HOUSE OF COMMONS

Business, Energy and Industrial Strategy Committee

Oral evidence: Leaving the EU: Negotiation Priorities for Energy and Climate Change Policy, HC 909

Tuesday 28 February 2017

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Watch the meeting

Members present: Mr Iain Wright (Chair); Richard Fuller; Peter Kyle; Amanda Milling; Albert Owen; Amanda Solloway; Michelle Thomson; Anna Turley.

Questions 112-179

Witnesses

I: David Senior, Director of Assurance, Policy and International, Office for Nuclear Regulation; Dame Sue Ion, Chair, Nuclear Innovation and Research Advisory Board; Tom Greatrex, Chief Executive, Nuclear Industry Association; and Rupert Cowen, Senior Commercial and Nuclear Energy Lawyer, Prospect Law.

II: Ian Simm, CEO, Impax Asset Management; Alejandro Ciruelos, UK Head, Project & Acquisition Finance, Santander Global Banking & Markets; Kirsty Hamilton, Associate Fellow, Chatham House; and Carol Gould, Head of Power and Renewables, European Investment Banking Division, the Bank of Tokyo-Mitsubishi UFJ.

Examination of witnesses

Witnesses: David Senior, Dame Sue Ion, Tom Greatrex and Rupert Cowen.

Q112 **Chair:** Good morning. Thank you for attending the Committee and I am sorry to keep you waiting a touch. Just for the purposes of the record, do you mind telling us who you are and which organisation you are representing?

Rupert Cowen: I am Rupert Cowen. I work with Prospect Law. We are essentially nuclear lawyers working with tier 1 and tier 2 providers and trying to pick our way through the regulations that are about to change.

Dame Sue Ion: I am Sue Ion. I chair the UK's Nuclear Innovation and Research Advisory Board. I also happen to be the current Chair of the EURATOM Science and Technology Committee.

Tom Greatrex: I am Tom Greatrex. I am the Chief Executive of the UK Nuclear Industry Association, which is the trade body for the civil nuclear industry in the UK.

David Senior: Good morning. I am David Senior. I am with the independent regulator, the Office for Nuclear Regulation, and I am Director of Assurance, Policy and International. Thank you.

Q113 **Chair:** Thank you. A question to you all, if I may: how important is EURATOM to the UK's nuclear sector, and how beneficial has it been to the UK nuclear industry?

David Senior: Nuclear is clearly an international industry, and it works to international standards and international expectations. It is only as strong as basically the weakest part of that. Collaboration and co-operation internationally is key for maintaining those high standards of nuclear safety and nuclear security, enabling that industry to flourish, and demonstrating to the public and other interested stakeholders that it is being managed safely.

From a EURATOM perspective, the UK has been very influential and has shaped quite a lot of the nuclear safety regulatory framework in relation to our interactions with Europe. However, I would emphasise that that cascades from the overall international safety requirements and standards, which are pulled together by the International Atomic Energy Agency working under the auspices of the United Nations. I am emphasising here that collaboration and co-operation on nuclear safety matters, operationally and regulatory, are really important to us, and the UK has been a very key player in relation to that interface with EURATOM.

Q114 **Chair:** Tom, welcome back. What are your members' views in respect of EURATOM?

Tom Greatrex: Thank you. In addition to what David was saying about the underpinning nature of the regime, there are two broad areas that are important from an industrial perspective. Firstly, the research funding for fusion research comes through EURATOM, and the work that happens at Culham on JET. That is important industrially, not just in relation to JET but also to ITER in France. A number of UK nuclear industry companies have got significant work from that and are involved in that; around €500 million equivalent has been lent to either British companies or British companies in joint ventures with others on that.

More widely, the common market, as it were, on nuclear goods and services is vitally important. As David said, it is an international industry. The supply of components in relation to how you get the fuel and all those things are underpinned by the EURATOM framework that exists, both to facilitate the co-operation agreements between the EURATOM countries and third parties, and in terms of the relationships within that group of countries. For example, getting components from one country to another is all tied up within that EURATOM framework. It is really important to the way in which the industry functions, both in relation to the ongoing generation decommissioning and future new build.

Dame Sue Ion: The treaty underpins community activities relating to the full nuclear fuel cycle and industrial medical and research applications in terms of the rules of protection, best practice, etc. It is part of everyday life in the nuclear sector. The supply, exchange and transfer of nuclear materials across borders is probably one of the most important parts that is made easy by the EURATOM treaty, both within the EU and between any of the member states—including us—and third parties.

The nuclear co-operation agreements that exist are vital to international trade. From a research angle, the radioactive materials that are used in research in medicine etc. are all covered by the EURATOM agreement. Movement of the best intellectual talent within Europe is made easy by the treaty. Access to the very high-cost facilities that are not within the UK but which UK researchers use on a daily basis is also important, as is leverage for funding of what would otherwise be very expensive projects.

Rupert Cowen: Obviously, everything my friends say is correct, but there is the distinction that needs to be drawn. EURATOM is simply a vehicle through which many of our international obligations are transferred into English law through the EU. If you were to take those away and rely upon just the international treaties, only some of the things that are contained in EURATOM would be removed. Co-operation is in EURATOM and is not part of the international treaties with Europe. The R and D and investment vehicles, and the European common market, would disappear.

However, the obligations that ultimately, if we come out of Europe, we are going to have to show we comply with still exist independently of the EURATOM. What I am anxious to do as a lawyer, as it were, is to try to find some precision as to what obligations already exist, what has to be replaced when the EURATOM treaty ceases to exist, and how that affects our business relationships with other nuclear partners.

Q115 **Chair:** That is an important point, isn't it? By all accounts, and we have heard it today, EURATOM is important to the UK nuclear industry. However, in terms of that thick international web of co-operation, can we not just do this through the International Atomic Energy Agency?

Dame Sue Ion: We can with respect to some aspects of what is covered in safeguards, safety etc. However, in order to move material around, you have to have bilateral treaties or other agreements with every single state with whom we do business, whether it is for research purposes or trade purposes. A plethora of international agreements would have to be struck that would almost mirror those that are already in place with EURATOM, before we could even begin to move not just material but intellectual property and services—anything in the nuclear sector. We would be crippled without other things in place.

David Senior: I will add the context in relation to your point about the International Atomic Energy Agency. We clearly engage in a big way with the International Atomic Energy Agency, and the IAEA have conventions, which we have treaty obligations to comply with from a UK perspective. The ONR works alongside Government to exercise those conventions. They enable us to collaborate and co-operate on a global basis with essentially world players from a nuclear regulatory perspective. Those conventions cascade down, then, into European space and into the directives. Indeed, the directives almost mirror the conventions that the IAEA has put in place.

The key point about our collaboration and co-operation in Europe is that it brings together the European Community. This is mirrored elsewhere in the world with an Asian community and indeed a North American community, and the collaboration and co-operation works very effectively within those smaller groupings. The UK is currently a member of the European Community and is a member of the European Nuclear Safety Regulators Group. The Chief Inspector and I are members of that group. There is not the precedent for us to continue as members of that group should we move away from EURATOM.

However, there is another group in Europe called the Western European Nuclear Regulators Association, which works alongside ENSREG as its technical support arm. We would continue to be able to have membership of that from a collaborative perspective in Europe. That is indeed a positive. What I would cite here is that there are other countries—notably Switzerland here—that clearly are not members of the European Community but still actively engage within Europe. There are possibilities there, but it just makes it a little bit more difficult, and it means we have to try a bit harder and work on maintaining our influence within that European grouping.

Tom Greatrex: That is a really important point. As Sue has said, if you were to come out of EURATOM you would need to replicate what currently exists. There is a whole range of nuclear co-operation agreements with different countries and different states with varying scope. Certain aspects of some of them will have to be renegotiated or redrafted. Obviously, if the intention is to give notice to leave EURATOM at the same time as the Article 50 process, that gives a relatively short period of time to be able to get lots of things in place. From a Government perspective, there will be a lot going on.

Q116 **Chair:** That is an interesting point, Tom. Is that what the timetable will be? If it is at the same time that Article 50 is triggered, does that automatically mean that we are giving notice to leave EURATOM, or is that a separate process?

Tom Greatrex: No. I think Rupert will be able to add more to this, but there is a separate process in the treaty. The Government has said in relation to the Bill and notes to it currently going through Parliament that they would intend to signal that at the same time. However, I do not think it is an absolute requirement.

Rupert Cowen: It is absolutely not. One of the reasons I think I was invited to give evidence is that I have been writing articles saying the EURATOM treaty has an independent legal personality. It is not automatically brought to a close when you exercise Article 50 in the EC as it is drawn. If there were the political will, there is no question but that legally you could stay in EURATOM for some time, or forever if you were prepared to continue to operate with the EU, have a representative on the Commission, and abide by the European Court of Justice, which is of course probably politically impossible.

However, in terms of achieving transition, if we go to the European nuclear community and say that we do not think we have to do this at the same time as we operate Article 50 of the EC treaty, they may agree. We may then be able to arrive at a transition period that allows us to make these changes that we need to make in order to continue our business. The little point I want to make is that, unlike any of the other arrangements that this Committee has been discussing, such as the Emissions Trading System and so on, if we do not get this right, business stops; there will be no trade. That is a very important distinction from all of the other things that have been discussed. If we cannot arrive at safeguards and other principles that allow compliance to be demonstrated, no nuclear trade will be able to continue.

Q117 **Chair:** That means nuclear power stations have to shut down.

Rupert Cowen: Ultimately, when their fuel runs out, yes.

Q118 **Albert Owen:** Can I just ask one question before we go on to safety? Can you just clarify that? What you are telling the Committee is what you put in your briefing notes, which we got via the NIA. You are saying that we do not legally have to trigger the withdrawal from EURATOM now. You do not feel that because we are triggering Article 50 we have to trigger EURATOM. Are you saying that clearly, as a lawyer?

Rupert Cowen: I am saying that absolutely clearly. It has a separate legal personality.

Q119 **Albert Owen:** Do you believe that the Government lawyers have been given different advice?

Rupert Cowen: It depends what question you ask.

Albert Owen: I am asking you.

Rupert Cowen: I do not know what they were asked. If the political will is to make it appear that you have to go forward and operate it at the same time, the answer is yes. However, if they were asking if there was any way that we could avoid operating Article 50 in relation to EURATOM, the answer is yes.

Q120 **Albert Owen:** Does it not also apply to other treaties that we are involved in with Europe, such as our co-operation on policing?

Rupert Cowen: It does not. It is specifically the fact that the history of EURATOM, which started in 1957 with steel and coal etc., is integrated closely with the ECT and EFCE. It is written as a single arrangement under 106a of the EURATOM treaty, which implies that you have to exercise the determination at the same period. I am saying that if you read it correctly and you push it, there is a very serious legal case that would be sustainable in an English court that you do not have to operate it at the same time. That is not the question that the Government lawyers were asked, obviously; otherwise, it would not have appeared in the Bill to operate Article 50 in the way that it did.

Q121 **Albert Owen:** It is because of the European Court of Justice.

Rupert Cowen: Yes, I think so. It is a political issue, not a legal issue.

Q122 **Michelle Thomson:** Before I move on, the point you are making about the politics versus the legal aspect strikes me as entirely fundamental. Following that through, it means that if they still insist that that should be the case—because of what you say about the politics around it and this potential flaw if they trigger it at the end of it—my worry then would be for the whole gamut of structural things in place regarding not just trade but safety as well. If it did get to that case—and I find it hard to believe that we would sleepwalk into that—what immediate risks, based on your expertise, would that present?

Rupert Cowen: That is exactly what we are doing. We are sleepwalking into it. David Senior and ONR will tell you that they can put in place the physical requirements to ensure that our obligations under treaties other than EURATOM—the civil nuclear safety treaty, the treaty about looking after radioactive waste, and so on and so forth, which I have given you a list of—can be complied with. That is the case. Given the resource and given the time, ONR will ensure that there is no actual danger.

The point is that in order to operate your nuclear co-operation agreements and trade agreements, you need to demonstrate compliance. In order to demonstrate compliance, you have to have a procedure at least as robust as currently works under EURATOM. You then need to persuade your counterparty, and the counterparty will also be politically motivated. If you go to the United States, for example, to have their equivalent of the current arrangements of EURATOM—it is called a Section 123 agreement—they will be motivated to agree something as quickly as possible, assuming we are friends and all the rest of the politics of it.

When you look back in history when we got to that point, there were two years when there was no nuclear trade possible with the US, because Congress had not agreed the 123 agreement. That will happen in multifarious arrangements with the 51 treaties I have given you, of which five or six are critically important to the continuation of nuclear business.

Q123 **Michelle Thomson:** You mentioned earlier English law. Of course, there are a number of installations in Scotland under Scots law jurisdiction.

Rupert Cowen: Yes, I am sorry.

Q124 **Michelle Thomson:** No, I am not taking any offence. I am pointing out that would clearly introduce an additional level of complexity. If what you are saying from your perspective as an English lawyer would equally well apply, what then will fall under the jurisdiction of Scots law, where obviously there are other political considerations?

Rupert Cowen: That is right. They have different commercial concerns, don't they? Those who are building the nuclear power stations want to be certain that they can get their components, personnel and fuel in the future. When we come out of EURATOM, if we have not succeeded in agreeing transitional arrangements, we will not be able to do any of those things. My fundamental point—and that is what the panel is telling you—is that it is probably not legally necessary; it is being driven by politics.

Q125 **Michelle Thomson:** This is going to be a very interesting session. In terms of the International Atomic Energy Agency and how we comply with that, I would like to get some more thoughts from you about considerations such as staffing, implementation, standards and obviously safety. As a nice general question first of all, how do you think it might work?

David Senior: The UK has treaty obligations with the International Atomic Energy Agency, which as I have already described is part of the United Nations. Those treaty obligations are primarily through what are known as conventions. There are two key conventions there: the Convention on Nuclear Safety and the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste

Management. The Convention on Nuclear Safety mainly focuses on nuclear power plants and their safe operation. The joint convention focuses more on the management of spent fuel—i.e. the fuel that has been used up in a nuclear power station and then needs to be managed accordingly as a waste, or indeed recycled back into the nuclear fuel cycle—together with the management of radioactive waste.

There are various articles associated with the conventions, and we as a nation—and ONR discharge this on behalf of Government—actually have to submit a report every three years to demonstrate compliance with those conventions. We have a very strong focus and very strong relationship with the International Atomic Energy Agency. To add to that, the International Atomic Energy Agency also put in place safety requirements and safety standards. We then translate those safety standards and requirements into our legislation and regulations, such that we can demonstrate we are meeting international good practice and those high standards of nuclear safety expected internationally.

Indeed, we quite often set the pace. We are often leading those discussions, putting in place those safety standards via the safety committees, and playing a big part in those processes. In relation to how that then mirrors into Europe, I have already mentioned the directives. There are three directives. There is the nuclear safety directive, which is pretty similar to the Convention on Nuclear Safety; the radioactive waste and spent fuel management directive, which I have already described; and the basic safety standards directive, which is essentially focused on protecting people from the potential harmful effects of radiation. We have to demonstrate compliance with those directives, and indeed we submit a report on a triennial basis.

Michelle Thomson: That is very helpful for me. Thank you.

Dame Sue Ion: Coming out of EURATOM would not mean that we were any less safe or any less compliant with any overarching international agreement, because the EURATOM agreements are driven by the IAEA's global oversight of nuclear energy.

The issue is the timing rather than the absolute demonstration of safety. Much of the equipment that enables us to demonstrate compliance is not ours; it is EURATOM's. The cameras, the high-cost equipment and the labs that do that are not ours. The people are not ours; they are EURATOM's. The translation of that activity and the equipment into IAEA or national space demonstrated to IAEA will have to take place. It is about buying time to put all the right things in place and make sure that we are compliant and therefore still able to trade.

Q126 **Michelle Thomson:** Presumably, what you are suggesting adds weight to the perspective of having a transitional arrangement, because it takes time to train staff, procure equipment and get it tested.

Dame Sue Ion: Or even if it was just a transfer.

Tom Greatrex: There are a number of other countries that, while they conform to IAEA standards, are not in EURATOM or a similar bloc and do it themselves. They have obviously got the infrastructure to be able to do that, and we do not currently have that. That is done through EURATOM, and so we would have to replicate that in some way.

Michelle Thomson: That is a lot clearer, thank you.

David Senior: Could I just elaborate for a minute on the point that Sue has just raised? It is quite different. Sue has just been describing there essentially a safeguarding arrangement, and safeguarding obligations that we have internationally. It is quite different from nuclear safety. As a nation, we are obliged to ensure that nuclear material—i.e. fissile nuclear materials such as uranium, plutonium and thorium, if used in nuclear fuel cycles—is looked after properly, maintained within the civil nuclear programme, and does not find its way into other uses such as weapons, for instance. In relation to the non-proliferation treaty, we are obliged to have arrangements in place so that we can demonstrate that material is being looked after properly. That is the first angle of safeguarding.

The second angle of safeguarding is, as Rupert has already mentioned, in relation to the ability to transfer nuclear materials between countries and conduct nuclear business. This is where the nuclear co-operation agreements come into place for the safeguarding of material between countries. For instance, if material is being utilised to manufacture nuclear fuel in the UK, and part of that process takes place—and it does—in Germany or the Netherlands, there has to be safeguarding of nuclear material between those countries.

There are two angles to safeguarding. The key point here is that safeguarding is discharged on the UK's behalf through EURATOM by the European Commission. Within the UK at the moment, the European Commission provides the safeguarding regulatory activity, which then reports into the International Atomic Energy Agency. If we leave EURATOM and we leave that arrangement, the UK has to set up its own arrangements for the safeguarding of nuclear material.

We have been discussing very actively with officials in BEIS what that may or may not look like in a post-EURATOM scenario. It has not been fully worked through yet. We have explored a number of options in relation to what that may or may not look like. The term that we use here is that it is a state system of accountancy and control—an SSAC. We would have to set up what is known as an SSAC within the UK, and we have been actively discussing arrangements for that with officials in the Department for Business, Energy and Industrial Strategy.

Q127 **Michelle Thomson:** If it were the two years, setting aside the excellent points that you have made, how confident are you feeling that the deadline could be met?

David Senior: In respect of setting up an SSAC, it would be quite challenging in a two-year period. We have had discussions with officials in BEIS in relation to what would be possible within a two-year period and what we would need to put in place. There are three elements to an SSAC. The first element is basically a management system that enables us to track and keep a handle on nuclear materials that are in the UK, or indeed are crossing our national boundaries. We would have to put inspectors in place.

Q128 **Michelle Thomson:** What you are saying is what you need to do. My question is: how confident are you that, if there were an insistence that the two-year trigger period is adhered to, all the required mechanisms can be put in place by that timescale? I saw you shaking your head.

Dame Sue Ion: On the safeguards area, which David has just been describing, possibly. He is in a better position to judge than I am. However, for the nuclear co-operation agreements, which are the things that enable trade and movement of materials, whether they be fissile or not, I do not think that is possible.

Rupert Cowen: Once ONR has got those safeguards in place, you are at the starting point where you can start discussing with your co-operative partners abroad whether or not you are compliant. While in theory—obviously, because the system is at least as good as we are currently running—we are compliant, if there is not a political or commercial will on the other side, it will not happen. There are countries like Germany and the Netherlands that want it to fail for their own reasons, so Urenco starts working in Germany, not in England. Those sorts of questions will inevitably mean that these 51 agreements I have given you will not be capable of satisfactory conclusion in most cases within any short period after safeguards have been completed.

Q129 **Michelle Thomson:** It is again a key point you make on that spirit of willingness, given the range of potential negotiating variables, not just in this sector but right across the piece. It is a major challenge. Thank you.

David Senior: In respect of the work we have done so far, we would only be in a position in the two-year period to put a basic arrangement in place from a safeguarding perspective. It would not be identical to what we have with EURATOM at the moment, and I am not suggesting it needs to be. However, it would be challenging. It is challenging in relation to recruitment of resource. It is challenging in relation to having the infrastructure in place, such as the cameras, the seals and everything that is required from a safeguarding perspective. It is also challenging in terms of knowing whether we could utilise what is already there at the moment, which is EURATOM property, or whether we would have to replicate our own. It is very challenging and we could only put a basic offering in place.

Q130 **Albert Owen:** You have been very clear on how difficult and challenging it is going to be to get nuclear co-operation agreements if we were to come out of EURATOM. I totally agree with what the panel has been saying. However, the co-operation agreements are mostly a market route for third party countries. But when EURATOM was set up—and I am trying to quote the briefing notes I got from you at second reading, Rupert—we also set up a common market. I do not want to rehash the arguments we have had about the EU referendum, but many people who wanted to leave the EU wanted to really have a common market. We are now being told in general that when it comes, we are going to come out of the single market. My question to the panel is: can we coexist as outside EURATOM and still have a common market in Europe for nuclear?

Rupert Cowen: The short answer is no. Obviously there is the single market, and that works under the European treaty. Under EURATOM there is a different market, but it is intended to have the same effect: an open market for nuclear materials within the EU zone. When it was conceived, it was believed there would be a shortage, and so they are trying to make sure that the fuel for nuclear generation is available all over. If you leave EURATOM, that, together with every other protection that we have described to you, stops.

Q131 **Albert Owen:** What does that mean for planned new build plants in the future, Tom? What concerns do your members have?

Tom Greatrex: The concern that our members have, particularly those involved in some of that activity, is that there is not what the Prime Minister has said she wanted to avoid in terms of there being a cliff edge or disorderly exit—that the things that you need to replicate as much as you can are in place before you leave, effectively.

For example, when you talk about nuclear co-operation agreements, one of the key ones is with the USA. That is currently done through the EURATOM framework. It is a legislative requirement of US law that there is an NCA in place to enable any sort of activity to happen. There is technology that, although the vendors may be from different places, may have originated in the US and which would be caught within that.

It is about making sure those things are in place. If they are not, there is potential for disruption in quite a lot of activity. That is the key point in thinking about this in terms of transitional arrangements or how you trigger it: making sure that you do not end up in a position that the Government have said they do not want to end up in.

The Government have said very clearly that they want to ensure that we accord with international standards, with no dilution of standards in terms of safeguarding, and that we do not disrupt nuclear activity in the UK. If that is the case, we have got to make sure those things are in place. That points you back to the same place, which is about making sure you have got transitional arrangements in place or you negotiate those, so you do not trigger something with an artificial short deadline that leaves you in a position of potential vulnerability.

Q132 **Albert Owen:** Do you see any benefits in coming out of EURATOM? Is there something we could do as a country that is not bound by some of the rules of EURATOM? For instance, you mentioned, David, the Swiss arrangement. Are there arrangements that could be put in place pretty swiftly and that avoid the cliff edge you are talking about?

David Senior: Do you mean the Swiss position of being associated to EURATOM but not in it?

Albert Owen: Yes.

David Senior: That association is very limited, just to the programmes around fusion research. That runs out in 2018, I think.

Rupert Cowen: It is also dependent on their being a signatory to the Croatian agreement, which means they have to allow free movement of people in relation to nuclear.

Albert Owen: I do want to get the other side of it—if there are any positives.

Peter Kyle: When the Swiss tried to renegotiate their relationship with regard to free movement, their position on EURATOM was downgraded. The clear implication is that trying to renegotiate free movement means there is a price to pay in your relationship with EURATOM.

Dame Sue Ion: Also, because the Swiss have used nuclear electricity for many years, they had arrangements with EURATOM under the IAEA, and the relevant agreements and treaties to allow that to happen.

Peter Kyle: There are very clear implications for anything that we try to renegotiate in terms of our relationship with EURATOM after renegotiating our relationship with freedom of movement.

Q133 **Albert Owen:** Thank you for that, Peter. That is very helpful. There is a Norwegian agreement with the single market subject to the caveats that you said. Is there a third way of a Swiss option that could help or give some opportunities to the British nuclear industry? That is what I am asking.

Tom Greatrex: A lot of this will come down to negotiation, and obviously there are two parties in that negotiation, and there is a wider context to those negotiations that your inquiry and many others will be looking at. There is technically provision to allow associate membership of EURATOM. There is not any full associate member. There is a provision, but I have forgotten the treaty clause that enables that.

The reality is that this will come into the scope of wider negotiations between the EU and the UK. There are ways in which, for example on safeguarding, you may be able to do things that would enable a transitional arrangement. Some of that may continue to be done by EURATOM, and you may do a charge back. There are various other things that you could do while you are establishing your own regime. It is about pragmatism.

There are probably lots of things you could try to do to make it work. What we are collectively warning about is the potential for there to be a very hard two-year period, if it is done on the same timeframe, during which there are lots of other things that the Government have got to deal with and negotiations that have to be undertaken. That could leave us in a position where some of these things are not in place and we are not able to continue as we are.

Q134 **Albert Owen:** Does the Government get that, Tom?

Tom Greatrex: You would have to ask the Government if they get it.

Q135 **Albert Owen:** We will. I have, actually.

Tom Greatrex: They have been told it several times in lots of different fora. I do not think they could say they have not heard it.

Q136 **Albert Owen:** I know you do not speak for the Government, but I have raised this with the Secretary of State and I have raised it in debate here. The reality is that they think things are going to be okay. I do not have those assurances from you as a panel today.

Tom Greatrex: There is a lot to do to get anywhere near that.

Rupert Cowen: Just to finish your question on the Government, we were asked to brief the Labour peers when they moved the second reading in the House of Lords. Many amendments were proposed specifically about EURATOM, from the extreme position—as I am saying—of not triggering, to the position where you do not allow it to be triggered until you have got an exit route. All of them were defeated—every single one.

Tom Greatrex: Was that in the Commons?

Rupert Cowen: Was it in both? I thought it was the Lords and Commons.

Q137 **Richard Fuller:** To follow up on Albert's questions, we have talked a lot about the value of EURATOM and the transition. One question to each of you very quickly please: as Albert asked, what positives are there when we leave EURATOM?

Rupert Cowen: There are positives.

Q138 **Richard Fuller:** Could I just start at this end? You have said a lot. We get panel after panel, and people focus on the problems and the difficulties. We have time to think about what the sunny uplands are going to be. Now there may be no sunny uplands, but these are four experts and they obviously have different points of view.

David Senior: The area I would focus on is essentially the directives. I have already explained to the Committee that the directives are essentially mirroring the conventions from the International Atomic Energy Agency. If we relinquish our obligations with EURATOM, we would not have to legally comply with the directives, so there would be a reduced burden there. I am not suggesting that that burden is huge, but there would be a benefit to the UK in that we would not have to comply legally with those directives.

Tom Greatrex: Potentially, once you have got all of your different agreements in place, you are in a very different position. Wider international trading relationships can be developed through those NCAs. I am coming back to the same point. It is about there being the gap, because we need to replicate so much of that. Potentially once you have replicated it, though, and you have got nuclear co-operation agreements with the US and other places, that opens up some opportunities.

Richard Fuller: It opens up trading opportunities.

Dame Sue Ion: I would agree with Tom there. It may open up other opportunities for international research collaboration that would otherwise be more challenging for us. However, that requires associated funding. It may well reduce some, but probably not very much, in terms of the bureaucracy associated with compliance. However, the one thing that we must always be aware of is that the nuclear sector comes under global scrutiny, and we cannot afford to be seen as deficient in anything to do with compliance.

Rupert Cowen: There is a series of bureaucratic changes; where we go to the Commission at the moment, we will no longer need to go to the Commission, such as in justification, data requirement and investment notification. That is the first thing. The second thing is much like the whole Brexit question. If you wait long enough, there are obviously many opportunities in the globe. We could be working with Korea, we could be working with China, and working with all of those other nuclear nations successfully and effectively, but not through EURATOM. There are positives, but it is going to be a pretty difficult decade. It is trying to avoid the cessation in trade that we are concerned about, not where we are in 10 years.

Q139 **Anna Turley:** I would like to focus on research and development in particular, if I may. I will start with a fairly generic question: how will leaving EURATOM affect research and development in this industry?

Dame Sue Ion: We benefit hugely in terms of leverage at the moment from being participants within the European Union's EURATOM programme. The biggest part of our benefit comes to fusion through European funding for the Joint European Torus facilities at Culham. The benefits flow in very large contracts to build the research equipment associated with the big ITER project in France. Hundreds of millions of pounds worth of business have flowed to UK companies to build the one-off bits of very high-grade equipment that goes into that sort of facility. We gain a few millions per year to supplement our Research Councils programme on the wider fusion research that goes to UKAEA, at Culham, and in UK universities.

On the fission side, we benefit by being able to participate in the technology platforms that flow through the European's Union EURATOM programme: the ones on geological disposal and the ones on radioactive waste management particularly. We do not benefit very much from the ones on the new generation of fission reactors, because not that much money flows into that from Europe. The one peculiarity of EURATOM is that it requires unanimity to approve the research budget. When you have nations that are not supportive of the nuclear mission within Europe, such as Austria, it is almost impossible to get research funding through EURATOM to do with next generation systems, unless there is a safety angle to it. That is pretty small beer in overall terms.

Funding and leverage on our own investment is vital. However, movement of people within the sector is also extremely vital from a research standpoint. If you look at most of the MSc courses that have a nuclear component within the UK at the moment, you will find very often a majority of overseas students, the majority of whom are European students. Of PhDs and post-docs, many are European. Many of our lecturers and indeed our professors in the nuclear world are European. The intellectual horsepower coming from the wider European member states into the UK adds huge value. We are not just looking at volume here; we are also looking at intellectual horsepower and quality long term. Having UK students, lecturers, and professors along with European counterparts makes sure that we are at the highest level of quality in the sector.

Tom Greatrex: Sue touched on it, but that has an industrial benefit as well to a number of UK companies, particularly in relation to JET and ITER. On robotics, for example, there is a whole range of very advanced technology, and you have got UK companies involved in that. If that were closed off, that would make a significant impact on them as well.

Dame Sue Ion: One other final point that I did not mention is that we get access to the very expensive facilities of the Joint Research Centre within Europe: in Karlsruhe in Germany, Ispra in Italy, and in the Netherlands and Belgium. We do not have those facilities in the main. Our researchers can go and spend time in those very expensive assets, which we would then not have to invest in. Similarly, we get European researchers coming into the UK assets that we have to get leverage on both sides. That would be more difficult to achieve outwith EURATOM.

Q140 **Anna Turley:** Is there any way that we can continue to participate in these sorts of programmes, for example supporting the ITER programme in France, outside of EURATOM?

Dame Sue Ion: It will no doubt be possible long term, because the big ITER project has nations other than European nations within it, and the same for other aspects of research. However, it will take time. We are probably going to go through a huge period of perturbation before we get to a stable situation.

Q141 **Anna Turley:** Can I ask about the projects in Culham as well? Obviously it is cutting edge for us. Will leaving EURATOM have a profound impact on that site? Conversely, do they need us in that facility as much as we need them? I do not like using the idea of bargaining chips, but do we have something to offer in terms of the expertise and the facility that we have there to help negotiations?

Dame Sue Ion: Certainly, that facility is seen as an essential international facility. The European partners know how valuable it is. However, it will come to its end of life at some time in the run up to ITER becoming operational. At some point, the JET facility will close, because it will have outlived its useful technological value.

Tom Greatrex: My understanding is that the work that is happening at JET will inform what will happen at ITER. You can see where there is a potential synergy, and under the contract from JET current funding runs out in 2018. Prior to the publication of the notes in the Bill that mentioned EURATOM, I know that UKAEA, which runs Culham, was in negotiation and discussion with European institutions around an extension of that until 2020. Obviously, this will potentially make that discussion harder, but there is a reason why, if you were looking at it from an ITER perspective, you would want JET to continue until that period. It adds to this wide range of different things that all have to be negotiated, agreed and discussed at the same time in the wider context.

Q142 **Anna Turley:** My final question, if I may, Chair, is focusing on the funding element. We have discussed this, but I think EURATOM provides £9 million to the UK industry. What are the alternatives to this kind of funding? Are we exploring other options available for us to get that kind of resource to the UK outside of EURATOM?

Dame Sue Ion: That is specific to fusion work from the fusion association part of the EURATOM budget. We are talking about here basic, fundamental science that is applicable to the fusion mission long term. That would be the same sort of science that would come through our Engineering and Physical Sciences Research Council, or our Science and Technology Facilities Council. If we do not get it from there, in order to pursue that type of research we would be looking at competing with completely different parts of the research landscape within UK space.

Q143 **Peter Kyle:** You have been so fantastically comprehensive in your answers that you have covered many of the preliminary questions that I already had, so I am going to cut straight to the chase with two questions, if you do not mind, Chair. I will then wrap up, because he is already looking at his watch, which is not a great sign when you are starting a question. Tim Yeo, who is Chair of New Nuclear Watch Europe, has suggested that we set up a new pan-European organisation that would bring in co-operation from countries outside of the EU, almost as a replacement for EURATOM. What does the panel think of this? Presumably you have read his suggestions and have a view as to whether it is feasible or not, what the impact would be and whether it would be a potentially good vehicle for Britain.

David Senior: There was an interesting response to that proposal. I would answer that in respect of the Western European Nuclear Regulators Association group, which I have already talked about. That was set up a number of years ago from a European perspective, but the standing that it has acquired has now resulted in other countries worldwide becoming observers to that group. Indeed, the Canadians and the Japanese have recently become observers to that group.

I am saying here that there is no reason why a European group could not broaden out, basically, into a more global group, and enjoy the benefit of those interactions. As we have all pointed out earlier on in the discussions, nuclear is a global industry and we work to international standards, so there is no reason why these groups should remain purely European. There are benefits to other countries interfacing with them, but it just depends how they are set up, what their terms of reference are, and how they are positioned.

Q144 **Peter Kyle:** Dame Sue, I think you want to come in. What kind of credibility does this new group and the emerging new global groups have? Do they have the weight and heft of scientific research behind them such that they would be a good vehicle for Britain to use?

Dame Sue Ion: Not as it stands at the moment, because it is not formal, but there is no reason why the bilateral and trilateral collaborations that exist globally anyway could not be brought into a broader union along the lines suggested. However, it does not negate the importance of putting in place the real agreements that we need to put in place between now and exiting EURATOM. That is the priority first and foremost. Anything else that brings together a collaboration of the willing is all to the good.

Tom Greatrex: It does not solve the issue. It is potentially something interesting and worthwhile exploring at a later date and over a longer period, but it does not solve the fundamental issues about ensuring what we have currently is properly replicated in bilateral arrangements to enable nuclear trade and activity to continue. That grouping that has been suggested would not do that.

Q145 **Peter Kyle:** Rupert, my final question is directly to you. Does the Great Repeal Bill in your view take into consideration the needs to grandfather the laws and regulations from EURATOM directly into UK law?

Rupert Cowen: Yes, it does, in relation to those that are directly applicable to the directives and obviously then the regulations. They are intended to be continuing. However, that does not protect the safeguards arrangements and those things that are in domestic law.

Q146 **Peter Kyle:** Are there regulations being passed in the EURATOM process that are in motion at the moment and that we would not take on once we leave?

Rupert Cowen: Yes, there are, and David Senior has referred to the three directives. They are developing and changing, as experience would expect them to. We will have to replicate those in some way, shape or form to reach that first base where we can state to be compliant, and then approach the NSC counterparties that we have. To me, the challenge is to identify that dozen or so counterparties around the world, including EURATOM as a whole, at which we must arrive with an arrangement as quickly as possible. It will not be within two years; that is the danger and the reality.

Amanda Milling: I also have two short questions, although I have a sneaking suspicion that the second question could be another hour's debate.

Chair: No, it will not.

Q147 **Amanda Milling:** They will have to be brief answers. Members of EURATOM's views on nuclear are quite wide-ranging. If we leave EURATOM, what does that mean in terms of policy? Is there likely to be a change of direction? A subsequent question to that is: what does it mean for us?

Tom Greatrex: Do you mean a change of direction within EURATOM when we are outside of it?

Amanda Milling: Yes, within EURATOM. We are not there to have that direct influence, so what does that mean?

Tom Greatrex: In that wider community there is a balance of different views. You have to be a member of EURATOM if you are a member of the European Community. Austria, for example, has already been mentioned as a state that does not have an interest in nuclear but is a member of EURATOM. The balance would be different within EURATOM, but I suppose that is slightly different from the functions we are talking about. The functions currently happen either with EURATOM or through that EURATOM framework, which is different from the overall balance of views within that group of states working together. The balance would be different were we outside of it, because we are a significant member state and therefore significant member of EURATOM.

Q148 **Amanda Milling:** Are there any implications of that?

Rupert Cowen: One example would be that there is currently a nuclear co-operation agreement between America and EURATOM. If you take the United Kingdom out of EURATOM, you leave, for example, Germany and Austria, which may be less interested in co-operation with the States or may see the United Kingdom as similar to the States—as a nuclear power that covertly may be seen as a threat to the EU. They will not want to negotiate an agreement without the UK being inside. It is quite possible that that will not be possible because Germany does not want it to happen. Those are the sorts of practical problems.

David Senior: We have been a key player. Indeed, we were chair of one of the groups I have mentioned, the European Nuclear Safety Regulators Group, for a two-year period up until about 12 months ago. Recently, our Chief Nuclear Inspector has been appointed as vice-chair to that group. We have been a big and very influential player in relation to EURATOM and its working groups. Our presence would be missed; that is probably the best way of describing it. That could shift the balance and the policy position.

Dame Sue Ion: It may not affect the actions of individual member states, because the decision as to whether or not you have nuclear energy as part of your energy mix is down to each member state to decide. It is not likely to affect those views. Those member states that intend to replace their nuclear power stations or to invest in new stations if they have not been nuclear energy nations will continue to do that.

Q149 **Amanda Milling:** I am conscious of time, so I will ask just one other quick question. We have talked a lot about EURATOM, but that is just one part of Brexit. Are there any other priorities that the Government should be looking at in terms of the nuclear industry as we leave the EU?

Tom Greatrex: There are a whole range of things that affect the nuclear industry, the wider energy industry, and industry generally, which I am sure you have touched on with others in relation to freedom of movement, tariffs and all those types of trading issues. The situation we are in will depend on the outcome of those wider negotiations. However, that will potentially have an impact. There are wider issues around the EU single energy market, which, again, I am sure you have discussed with others. A whole range of issues will have an impact on the nuclear industry in the same way as they will on very many others, as well as the specifics within the EURATOM part of it for nuclear in particular.

Dame Sue Ion: I have already mentioned skills, particularly movement with respect to students, post-grads, post-docs, and high-end academic staff. That applies right across the board in the science and engineering sector and not just to nuclear.

Chair: Thank you very much. That was very comprehensive and incredibly insightful, so thank you again.

Examination of witnesses

Witnesses: Ian Simm, Alejandro Ciruelos, Kirsty Hamilton and Carol Gould.

Q150 **Chair:** Good morning. Thank you for coming to give evidence. Would you like to introduce yourselves, please?

Kirsty Hamilton: I am Kirsty Hamilton. I am an Associate Fellow at Chatham House, and I have worked with finance practitioners for the last 13 years on policy-related issues.

Alejandro Ciruelos: I am Alejandro Ciruelos. I am the head of project finance for Santander in the UK.

Ian Simm: I am Ian Simm. I am Chief Executive of Impax Asset Management.

Carol Gould: I am Carol Gould. I head up the power and renewables team doing structured finance for the Bank of Tokyo-Mitsubishi, which is part of the MUFG group.

Q151 **Chair:** Our predecessor Committee carried out a really important, very comprehensive and excellent report and inquiry on investor confidence. I would be interested in your sense, since 23 June, of the status of investments in the energy sector. How is deal flow? Ultimately, how has Brexit influenced what is happening in the potential investment opportunities when it comes to energy?

Alejandro Ciruelos: From my perspective, in terms of empirical data from last year, we did not see a drop in investment in the UK energy sector, at least in the area we cover, which is private energy infrastructure. There was quite a big, substantial increase over 2015 according to different databases. This includes primary new greenfield investment as well refinancing in the secondary market in terms of M&A activity.

Q152 **Chair:** This is quite an important comment. Are you suggesting that in respect of Brexit, the investment community did not miss a heartbeat?

Alejandro Ciruelos: At least from a data perspective, there was not any drop in activity. Actually, there was an increase in investment into the energy sector from an infrastructural energy perspective. That is data collected, for example, from InfraNews, which is a market database that records transactions in this sector. In terms of the share of energy across the whole spectrum of infrastructure, it increased from something like 30% in 2014 to 52% in 2016. It has increased its share of total investment.

Last year, we definitely did not see a drop in activity because of Brexit. What I can say in terms of more qualitative experience is that in the run up to the referendum vote, there was definitely a couple of months where there was not much investment activity, because investors were waiting to make final investment decisions until they knew the outcome of the referendum. Post-referendum, for a month or so—not a very extended period—there was uncertainty, and after that investment reignited. The last quarter of last year was probably one of the busiest we have had since I have been in the UK, which has been eight years.

Q153 **Chair:** Are there any other comments? Is that other people's perspectives?

Carol Gould: From a bank perspective, I have to agree with Alejandro. Right at the end of June or beginning of July, there was a slowdown from banks that were not as involved in the sector before. If it was going to be your first investment into the UK renewables sector, for example, that was probably not the time to take it immediately to your credit committees in Taiwan, Korea or wherever. However, within a month or so, we found that those parties had calmed. There was no real reason for them to stop being involved. We have certainly seen them investing in the sector more recently.

Ian Simm: We invest all over the world, not just the UK; we also have clients in many different countries. Over the last two months I have been in Japan, the United States, Canada and several European Union countries. I have to say that sentiment has definitely cooled quite dramatically in the last six months, not particular to the UK, but to the European Union in total including the UK. There has definitely been a marked drop off in interest in Europe relative to the United States or Asia.

Q154 **Chair:** Why is that?

Ian Simm: I think it is the political uncertainty in the European Union.

Q155 **Chair:** Is there no political uncertainty in the United States?

Ian Simm: That is relatively recent compared with the referendum vote. I would agree that the opportunities in the United States have become more confused. Having said that, the stock market in the US is at its record high, and therefore investors generally speaking are optimistic about prospects for the US market.

Q156 **Chair:** One of the things we are told in respect of business policy, investment and investor confidence is that investors want policy certainty as much as possible, certainly for something like energy, where there could be a very long investment horizon of maybe 20, 30, or even 40 years. Does Brexit, the triggering of Article 50 and that sense of being in the next stage of negotiations just provide a huge degree of uncertainty that would put investment off?

Kirsty Hamilton: One of the observations that I would make, having had sessions with finance practitioners across the second half of last year, is that there was more attention on policy following Brexit. In the environment of higher uncertainty caused by Brexit, there was a focus—particularly because there was a new Government and a new departmental setup—on what that meant for looking ahead. Transactions that were under way were continuing, because the environment around them was already known.

However, looking ahead, what are the longer-term policy objectives of the Government in the face of this environment of higher uncertainty due to Brexit? In other words, Brexit is like a big moving part on top of another set of moving parts as the energy sector is under transition. Investors look for visibility on what that means in the UK market.

Q157 **Chair:** Do you get the sense, Kirsty, that all of those other moving parts from the Government—things like the machinery of government changes; the setup of the Department for Business, Energy and Industrial Strategy; and indeed the launch a couple of weeks ago of the industrial strategy green paper—are helping to provide greater certainty for investment when it comes to energy?

Kirsty Hamilton: Other panellists will give you the front-end view of that. It was quite a long period—maybe up to just before the Autumn Statement, when the announcement of the second auction round for offshore wind was made—where there was an absence. That is perhaps completely understandable given all of the things that were going on. However, there was an absence of visibility about what the new setup really meant. The glass was half full for some and potentially half empty for others.

What happened after the Autumn Statement is that certain decisions were made or flagged for early this year, for example the levy control framework and some visibility on carbon floor price. Then there were other big chunks of policy launched, which are still moving parts: smart power; as you have said, the industrial strategy; and people are awaiting the emissions reduction plan. These are in play, but the detail of how they land is obviously not there yet, because they are processes. It is simply that there is a lack of clarity over coming out of the single energy market and the bigger cross-border issues.

Alejandro Ciruelos: One of the conclusions of the inquiry last year that you were referring to was that there was a lack of visibility on policy or ambition or vision beyond 2020 or 2021, which is the visibility that we have for the levy control framework. That has not changed. For example, the European Union has currently already set a binding target for 2030 in terms of the contribution of renewables to the overall energy mix. That has not happened in the UK, and that was a conclusion from the inquiry last year.

From the recent Government announcements, we have not seen that long-term vision being transformed into the reality of policies that would allow the investment community to gear up towards more investment into the sector. As we said before, energy is definitely about the long-term investment and the long-term horizon. Developing projects and taking them through the pipeline takes a long time. For someone to have a project ready to build in 2020 or 2021, they basically have to make a decision today about investing in capital and resources. Some of what we are missing today is the vision beyond 2021. What is the right policy mix or energy mix that the Government are really looking for the investment community to deploy?

Ian Simm: It is fair to say that investors love certainty. The more certainty, the better. We do not always get it. We are in a stage of unprecedented opportunity, but also threat and change, in energy. This is particularly because of new technology and new business processes on the one hand, but also because of new objectives in the environment, i.e. the Paris climate agreement. In my analysis, Brexit is not the major issue for energy; it is those new forces that have been around and building for the last half-decade that are really shaping the uncertainty, but also the opportunity. We can perhaps speak about that in a little more detail as we go through the session.

Carol Gould: There has not been anything negative coming out of Brexit yet, and therefore people are watching and waiting to see what happens. There has not been that reason to step away from investing in the UK. People are continuing where they have been continuing, and maybe there are some that we are just not seeing starting to invest in the market.

Q158 **Albert Owen:** I just want to follow on the line of questioning from the Chairman. I will just come to Ian first. I am slightly confused by your last answer. You said—and we have been told over the years and in the previous Parliament—that the industry requires stability. You then say that these long-term things we have been involved in are now coming to a certain part of their evolution. I am a bit uncertain. Surely the European institution—the single or internal market in Europe—has great clarity, and so that provides certainty.

Ian Simm: Energy is obviously a very complex industry. What is clear is that the bigger the market and the more opportunity for trade and exchange, the lower prices should be in theory. The ability to trade within a market really ought to be preserved, not necessarily at all cost but to a significant degree.

Q159 **Albert Owen:** I will come on to that in a second. The Chair mentioned some of the external issues, and, Kirsty, if I could start with you—you have mentioned it in your written evidence and in your responses today. What you were telling us in the written evidence, if I read it correctly, is basically that Brexit adds another layer of uncertainty on what has already been a difficult period. We have had the financial crash, we have had policy vacuum, in many ways, and we have had departmental changes. Brexit and possibly coming out of the internal energy market you think will provide uncertainty for many of these long-term investment projects that are ongoing or for the future. Am I quoting you correctly?

Kirsty Hamilton: I am unclear what coming out of the single energy market, if that is the result of coming out of the single market, means. Therefore, the question in much of the work I did last year is trying to understand from people directly what the transmission is from Brexit down to transaction level. If part of that is coming out of the single energy market, what does that mean in practice for people who are investing in the UK? I was not sure, certainly by the end of last year, that it was clear what that meant. If you are trying to reduce uncertainty and give a long-term vision, the fewer moving pieces you can have, the better. Staying in the single energy market sounds like a piece that you would keep in place.

Q160 **Albert Owen:** Do we agree with that? Are your core funders saying exactly the same thing as Kirsty?

Alejandro Ciruelos: From our perspective it is too early to say and too early to translate into the reality of our day-to-day operations. Certainly preserving some of the principles around the integrated energy market is going to be positive rather than negative, but this uncertainty has not necessarily translated into a lack of activity—let me put it that way. Of course, we are at the very earliest stage of the process, so this may change over time.

Ian Simm: The other elements to the market and the European Union obviously are objectives. What has been particularly helpful in UK energy policy in the last 15 years has been the 2010 and subsequent 2020 objectives within the European Union framework around renewables and CO_2 reduction. In the absence of a 2030 target, UK energy policy will really suffer.

Q161 **Albert Owen:** The UK has fallen down substantially in investments in renewables in league tables to 14th place. Do you think there is going to be a steadying in that, or do you think there are opportunities for us if we are to come out of the European Union?

Carol Gould: It is more down to subsidy arrangements in the UK as to the reason for a drop-off. We as banks are quite busy because a lot of mergers and acquisitions are going on. There is lots of refinancing going on. However, new build UK projects are practically non-existent in the onshore wind and solar spheres at the moment. That is the key area where we are seeing the drop-off.

Offshore wind is still very busy, and one of the main reasons it was a very big year last year was because a number of key projects were financed through the market last year. It is less to do with Brexit and more to do with internal domestic policy as to how subsidies are required, and that links in to where the power price is and where power price expectations are.

Q162 **Albert Owen:** Some of the larger projects have long lead-in times. They are moving forward now. We had an evidence session just before you on

EURATOM, which again gives a stability framework for investment in the UK nuclear industry. How do you view coming out of EURATOM, or how do the people you represent feel about that?

Carol Gould: Certainly the nuclear side of things is a much more difficult side, particularly potentially for a Japanese bank with the recent history in Japan. We are clearly watching the market and trying to work out what may or may not be bankable and something that we can take to our credit committees. Whether we are in EURATOM or not is something that we need to consider very carefully, together with a lot of the other third-party liability-type issues.

Q163 **Albert Owen:** I have one final question, as I am conscious of time, and it is about stability. How has the pound's status against other currencies affected investment in the United Kingdom since the referendum?

Carol Gould: Again, from the bank's perspective, we are looking for projects that are basically mitigating that risk by hedging their FX exposure before we have started to lend. From our perspective it possibly makes the projects a lot more expensive, and maybe we will see that coming through when the next auctions come through. From a bank's perspective, the FX risk is much less because we will lend in sterling and we will hopefully have a project receiving revenues in sterling.

Alejandro Ciruelos: From our clients' perspective, what Carol mentioned is absolutely right. A lot of the capital goods like wind turbines or solar panels are imported from overseas. The weakening of the pound has definitely brought uncertainty and a higher cost to those developers. Projects at the end are going to have to compromise returns or they could eventually not get built, unless the returns are adequate for investors. When our clients are making investment decisions, this is quite an important determining factor in how they deal with the potential volatility in the foreign exchange between the pound and other currencies. It is becoming a more prevalent issue for sure.

Ian Simm: I have one additional point around the appetite for UK institutional investors for UK infrastructure. It is worth re-emphasising the fact that there is a large and growing body of interest among the local authority pension funds and corporate pension funds with sterling liabilities and therefore sterling assets to invest in UK infrastructure. Part of the opportunity is to join the parties in that.

Q164 **Albert Owen:** How are they feeling at this moment in time? When you are speaking to them, how do they view Brexit?

Ian Simm: In the context of energy—

Albert Owen: Energy and Brexit are what we are talking about today.

Ian Simm: It is important to recognise that the local government pension schemes are being pulled, and that has put a real spanner in the works for that process. There is a vision and an opportunity for cost reduction, but right now investment is relatively low. Having said that, there are a number of these schemes that are coming together in infrastructure consortia. Greater Manchester Pension Fund and London Pensions Fund Authority in particular are leading the way, and they are putting in place management teams to review opportunities. Over the next couple of years we will start to see some money flow from that source.

Q165 **Anna Turley:** I would like to talk about the European Investment Bank and funding from the EU, if I may. I wondered if you could perhaps characterise or capture for me the role of the European Investment Bank in terms of its impact on UK infrastructure funding. How much do we rely on investment from the EIB, and is there any concern at the moment among investors about access to funding from the investment bank after Brexit?

Carol Gould: We see the EIB as most useful in the very large offshore wind projects, where maybe you need to raise £1.5 billion to £2 billion in what is still a relatively niche market. There are maybe 20 or 25 banks that have lent into the sector, but it is not as wide as some other sectors. For a very large project, whether it is in the UK, Germany, the Netherlands or wherever, you typically see potentially an EIB tranche. Certainly as companies are beginning to look at their funding plans for potential new projects, there is a need to see how the EIB may or may not be involved in that project.

Perhaps at the next round of auctions there will still be a role for EIB, because you can start the dialogue now and hopefully there will still be a chance for them to be involved. It will certainly leave a funding gap of around £250 million that will need to be filled by other banks, and potentially more expensive banks, bringing up the cost of the debt across the whole piece.

Q166 **Anna Turley:** Before I move on, what could be the impact on the renewables sector of that potential loss of funding?

Carol Gould: It could be slightly higher pricing, and potentially I suppose there will be a need to find extra investors who are prepared to lend to those sorts of projects.

Alejandro Ciruelos: From our perspective, they have been an important actor in the UK energy sector. One portion is renewables; the other portion is funding transmission and distribution—new capex, new build. Last year they lent around €2 billion, which I would say is a significant amount, but if you compare it to the normal amounts that large commercial banks will deploy, it is a sensible amount. They will be right at the top with the largest commercial banks.

In today's climate, where there is still investment and lending appetite from commercial banks into the UK energy sector, they are not, in my opinion, a decisive actor in terms of making investments feasible. However, they do provide a benefit to consumers by providing a lower cost of financing than commercial banks. One potential implication therefore could be an increase in the cost of financing.

Something that is quite important to remember is that credit markets are cyclical. Obviously we are in a radically positive moment at the present time because of the low interest rate environment and so on. This could change over the course of the next 10, 20 or 30 years. In those moments, where the credit cycle becomes tighter, multilateral institutions like the European Investment Bank will be a lot more important. We have to bear in mind the long-term implications of that.

Ian Simm: We have seen the European Investment Bank participate in fund formations, putting seed money into funds that have then been attractive to Japanese and North American investors, where the EIB is providing a nice positive signal about opportunities around the European Union. That absence would be a loss. It would not be insurmountable but it would definitely be a negative.

Q167 **Anna Turley:** Leading on from that, is there a risk for other research funding from Europe such as Horizon 2020 and the Connecting Europe Facility? Do you have concerns about the implication for those as well?

Ian Simm: My understanding is that is more targeted at the earlier stage R and D and development of growth companies as opposed to infrastructure. EIB, in our context, is really about getting projects funded in special purpose vehicles without much, if any, technology risk.

Q168 **Anna Turley:** That is helpful, thank you. Finally, the Government has announced its intention to sell the UK Green Investment Bank. Do you have concerns about that, and what do you think the implications of that might be?

Kirsty Hamilton: I do not really have any comment on that.

Alejandro Ciruelos: Obviously, again, it is too early to say what new direction of investment the Green Investment Bank will take under its new ownership structure. I have nothing to say on that.

Ian Simm: It is fair to say that the Green Investment Bank has been a great success. Its focus on sectors that have had investor uncertainty and its willingness to provide expertise, and in some cases some cheaper capital or higher risk capital, has been essential in getting the offshore wind sector to where it is, for example. It would be unfortunate if the future of the Green Investment Bank took away that source of capital, particularly in the absence of the EIB or any similar source of funding.

Chair: I was going to bring Michelle in at this point anyway, but at the mention of the Green Investment Bank I could see her leaping over the table. Michelle, would you like to continue on this line of questioning?

Q169 **Michelle Thomson:** We were at the Green Investment Bank yesterday in a trip to Edinburgh, and it is something I have been following up fairly actively. In terms of the wider messaging about this part of the UK's focus on green investment and how benign it is, the original intention was to address market failure, but what they have done as a model is take certain types of investment and make them work, and get them to a point where they can sell them on to pension schemes. They have done that very well.

In some of the other areas, where there is still market failure and it is still probably quite early in the process, it is no longer certain that the Green Investment Bank will focus on that, and I wondered if you had any further thoughts about that. Have you only considered what you have seen coming out of that without considering the wider implications of not having this state-backed correction to market failure?

Ian Simm: As we go through these periods of technology transition and development, there is always this valley that you need to cross around commercial confidence. We have seen that not just in the energy sector but in all sorts of technology-based sectors. This type of public sector money that is used very cautiously with an additionality requirement to bridge the gap has been really important in getting major industries to full commerciality. The offshore wind sector is almost there.

As I said before, it would be really unfortunate if that facility, particularly given the expertise that the Green Investment Bank has built up in its relatively short history, were lost. I am sure that a structure around ownership change can be put in place to ensure that continues. I would certainly point to that as quite an important requirement if we are going to see major progress in this whole translation of the power grid and efficiency to major market opportunities.

Q170 **Michelle Thomson:** Off the back of that, one of the other things that leapt out at me yesterday, and that we had fairly consistent comments about, was that there was a less coherent focus in long-term policy decision-making from the UK Government around the energy market. That contrasted with a lot of favourable comments we got on the Scottish Government, particularly around climate change and their energy strategies. Do you understand what is happening in the energy market in Scotland and the Scottish Government's drivers, or do you only engage with the UK Government? How does that work for you in terms of investment possibilities?

Alejandro Ciruelos: Both, and obviously we see Scotland as an area of opportunity primarily because of the good natural resources of Scotland.

Michelle Thomson: It rains a lot and there is a lot of wind.

Alejandro Ciruelos: It is very windy, and obviously there is a lot of development activity and established developers with know-how, engineering firms, technical advisers and so on. We feel that Scotland is an area of the country with opportunity for new investment. Of course, today the policy decision-making is singular, and therefore we still lack those signals about what the direction of travel is beyond 2020.

We appreciate that the investment opportunity could be quite positive in Scotland, and the Scottish Government has delivered a lot of positive messaging around its intention to attract investment into renewables. However, we still need the beyond-2020 vision for the investment community to continue investing into that part of the country.

Carol Gould: Going back to the first questions on the impact of Brexit, probably the only area where we have seen some additional impact is on concern about Scottish projects as opposed to other UK projects from some investors, simply because of the possibility of a second referendum. That has influenced some investors' views on whether they really want to look at a Scottish build.

Q171 **Michelle Thomson:** Presumably, then, from what you are saying about investor confidence post-referendum and it only having some small limitation, it is a reasonable assumption that that could also be the case. What that is saying in market terms, I am assuming, is that the fundamentals are there and it is a stable environment for investment, this is a mature economy and so on, so it may well be exactly that case in Scotland as well, but it is at the beginning of the cycle rather than the end. In terms of the information you are getting from the Government in terms of plans for Brexit, do you have sufficient confidence that you are getting what you need at this stage to furnish your future planning?

Ian Simm: I do not think we are. The hiatus that I mentioned right at the start is directly attributable to the lack of clarity as to what the policy environment is going to be over the next 10 to 15 years. That applies in other sectors obviously as well as energy. It is understandable that at this stage in the exit process we do not have that.

Q172 **Chair:** Forgive me for interrupting—sorry, Michelle. In terms of that uncertainty for the next 10 to 15 years, how do we fare as the UK relative to other nations? Presumably all other nations have political risk and some degree of policy uncertainty. Where do we sit in the league table for uncertainty?

Ian Simm: As part of the European Union, we were facing imminently within the next 12 months clarity as to what the 2030 objectives would be for renewables, energy efficiency and CO_2 reduction. That has been taken away in terms of certainty, so that is the elephant in the room.

Q173 **Michelle Thomson:** It is at a very early stage but it is a potentially extraordinarily aggressive timescale in which to have all the key elements in place, which we heard about earlier. Are you getting what you need at this point for you to support investor confidence? Are you just sort of going with the flow?

Kirsty Hamilton: There is an opportunity now, especially facing Article 50 being triggered, for that engagement with the finance sector to be systemised so that there are systematic briefings. This is the Brexit element, but there is also this broader engagement. On Brexit, investor confidence is almost a two-way street. First of all, are there regular briefings? Can regular briefings be set up to low-carbon investors as the territory moves? That is not about, I imagine, negotiating positions. It is about what we know and do not know is happening.

There is going to be a lot in the media, and my recollection from the whole EMR process is that when things turn up on the front pages in a particular form, people are getting calls from head offices and others. They want to be able to navigate what is going on, what is known and what is unknown. We need briefings from Government to the low-carbon finance sector, across the diversity fairly regularly, across that period.

Secondly, the Government have got objectives that require investment, and there needs to be confidence on that side that investment is going to flow. Therefore, there is a monitoring aspect of this as well on Brexit and what is going on for people in the finance sector as we go through, I imagine, the different phases of what we find has been negotiated on Brexit. Having real-time monitoring and real-time feedback from the people who are actually working with money is going to be very important.

That is just on the Brexit piece. There is a broader question about Government's relationship with the finance sector in that systematic way on delivery of low carbon when the policy is set. On Brexit, that two-way engagement would be an important element of building confidence.

Alejandro Ciruelos: In my experience, having worked in other geographies, the level of engagement from the UK Government historically has been very good. Kirsty was mentioning the EMR process, where there was a lot of government engagement with the entire finance industry: equity providers as well as developers, debt providers and so on. Clearly, that had a positive impact because that translated into policy that ultimately was bankable and capable of raising financing and attracting low-cost capital.

I guess what Kirsty is saying is that, throughout this process of separation from the EU, that level of engagement will definitely have a positive result as to what the ultimate policies will be. One thing I wanted to say is that we do not lack the right types of policies; EMR is a pretty comprehensive set of policies across the carbon floor price, capacity market and CFDs. What we have lacked, and I will reiterate the message, is how those policies are going to be instrumented or put in place to attract new capital and create more primary investment into the sector. That is what we are missing at the current time.

Q174 **Michelle Thomson:** Following on from that in terms of infrastructure, the previous Energy and Climate Change Committee questioned how numerous bodies on infrastructure would work together. Given that we have got more, and there is this complexity of withdrawal from the EU, do you think these bodies will work well together? Have you got any concerns on how the infrastructure elements specifically will work well together? Obviously, that is essential to underpin future investments.

Ian Simm: This is a complex issue and there are lots of expert voices that do not usually come up with the same recommendation. I imagine it is incredibly difficult as policymakers to navigate that. The public discourse is pretty transparent, but there is a lack of vision and a lack of leadership around what we want in our energy system in the 2030s, investments for which really should be planned now. There is too much focus in my view on generation and not enough on how we can bring down the cost for consumers and improve markets through flexibility and through having a smart grid.

I would agree with Alejandro in the sense of EMR and policies from that working in the short term. In the medium term, around 2030, there is a real lack of clarity about what sort of energy system we want. That is where the opportunity lies, Brexit or no Brexit, and I would really encourage policymakers to be bolder and more visionary in setting that out.

Kirsty Hamilton: I noticed in the Autumn Statement that a new ministerial group on infrastructure delivery was being set up to be chaired by the Chief Secretary to the Treasury. It may be an opportunity to have an aligned input on meeting low-carbon objectives. As people have said, those need to be clearly set out, and maybe that will occur in the emission reduction plan. When you get a more systematic, across-Whitehall engagement, that will reduce some of the questions about how different institutions interact with each other, because it is led from the top. You need to get to the level of granularity that matters in a long-term perspective.

Q175 **Chair:** Can I finish with two questions? I would like to finish where I started. I will start with you, Kirsty. It requires maybe a one-word answer from each of you. Is the investment landscape more certain now than it was 12 or 18 months ago when it comes to energy?

Kirsty Hamilton: You should start with these people and I will bring up the rear.

Chair: That was excellent passing of the buck. I admire that immensely.

Alejandro Ciruelos: It cannot be more certain that it was—that is for sure. It is not more certain. Of course there is a degree of uncertainty. What I was trying to say before is that that has not necessarily translated into a drop in investment, because the fundamental characteristics of the UK remain the same.

Ian Simm: It is definitely less certain, but there is more opportunity.

Carol Gould: I agree that it is less certain but things are still happening.

Q176 **Chair:** My final question links in with Ian's point. I will start with you, Carol. Can you give me the best opportunity there is in terms of energy investment? Can you give me the biggest challenge in energy investment at the moment? In your assessment, does the challenge outweigh the opportunity or vice versa?

Carol Gould: The biggest opportunity is that there needs to be a lot of generation built in the UK over the coming years as coal turns off and nuclear turns off. That is the biggest opportunity. The challenges are how to finance that and what sort of market you put around that. There is a lot of talk about new nuclear. There is a lot of talk about tidal lagoons. There is a lot of talk about lots more renewables or lots more CCGT. It is finding the right mix of that generation with a bankable revenue stream behind it. That is going to be the biggest challenge: how we get comfortable with the revenue stream for those projects.

Q177 **Chair:** Does the challenge outweigh the opportunity, or does the opportunity outweigh the challenge?

Carol Gould: The opportunity hopefully will outweigh the challenge.

Q178 **Chair:** Let us leave hope at home. In the real world, what is it?

Carol Gould: Some of it will come through but maybe not all of it.

Ian Simm: We are in the early years of a multi-decadal revolution in energy, prompted by storage technology, electric vehicles, distributed generation and opportunities for interconnection all around our region. The huge challenge is to structure a market using the grid transmission and distribution to facilitate the flow of electrons in the most efficient way possible.

Experiments to do that have been trialled all over the world, and there is lots of best practice emerging that we need to learn from. It is difficult. We are making early steps in that direction, but we need to accelerate that, because that is the best way of getting the cost down for consumers and dramatically improving energy security. It is an enormous opportunity and it will address the key elements of the energy trilemma very concretely. We really need to seize that.

Q179 **Chair:** You are suggesting that the opportunities outweigh the challenges.

Ian Simm: Definitely, yes, but it needs to start with regulators structuring markets so that investment in grid and distributed storage and generation can happen.

Alejandro Ciruelos: I will say that the greatest challenge is to create a vision that will attract investment into the UK over the long term, and that is at the same time the opportunity. Whether it outweighs the challenge or not depends on the final decisions taken by Government.

Kirsty Hamilton: I would come back to the energy transition: laying out that the UK is on an energy transition and the characteristics of it is a core opportunity. Then there needs to be attention on the detail in areas like the impact of Brexit. Whether or not we come out of the single energy market—back to that question—the detail of how that translates down alongside other moving parts is going to be key to delivering.

I would make a final comment. Different sectors are now increasingly becoming integrated. The transport sector is not completely separate anymore from the energy transition, or the building sector. That is adding both complexity and opportunity, and pulling that together in a view of the energy transition for the UK is going to be a core opportunity, but paying attention to the detail underneath that is going to be key to delivering it.

Chair: Thank you for your evidence; we really appreciate it.