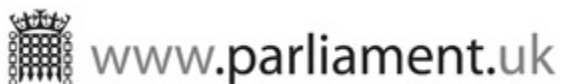


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Examination of Witnesses (Questions 51-73)

JOAN RUDDOCK MP, PROFESSOR DAVID MACKAY AND PROFESSOR NICK PIDGEON

13 JANUARY 2010

Chairman: We welcome our third panel in what has been a pretty hectic morning, looking at geoengineering and the regulation of. We warmly welcome Joan Ruddock MP, the Minister of State for the Department of Energy and Climate Change. We seem to be seeing a lot of each other at the moment, Joan, we are both working on the Energy Bill. A warm welcome to Professor David MacKay, the Chief Scientific Adviser at the Department for Energy and Climate Change, we have not met you formally before, but you are very welcome to our Committee, Professor MacKay. And last but by no means least, representing RCUK, Research Councils UK, Professor Nick Pidgeon. Welcome to you all. We are very tight for time, we are finishing at 11.25, so if we could keep our answers really quite tight, we would be very grateful.

Q51 Graham Stringer: What sort of urgency does the Government give to research into geoengineering? I suppose, so that we are all talking about the same thing, it might be useful to have the Government's definition of what they understand to be geoengineering.

Joan Ruddock: Thank you for the question. Can I first of all apologise to the Committee for the fact that I understand for some completely unknown reason, you failed to receive, and it is undoubtedly our fault, we did not succeed in delivering to you our written evidence. I understand you now have it, but obviously you would have appreciated it much sooner, and I apologise for that. I will answer your question on urgency, and then I will ask David if he would like to define the geoengineering which he knows that we understand, just in case I fail to be precise in the technical terms. Is there an urgency in this matter? Our view is there is not. We do not think that at the moment, it is a priority for Government. The techniques that are involved are ones which are far from being developed to the point of viability at the moment. That is quite different from saying one should not keep a watching brief, but we do not think there is an urgency in terms of this particular dimension to addressing climate change. What we do believe is utterly urgent is to continue on the route which this Government has followed so keenly of reducing greenhouse gas emissions in this country, of legislating to that effect, and of participating in the international discussions about trying to arrive at a global deal, which goes beyond the Copenhagen accord that we have just struck, so that we can ensure that the world effort is designed to keep us within no more than a two degree Celsius temperature rise. That is the priority of these times, and that is where the Government is on that matter.

Q52 Chairman: That is clear. Definition?

Professor MacKay: I think in DECC, we recognise the same categories that the Royal Society use in their report, we recognise the important distinction between carbon dioxide removal and solar radiation management. I think we would include in geoengineering some forms of activity that I think would be viewed as innocuous and legal, such as someone growing trees and putting them into a disused coalmine, that activity would be essentially the reverse of our current coalmining activity, and I think we would include that as an example of small scale geoengineering activity. We would also include, I think, the growing of biomass for co-firing in a power station that has carbon capture in storage, we would include that as another example of a geoengineering option that again I think would not be viewed as politically unacceptable.

Q53 Graham Stringer: Let me be clear, so that I understand you are both saying the same thing, I understand what Joan is saying, that you want to concentrate on reducing carbon dioxide, but does not the Government's energy policy and the security of supply depend on developing carbon capture technology, as Ed Miliband said? If I understand what you are saying, Professor MacKay, carbon capture is understood to be geoengineering but it is not getting urgent treatment?

Professor MacKay: Yes, I am sorry to have—

Q54 Graham Stringer: That is what I really want to understand.

Professor MacKay: I am sorry to have complicated things. Clearly we do have a policy of developing coal power stations with carbon capture and storage. If those power stations were used to co-fire biomass, then that would cause carbon dioxide reduction, so I was just wanting to give a complete answer. There are some forms of geoengineering that clearly are possible and also are perhaps not controversial—

Q55 Graham Stringer: So what you are really talking about that you are not putting research into is solar radiation management; is that too simplistic an understanding?

Professor MacKay: I think the Minister's answer was yes, the more controversial forms of geoengineering, especially the forms of geoengineering that would have cross-boundary impacts, are not a research priority. We do think they are important concepts that we would like to understand better, and we are happy to see the EPSRC, for example, investing in research into these options, but it is not an urgent priority to have research into these boundary crossing methods, which would include solar radiation management, and also some other forms of geoengineering that do carbon dioxide removal, for example, using the oceans; again, those would have cross-boundary impacts. We view these, as Professor King said earlier, as interesting options to keep on the table, but they are very much options of last resort, and they are not an urgent research priority right now.

Joan Ruddock: Can I just for the record, Mr Willis, make it very, very clear that whereas, and perhaps I was foolish to ask our Chief Scientific Adviser to give the definition, because in its broadest sense, it does include things that are already part of the Government programme. So in its broadest sense, yes, carbon capture and storage, where it is considered to be geoengineering, is part of the programme, and is a matter of considerable urgency, and we are applying ourselves to that, not least in the Energy Bill, which is currently going through Parliament. So there is a distinction which I think we need to be very clear about. The areas that we are not pursuing except in a small way, which I am happy to explain to you if you want that detail, are those of carbon dioxide removal of the kind that is—

Q56 Graham Stringer: I just wanted to be clear we were talking about the same things really. Just going back to your original answer, Joan, which I understand, are you not open to the charge of being complacent? Copenhagen, to put it mildly, was not a success, there is no guarantee that the international community will reduce the amount of carbon dioxide in the atmosphere. Do you not think we should be doing research for a Plan B, if the international community fails, as it patently did in Copenhagen?

Joan Ruddock: First of all, I do not agree the international community failed in Copenhagen. We did not succeed in getting certain things, we did not get as great reductions as we sought to get, and we did not get a timetable to move towards a legally binding treaty. But we have got, for the first time ever, agreement between developed and developing countries that they will make changes in their emission reductions; those are to be codified, they are going to be delivered by the end of this month, and we have got the agreement that we need the world community to stay within the two degree centigrade rise that all our activities in reduction should be aimed to keep us within that framework, and to avoid dangerous climate change. So I do not agree it was a failure, it is a good start, in my view, and it has got to be built upon, and I think the danger of adopting a Plan B, if that were even feasible, which I would question, but the danger in adopting a Plan B is that you do not apply yourself to Plan A, and the point of Plan A is it is all entirely do-able. We know how to do these things. Every country in the world knows how to reduce greenhouse gas emissions. With a financing mechanism, it is possible to help the developing countries that cannot otherwise afford it. If the argument is that we failed to make an international agreement of the best substance on this occasion, then how much more difficult might it be to create a regulatory framework for geoengineering which has greater implications for the whole world, in terms of possible risks and environmental damage and concern? So if one is difficult, then I would suggest the other might be more difficult, and that is why the priority must be to enhance and move further beyond what we have with the Copenhagen accord.

Q57 Graham Stringer: I understand the priority, and I understand the arguments. I do not agree with you about Copenhagen, I think it was a fiasco and a failure, but we can disagree about that. Is not the danger with the policy that it is all the Government's eggs or all our eggs in one basket, and if that does fail, then there is not a Plan B? Should not the Government be at least considering in a theoretical sense what choices it would make within the sort of range of geoengineering possibilities, that if things go wrong, and there has to be a different approach, should not the Government be considering that?

Joan Ruddock: Well, it is not to say that the Government should not consider, it is a question of urgency, which is the question I was asked.

Q58 Graham Stringer: Well, if it has considered, has it made a choice then?

Joan Ruddock: I said it is clearly not in our view a matter of urgency, it is clear that we have other and much greater priorities which we need to apply ourselves to very vigorously, and we will. So what I am suggesting is that we look to more of a watching brief, and that we do things at a de minimis level. I think that very much accords, as I understand it, with what the Royal Society is suggesting, and I think they are a very good barometer in these matters. So, for example, we do have some small expenditure on modelling techniques, for example, and if the Committee has time, Mr Willis, I can just say what research is being undertaken with Government money.

Q59 Chairman: I think that is in your note to us, is it not?

Joan Ruddock: It is.

Chairman: No, we will leave that on the record.

Q60 Graham Stringer: Just within that spectrum, have the Government made any choices? Does it have any priorities of which way it would want to go if Plan B was necessary?

Joan Ruddock: I think it would be entirely premature, because we are dealing with techniques here which are not proven techniques, which have great risks, which do not have a regulatory framework, and frankly, at the moment, it would be, I think, quite ridiculous for Government to be making any choices. But in terms of the major areas where there is interest, injecting sulphate aerosols into the stratosphere, for example, there is some current work which has Government funding; there has been work on low level cloud development, which again has some Government funding; and there has been another study on the impact of oceanic iron fertilisation on cloud formation. So on some of these areas, which are the ones that are particularly being put forward by those who advocate these kind of solutions as a Plan B, there is what I would call a watching brief taking place, and some small amount of Government funding, and as you continue to question, I can indicate further what the Government is interested in doing.

Q61 Chairman: I think just before we leave this particular angle, you have made it clear that you do not want to spend a great deal of money in terms of putting money into research.

Joan Ruddock: Correct.

Chairman: We will come on to RCUK in a second to look at some of the work that is going on there, but surely, Minister, you have an interest in supporting international regulation, because if somebody in the United States or China or Indonesia actually goes heavily into geoengineering in terms of large scale experiments, that may well affect not only neighbouring countries but, of course, work in the oceans, for instance, could significantly impact ultimately on our ecosystem as well. So what are we doing in terms of that global regulation?

Q62 Dr Iddon: Could I just add a rider to that, Chairman? Sir David King in the previous panel actually suggested that we ban temporarily solar radiation management techniques, because once you put trillions of mirrors in the sky, for example, they are irretrievable. Do you have an opinion on that as well, Joan?

Joan Ruddock: I do indeed. I mean, I think first of all we need to look at what might be being done within any particular research group, and the extent to which we seek to put any legal constraints on that. When it is a case of theoretical work, when it is modelling work, obviously Government does not seek to put any restraint on that. I think the Royal Society has suggested there should be a code of conduct; for research at a certain level, a code of conduct is probably entirely appropriate, and we would very much support that. But as you have just indicated, Mr Willis, and I did not hear Sir David King, but I can imagine why he would have said what he said, there are very, very clear implications for every country in the world, if any individual country were to start on a course of interfering with our atmosphere to that sort of degree. So it is absolutely the case that we need to develop an international regulation that comes before any deployment. Now there is an in between stage, which would be infield experimentation, and we may need to be thinking about that, and what implications that might have—

Q63 Chairman: I think my question is: have you done anything in terms of discussions with international partners about the possible regulation of geoengineering? I am not talking about domestic geoengineering, which from this Committee's point of view would not be regarded as geoengineering, but have you had any discussions, I mean, yes or no?

Joan Ruddock: There are continuing discussions obviously between people in the department and people who are engaged in this work. What we have been considering is setting up within the department a working group that would actually study this issue. Now we are considering that positively, but we are also very aware of the position of the Royal Society, and we will, I think, need to work closely with them, because they are also setting up a series of working groups, and so (a) we do not want to duplicate, (b) there is undoubtedly more expertise, not to embarrass our Chief Scientific Adviser, but more expertise in the whole of the Royal Society than we could possibly have within DECC itself. So we are considering this matter, we are aware that this is work that needs to be done, but we want to proceed in the most useful way, and that is why we are continuing to have discussions with the Royal Society. I do not know if David might want to add something to that?

Chairman: Can I just bring in Tim Boswell?

Q64 Mr Boswell: I am grateful, Minister, not least because I fear I have to go in a moment, but may I just pick you up on what you have said? I understand why in a sense you are devolving the scientific burden to the Royal Society, but in terms of, as it were, the ministerial clout, you need to be introducing some of your counterpart ministers, either in the EU or climate change fora or whatever, to the importance of this. Is this something that you are doing as a department as well as, as it were, the professional scientific network?

Joan Ruddock: I personally cannot recall any ministerial involvement in discussions, and I do not believe our Secretary of State either has been holding such discussions. So I think at this stage, it is unlikely that we have had any ministerial discussions on regulation, but we are aware, our officials are alive to the issue, and it is something that we know needs to be done. Of course, the IPCC is going to be reporting itself, and we have taken a lot of our leads from reports from the IPCC. It is clear that if there is to be regulation, it is going to have to be in some international body, whether a scientific body, or whether the UN itself, but clearly, this is something that will have to be developed over time.

Chairman: You have made that clear. You have mentioned the Royal Society, and I know Ian Cawsey wishes to pick that up.

Q65 Mr Cawsey: It is quite interesting that an awful lot of what has been said so far is about the Government almost holding a watching brief on this, and waiting to see what the developments are. I just wonder to what extent that is enough, certainly in terms of public opinion, because it strikes me that if you look at quite recent things, GM crops being one, even climate change really, there is quite a significant dislocation between where public opinion is and where scientific opinion is. I can see geoengineering ever so easily fitting into that category yet again. The Royal Society did say in their recent report on it that the acceptability of geoengineering will be determined as much by social, legal and political issues as by scientific and technical factors. Do you agree with that assessment, and if you do, what will the Government do to encourage debate on the social acceptability of geoengineering?

Joan Ruddock: Well, I do not think it is for the Government to encourage a debate on the social acceptability of geoengineering, because that presumes that the Government has taken a view that geoengineering is a good thing, and that we should actually deploy. We have not taken that view. I think that it is important to involve the public in discussions as these things develop. It is important not to allow the public to get into a position where the public has been alarmed or is ignorant, so it is very important that the dialogue includes public communication. It is one of the considerations that we make about setting up a working group; should we do so, then indeed we would want to see that it contained a wide spectrum of people, including social scientists, ethicists, as well as scientists and administrators. So we are alive to the fact that there would need to be public engagement, and we know that NERC have a public dialogue programme that they are about to launch. So it is important to talk with the public and to avoid ignorance and prejudice, but at the same time, it is not for the Government to persuade the public of the need for this.

Professor Pidgeon: From the RCUK perspective, I will just make one comment about research: obviously, as you know, a small amount of money following the Royal Society report will be going into fundamental research on top of the research that is currently being done, and also the public dialogue has been initiated. The latter will be a first, really, anywhere in the world. For the UK to do that, that is fine, but we might also want to think more widely about public dialogue, because this is an international question, so the poor and people in other countries will have an interest in the outcome of geoengineering research. But the point about research I would like to make is that although it is not urgent, the science and the social and ethical research should come together at an early stage. Very often, those of us who study public acceptance of technology, nuclear power is a good example of this, social scientists were only asked 20 years after nuclear had become extremely unpopular to actually look at why this might have occurred. I think we have learnt that lesson, so RCUK and ESRC in particular are very keen that as research progresses on the science, research on the ethical, legal, economic and public acceptability issues also takes place as well.

Q66 Mr Cawsey: In the first session we had this morning, where we had people from different countries via videolink participating, I think they all came to the conclusion that whilst the NERC was going off and doing this consultation here, it was actually much more important that there were international talks going on and protocols and things being established there, so what is the Government doing to try and encourage that to happen? If we do continue with this public consultation through the NERC, how can we diminish criticism that actually, this is what we always do, we always consult the public, and then actually it has no effect on the policies at the end of the day anyway?

Joan Ruddock: I think if I may say so, Mr Cawsey, your questioning is still in my view premature, we are not at that point. The Committee clearly may like to comment on this, but our first decision is as to whether we set up a separate working group within Government to look at all of these issues, or whether we work with the Royal Society to look at all of these issues. We are going to do something, it is not that we are doing nothing, we just want to see the lie of the land, and make our decisions as to how we progress, but whatever progression is undertaken, as Professor Pidgeon has said, it will quite rightly engage social scientists and others alongside scientists.

Q67 Mr Cawsey: I can understand why the Government would take that view, and I do not necessarily disagree with it, for what it is worth, but it is not necessarily premature to take a decision that this would be better dealt with internationally rather than nationally, is it?

Joan Ruddock: I think it is going to be for the working group to—whether with us or jointly, or however it is done, we need a basis on which people have the opportunity to do some work, to do some thinking, and to come up with some proposals, because it is not possible for a government to just leap into an international negotiation. We have to develop our own thinking, we have to decide what it is we think is appropriate to put forward in an international forum, and we have to decide which international forum it would be appropriate to attempt to engage with. So at the moment, none of these things have been worked through, and that is why I cannot say to you, we are just going to rush off to the UN or wherever and say, let us all start this debate. Clearly, the initiative might come from others, but we have to get our own framework sorted out as to what we think is appropriate, and that is work that has not yet been done.

Q68 Chairman: Can I bring in Professor Pidgeon here? I am really quite confused about RCUK's position, and certainly the evidence that you have given us. There is an international convention on biological diversity, which deals with issues surrounding the oceans, and yet in your evidence to us, you are suggesting that any sort of regulatory framework is premature, and yet there is a regulatory framework in existence, which presumably the UK participates in developing.

Professor Pidgeon: I should add, I am not a lawyer myself, so I cannot comment in detail on the law.

Q69 Chairman: I am not either, so we are on common ground.

Professor Pidgeon: My reading of the evidence, which I had some input to, but obviously not all of it, is that RCUK are saying, as many have said today, that we have a heterogeneous field here that we call geoengineering, so many, many techniques, and it is likely that some techniques and deployments, if they were to come about, will fall under existing regulation, and others will fall between aspects of regulation. For others, there may be nothing at all. Again, that is why we need the analytic work now, to look at what regulation applies. To take another example, with nanotechnology five years ago, we were in a very similar situation, and DEFRA sponsored a gaps analysis to look at what areas of regulation would apply to certain nanomaterials, and that has been very valuable for them, to look at where the gaps are, so I think that is—

Q70 Chairman: Sorry, is RCUK doing that?

Professor Pidgeon: Not at this point in time.

Q71 Chairman: Because the Government is not doing it, the Minister has just said the Government is not, and you are not as the Chief Scientist.

Professor Pidgeon: But we are at what could be said an upstream moment, that is the way it is described, in the emergence of a new technology.

Q72 Chairman: What does an upstream moment mean?

Professor Pidgeon: So early that the uncertainties are wide. Compare it to nuclear energy, which is a mature technology, we know what it is, people have views on it. In the upstream moment, we do not even know how it will develop, and what public responses there will be. There is very low public knowledge, which is a big challenge for public engagement, and great uncertainties. So we are in a phase which is very uncertain and difficult to give definitive answers on the technology, governance frameworks and public attitudes. It is not that people are not trying to give answers, it is just very, very early.

Q73 Chairman: I will leave the last word with you, Minister, because we are about to close: I think what we are trying to get is that the UK is arguably, well, I would say definitely the world's second scientific nation, second to the United States. We have a position of real leadership in here. We are a nation surrounded by oceans, and we have given, I think with respect to our Government, a real lead in terms of climate science, and yet here is an area where clearly it is a long way off, we are not even prepared to seriously lead the debate in terms of a regulatory framework. Do you not find that disappointing?

Joan Ruddock: No, because as I have indicated at the outset of this evidence session, we have real priorities which we are working on. We have within every part of Government people all of whom are engaged in moving us to a low carbon economy, and making the emissions cuts that we have committed to in law. Now that is a way forward to deal with climate change. It is a proven way forward, and we need to do as much of that as we can, and we need to work as intensively as we can in the international community to ensure that as much of that as possible happens. So there is no question about the leadership continuing in this Government and in this country, and you are absolutely right about the climate science. But what I have made clear is not that we are unaware, and totally neglectful of this area of endeavour, it is that we have not prioritised it, and it is that we are on the point of making some decisions about how we as a government should move forward. So we are aware of what is required, it will be undoubtedly some international regulation, that we need to have that in place before there is any question of deployment, but we think deployment is rather a long way off, and therefore, we do have time, and we should not be panicked into this, we know what we are doing, we understand the issues, we will look to international regulation in due course, we will play our part in that, and as I indicated to this Committee, and the Committee may like to comment on it, we either set up a working group within Government, or we work with those who have clearly led this field to date, and that is the Royal Society. That is the point at which we are at, and we will be active.

Chairman: Minister, thank you very, very much indeed for your presence this morning. Thank you, Professor David MacKay and Professor Nick Pidgeon.

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