oil or coal, which themselves are quite bad from an air quality point of view. Air quality is certainly something we take very seriously within the scheme.

Q51 **Anne Marie Morris:** Clearly it is a better scheme than oil—absolutely—but we are looking at the future, not just at where we are today. We are talking about a strategy for the future, possibly going on to 2040 or 2050. Have you started looking innovatively at those other emissions, which are in many ways equally damaging? My particular concern is that this is not just about measuring at the point of installation. We are talking about air quality, and that measurement takes place in areas that are more urban—along the roads. Many of the sorts of renewable options that I suspect you are going to put forward in the longer term are going to be in rural areas, and therefore the air quality will not be monitored in the same way.

Dan Osgood: We are talking to Department for Environment, Food and Rural Affairs, which obviously leads on air quality. I know that it plans to publish a clean air strategy before the end of the year. I am confident that the heating dimension of this will be taken into account in that work.

Q52 **Anne Marie Morris:** Are you talking to them directly? I am a bit concerned that you say you believe they will. Surely you should be at the heart of this debate.

Dan Osgood: Yes, we are talking to them directly.

Q53 **Anne Marie Morris:** Excellent. Between you, how are you going to look at measurement in rural areas, which are mostly where these new types of technology are being used?

Dan Osgood: We would have to get back to you on that, I'm afraid.

Anne Marie Morris: If you would.

Q54 **Chair:** Coupled with that question from Ms Morris, Mr Nolan, when somebody like me installs a scheme, you have an emissions certificate from the installation you are installing. Do you do any follow-up tests on emissions to ensure the boiler—if it happens to be a biomass boiler—is properly maintained and that its emissions are not getting worse and worse? Are you doing follow-up emissions testing on those installations?

Dermot Nolan: As you said, Chair, everyone is required to have a certificate, and we are very careful about that. We do not formally follow up and measure air quality ourselves. One of the things the Report said very clearly was that we must co-operate more effectively with other bodies—in particular, local authorities, which are responsible for maintaining air quality. We will work more in conjunction with them to ensure we share data with them and allow them to maintain air quality. That is one of the recommendations in the Report we will take forward very strongly.

Q55 **Chair:** Mr Chisholm, in designing a new scheme, it is all very well having the energy efficiency and carbon reduction in the actual installation, but what else is your Department doing? We talked about EPCs for let properties, but surely any scheme should look at some form of EPC for the property in which these hopefully carbon-reducing installations are taking place so they are not reducing carbon at one end but letting it go out the roof, or through the

windows or walls, at the other end. The two need to go hand in hand, surely.

Dan Osgood: I would agree. It is important to look at the home or the building in the round. It is about both the carbon content of the fuels being burned and the energy efficiency of the building fabric, and the standards relating to, for instance, consumer products, which are a major consumer of energy. I agree that it is important to take that building perspective.

Q56 **Caroline Flint:** May I return to forecasting? Clearly, forecasting is linked to a strategy. I have listened very carefully to what you have said, Mr Chisholm and Mr Osgood. It seems to me that as this scheme got out of kilter, the Department moved the goalposts. It actually moved the goalposts closer together, so that we now have a scheme that is more narrowly focused on homes and businesses that are not connected to the gas grid. That reduced the reach, pull and ambition of the project. There is less funding than expected for the RHI: the lifetime cost, which was £47 billion in 2012, reduced to £23 billion following the spending review. I am sure the Treasury will love that, but clearly that is about ambitions being reduced. On top of that, the consequent ambitions for carbon emissions have also been reduced. The lifetime carbon emissions reduction funded by the RHI has been reduced by 44%. Again, what impact has the Department's over-optimism about the RHI had on reducing carbon emissions from heating and on the expected reach in terms of the many different types of communities around the country?

Alex Chisholm: It is correct, as you say, that the scheme has become better focused and it has been lower cost, and we have still been able to deliver against all our goals.

Q57 **Caroline Flint:** But it is not better focused. You say it is better focused and that the costs have gone down. I would like to hear, "We're better focused and the costs have come down, but our outcomes are the same." That is not really the case here, is it? The outcomes have been drastically slashed. You could say that that is better focus, or that you have actually just cut out of the picture a whole number of homes that could have benefited under the original scheme. Is it better focused, or just a reduced scheme?

Alex Chisholm: The important thing to recognise with a scheme like this is that it should not just blindly continue in the light of important developments in the market around it. The overall goal, as I tried to say before, is twofold: first, to deliver against our renewable energy obligations, and secondly, to make sure that we are on track with our carbon emission reductions. We are delivering against those goals. We have flexibility about the precise ways we adopt to achieve those goals, and we have utilised that flexibility. We are on track. In fact, we are over-delivering on both those very important statutory obligations, and at a lower cost than we expected. That is a good use of the flexibilities that are made available to us.

Q58 **Caroline Flint:** But it is the case that the lifetime carbon emission reductions funded by the RHI have been reduced by 44%.

Alex Chisholm indicated assent.

Caroline Flint: You nodded yes. That means that other schemes have probably had to work harder to fill the gap left by the RHI. That is the case as well.

Alex Chisholm: No, not necessarily. As you rightly pointed out, and figure 7 of the Report shows, lots of renewable heating that we do not subsidise has hugely over-delivered. We thought it would be 10 TW; it has turned out to be 31 TW. That is money we do not need to spend.

Q59 **Caroline Flint:** But the fact that people have gone out and bought a load of wood burners is not part of the Government's strategy, is it? For all I know, they could be contributing to poor air quality, so that might be another issue down the road. That is really nothing to do with your Department, is it? That is just consumers saying, "I fancy a wood burner."

Alex Chisholm: Our Department's responsibility is to deliver against those goals at the lowest possible cost.

Q60 **Caroline Flint:** But you didn't deliver those, did you?

Alex Chisholm: No, but that's fine. That's great. The main thing is to make sure that we deliver against the overall objectives. As the Report points out, if we had continued with the original installations plan, the lifetime payments for that would have been £47 billion. They are now estimated to be more like £23 billion. That is excellent. That is £24 billion worth of taxpayers' money made available for other uses.

Q61 **Caroline Flint:** Mr Chisholm, I am sure you are not trying to misinform this Committee.

Alex Chisholm: Definitely not.

Q62 **Caroline Flint:** If you were saying it was £23 billion producing the same outputs, I would be cheering from the rafters and saying, "Wow! Give that guy a knighthood, now!" The truth is that the projected cost of the scheme was, yes, a huge amount of money—£43 billion—but that was against having 513,000 installations, contributing more to reducing our carbon emissions, having a market arrive out of this with a supply chain and, on top of all that, doing good with our contribution to climate change. That has not happened. That has not happened. This scheme is not the scheme that was first envisaged, is it? Therefore, the £23 billion is set against a much reduced scheme—a scheme that has not worked on its initial forecast, is actually reducing carbon emissions less than expected, and in some cases is costing more per installation. I will get on to value for money.

Q63 **Alex Chisholm:** The scheme has indeed changed its shape over the course of it, in a good way: for example, in the balance between domestic and non-domestic—about 90% is now non-domestic. As Mr Osgood said, we have moved away from tracing the sheer number of installations; we are interested in the total amounts of TW hours of renewable energy produced. We have a smaller number of installations—year on year they fell last year—but the actual amount of TW hours of renewable energy produced on that grew. We are backing a smaller number of larger, more beneficial schemes. Again, the changes to the scheme, to make it more strategically focused and better value for money, are welcome changes.

Q64 **Caroline Flint:** Let's go on to value for money. As the mix of technology supported by the scheme is different from expected, how has that affected the value for money of the scheme?

Alex Chisholm: As the NAO Report shows, the cost per MW hour was around £45 in 2018 prices. That cost is between 8% and 12% lower than the two previous estimates that have been done. For me, another important measure of value for money is relative to other ways of reducing carbon dioxide emissions. The comparison that we use is 56% per tonne of CO2 equivalent, versus £68 as the benchmark price, both in 2020 prices. They are both indicators that this has been good value for money.

Q65 **Caroline Flint:** Paragraph 12 of the NAO Report outlines that the estimated "cost to taxpayers for each megawatt hour of heat produced under the...scheme is £49 compared with the Department's latest target of £51." I accept that there might have been a light adjustment since the Report. It continues: "For carbon reductions, we estimate the cost to taxpayers for each tonne of carbon dioxide equivalent saved is £142." However, the NAO draws concerns that some of the Department's assumptions are "optimistic", in particular not taking account of "installations which may have occurred anyway, regardless of whether a RHI was launched." What do you say to that?

Alex Chisholm: That is a well-known problem in trying to estimate what would have happened if you had not done the scheme in the first place. Certainly, a portion, particularly of domestic consumers with the means to do so, would have likely chosen to introduce renewable heating technologies. We have tried to make calculations about that so-called deadweight cost from survey evidence, which is pretty imprecise because you are asking somebody what they would have done—it's a hypothetical question. When asked that question, quite a lot of people say, "Dunno". Some people say they think they would have bought it anyway; other people say that they would not have. We have tried to estimate that.

I emphasise again that the biggest part of the scheme is non-domestic—that is more than

90%. We are very confident that the deadweight cost is low, particularly for biomethane, where there was really no market at all to speak of before the scheme came into existence. It is now a pretty successful market, with £338 million spent on developing biomethane. There has been a good take-up of that scheme; it has created a supply chain and a successful industry where there was none before.

Where there must be some deadweight is in the consumer installations of biomass. We have tried to reduce that as much as possible, by focusing on existing properties rather than new build. We felt that in new build situations the incentives were already sufficiently strong that we did not need to offer people that additional incentive, but it is impossible to totally eliminate that deadweight cost.

Q66 Caroline Flint: One of the pieces of written evidence given to the Committee was from the University of Exeter's Energy Policy Group, which suggested that part of the cost-effectiveness has been skewed toward biomass, therefore making the scheme appear cheaper than it should be, but it has not delivered some of the heat technologies with strategic importance. Do you think that is fair?

Alex Chisholm: Yes, I think that is a fair comment, in the sense that when you look back at people's expectations and plans of what we think we need overall, as that report says, biomass and biomethane have been very successful, but where we have had less success is in heat pumps, which I think are only about 3% of the overall scheme. That is much less, and if you look at why that is, the obvious reason is price, whereas for non-domestic biomass boilers, comparing the prices between 2011 and 2016 as the NAO Report does, the costs have been reduced by 46%, which has obviously made them much more attractive to people. The costs on heat pumps have not really moved very much, so we have not—

Q67 Caroline Flint: The market is flat.

Alex Chisholm: Yes, the market is pretty flat. As I say, our overall strategy for managing the scheme is to continue to make adjustments as necessary. We will increase the incentives for people using heat pumps, to try to make that market more attractive to them, to try to bring it to life and to improve that heating technology. That is the approach we are taking to that.

Q68 Caroline Flint: Sixty per cent. of households do not have adequate insulation in their loft. Do you think that, in terms of value for money and energy efficiency, getting that right should be a higher priority in the Department's concerns? What is the point of putting in a heat pump or, for that matter, a biomass boiler if the heat is all going out of the property? Reducing demand would also have an impact on our carbon emissions.

Alex Chisholm: No question but that the cheapest energy is the energy you do not use. We have had a lot of schemes to try to promote energy efficiency over the years. The green deal clearly was not a success. The ECO scheme has been a big success and is continuing to deliver very effectively, with millions of households benefiting. I agree that energy efficiency is very much part of the overall solution.

Q69 Caroline Flint: In your call for evidence announced this week, are you interested in something where we couple energy efficiency much more closely with any change to the sourcing of your heating?

Alex Chisholm: Potentially, yes.

Q70 Caroline Flint: Do you think it makes sense that those would go together?

Alex Chisholm: It is a call for evidence; we will look at what people have to say about the subject.

Q71 Caroline Flint: Have you done any cost-benefit analysis of spending the equivalent on energy efficiency of the £23 billion being spent on this?

Alex Chisholm: We have done those types of comparison, as I mentioned before, on a value for money basis. The cost per tonne of CO₂ equivalent reductions is £56 here versus a

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benchmark of £68. I do not have to hand what the equivalent figure would be for energy efficiency. It is probably lower than the benchmark; I am sure there are some more expensive than that.

Q72 Caroline Flint: Let me move on to the supply chain. One aspect of the original forecast was that it would incentivise a supply chain. You have just said and agreed that the market for heat pumps is flat. It is pretty despondent out there, considering what people thought might happen and what has happened. What assurance can you give that your new objectives and strategy will develop the supply chain? Bear in mind that the scheme is coming to an end, and among some of the written evidence we have received there is concern about people putting in applications, the time it might take to do the application and whether it is worth doing it at all if there is nothing that will take this strategy into, say, 2030.

Dan Osgood: As I said earlier, we are aware of the need to try to ensure a smooth transition following the renewable heat incentive. The RHI has a budget set out to 2021; Ministers have not yet decided exactly what the precise mix of policy instruments should be beyond that. As the permanent secretary said, we are constantly reviewing progress and making adjustments to the scheme. We made a number of changes in September last year, in part to try to get greater uptake of heat pumps, so by increasing the tariff—

Q73 Caroline Flint: Did that work?

Dan Osgood: It is probably still a bit earlier to tell, really. It is six months in. We are certainly seeing a much higher proportion of the domestic RHI going on heat pumps over the last couple of years than there was in the first couple of years when the domestic scheme—Biomass—predominated. The other thing I would say is that we have made a number of reforms, and hopefully are making more reforms, to further improve value for money. For instance, targeting the scheme more towards larger plant. There is a proposal for tariff guarantees, which deals exactly with the uncertainty point that you raised earlier. Those regulations are currently before Parliament.

Q74 Caroline Flint: Are you waiting on ministerial direction to try to establish some specific goals or milestones, to measure progress on the objective of developing the supply chain? Is that what you are waiting on?

Dan Osgood: So—

Caroline Flint: Because as far as I can understand, there are no set specific goals, monitoring plan or defined clear criteria for making adjustments to the programme in support of the supply chain.

Dan Osgood: This is something we discussed with the NAO during the course of its study. We collect a range of information on the state of the supply chain. We have commercial experts in the team, who gather intelligence in the market. We obviously have data from Ofgem, in terms of the pattern of applications and how that is changing over time. We have an industry advisory group that meets regularly and we have a whole set of stakeholder engagement and information coming into the Department. What we do not do yet—it is a recommendation as something we should improve for the future—is synthesise that information a bit more into more of a sense of progress against an indicative trajectory: where are we trying to get to by a certain point in time? That will allow us to make a better assessment of whether we are on track.

Q75 Caroline Flint: What have you learnt from the original plan for RHI, in terms of delivery from the supply chain, which you must not do again in the future?

Dan Osgood: In some areas the supply chain has developed very well. Biomethane has been mentioned already as one where the industry has gone from a standing start, where plants would break down frequently and were very slow to ramp up production, to one that is much more professional. We are starting to see a secondary market developing. So that is a real success story in terms of developing that particular part of the supply chain. Similarly on

biomass, there have been big successes as the NAO point out, in terms of reducing the costs of installations. Where there has been less uptake, the supply chain has struggled. That is a bit of a chicken and egg problem that we are trying to address, in part through the changes to the tariffs and other changes to the scheme that we have mentioned, but it is something that we do need to keep pushing forward.

Q76 Chair: Mr Chisholm, we like measurement on this Committee, so that we can actually see whether you have achieved your targets. Would you expect the new scheme to have clearly defined objectives in establishing supply chains and specify which supply chains you are talking about, so that we can see whether the new scheme is really meeting this objective? We have talked a lot about the two objectives—carbon reduction and renewables increase—but it does seem that the third one, establishing supply chains, despite what you say about biomethane, has not been a great success.

Alex Chisholm: The answer to the question is yes.

Chair: Great. Thank you.

Q77 Caroline Flint: Where would something like heat networks fit in to this, in terms of developing a supply chain?

Dan Osgood: On heat networks, we have a separate investment project that is also part of the team. We launched a pilot project, which funded nine projects. We are doing the work to finalise the design of the main investment schemes. There is a further £280 million of Government investment to come. To pick up some of the earlier questions about optimism bias, we piloted that scheme and got quite a lot of learning from the pilot, which we are now incorporating into the main scheme. Our experience has tended to be that heat networks are aiming at a slightly different part of the heat challenge. They tend to be particularly cost effective in areas where there is lots of heat demand in a small geographic area. They particularly tend to be focused on built-up areas, whereas the renewable heat incentive has largely focused on properties off the gas grid. We will be looking at the NAO's recommendations in relation to how we assess progress on the supply chain in relation to the RHI and looking at how that reads across to this other work on heat networks, and seeing what learning we can take there.

Q78 Caroline Flint: Are you taking a closer look at some of these different technologies and trying to better assess practically what this might mean? Let me give you an example that I got yesterday. London is very interested in a heat network, and you just said yourself that in densely populated, built-up areas it would work because the buildings are close to one another, but I was told yesterday that that would mean reinforcing 34,000 cables across London. That is a huge amount of disruption in a vibrant city like London. Are you doing the work to better understand what could be the obstacles, even with the best will in the world, to something being fit for a certain type of built environment as to whether, in reality, it is going to work?

I will give you another example—some of the issues about heat pumps and how they work. People more expert than I am have said some of the product qualities in this area may need to be looked at, because despite the assumptions being made about the temperatures in which they work, they would not work in some of the temperatures we have had recently, which would lead to them freezing up and not working.

I am trying to better understand whether the Department has got a grip on the different technologies and whether you are really asking the difficult questions about how they might work in different scenarios. What might be the consequences of putting them in place, and would other factors come into play that might stop those projects going ahead and, despite all our best wishes, then affect the supply chain and the delivery of these schemes? I want to have a better understanding that you are on to that and you have got a grip of that, in terms of your analysis, your forecasts and your strategy going forward.

Dan Osgood: In terms of the longer-term work that the permanent secretary talked about

earlier, that is very much the case. We are looking at the full range of factors that need to be considered, whether that is in relation to cost, the customer perspective, disruption, safety for some of the technologies, performance and the scope for innovation. There is a whole range of factors that we do recognise need to be looked at, and we are determined to make sure that we do a properly comprehensive assessment of that.

Alex Chisholm: Could I add a few examples in answer to your excellent question? We accept that we need to continue to push out the boundaries—what are the best and most innovative technologies that we can apply to solve the overall problem? I will give you some examples of how we are actively trying to support that through our innovation programme. We have £10 million for a low-carbon heating technology fund, which does capital grants for an innovation that enables the replacement of existing fossil fuel heating systems with zero-carbon heating; up to £20 million in competitions for research and demonstration projects on industrial fuel switching; £25 million to demonstrate hydrogen use for heating and cooking in the home and a further £18 million from the research councils on hydrogen and fuel cells; and, lastly, a £9.2 million industrial energy efficiency accelerator to drive down the cost and improve the performance of new technologies, to increase the commercially viable energy-efficient options available. Those are all examples, within our innovation portfolio, of how we are trying to fund different experiments and developments across the country to try to find the best way to lower the overall cost of achieving our goals.

Q79 **Caroline Flint:** That is good to hear. Are you also looking, in terms of developing the strategy, at some of the pilots and impact assessments that underpinned the RHI scheme originally and what they were saying about technologies and consumer take-up, to better understand why we were led to this very over-optimistic forecast?

Alex Chisholm: Yes, absolutely.

Q80 **Caroline Flint:** And when you produce, obviously, a report on the way forward following the call for evidence, will you be looking to incorporate in the final document some learning from the original scheme, so that we do not look like we are starting at ground zero, because we are not starting at ground zero—there is learning?

Alex Chisholm: We have done a lot of learning along the way, and that is reflected in the changes we have made, but there is clearly a lot of additional learning to be had. This NAO Report and today's session are very valuable and we will want to make sure we draw the appropriate lessons from that.

Q81 **Caroline Flint:** Finally, on carbon emissions, do you think you will miss European renewable heat obligations because you have cut back on the RHI? Also, overall, how will you make up the shortfall in carbon savings that were due to come out from the RHI?

Alex Chisholm: The answer is no, we do not expect to miss those. We have hit all the interim targets and we think we are on track to hit the final one in 2020. The assessment needs to be completed by December '21. There are a lot of options available to us for how we hit that target, and we are confident that we will do so.

Q82 **Martyn Day:** Mr Chisholm, the announcement on Monday effectively ends the current scheme from 2021. We know that paragraph 19 of the NAO Report has highlighted that the control and cost of the scheme will be more challenging once the RHI is closed to new applications. What risks have you identified and how will BEIS manage them through to 2041?

Alex Chisholm: That is an excellent question. Thank you very much. When we look at the ways that we have applied controls to budgets, which have been successful—we have lived within our means, which is good—then some of those only really apply to new applications. The budget cap is different for new applications, and the so-called degression method is a way of reducing the tariffs available for new applications and different technologies where necessary when you hit a predefined limit, so those will not apply once you have closed the scheme. What will still apply, however, is tiering. The way in which the scheme is designed—well designed, in my view—is that your tariff level switches from a higher to a lower rate once heat production

reaches a predefined limit. That is to avoid a situation, as has occurred in some other administrations, where it seemed economically beneficial to produce a lot more heat than you need. As well as that being against the scheme rules—you can have a revocation as a consequence of that—there is also a strong economic kind of design to make sure that people will not do that. That will certainly be an important factor.

On other things that will affect the future costs of the scheme, we cannot control for inflation and cold weather, so those are exogenous things that we have to live with. There is a bit of flexibility built into the scheme. It is annually managed expenditure: AME, not DEL, in Government accounting parlance. That is to reflect these slight uncertainties. The other thing that we can do is improve the quantum and the quality and direction of the audit function in the way that my colleague, Dr Nolan from Ofgem, described earlier, and the monitoring and the enforcement. We can also monitor not only the correct use of the scheme, but things like air quality, again mentioned by other members of the Committee earlier. That is probably the overall package of things that we have for that relatively long run-off period, I think to 2028 for the consumer schemes and 2041 for the non-domestic schemes, because they have a 20-year period that we are still managing efficiently for value for money over that period.

Q83 **Chair:** Can I be clear on your answer, Mr Chisholm, that there will be no regression in the rates between now and when the scheme finishes, and that they will remain the same, because that would be welcomed? Am I correct in my interpretation of your answer?

Alex Chisholm: We have not made any kind of retrospective reductions in rates. That has not been something that we have done to date. We have applied the budgetary controls through new applications, so people can see at the beginning what happens, and also through this tiering system. There are no immediate plans to change that strategy.

Q84 **Chair:** I was not talking about retrospective. I was talking about current applications to the end of the scheme and how the rate will now remain the same between now and the end of the current system.

Alex Chisholm: Not necessarily. We continue to make changes to that.

Q85 **Chair:** So there will be a regression applied between now and—

Alex Chisholm: Between now and 2021. I thought Mr Day was asking really about what happens after '21, for that period of run-off from '21 to '41.

Q86 **Chair:** So there will be regression between now and March '21?

Alex Chisholm: Degression, yes.

Q87 **Chair:** Will regression form part of the new scheme? I ask that because although it has had the effect of controlling costs quite effectively, some evidence has been put to us that it has actually been a deterrent to new applicants, particularly applicants wanting to borrow money. They do not know what rate they are going to get when their scheme is approved and therefore they have had difficulty getting their banks, for example, to approve a loan when they do not know what amount they will have to pay back.

Alex Chisholm: I accept that there may be some cases of that, but it is very important, as we have learned from other schemes, to have appropriate controls on the over-expenditure for taxpayers.

I cannot say what the design of any new scheme would be, because as Mr Osgood explained earlier there is no commitment to have such a scheme at this time. We simply said that we will review the matter and that we are confident that we will continue to run the current scheme to 2021.

Q88 **Chair:** So that we have it on the record, can you say when we expect to have an announcement on what the terms of the new scheme will be?

Alex Chisholm: If there is a new scheme, I would expect to have a further update for that as

part of spending round 2019. As I say, the last three spending rounds have made adjustments to this. I would be reasonably confident that we will have something to say on that—I cannot guarantee it will be a matter for Ministers, and lots of considerations will go into that. But that would seem to be quite a logical time to have an update.

Chair: Thank you. That is helpful.

Q89 **Martyn Day:** Just going back to the period through to 2041, what happens—worst case—if you find you have underestimated the costs?

Alex Chisholm: I mentioned that the factors that control that are pretty strong. If we are finding that people are abusing the scheme, obviously we can take enforcement action, and do not forget that much the greatest part of this is for the non-domestic scheme, which is all metered.

If inflation or cold weather make a difference, it should be within relatively small margins, so we do not really foresee a big, sort of unbudgeted divergence from what is planned at the moment.

Q90 **Martyn Day:** But ultimately the taxpayer could take a hit over that period?

Alex Chisholm: Within a small variation, and subject to all these appropriate restraints and controls.

Q91 **Chair:** One or two quickfire questions, if I may, Mr Chisholm; we have had a really good canter round this, so thank you very much to all the witnesses for that.

Mr Chisholm, you talked about biomethane-to-grid plants and we have had evidence from Andigestion Ltd. They say, and I quote, “At present levels of support under the RHI and at currently available gate fees, no new biomethane grid to plants are being constructed”. Is that something you will address if you have a new scheme?

Dan Osgood: That is not our understanding of what is going on in the market at the moment. As I said earlier, we have seen quite strong growth in the biomethane sector. We are introducing some changes. For instance, we are looking to tighten the rules on what feedstocks these plants can use, in part to drive better value for money from a carbon point of view. But we have certainly not had indications from our market intelligence of a risk that this market might slow down significantly. I do not know whether Ofgem colleagues have further to add on that.

Alex Chisholm: Nothing to add to that. We have not heard anything that would suggest that.

Chris Poulton: No.

Sir Amyas Morse: Just to pick up on that, let me share this with the others again. The statement was an unequivocal one; they stated that there were no new schemes. Is it your understanding that there are new schemes, or that there are new schemes? I’m sorry—I wasn’t quite clear what the answer meant.

Dan Osgood: Our understanding, based on the conversations we’ve been having with the market, is that this continues to be a sector that has progressed relatively well under the RHI and it’s expecting to continue to progress. So we are aware of the pipeline of further plants that are expecting to come on to the scheme.

Sir Amyas Morse: So you think there will be new schemes.

Dan Osgood: We think there will be new biomethane plants coming on to the RHI.

Q92 **Chair:** So that contradicts the evidence we have been given.

Dan Osgood: We have a range of sources within the market that we talk to, and we regularly talk to the industry on this, and it is not a widespread concern that I have been made aware of.

Q93 Chair: On building up supply chains, can I ask you about woodchip pellets? We have had evidence to say that because the RHI has now stopped air-drying woodchips in pellet-making, any new capacity in the woodchip market and woodchip pellet market in the UK has effectively stalled. That is currently estimated to be around 400 million tonnes—that is the total production. The total demand is 600,000, estimated to go to 1 million. It does seem slightly strange, if you have had a stream that has encouraged all these biomass boilers, yet the market for wood pellets has been constrained in this way. Indeed, it has had the effect of promoting some shortages this winter, and the prices have gone up. Could you comment on that?

Dan Osgood: I think there are a couple of points there: one goes back to the earlier discussion that we had today around gaming. We became aware, including in feedback from Ofgem, that some of the uses that the RHI was being put to were perhaps not entirely within the spirit of the rules. So, for instance, people were using heat generated under the RHI to dry wood or waste or other materials, possibly then even to feed it back into the boiler and burn it again, to generate more heat on which they would get paid, and so on. When we became aware of that we acted to try and constrain any loophole that there might have been in the scheme, so that any support that the taxpayer was providing was only for activities that were genuinely economic and needed and where, for instance in relation to wood drying, the RHI was replacing an existing fossil fuel source—it was not a new activity someone had invented for the purposes of getting payments: it was an existing activity.

The second point is in relation to some of the issues that there have been over the course of this winter, recently, around wood pellet supply, and we have been working closely with the industry body, the UK Pellet Council, and others. Some concerns were expressed about the availability of wood pellets for the domestic market. We worked closely with the industry who put out comms, updated their website, put out material on where people could get wood pellets from. There was some diversion of the supply from the non-domestic market into the domestic market. What we have seen is, in terms of number of visits to that part of their website, that they have now returned to the levels that they were at before the winter. It does look as though that action has helped to address the problem.

Q94 Chair: Nevertheless, the thrust of my question is interesting. You have been encouraging, through the RHI scheme, more of these biomass wood pellet boilers to be installed, and it looks, from a constraint on the market production in the UK, as though you are sucking in more imports of wood chip pellets, which we could perfectly well produce ourselves. Does that not seem a strange, inverted incentive that the scheme has produced?

Dan Osgood: I think what we have been trying to do with the changes to the scheme is to make sure that it is incentivising the behaviours that we want to see. As I say, there was a risk that people were creating new uses of heat for which they were seeking to attract taxpayers' money, for things that would not otherwise have been done anyway. That is not saving carbon; that is not saving energy. We have tried to tighten that part of the rules. Wood drying would still be an eligible activity where there was an existing fossil-fuel boiler. That is a potential loophole in the scheme that we are trying to address.

Q95 Chair: Thank you. Last question, Mr Chisholm. You referred to international comparisons. If I can take you to figure 21 on page 57 of the Report we can all see pretty clearly that you were of course perfectly correct in saying that the UK is starting from a very low base on this. Nevertheless—and of course that chart only goes up to 2016—although we started from a very low base it does not look as if we are getting off that base very fast. Does that not indicate that actually we have got an awful long way to go in the UK compared to some of our European neighbours?

Alex Chisholm: Yes. We have made good progress, but I accept that we have a long way to go yet.

Q96 Chair: So the new scheme will need to look at that very carefully.

Alex Chisholm: The new strategy will undoubtedly have to do that, yes.

Q97 **Chair:** Can I put two things to you? I have already put one to you, in that you can pump as much heat as you like, as efficiently as you like, reducing carbon, but if it is going out through the roof—and we have addressed this twice in questions—we need to address insulating homes more. The second thing, I think, we need to address is new developments. The Government on the one hand is encouraging house builders to build a lot more new houses, but there doesn't seem to be any incentive in the planning systems to actually build houses that are energy efficient, or, even better, to promote community heating systems, which are very much cheaper to put in when houses are being built and you have got the roads up and everything else, than to fit retrospectively. Is that something that you might consider in the new scheme?

Alex Chisholm: Yes. I thank the Chair and the whole Committee for the guidance that you provided today. When we get your Report, which I am sure will include those types of recommendations, we will respond fully to them. It has been very helpful, this whole session. Thank you very much.

Chair: Can I thank all our witnesses very much? We have had a good canter round this subject this afternoon. Let us hope that the new scheme really does achieve its objectives. Thank you all very much.