

Department of Energy and Climate Change

Office for Nuclear Development New Nuclear: Regulatory Justification Public Engagement Event – London 19 January 2010

Introduction

Simon Wilson

Independent Facilitator

I. The Chair

Good morning and welcome to this public engagement event. This is part of the Government's consultation on the Secretary of State's proposed decisions on the Regulatory Justification of two nuclear power station designs. This is a Government event, but I am not representing the Government. I am Simon Wilson, from a company called Wilson Sherriff. I am an independent professional facilitator. I do not have any connection with the nuclear power industry. I also do not have any opinions on the merits of the issues which we are considering today.

My remit is to chair this discussion in a fair and impartial way, and to make sure that everybody has a fair chance to express their views. It would be very helpful if people could keep their contributions as brief and to the point as possible so that we can ensure that, as far as possible, we give everyone a fair chance to have their say. Please bear that in mind.

II. The Panel

There are three civil servant officials from the Department of Energy and Climate Change (DECC) on our panel today. They are:

- Adam Dawson
- Peter McDonald
- Owen Jenkins

III. The Attending Representatives

Also in the room we have regulators, advisory bodies, the industry who made the applications, and others who have been invited because they have expressed an interest during previous consultations. It would be useful for us to know who is in the room.

[Representatives then introduced themselves in turn. For reference, those attending the event were:

<i>Mrs Kirsty Alexander</i>	<i>DECC</i>
<i>Mr Simon Atkins</i>	<i>Environmental Law Foundation</i>
<i>Mrs Trudy Auty</i>	<i>Individual</i>
<i>Mr Ben Ayliffe</i>	<i>Greenpeace</i>
<i>Mr Steve Barlow</i>	<i>Nuclear Decommissioning Authority</i>
<i>Professor Andrew Blowers</i>	<i>Nuclear Consultation Group / Blackwater Against New Nuclear Group</i>
<i>Mrs Jo Brown</i>	<i>Parents Concerned About Hinkley</i>
<i>Professor Gregg Butler</i>	<i>Integrated Decision Management Ltd</i>
<i>Mr Steve Chandler</i>	<i>DECC</i>
<i>Mr Robert Davies</i>	<i>AREVA</i>
<i>Mr Philip Davies</i>	<i>University of Sussex</i>
<i>Mr Adam Dawson</i>	<i>DECC</i>
<i>Mrs Ailsha Dilmohamed</i>	<i>DECC</i>
<i>Mr Jeremy Easton</i>	<i>DECC</i>
<i>Mr David Glazbrook</i>	<i>Nuclear Installations Inspectorate</i>
<i>Mr Kevin Hesketh</i>	<i>National Nuclear Laboratory</i>
<i>Mr Jonathan Isted</i>	<i>Nuclear Industry Association</i>
<i>Mr Owen Jenkins</i>	<i>DECC</i>
<i>Ms Jenny Kisalu</i>	<i>Horizon Nuclear Power</i>
<i>Dr David Lowry</i>	<i>Nuclear Waste Advisory Associates</i>
<i>Miss Camilla Mackenzie</i>	<i>DECC</i>
<i>Mr Peter McDonald</i>	<i>DECC</i>

<i>Mrs Grace McGlynn</i>	<i>Integrated Decision Management Ltd</i>
<i>Mr Simon Morgan</i>	<i>Nuclear Decommissioning Authority</i>
<i>Mr Keith Parker</i>	<i>Nuclear Industry Association</i>
<i>Dr David Powell</i>	<i>Westinghouse Electric Company UK</i>
<i>Mr Manuel Prieto</i>	<i>Iberdrola</i>
<i>Mr George Sallit</i>	<i>Department for Transport</i>
<i>Ms Jane Simmonds</i>	<i>Health Protection Agency</i>
<i>Dr Jill Sutcliffe</i>	<i>Low Level Radiation and Health Conference</i>
<i>Mr Paul Tossell</i>	<i>Food Standards Agency</i>
<i>Mr Jeremy Western</i>	<i>Nuclear Industry Association</i>
<i>Mr Gunnar Wickström</i>	<i>Vattenfall</i>
<i>Mr Pete Wilkinson</i>	<i>Wilkinson Environmental Consulting/Golder Associates</i>
<i>Mr Andrew Worrall</i>	<i>UK National Nuclear Laboratory]</i>

There is therefore a wide range of different perspectives and interest expressed here today. I hope this will make for a good discussion. There is a list of those attending on the table. People's names are on their badges as well.

IV. The Agenda

Today's agenda has been deliberately structured in a very broad outline way to make sure that we can respond to the issues raised here by the participants, rather than over-structuring the agenda to a particular format. First, we will have a presentation from Peter McDonald, which will be looking at the process which is underway at the moment and how the different elements fit together. There will then be the opportunity to ask questions and express views focused on this process. We will then have a short break. There will then be the second discussion, introduced by Owen Jenkins, in which we will be looking at the proposed decisions themselves. There will then be an opportunity for you to express views and raise issues around the proposed decisions.

Peter Wilkinson, Wilkinson Environmental Consulting

Can you tell me what the ratio will be between presentations and questions? I do not want to sit here being lectured to for most of the morning.

Peter McDonald

My presentation is about 10 minutes. Owen's presentation is also quite short.

Simon Wilson

The presentations will be very short. We want to maximise the opportunity for contributions. After the formal meeting, there will be the opportunity for informal discussion and networking. That is our overall framework for the day.

V. The Purpose

The purpose of this event is to help people to formulate their responses to the consultation and bring issues to the attention of the Department. It is also to clarify any points which you may be unsure about from the documents. These documents are also available today. Represented here, we have the applicant, the regulators and the advisory bodies. There is the opportunity to follow-up on any points in individual discussions, informally over lunch.

The contributions in this session will be recorded and a transcript of this discussion will be published on the DECC website. Once you have heard the presentations, and we are into the broader discussion, please use the microphones. I will now handover to Peter for the opening presentation before we move to the questions and discussion.

Overview of the Current Consultation**Peter McDonald****Department of Energy and Climate Change****I. Introduction**

Good morning, everyone. It is good to see some familiar faces. This is a short presentation of approximately 10 minutes. I will explain the context of the current consultation on Regulatory Justification, particularly emphasising that this is not about the ‘in principle’ nuclear decision which was made by the Government in the 2008 Nuclear White Paper. I will set out the process that we followed, consistent with Regulatory Justification being a high-level process. I will cover issues such as scope and what we consider the next steps to be. My colleague, Owen Jenkins, will cover the detailed assessment, including the Secretary of State’s assessment.

II. The White Paper on Nuclear Power 2008

In January 2008, after extensive previous consultation the previous year, the Government published the White Paper on Nuclear Power. It said the Government believes that new nuclear power stations should have a role to play in this country’s future energy mix, alongside other low-carbon sources; that it would be in the public interest to allow energy companies the option of investing in new nuclear power stations; and that the Government should take active steps to facilitate this.

The facilitative actions, set out in the White Paper, include Regulatory Justification. Other actions are: the Strategic Siting Assessment process and the National Policy Statement on Nuclear Power, the Generic Design Assessment process and waste funding. Regulatory Justification and the other

actions are all necessary before new nuclear power stations can start operating. A decision on one does not pre-empt decisions on another.

III. Background and scope of Regulatory Justification

The International Commission on Radiological Protection (ICRP) has recommended that no new practice involving exposure to ionising radiation should be adopted unless it produces sufficient benefits to individuals or society to offset the radiation detriment it causes. This recommendation was given effect by the EU Basic Safety Standards Directive. It was implemented in the UK by the UK Justification of Practices Involving Ionising Radiation Regulations 2004. Under these regulations, decisions are taken by the Justifying Authority. This is the relevant Secretary of State and the Devolved Administrations to the extent that they have competence.

Nuclear energy has not been devolved. Therefore, the Secretary of State for Energy and Climate Change is the sole Justifying Authority. Any decision reached will be UK-wide.

Throughout this process, the Department has consulted with the Devolved Administrations, the regulators, and other statutory consultees, through the Justification Coordination Committee (JCC).

Regulatory Justification is a high level, generic process confined to the class or type of practice under consideration. It applies wherever in the UK the practice is adopted. It is separate and distinct from licensing and optimisation, which would take place at a later stage in the event of a power station being built at specific sites. It is not a comparison of advantages of different methods of generation. The Directive requires Regulatory Justification to be carried out before a class or type of practice is first adopted or approved.

The process is not intended as a substitution for or duplication of the more detailed examination by regulators of reactor designs, or of the impact on specific sites and proposals to build new nuclear power stations. These further examinations would need more detailed information than is needed or is available for a Regulatory Justification decision.

Regulatory Justification is the first step in the radiological protection regime recommended by the ICRP. Other ICRP principles – optimisation and limitation – are relevant to the approval of nuclear power stations. These are applied separately and after the Regulatory Justification process. Optimisation is a requirement to keep all exposures as low as reasonably achievable. Limitation gives effect to the principle that the total dose to any individual from regulated sources in planned exposure situations other than medical exposure of patients should not exceed appropriate recommended limits.

Further regulatory and planning processes will apply to reactor designs and nuclear power stations before, during and after construction, and operation and decommissioning. It is important to stress that a decision that a class or type of practice is Justified does not mean that it will pass through subsequent processes successfully.

IV. Actions to Date

The current process has been running for approximately three years. The Government has consulted extensively throughout this period. In May 2007, alongside the public consultation on the role of nuclear power, the Government published a technical consultation on the proposed Regulatory Justification process for new nuclear power stations.

In January 2008, in the White Paper on Nuclear Power, included in Annex B was the Government's response to the technical consultation carried out the previous year. In the White Paper, we confirmed that the Government would issue a call for applications, with guidance on their contents.

In March 2008, we issued a call for applications, with guidance on the level of information expected in applications, which would enable the Secretary of State to assess the net benefit of a class or type of practice against the radiological health detriment.

In June 2008, the Government received an application from the Nuclear Industry Association (NIA) for a decision on the class or type of practice covering four designs: the ACR1000, the AP1000, the EPR and the ESBWR.

In October 2008, the Government requested further information from the NIA, who provided this in the form of a consolidated application.

In December 2008, the Government published a consultation on the NIA's consolidated application.

The consultation on that application closed in March 2009. We received 196 responses from a wide range of stakeholders; from industry, from NGOs, from statutory consultees, from other government bodies, local campaign groups, local authorities, and individual members of the public.

V. Current consultation

We published all the responses received to the consultation on the NIA application on our website. We have taken responses into account in producing the proposed Decision Documents that are the basis of the current consultation. In each chapter of part 2 of the Decision Documents covering 'benefits and detriments,' we set out firstly a summary of the content of the NIA's application, a summary of the responses received to the consultation on the NIA's application, and the Secretary of State's present views, subject of course to consultation.

The final chapter sets out the Secretary of State's proposed decisions that the net benefits of the proposed nuclear power station designs do outweigh the radiological detriments to health. The Decision Documents we published need to consider and compare a range of issues in coming to this conclusion. As I have said, Regulatory Justification is intended to be a generic, high-level assessment carried out before a class or type of practice is first adopted or approved. The proposed decisions are consistent with that approach.

At the point decisions are taken, there may also be little or no evidence about benefits and detriments derived from actual operational experience. It may therefore be necessary to make assumptions about some benefits and detriments, based on best information available, including information arising from operational experience of similar classes or types of practice and expert opinion from both regulators and others. The consultation questions ask whether the respondents agree with the Secretary of State's views and whether they think other relevant matters need to be considered.

The consultation was published on 9 November 2009, on the same day that the Government published the draft National Policy Statement on Nuclear Power and the other National Policy Statements. Like the National Policy Statement (NPS) consultation, it closes on the 22 February. There is therefore another month to go. The Secretary of State will take a final decision, after considering responses to this consultation, points made at this morning's event, and other relevant

developments. In the event of a decision to confirm the proposed decisions, decisions will be taken by way of a statutory instrument. Drafts of a possible statutory instrument are set out at Annex B of the proposed Decision Documents. Our current view is that it is likely that the parliamentary process of giving effect to any such decisions will be after the general election.

The regulations provide the power for the Secretary of State to hold an inquiry or other hearing. This is one of a range of other possible steps open to the Secretary of State to take if he considers it is expedient. A number of respondents to the previous consultation requested a public inquiry. As the document shows, the Secretary of State has not concluded at this stage that it is necessary to hold an inquiry or other hearing as part of the process. However, the Secretary of State will keep this under review in considering responses to this consultation. He does not propose to make a final decision on holding the inquiry or other hearing until the end of the process.

We are particularly interested in hearing views from anyone who thinks holding an inquiry will improve the quality of the Secretary of State's decisions.

Some respondents said that decisions should not be taken by the Secretary of State for Energy and Climate Change. It is already stated, under the Regulations, that decisions are taken by the Justifying Authority who is the relevant Secretary of State; in this case, the Secretary of State for Energy and Climate Change. The Secretary of State will publish decisions and the reasons for them after this consultation.

I am happy to take questions.

Questions and Answers

Simon Wilson

Thank you. We will now take any views, responses or questions. Please use the microphone and say who you are and whether you are representing anyone.

Phil Davies, University of Sussex

You missed one point, which I would like you to expand on. It is the aspect that nuclear power is to be treated as a single practice, including all stages of the fuel cycle, up until 'waste disposal.' Please could you address that point?

David Lowry Nuclear Waste Advisory Associates

In the presentation, you mentioned that there had been a committee with the Devolved Administrations to consider the relevance of the proposals to Wales and Scotland, although not Northern Ireland. I do not think there are any thoughts of reactors in Northern Ireland. I am aware that the Welsh Environment Minister has publicly written, saying that she would support a public inquiry into the Justification situation. Could you explain to us why she has apparently backtracked in that, in the meeting of the Government and the Devolved Administrations?

Jo Brown, Parents Concerned About Hinkley

I believe we had a public inquiry many years ago into the development of Hinkley C. I seem to remember it took an enormous amount of time and probably did not contribute anything extra to what we all have at hand today.

Simon Wilson

Let us take any first responses on those points, and then we will open up again.

Adam Dawson

The question was about whether the Justification looks at the practice from end to end, that is, from the manufacture of fuel through to the disposal of waste. The position is that it does. The Regulations only require us to look at practices that occur in the UK, but, as we have set out in the paper, and to the extent that we had information, we looked at the mining of uranium overseas and the disposal of waste included in the practice. That is the span of it.

Peter McDonald

To pick up on David's points, as you said, there has been contact on a regular basis between DECC and the Devolved Administrations. There was indeed a letter sent to us by the Environment Minister calling for an inquiry. I am not aware that that position has changed. The political dynamic in Wales is changing – or may change, following the election of the new First Minister – but in terms of the Environment Minister changing her position, I am not aware that that has changed.

To pick up on Jo's points about Hinkley C, there was indeed a very long public inquiry, and obviously there was no new build at Hinkley following that process. Many of the issues that had been examined at Sizewell were re-examined at Hinkley. The process was probably not terribly efficient in terms of the way it was run.

Simon Wilson

We will take some more questions, comments and views.

Peter Wilkinson

This first session is about process and I would like to address that issue. Since CoRWM produced its report in 2006, of which I know something in detail, there seems to have been an unholy rush towards the situation we are in now. It has been difficult for people such as me and my peers to keep abreast of everything that has gone on. There has been layer upon layer of process and consultation, volumes and volumes of materials for us to read and digest, and I think the whole process has been rushed, for obvious reason. I do not think it does penetrability, transparency or democracy any good to have a process like this. I feel run ragged by this whole process.

Having said that, when you spend a lot of time responding to these things, I do not know where my comments actually go. I have an idea that they go in the dustbin. If you do not support what the Government is doing and if you are critical of what the Government is doing, your comments do not seem to see the light of day. I think this is a disservice to democracy and a disservice to the way

we will structure the country in terms of its future energy needs, especially its electricity-generating needs.

If you really want to generate 10 gigawatts of electricity without any detriment, there are many ways of doing it. By doing it this way, you are going to have many detriments which you have not taken into account. I am sure we will discuss this later today. I think the whole process is shoddy. It does not do anybody any favours. We will all come out of it with some disrespect. It is time to look at the process overall. We need to slow it down to give us time to actually examine what we are trying to do here. We need to examine it with transparency and democracy.

Jill Sutcliffe, Low-Level Radiation and Health

I am also the coordinator of the Objectors' Office at the Hinkley Point Public Inquiry. I would like to know the evidence for your claim that (a) the process was inefficient; and (b) we did not learn much. We did learn that the Department of Energy had 'fudged' the figures on renewable sources. We did learn much information. It was the political events after the inquiry, despite the Inspector agreeing to the inquiry that led to no development of Hinkley C. One point for the Justification process is that both the Inspector at Hinkley Point and at Sizewell B said that the issue of uranium waste should be examined within any Justification process for the future, and that has not been included in the documents.

Simon Wilson

Your point is therefore partly about the background to the previous inquiry and partly about this process. We will take these points now.

Peter McDonald

In terms of Pete's comments about the 'unholy rush,' this process has been running for three years. There will always be some people who feel that it is too soon and too rushed. There will equally be others who will feel that it has been a terribly slow process. Clearly, we feel it is important that this process is done properly; that there has been a detailed and measured assessment; that we set out a clear timetable and, where possible, stick to it so that people know when they engage in the process. Obviously this current consultation is running over 15 weeks.

You also raised the question about what happens to people's responses. There is openness and transparency. We place all the comments on our website. We do not agree, necessarily, with everyone's comments. We are very clear where we agree or disagree in the way we set out our documents. At the end of the day, the Government will have to make its own judgment about the evidence and the information in front of it. We do make a point of considering and reading everything that is submitted to us. We have done that consistently, throughout this process, across all the consultations we have been running. It is terribly time-consuming, but it is really important that we do it. It is something we take very, very seriously.

Peter Wilkinson

Can I come back on that?

Simon Wilson

Let us take the other response first.

Adam Dawson

In order to clarify, Jo, was your comment about the Hinkley C inquiry?

Jo Brown, Parents Concerned About Hinkley

It was about two.

Simon Wilson

As I understand it, one was about saying that there was value from the Hinkley C inquiry, and the second was that there were then lessons learnt from that which will be taken forward to the Justification process.

Adam Dawson

I was not around at the time of the Hinkley C inquiry. It was a lengthy process. If you have information which I do not have, let us hear it of course. In terms of the point about the inefficiency, there had been a similar inquiry about a similar power station design at Sizewell a number of years beforehand, which had covered a number of the same issues that were replicated at Hinkley. This is the issue of efficiency, in terms of going over the same ground and covering the same questions twice.

The other question was about uranium waste from the mining process. The Justification Regulations require us to look at the practices within the bounds of this country. We are not obliged to look at what happens overseas, but we do recognise that it is important and it is something we do need to look at. We have – to the extent that we could – looked at the process of mining uranium and the production of fuel overseas. The evidence we have is set out in the documents here.

Simon Wilson

I appreciate that people may want to comment on the comments. Before we do that, I would like to make sure that there are no other comments or questions about the process from others who have not yet spoken. I want to make sure that other people have the opportunity to raise issues. I will absolutely bring you back in after.

Simon Atkins, Environmental Law Foundation

I have some questions about the process. Clearly this stage of the Justification consultation is linked to the NPS consultation. They are obviously running concurrently. I would like some feedback as to what type of relationship this is. Some people might argue that you really needed to have a final decision on Justification prior to the NPSs being signed off.

Linked to that, there is clearly a process of parliamentary scrutiny going on at the moment with the NPSs. This seems to be conspicuously lacking with this current consultation. I might be wrong on that, but I would like your feedback on that.

Simon Wilson

An interesting question about the relationship with the consultations which are underway with the NPSs.

Trudy Auty

Picking up on a point about the comments that come in through the consultation process, I wonder whether you apply any kind of weighting based on the comments that come in. In the recent consultation on the policy statement, a third of the people who gave input to that process commented on a single issue, but when you look at the NPS, it was dealt with within a sentence. I would have thought that, if you are going to have public consultation you need to deal with the issues that are most relevant to the public. If many members of the public have written in over a certain topic, then that ought to be given an appropriate weighting in the response. Please could you comment on whether you apply a weighting, and if you do not, should you in the future?

Simon Wilson

That is an interesting comment. Peter, you started this thread about the nature of the consultation and what happens to the responses so perhaps you can respond to that.

Peter Wilkinson

I just wanted to comment on what Peter said about the whole process being open and transparent. That is not my experience at all. I would like to point out that the very first consultation, in which there was apparently a commitment to nuclear power, had to be dragged through the courts. It was shown to be one-sided and inadequate. Ever since then, in my experience at least, although we have had the opportunity to talk to individuals at DECC and at the regulatory authorities, the impact we have had seems to be absolutely zero.

Simon Wilson

Jill, did you want to come back to the point on inquiries?

Jill Sutcliffe

I wanted to challenge the notion that it dragged on and was inefficient. The Sizewell inquiry did take three years. The Hinkley inquiry took one year, plus the 18 months that the Inspector took to write it up. The remit of the issues to be discussed was discussed and agreed before the public inquiry, so anything that had been discussed and had not changed at Sizewell was not re-examined at Hinkley Point.

Simon Wilson

There are two issues here. One is a return to the issue about public inquiries and the point about consultation. Simon had a question about the relationship between the consultation and the NPSs. We will take responses to these points first.

Peter McDonald

I will answer the question from Simon about the parliamentary scrutiny and whether the processes are linked. In terms of the information, there is an evidence base which is shared across the two processes, particularly on the issue of waste. There is a requirement in the Planning Act for NPSs to be subject to parliamentary scrutiny. That is why the NPSs are being subjected to scrutiny. It is of course open to Parliament to scrutinise what it wants when it wants. In the case of the NPS, it is set out by law, and therefore the select committees are going through that process. It does not apply to Justification.

Adam Dawson

The lady asked about the weighting of responses. There are a number of things that we need to take into account when we look at the responses. To reiterate what Peter said, we do read them all. You could ask if it goes to a vote. Similarly, if a leading organisation made a comment, would more weight be given to that than a member of the public? The general principle is no. We look at what people have said and identify whether they are bringing up issues which are new, which have not been properly considered in the consultation materials, or whether they are pointing out flaws in the way we have done it. We try to look at the quality of what people say, as opposed to simply the quantity.

I would caveat that, however. When we did the 2007 consultation, it was clear that one of the biggest issues for people was radioactive waste. This came up in a very significant number of our responses. On the basis of that, we felt we had to go beyond what we had said about waste in the consultation. This is why, in the White Paper, we added the statement on page 99 about the Government needing to be satisfied about the arrangements for waste before Development Consent could be granted. This was a policy change that happened due to so many people being concerned about it.

The specific matter that you mentioned – about one-third of people making a comment about a particular matter – I am not sure about. We could perhaps have a chat about that later as I am not sure what the issue was.

Trudy Auty

I would like to make a point of clarification. I wanted to make clear that I was not thinking of it in terms of a '*Strictly Come Dancing*' vote or something. I did not mean 'weighting' in that respect. I meant it in terms of when the statement comes out, for example, that sufficient time is given to consider the particular point that has been raised. If it has been a concern to a number of people, then if it is going to be a public consultation process, then that is obviously demonstrating it is a concern to a number of people and therefore that should be properly addressed within the policy. It might not change your decision – you are not going to do it on a popularity vote – but I think it should be given attention.

Adam Dawson

We do try to do that. In the 2007 consultation, the things that came out very clearly were issues concerning waste, safety and security, cost, and the impact on renewables. Those were the top four themes that were raised. We have tried to embed those themes in the documents we have produced since.

I will move on now to Peter's comments about the processes we have been through to date. Firstly, the 2006 consultation did go through the courts, as you said. Frankly, we got it wrong. Greenpeace successfully challenged the process we had gone through in 2006. We did not just fail by a small amount; the response from the judge was quite damning on 15 February 2007.

We have tried to learn from that. It is a dilemma, to be honest. If we try to cut corners and make things more straightforward, or streamline the process, then we will be accused of not giving people all the information they need. If we put more material out in the public domain, we get the opposite criticism.

We have heard clearly that people are worried about the amount of material. This is why we have put a consultations map on our website, tried to link things up, and tried to show how the steps fit together. We have run a number of processes – for example, during 2007 – so that a wide constituency of people can get involved and hear what we have to say.

We have been working at this for three and a half years. We are moving forward and making orderly and steady process. I know there will always be people who think we have done it too fast or put too much information into the public domain. I think we will just have to differ. You have made the point, Peter, and we will record it. It is a relevant contribution to the consultation.

To answer Jill's point, you were there at the time and I was not. I will just have to stand corrected.

Simon Wilson

We have another participant who has not yet spoken. I am very keen to make sure we bring in as many people as possible. We can then come back to Jill.

Andy Blowers, Nuclear Consultation Group, Blackwater Against New Nuclear

I did not hear the earlier discussion as I have just arrived, but I have been astonished at the small amount I have heard so far. It does seem to me that DECC are living in a completely different world to me. You have had three and a half years of highly-paid people working full-time to pump out all of this material. I sit on the other side of the fence where we have many people who are genuinely concerned, have very good arguments, are working part-time, and who do not have the reserves of power and resources that are within the nuclear industry.

The whole consultation process has been very flawed. It has been very uneven and very unequal. The current situation is quite intolerable. Here we have today to discuss Justification. You will know that the same people are currently trying to respond both to the House of Commons Environment Committee and also to the NPS statements. The volume is overwhelming. The timeframes for this are ridiculous. Everything needs to be done by 22 February. This piles Pelion on Ossa, frankly. You are not going to get quality responses. We feel disenfranchised; we feel disadvantaged. We do not think this is a democratic process. The whole thing is basically created

to run through a particular policy, which is a number of nuclear power stations on pre-selected sites, all of which are *post-hoc* justified by the processes that we are not going through.

I cannot stress more strongly the sheer frustration that is felt by those of us who have genuine views to put forward, and who cannot put forward our responses to all the consultations that are being put forward at the same time.

Simon Wilson

Thank you. You have echoed a few points that have been made here. Are there any comments on the process from anyone we have not yet heard from? I am keen to make sure that everybody has the opportunity to comment on process issues before we take more points from the front.

Phil Davies

With regards to the point about responding to the consultation, I thought Trudy's point was very good. I wanted to ask, in dealing with the consultation responses, did you have any protocol criteria or rules by which you would judge the responses you received or did you just do it on a wing and a prayer? If you did have a set of protocols by which you assessed the responses, could you publish them?

Simon Wilson

We have the general comment about the consultation process from Andy. Phil had a question there. Jill, did you have anything to add?

Jill Sutcliffe

I have a generic point. History does matter. What we have here is a set of processes which are meant to be very long term, where we do not even know, 10 years later, what happened, and where we are likely to say something which is ill-informed. This does worry me.

Simon Wilson

Before I hand over to the panel, are there any other points on the issues around the process? We will move on in a moment to the proposed decisions. First, we will take comments on the current points made.

Peter McDonald

I will talk about Andy's point first. I think Andy was talking not only about Justification, but the parallel consultation on the Nuclear NPS. Andy, you are correct, there is a lot of material out for consultation. We are very conscious of that. This is why we produced a consultation document to knit the process together. It guides people through the various processes.

As Adam said earlier, the Government would be criticised if it cut corners or failed to consider responses to previous consultations or if we did not do a thorough analysis of the evidence base. This simply takes space. We are consulting over 15 weeks. In relation to the Nuclear NPS, we are consulting around the sites. We are there for three full days. We are running exhibitions for

12 hours per day. We are running public meetings. In some cases, we will run two public meetings if there is the demand. The Government is adjusting its process in order to recognise and respond to the demand.

As Adam also said earlier, I think we will have to agree to disagree on whether the timescales are reasonable. Within Government, this is a measured process: trying to project significant amounts of information but hopefully in an accessible way.

Adam Dawson

Phil asked the question about how we analyse the responses and comments we receive. Firstly, we do not have a rigorous algorithm where a question is thrown in and a categorisation is given. It is more than a 'wing and a prayer' though. We scrutinise all the responses we receive. During 2007, every Monday we would get a huge amount of responses to read. They were all properly read. They were read not only by officials, but by an independent body. We published all the 2,000-plus responses we received on the website. We also published a thick document which is an analysis of all the responses, not only from the written consultation, but from the public events as well. This explains how we categorised the responses, what the key themes are, and how we analysed them. It is open to anyone to scrutinise how we have done it. For this process, we will do mostly the same. We will publish everything we receive. We will show how we have taken things on board.

Jill raised a very good point about corporate memory. This is one of the issues that we have had in Government. Nuclear has not been at the forefront for a number of years. It has been an area where the skills and knowledge have tended to fade away. We need to tackle this issue of corporate memory and make sure that lessons from the past are properly learnt. Thank you for raising that important point.

Simon Wilson

We will take some more comments.

Jo Brown

I have two points. Firstly, you seem to be ruling out considering the complete life cycle of any nuclear programme. If you are going to exclude the supply of raw materials and you are going to exclude waste, you are not going to get a proper comparison with renewables, for example, in the UK.

The other point is about public consultation and your exhibitions. It is a fact that most people are not aware of the disadvantages of nuclear power, partly because the industry continues to persuade them that nothing but good comes from their projects, but also because there is a resistance. You also have people who see an advantage. In Somerset, for example, a local education college desperately needs money and is in favour of nuclear power because, if it went ahead, the college would get a huge amount of financial contribution from the courses. Similarly, when the industry has business meetings, they are proposing that any local industry – from the services to the construction industry – would benefit. Nobody is there to suggest the disadvantages. The disadvantages tend to be borne mostly by people who do not have much say because they are dying. Thank you.

David Lowry

I would like to respond to some of the points that have been raised so far. A couple of years ago I was contracted by the Nuclear Decommissioning Authority to do a study of the barriers to engagement by their stakeholders, primarily the ‘green’ NGOs. Having interviewed about 15 representatives of national, local and regional groups, a report was produced. One of the obvious things to come out of that was the capacity deficit. Small, voluntary organisations do not have the money, resources, time or people to be able to deal with the issues. We were looking at only one aspect of the nuclear issue, which is radioactive waste.

The points that were made by Andy Blowers reemphasised that this is an impossible situation. Peter Wilkinson also pointed out that we are engaged in a process where very small numbers of people are able to participate because of a lack of capacity. I have not heard anything from the DECC panel about how they are going to address this. I would therefore like to ask a couple of specific questions on this.

This particular process of Justification comes about, as I understand it, because the industry representative body for the nuclear industry, the Nuclear Industry Association, put forward a collective document on behalf of all of their members. The Government responded in these Justification documents. The Nuclear Industry Association is a proponent in this case. I would like to know, for example, on today’s event: who is funding this event? Is it the Nuclear Industry Association or the Government or DECC? If it is DECC, are they going to make available equivalent resources to balance the incapacity that concerned citizens have to participate in this process? Could we have some numbers such as the cost of hiring this room, the cost of employing the staff, and so on?

Simon Wilson

Let us not go into those details.

David Lowry

I want to go into it because I want to have serious consideration for this lack of capacity for those who want to present opposition arguments. If you look at the numbers today in the list of people here, I could calculate a maximum of seven participants who are either opponents, objectors or sceptical, and the rest are proponents, such as Government departments or people who are involved in the nuclear industry. I would like some numbers please, including the cost of the hotel, the cost of the resources, the cost of travel, and who is paying for it.

Simon Wilson

Thank you. My apologies for interrupting you. Let us have some responses from the panel.

Peter McDonald

I will respond to Jo first. We are not ruling out the whole life cycle. We are certainly not ruling out waste. Waste is an integral part of the assessment that we are considering. There is an issue about whether we include practices that take place outside the UK. We believe we do not need to do that,

but we have done it because people have asked us to consider it. Waste is an integral part of the assessment, however.

Clearly there is a debate about the advantages and disadvantages of any energy technology. All technologies have both advantages and disadvantages. Although we are talking about nuclear today – and we have been at our public events on the Nuclear NPS – it is important to recognise that we are not here as proponents of nuclear power. The Government has an energy policy which supports renewables and a whole range of technologies to support its low-carbon transmission plan. No technology is perfect. Renewables should, quite rightly, have a significant part to play in our energy future, but you need a mix of technologies.

The Government believes it has been open about the challenges, including being very open about the challenges of managing radioactive waste. This is why we have the Managing Radioactive Waste Safely programme to address those issues. We do believe there are some economic benefits to be gained by having nuclear power. In a sense, we are trespassing on the second session when we will talk about how we made those assessments.

Adam Dawson

David's question echoed some of the points that Professor Blowers raised. The simple answer to who is funding the event is that it is being funded by DECC; it is not being funded by the nuclear industry. With regards to the question about how much it costs and so on, we may have already put the costs into the public domain. We certainly did for the NPS consultation. I cannot give you the exact costs for the hotel, the transport, and so on. These are not figures I know off the top of my head.

With regards to the question about capacity deficit, when we ran our major complex consultation in 2007 on the principle of nuclear power, 2,000 members of the public found the time to scrutinise it, write to us, and give us their views. Without exception, they were well-informed and useful contributions, both for and against nuclear. Our experience has been that it has not stopped people from coming forward with very relevant and germane contributions to the consultation. I take some heart from the fact that, as a part of the process, we are getting extremely high quality responses from a wide constituency.

In terms of the attendees today, we certainly have a clear voice from people who are opposed to nuclear so I do not think the balance of the audience is inhibiting people from speaking one way or another.

Simon Wilson

We will now have a short break. After the break, we will go to the second part of the discussion, which is about the proposed decisions.

Introduction to the Second Session

Simon Wilson

Independent Facilitator

There will be the opportunity to have more discussions over lunch, but I would like to move on. In just a moment, we will move on to a short presentation and then discussion about the proposed decisions. I have been told that there is one outstanding question about the process.

Trudy Auty

I have a brief question. On the board, it says, 'Regulatory Justification Public Engagement Event.' I think I am right in saying that I am the only member of the general public here this morning. I wondered if you could comment on why you feel this is, and to what extent the event was publicised beforehand.

Peter McDonald

When we consulted previously, we had nearly 200 comments. The majority of those comments were from members of the public. We invited all of those people to this event. We issued a number of invitations. If we missed you, then obviously the database is not quite working. The intention was to invite everyone who had commented previously and therefore was known to us. That was our intention.

Simon Wilson

I would now like to move on to the second main discussion, which is about the proposed decisions. Owen will introduce this.

Proposed Decisions

Owen Jenkins

Department of Energy and Climate Change

I. Introduction

I am going to outline the main considerations behind the proposed decisions that the AP1000 and the EPR are justified under the terms of the Regulations. In doing this, I will be following the order of the subject chapters in part 2 of the Proposed Decision Documents, covering 'benefits and detriments.' Those are in this order:

- Radiological health detriment.

- Radioactive waste.
- Environmental detriment.
- Safety and security.
- Carbon reduction benefit.
- Security of supply benefit.
- Economic assessment.

The considerations behind the proposed decisions as well as the decisions themselves are subject to the consultation.

The legislation does not specify how a Proposed Decision Document should be laid out. As part of the first technical consultation in 2007, we consulted on this approach. In publishing the call for applications, we suggested areas which the application might cover to help the Secretary of State assess benefits and radiological health detriments. The application from the Nuclear Industry Association reflected these. The Proposed Decision Documents therefore follow a similar structure.

II. Radiological Health Detriment

1. Potential detriment from new nuclear power stations

We turn first to radiological health detriment. We are starting from the position that radiation from nuclear power stations requires careful management during and beyond the power station's operational life. This is the basic reason for the Regulatory Justification system and for the wider regulatory regime which exists in the UK.

The Nuclear Industry Association's application set out the features of the new power designs aimed at preventing release of radiation. Potential radiological health detriment already exists for current nuclear power stations, and the regulatory regime is in place to deal with that. We considered, in drafting the decision documents, whether potential radiological health detriment from the new designs raised issues not covered by the existing regulatory regime.

When we published the consultation on the application, we included a paper by Integrated Decision Management (IDM) and the National Nuclear Laboratory (NNL) – who are here today – which assessed the similarities and differences between the different types of nuclear power station. Their advice at the time of the previous consultation was that the benefits and detriments of different designs under consideration were broadly similar at the high level of assessment suitable to Regulatory Justification.

In consultation on the application, many respondents asked for more information on discharges from existing and proposed new power stations, and particularly raised the higher burn-up to be expected from new nuclear power stations. Although these issues will be considered by regulators later in the process, we asked IDM and NNL for further information on this and published their advice with the consultation. Their advice was that the differences between the new and existing

nuclear power station designs were limited and should make no significant difference from the point of view of potential detriment.

2. The Regulatory Regime in the UK

We also considered the regulatory regime in the UK. We see this as part of the optimisation and limitation processes, rather than part of the Regulatory Justification process itself. However, we have considered the regulatory regime so that the Secretary of State is fully informed on issues relating to radiological health detriment.

The regime operates through statutory, regulatory and advisory limits and constraints on the levels of radiation to which people can be exposed. We have considered all these. We have considered how the statutory limit compares with levels of background radiation and with risks of cancer and other illness. We also considered the concept of ALARP and how this is used by regulators to further reduce doses to levels as low as are reasonably practicable. We have considered further recommended dose constraints that have been made by the Health Protection Agency.

The application from the industry confirmed that the proposed new designs should be able to meet all the dose constraints. We also bore in mind that regulators will not give new nuclear power stations licences and authorisations they need to operate unless they are satisfied that they can meet the statutory dose limits.

Several respondents expressed concerns about the findings of studies linking nuclear power stations to higher incidences of cancer. We are satisfied that no such linkage has been demonstrated. The Nuclear White Paper has concluded that new nuclear power stations would pose a very small risk to health.

3. Secretary of State's Present View

The Secretary of State's present view remains that new nuclear power stations will be able to meet dose limits and the regulatory regime will enforce these limits effectively.

III. Radioactive Waste

1. Waste Management and Disposal Operations

I will talk now about radioactive waste. The ICRP is quite clear that waste management and disposal operations are an integral part of the practice of generating the waste, and it is wrong to regard them as a freestanding practice that needs its own Justification. In calling for applications, therefore, we asked for the applications to take account of radioactive waste to be produced by the class or type of practice. Because of the interest shown in this particular issue by respondents, there is a separate chapter in the decision documents on radioactive waste.

The White Paper on Nuclear Power, 2008, states: 'Our policy is that before development consents for new nuclear power stations are granted, the Government will need to be satisfied that effective arrangements exist or will exist to manage and dispose of the waste they will produce.'

Alongside this consultation, there is a consultation on the draft Nuclear NPS. As part of that, we have published a background paper on "The arrangements for the management and disposal of

waste for new nuclear power stations - a summary of evidence". This paper summarises the evidence that the Government reviewed before reaching its preliminary conclusion that it is satisfied that effective arrangements will exist to manage and dispose of waste that will be produced from new nuclear power stations.

2. Potential Radiological Health Detriment

The particular concern with the Justification process of radioactive waste is the potential radiological health detriment it poses. This potential detriment already exists for current nuclear power stations. Dose limits and constraints under the regulatory regime also apply to the management and disposal of radioactive waste. We therefore considered whether the potential radiological health detriment raised issues not covered by the existing regulatory regime. The Nuclear White Paper concluded that waste and spent fuel from new nuclear power stations would not raise technical issues different to waste from former and existing nuclear power stations so as to require a different technical solution. This conclusion is supported by the disposability assessments conducted by the Nuclear Decommissioning Authority, as part of the Generic Design Assessment process. The application from the industry confirmed that proposed new designs would be able to meet all these constraints, including those associated to waste management facilities.

The Government's policy is that higher-activity waste will be managed in the long term through geological disposal, and this will be preceded by safe and secure interim storage. Arrangements already exist for the effective management and disposal of other waste streams, such as low-level waste, liquid and gaseous discharges, and non-radioactive waste. We are satisfied that the regulatory regime will ensure that interim storage and geological disposal facilities should be required to and would be able to meet the dose limits.

3. Secretary of State's Present View

The Secretary of State's present view, therefore, is that the regulatory regime will effectively minimise the release of radiation from the waste from new nuclear power stations up to and beyond disposal.

IV. Environmental Detriment

On environmental detriment, we start from the position that new nuclear power stations might involve a range of environmental impacts. Several respondents have raised concerns about these. In the White Paper on Nuclear Power, the Government has stated its belief that the environmental impact of new nuclear power stations would not be significantly different to those of other forms of electricity generation, and that they are manageable, given the requirements in place in the UK and Europe to assess and mitigate the impacts. However, in the White Paper, the Government also said that high-level environmental impacts of any new nuclear power station should be addressed at the national level, in addition to the site-specific environmental assessments.

The Government therefore proposed to undertake high-level strategic environmental assessment as part of the Strategic Siting Assessment and has since launched a detailed Strategic Siting Assessment process to assess sites that are potentially suitable for the deployment of new nuclear power stations by the end of 2025. The current position on this consultation is that the Government is consulting on a draft Nuclear NPS, and this includes an Appraisal of Sustainability, and a Habitats Regulation Assessment report, which take environmental factors into account.

The NPSs, including the guidance on environmental issues which need to be considered, will form the basis of decisions on major infrastructure projects, including proposed new nuclear power stations. Environmental regulators will also be consulted about development consent proposals, and regulators will ensure high environmental standards through the Generic Design Assessment process.

The Secretary of State's present view, therefore, is that there is a potential environmental detriment from new nuclear power stations, but this will be effectively mitigated by the regulatory regime.

V. Safety and Security

On safety and security, the ICRP, in its guidance, makes clear that accident prevention should be the first safety priority of designers and operators. There is clearly a major and long-term potential detriment to health and the environment from a major accident or a terrorist attack on a nuclear power station. These again are potential detriments that already exist for current nuclear power stations. The White Paper on Nuclear Power stated that the risk of an accident can be managed through arrangements for design, and regulatory and corporate governance for the industry. The regulatory regime, which exists to prevent accidents and protect against security threats, will also apply to new nuclear power stations. In particular, regulators will assess and monitor safety and security aspects of new designs. The Office of Civil Nuclear Security will continue to regulate the security of the industry.

The Secretary of State's present view, therefore, is that regulatory regime will continue to operate effectively to prevent detriment through accident or attack.

VI. Carbon Reduction Benefit

On carbon reduction, the White Paper on Nuclear Power set out the Government's view that there are two major challenges to energy policy: climate change and energy security. As far as climate change is concerned, the Government is committed to a low-carbon economy by 2050, and to meeting related international obligations to reduce carbon emissions. The Government sees nuclear power as a low-carbon form of energy, throughout its life cycle, which can make a useful contribution to a low-carbon energy mix.

The Secretary of State's present view is that the contribution that new nuclear power stations can make to this by producing low-carbon electricity will be a significant benefit.

VII. Security of Supply Benefit

As stated, the White Paper on Nuclear Power set out the Government's view that there are two major challenges: climate change and energy security. As far as energy security is concerned, reliable and affordable supplies of electricity are essential to the country. Interruptions to supply and the increased costs which would result would be a significant detriment.

Nuclear power is a proven and dependable technology, and has generated electricity in the country since the 1950s, reaching a peak of over a quarter of electricity generated in the 1990s. Much of the country's capacity will close in the next 10 to 15 years, and the country will become increasingly dependent on imported oil and gas. The White Paper on Nuclear Power concluded that allowing companies to invest in new nuclear power stations would help maintain a diverse mix of electricity

generating technologies and therefore make an important contribution to the security of UK energy supplies.

The Secretary of State's present view is that new nuclear power stations can be deployed on a large scale, and the contribution they can make of reliable sources of supply is a significant benefit.

VIII. Economic Assessment

On economic assessment, the White Paper on Nuclear Power set out the Government's conclusion that nuclear power would yield economic benefits to the UK, in terms of reduced carbon emissions and improved security of supply. The White Paper found that it was for investors to determine whether nuclear power provided sufficiently attractive returns; however, it concluded that nuclear power was likely to be an attractive economic proposition to them. Investment decisions remain for the companies and the companies are responsible for meeting all costs. Economics will vary in comparison to other forms of electricity generation, but companies are already investing in the prospects of new nuclear power stations.

The Committee on Climate Change, in its report of 2008, found that nuclear power would be competitive under different price scenarios, and that meeting 2050 emission targets would be more costly and more difficult without nuclear.

The Secretary of State's present view is that nuclear is a low-cost form of electricity generation which can yield economic benefit to the UK.

IX. Proposed Decisions

The final chapter in the Decision Documents sets out the Secretary of State's summary and proposed decisions that the potential benefits set out in the Decision Documents outweigh the potential detriments, and that those potential detriments will themselves be minimised by effective regulation. The Secretary of State's proposed decisions are therefore that the AP1000 and the EPR are Justified under the terms of the Regulations. The proposed decisions are the subject of the present consultation and of this event.

Questions and Answers

Simon Wilson

Thank you very much indeed. Owen has identified the Proposed Decisions and the areas which have been set out in the consultation documents. I would like to make sure that we cover all of those areas, but I am also not trying to straitjacket the discussion. I will not take it step by step through each of the areas, but before we close, I would like to check that we have covered them all. People may have questions to ask and they may wish to express their views and opinions about the documents. These are all welcome. I will take sets of questions and then get responses from the panel.

David Lowry

I want to raise the implications of the Secretary of State's decision that he is not going to consider the consequences of activities outside of the UK boundaries for his decision on the Justification. If you look at the report on page 17, it summaries why he says he does not have to do that: because he is following the ICRP's recommendations.

If we look at two aspects of what happens if you do not look at activities outside the UK, you get a different view of the implications than if you do. For example, there is uranium procurement. We have, on Section 3.124 onwards, a short section dealing with the procurement of uranium. It primarily looks at Australia. It sites some interestingly objective sources, such as the World Nuclear Association, which is the global lobby organisation for the nuclear industry, as if it were an objective source. It then sites a report projected by a committee in the Australian parliament, with the obviously objective title of 'Australia's Uranium Greenhouse Friendly Fuel for an Energy-Hungry World.' These are the two sources that are sited in support of the position that uranium mined in Australia would not provide radiological detriment.

If you look more carefully into a report produced by a number of people who are actually present in the audience today – from IDM and the National Nuclear Laboratory – they produced a technical report to advise the Secretary of State and in their report there is a table looking at the radiological detriments from different aspects of the nuclear fuel cycle. In summary terms, they say that almost 92% of the total health detriment comes from the mining of uranium. Therefore, if you want to present a case to say that the whole practice is not particularly dangerous to health and you exclude 92% of the health detriment, it is very convenient.

To take one other example of extra territorial ignorance on carbon saving, we know that uranium is procured outside the borders of the UK and it is unlikely to be procured inside because at the moment it would be totally uneconomic to mine uranium deposits in the UK. Therefore, we will take it for the whole lifetime of any reactors built that uranium is going to come from somewhere outside the UK. What we should do is consider the process by which that uranium becomes a fuel and the energy balance in producing that uranium in a form that can be used in a fuel. One thing is to enrich it. Everybody knows that the enrichment process is very energy intensive, so if you do the enrichment outside the country the carbon detriment is not counted against nuclear, because it is counted against a product that is imported. This is just like how Chinese goods bought from China are not counted against the UK, but we get the benefits, they are counted against the Chinese CO₂ emissions.

What I would like to know, therefore, is whether an assessment is going to be made by the Secretary of State of the carbon detriment taking into account the energy intensity of enriching uranium outside the borders of the UK. Once that is done, let us have a look at the real carbon balance of nuclear against others.

Jo Brown

There are several things which I find hard to understand about your claims that new nuclear power would not be very different from the existing system. One of the major differences is that spent fuel is going to be stored on site for 60 years, which is an enormous difference because it means that local communities will be subjected to emissions from the hotter spent fuel than we have at the moment.

Someone stated that accident prevention was a high priority. Well, it has failed as far as Hinkley Point is concerned. There was an accident in 1994 leading to an increase in cancers and premature deaths four or five years later. There was another accident at the operating AGR reactors in July 2006, which has led to an increase in the known health detriments from accidental increases in radiation emissions. There are also the routine emissions.

Existing nuclear power is known to have caused leukaemia, thyroid malfunction, breast cancer, immune system impairment, non-Hodgkin's lymphoma, endocrine disruption, pregnancy and childbirth problems, infant and perinatal mortality, heritable genetic mutations. The heritable genetic mutations are one of the most terrifying outcomes and various studies have been done and published showing that these increase in communities living near nuclear power. Are you going to accept published scientific research which identifies existing health detriment, and if you are saying that the new power stations are not going to be any different, it is already a matter of record that the existing ones are very harmful.

There is also a problem with decommissioning Hinkley A, because these reactors are defueled but in fact there appears to have been a problem with a build up of pressure within the reactors, so Magnox South had to punch holes into the roofs, which has led to an astonishing increase in heart attacks, strokes, brain tumours, skin cancer, and kidney cancer. These were identified in two studies after 2006. One published in the *International Journal of Epidemiology* of 65,000 men employed at Sellafield between 1946 and 2002 found that the risks of death from heart attacks and strokes increased with exposure to higher levels of radiation. There is a similar study in America. Now, if a defueled reactor can cause these appalling health problems, how can you say that the new one would not be any different?

There is one more point I would like to make. As far as I can understand it with the new reactors, every 18 months you lift the lid and you have a blow through. That sounds to me like a little Hiroshima for us every 18 months.

Adam Dawson

I will say a few words in answer to David's points. I am not sure, Owen, if you want to chip in with any other matters as well.

You have raised the question, David, about taking into account activities outside the United Kingdom. First of all, I think you are saying that we are citing biased sources. I think there are two things to say here. Firstly, we have cited the material of which we are aware. We have tried to take a look at all the evidence that is available and published on detriments outside the United Kingdom. We have also had to take the advice of regulators, for example, the Health Protection Agency and so on, into account in deciding how to handle the information that we have found.

The other point you raised about the 92% of the health detriment arising overseas, I think the right approach to that one is if that is a matter that you think we have not properly reflected in our Justification decision and that you think we have misinterpreted, either wilfully or accidentally, the IDM and>NNL report, I think that is a matter that you should ask us to handle in your response to the consultation. Of course, we will have to take that most seriously and publish your input on that matter for the public record.

With regard to the point on the carbon footprint of uranium mining overseas and particularly the enrichment activity, we have published numbers which show a range of carbon emissions from the total lifecycle of nuclear power, right from uranium mining through enrichment, fuel manufacture and transport to fuel disposal, decommissioning and construction of the nuclear power station. There is a range of those numbers which we published in the consultation document right back in May 2007. We accept that there are different studies which show different numbers and, off the top of my head, the numbers I think vary from 6-22g CO₂/kWh, though there are other studies that have shown much higher numbers which, from memory, were about 100, and I think we have alluded to all of those in our published documentation. Those compare with the total lifecycle emissions of renewables, which are of the same order of magnitude, and they are considerably lower than gas and coal, which are as high as, I think, from memory, 800g/kWh. Forgive me if I have the units wrong, but I think the relativities are right.

If you think that those analyses are deficient or wrong and that there are studies which have shown different total lifecycle numbers, particularly in respect of the enrichment activities, then again I think you should let us know through your consultation response.

The final point that I would make is we have to look at nuclear in the context of what we are trying to achieve, which is around decarbonisation and energy security. At the moment, a lot of our energy, as you know, comes from coal and fossil fuels. We are determined to reduce the reliance that we have on those fuels and that is why the Government has put such a very significant investment and high emphasis on deploying renewables in this country. However, we need to bear in mind that there are health consequences of everything that we do. Coal mining, for example, is not the least hazard-free activity in the world and I think we have to see the lifecycle of uranium production in the context of everything else that we are doing.

Owen Jenkins

I just want to add something that is said in the draft decision document. As Adam says, we have looked at the effect of emissions of the industry through the cycle. However, from the point of view of the Justification process, I think it is fairly clear that the Justifying Authority is meant to look at practices in this country and not more widely around the world, and other countries that also follow the same regime are required to do the same thing.

Peter McDonald

Jo, you raised a number of points around accident prevention and the health issues. I will not comment, if you do not mind, on the issues you referred to in 1994 at Hinkley or in 2006, although in this room we do have the nuclear regulators and, indeed, the Health Protection Agency who might want to comment later. On the principal issue that we have assessed, however, which we based on a very detailed analysis that has been conducted in this country over the last 25 years by the independent COMARE Committee, that Committee has found no increased incidence of childhood cancers – children are chosen as the most vulnerable group. Clearly, you have cited other bases which suggest there are risks and I would urge you, if you have that information, to submit that in your response.

You also asked whether we would accept other published analysis and the answer is yes. This is a process where we are looking for people to say ‘there is other information you have either overlooked’ or ‘there is new information which you should consider’. This is the purpose of this

consultation and we will obviously look at it, so if you have information that you think we should consider please submit it.

Ben Ayliffe, Greenpeace

Just a point of clarification regarding the management of spent fuel risings. I have looked through the Justification documents and the NPS for my sins and in this material useful information on the management of spent fuel is conspicuous by its absence. As far as I am aware, the plans for dealing with spent fuel on site will be put forward and signed off by the Secretary of State under the funded decommissioning programme. Is that right?

Adam Dawson

The funded decommissioning programme – just to make people aware – is a statutory requirement that anyone building a new nuclear power station has to have in place before they can start operating the nuclear power station. The funded decommissioning programme has two elements to it: it has a decommissioning and waste management plan and a funding arrangements plan. The decommissioning and waste management plan has to set out how the operator proposes to deal with spent fuel and other waste arisings from the nuclear power station and the technical steps that they will take safely to manage that. In February 2008, we set out a base case which gives our expectation of how those steps could be managed based on technology that is extant today. We are not making any heroic assumptions that a new technology will come along to solve the problem and they have to rely on technology that is there today in their decommissioning and waste management plan, so that they can then cost it and make the appropriate funding provisions in their funding arrangements plan.

Ben Ayliffe

Is there scope then for the Secretary of State to freeze any decision on Justification until that has been signed off, because given the paucity of real information that currently exists it would seem rather hasty to sign off on Justification when these plans do seem rather thin on useful detail?

Adam Dawson

I think we have to bear in mind that the Justification is a high-level decision about the practice in broad terms and we have already set aside our expectation in the National Policy Statement, as others have already mentioned, that spent fuel and other waste arisings can be managed and we are satisfied that arrangements will exist to do that.

Peter Wilkinson

There are a number of things I would like to raise; I will try to be brief. Firstly, could you take a question about the timescales over which the detriment is supposed to be calculated, because as we know, 300 years to radioactive waste is nothing, the blink of an eye?

The other thing I would like to raise is I think it was Owen or maybe Peter said that COMARE has not found any increase in cancer around nuclear power stations in this country. I do not think that is true. I think it is has found an elevated incidence of cancer around nuclear power stations; it has not

called them statistically significant. There is a difference there and I am sure Jill will comment on that shortly.

I also want to ask please about a statement on one of your slides to do with the studies on the impact of radiation on health. Are they still ongoing and, if they are, when are they likely to produce a result? I am sure it will be after the consultation has closed, but could you tell us when they are likely to result and who is carrying them out and give us a bit more background on those studies please? Thank you.

Jill Sutcliffe

I just want to say that there are two COMARE reports confirming the excess of childhood cancer around Dounreay and Sellafield. They have not said there is no childhood incidence.

David Lowry

My point is following up the answer from Adam Dawson. The point I want to make is Adam said to me that I had criticised the sources that had been used in the uranium study as being biased and I did. He said that ‘we had taken into account all the studies that we were aware of’; I think those were the words he used in his answer. In the first round of consultation on Justification a year ago, I noted that this was a gap in what had been presented to us as relevant information and I wrote a 74,000-word submission to the Department. I included a large number of primary sources, several of which were highly critical of the health and safety studies done on uranium miners and the long-term health effects, none of which were then subsequently picked up or cited by the report. Therefore, if you did take into account all of the sources that you were aware of, I would like to know why you rejected all the primary sources I presented to the Government in a 74,000-word submission a year ago.

Jo Brown

I would like to make a follow-up point. This splendid idea of using best practicable means has had unfortunate effects. I attended an intermediate solid level waste conference about this and the effect of best practicable means is that Magnox South can select not the safest method of dealing with currently stored intermediate-level waste but the cheapest. I say this because what you are given when you go to one of these conferences is two days of ticking boxes and if you were going to choose the safest method rather than the best practicable means you could have made the decision on day one, because it was obvious that polymer encapsulation was the only method that did not emit thousands of cubic tonnes of radiation into the atmosphere. We spent two days implementing this best practicable means policy and the result of that was that the cheapest method, which cost half as much as polymer encapsulation, came out top of the list. Hence best practicable means wipes out safety first.

Simon Wilson

Thank you very much. We had a number of comments from Pete, including around the timescale and some of the radiological health detriments. We had a follow-up from David about sources of information which have previously been presented and then we had Jo’s issue, which is, as I understand it, about the basis for the Justification on reasonable practicability. Who would like to respond here?

Peter McDonald

I will have a go at answering some of Pete's and I think, Jill, you also raised the issue about COMARE.

In terms of the timescales over which the detriment has been calculated, we recognise we are talking about significant periods of time and so we have tried to consider those impacts, but our calculation is that the detriment is small. We have also considered, on the other side of the weighing scale, what the detriments might be. Thus I think we are conscious we are talking about potentially different timeframes for these things.

On the issue of COMARE, what I was talking about was the analysis that has been done in relation to nuclear power stations. I think Jill is right there were different findings in relation to some nuclear facilities, in particular Dounreay and Sellafield, which required further study. Therefore, the COMARE Committee is continuing to look at those issues on a long-term basis, as indeed they are also looking at the study that was conducted in Germany which comes up with different findings. Pete was asking when that information may be available and my understanding is sometime later this year. I do not have a timeframe. We are not responsible for that. It is something that the Department of Health has asked the Committee to study. It will be looking at why it is that the German study does suggest that there is a link between nuclear power and leukaemia. It will also be looking at other studies that have been conducted in France and Finland amongst others, so this will be an international assessment of data. It is worth just saying, though, that COMARE did look at the German study and applied its methodology in a report it published at the end of 2008 and was unable to support the findings from Germany. However, it has been asked by the Department of Health to re-examine that data and, as I say, my understanding is it is due to be published sometime later this year.

Adam Dawson

I will come back to David's points. Thank you for the 74,000-word submission. We have received it and studied it and I think all I would say there is in deciding which references to cite we have had to discuss with the independent regulators, amongst others, to decide which the relevant sources to consider and cite are. Ultimately, however, the decision is ours. Again, I think my view would be if you feel that we have not adequately taken those points on board, and I recognise that you do not, I would suggest that you make those points again in your response and we will look at them again.

I could say a few words on Jo's points about Magnox South, where I presume you are referring to Hinkley A. I have to apologise; I am not aware of the detail of Magnox South decommissioning of Hinkley A. 'Best practicable means' does not mean the cheapest. It means that we have to balance the cost amongst many other factors in terms of the total approach to doing the decommissioning, how we can do it safely, how we can be in full compliance with all the regulatory requirements, which is the overall driving factor. I was not at the meeting. I do not know the merits of polymer encapsulation compared with the others, but I am confident that the decision that was taken in the end would meet all the regulatory requirements that we have to adhere to in doing something as complex as decommissioning Hinkley A.

Alan McGoff, Environment Agency

Just a point of clarification: it is probably not BPM you are talking about there, Jo; it is probably BPEO, which is 'best practical environmental option'. That is an assessment of what is best

overall, which takes into account a large number of factors, as Adam says. I am not familiar with the specific case for Magnox South. The objective is to produce the best decision overall and that is, presumably, what they did. Interestingly, the new guidance looks at BAT and that reflects a combination of BPEO and BPM – sorry for all the initials, but that is where it helps.

Just reflecting on what we are discussing, which is Justification, which is the consideration of benefits and detriments, really, BPEO and BMP are about optimisation, not Justification.

Jo Brown

The problem that we had was that the whole of the two days was based on a programme where the participants ticked the boxes, but the design of the consultation had been made. The clients were Magnox South, so whoever was designing the programme was working for the client and those of us taking part had no opportunity to contribute our own factors to the list. The list was quite long and when I say that some of the items were visual amenity or effects on wildlife, I find this very irritating because those sorts of criteria detract from the safety. Also, if I was the client going to the person organising this conference, I would say, ‘The outcome we want is this. You write it to make sure that that is the outcome we achieve’, because you could not write anything about what you thought. All you had was umpteen little things to tick, so there was no way you could make safety come out top.

Simon Wilson

Thank you for that. I do not know if there are any further reflections on that point.

Adam Dawson

I think you have some specific issues with the way in which a particular engagement was carried out by Magnox South and if you have concerns about that particular activity and that event, I think that they should be directed to Magnox South. However, I think the broader point that you make is about decommissioning, the health detriments and so on that may be associated with decommissioning and the only point I would add is that the Magnox reactors were not built with decommissioning in mind. They were built to meet an urgent need for electricity and I think it is fair to say that they were looking at very much the short term without thinking what the longer term would be at the end of their life. New nuclear power stations are completely different. They are built in with a decommissioning plan right from the start so that that can be managed in an environmentally friendly way which is fully in compliance with the regulatory regime and which will minimise health detriments. Therefore, I think we should not believe that decommissioning new nuclear power stations will be the same as the Magnox ones; it will be significantly more straightforward.

Phil Davies

Adam, with regard to the Magnox which you have so interestingly described on the record it is, in fact, the same Magnox which you previously classified as a proven and reliable technology, but that proven technology was not built with decommissioning in mind, so it is the same technology.

The question I want to ask puts together two things that have come up over the course of the morning. One was Trudy’s point about the assessment of the responses and whether they were

done on any objective criteria. The second point is that you are now asking for any more information that might be relevant and you are saying you want to assess it, but how do we know that you will assess it in any objective way according to any objective criteria? The third point which follows from that is what is your objective criteria under which you will decide that an enquiry should be held? What is the trigger point? Can you state objectively what that is so we know at what point you will say ‘this is beyond our ability to assess objectively and we will hand it over to a public inquiry so that evidence can be held in public’?

Simon Wilson

Thank you very much indeed, Phil. I think that that comment is really taking us to a process issue, in a sense, rather than a content issue. I do not know if you would like to respond to that straight away.

Peter McDonald

I will have a go. I think what I was saying at the outset about an inquiry is that this is not a decision we propose taking until the end of the process and I think I also said in my presentation that we are asking people to consider, if there were to be an inquiry or other hearing, what that would do to contribute to the quality of decision-making. There is a process which could be used; we do not believe we have reached that point yet, but we will keep that option open. However, until we have heard responses both from today and at the end of the process it would be premature to reach that conclusion.

Andy Blowers

Just going back to the 74,000-word dossier, I think we should be grateful to David for presenting that, because at least it is retaliation on our part for the huge amounts of reading that you expect us to do in almost no time whatsoever!

I am still trying to come to terms with what the purpose of this meeting is, because at the moment it is very much a dialogue between a handful of anti-nuclear people who have come here and the platform with a huge array of other people silently sitting by, so there is not exactly much of a dialogue going on as far as I can see. Nor do I know what the ultimate outcome of this is expected to be, since it is very, very clear, I think, from what we heard in the presentation that the Government is substantially immovable on these points, because, as has been said both in the original consultation and in this one, they have come to a view. It is very; very difficult to dislodge the Government it seems to me, from a view to which they have come. Therefore, in a sense, I take this to be fairly purposeless in terms of any changes that are likely to ensue to the prospective decision.

I would, however, wish to comment, because I think, in a way, it is framed entirely in one direction. Justification is being talked about as a high-level decision and it is a generic decision on the whole, but once taken, of course, it does commit a whole load of things and also prevents, it seems to me, substantial debate on a number of issues.

The real problem, it seems to me, with this whole nuclear thing is that we are having a generic debate but it is in the context where 10 sites have been selected, effectively. That, I think, is very different from a generic discussion, because we ought to locate this in the reality of the 10 sites that have been selected so far. This brings up a number of issues, it seems to me, in terms of

Justification and if we take the three of them, first of all, the health issue and there are known to be a number of issues around specific sites, but once this health issue has been agreed there is no further discussion. It is not something that the IPC, for example, it seems to me, at site level will be able to debate, because they will be told ‘we do not think there is a health detriment here particularly, because it applies to all sites’.

It is the same with radioactive waste and my big concern here is – and I think Pete hinted at this – we are not talking about a small time. Even the Government says ‘around 160 years’ – I could easily make out a case it would be longer than that – and yet no real predictions are made on site conditions beyond 100 years. I know there is a revision every 10 years, but that is really not the point. If you know that something that can be detrimental is going to be on a site for 160 years and you cannot predict what the conditions are going to be in 160 years time, how can you conceivably Justify it? I find that strange. I know it will be said ‘we can mitigate’, but you do not know, frankly. We are looking here absolutely into a black hole and I think trying to Justify the practice of storing waste on site alongside a new power station should have been segregated off and should have been part of a separate process and not just hitching a ride on the back of a nuclear power station, because it is a very distinctively different thing, as people have pointed out. Of course, 160 years or more really is the far future and it ought to be subjected to the same kind of process that is the case with legacy waste. I do not want to go down that path here, but that would certainly be my recommendation: that you cannot really expect long-term storage of that amount of time without a proper discussion, debate and justification of that itself. I do not feel that the Government can safely stand on the ground that practices exist or will exist.

My final point is to do with the environment, which I do think is important. It is said that we can mitigate and therefore ultimately we can, as it were, ameliorate the damage which is expected and known to exist. Again, I go to the 160 years. I think if you look at that, the damage could be far, far greater than that which is being predicted for 100. However, I ask the question at what point does the detriment and damage to an environment become so significant that it is not possible to Justify the building of a power station? It seems to me anything goes, frankly, and particularly if you look at the other consultation where there is an overriding national interest, the overriding national interest is always ‘we have to have a nuclear power station’, not that ‘we are destroying substantial chunks of our environment’, by the way, because a lot of these sites are in areas that are highly sensitively environmentally. Were the power stations being put in other sites this would not be the case and again it is back to the siting issue. Very specifically, most of the 10 sites are in highly sensitive areas environmentally and basically the Justification is saying there is no point at which the detriment to the environment is so substantial that we cannot Justify it.

All of these things, I suggest, once Justification has passed, as you well know, will be applied to the IPC and they will be able to say, ‘Cannot discuss that, cannot really discuss radioactive waste, health detriment no problem and even on the environmental level we can always mitigate the detriment because we must have these power stations’. So the whole exercise, frankly, is fraudulent if you look at it in the context of what is happening on the ground.

Simon Wilson

Let us take a response to Andy’s point, because it raised a number of facets, if you like, of a couple of key points, so let us do that straight away.

Peter McDonald

Andy, I know it is your intention to try to conflate a generic process with siting and there is clearly a parallel process going on and I think there is a risk of trying to bring two elements of consultation into one. Today is really about Justification, which is a generic process.

Can I also just take issue with something else? You talked about Justification as if it was a once and for all decision. There is a very clear provision in this process, as there always has been for Justification, about new and important evidence and that applies to any new health study that might arise. Therefore, this is not a once and for all decision. This is a process that will have to be revisited if there is new and important evidence in the future, so this is not a once and for all assessment. We will make our best judgement based on what we have now and we ask people if they are aware of anything material we have overlooked or that is new that we should consider it now. However, if this ultimately leads to a positive decision now and new evidence came forward in the future, it would have to be reassessed. I think that is a really important point that people should understand.

Adam Dawson

I will pick up some of the other points. You asked about the purpose of the meeting and felt that it was purposeless. I am sorry if you feel that way. It does not feel purposeless to me, I have to say. I think there are two overriding things that I hope will be outcomes from this meeting. Firstly, I do hope that everyone in the room, not just those who have been speaking, will be contributing in either writing or electronic format to our consultation and I hope that the discussion that we are having and the questions you are asking will help you to formulate your responses. It may expose areas that you think we need to be stronger on or areas that you are concerned about which we have closed off. Either way, I hope that the dialogue will help people to frame their responses and to give us more helpful, focused information in those responses.

The second thing is we are hearing things from the tenor of the debate today and the points that are made which we will take as responses directly into the consultation and they are matters that of course we will take seriously. Hence I think it has two purposes and, for me, they feel very real and if others feel differently I am sorry.

You then talked about a number of points and, just to build on what Peter said, I think we should not forget that Justification is one of many consents and so on that have to be granted before nuclear power stations can be built or operated. There is a regulatory regime in this country that exists to make sure that anything that is built and operated that involves the use of radioactive materials is very carefully regulated to make sure that emissions, doses to the public and so on are well within statutory limits. This is not a 'fire and forget' decision. I think that at all points throughout the consenting process and the operation and, indeed, the decommissioning thereafter there will be a strong regulatory input and the regulators are extremely powerful and will not hesitate to act if they think that the nuclear power station is being operated improperly. Therefore, I do not think we should think this is 'fire and forget' once and for all, because it is not.

Trudy Auty

I wanted to pick up on a comment in Owen Jenkins' presentation where he was explaining that the regulatory regime which exists to prevent accidents is satisfactory. In relation to that, I am a little bit disturbed by DECC's comments in the National Policy Statement concerning the proximity of

civil aircraft movements. There seems to be a perception or perhaps it is better to say a misperception that exclusion zones in some way protect a site from civil aircraft movements. I think we have to recognise that the boundaries of an exclusion zone are just notional lines in space. They are not arrestor wires. They offer no physical protection to the nuclear complex. If a plane is going to accidentally strike it is going to be as a result of a combination of emergencies or pilot errors and in that respect the boundaries offer no physical protection. Therefore, this notion of the exclusion zones is not relevant to the nuclear risk assessment.

Something that we have already raised with DECC in the past is that what is clearly required is a minimum separation between an airport and a nuclear power station. The Director of Safety for the Civil Aviation Authority has confirmed in writing that you cannot mathematically model or predict the hazard of bird strike and it seems clearly unacceptable to have such an unquantified and unquantifiable risk in the vicinity of a nuclear power station when the consequences of a collision are so extreme. Therefore, I would like, if I may, to ask DECC to confirm that it intends to set up a minimum separation between a nuclear power station and an airport to mitigate this unquantifiable risk.

Let me finish by saying whilst I appreciate that might be more of a regulatory issue, it is clearly a fundamental issue and there seems little point in going through the very expensive stages of Justification and optimisation if you are then going to fall at the final fence on such a fundamental regulatory point.

Peter Wilkinson

The thing that I would like to raise is the inability of DECC or the Secretary of State to accurately calculate one side of the Justification equation. If the parameters upon which the detriment in terms of low-level radiation is calculated are increasingly under attack and increasingly uncertain, as is evident because COMARE is still carrying out work and therefore if we cannot calculate that detriment side then how can we show that the benefits are going to outweigh a detriment that we cannot calculate?

The other thing that is pertinent to that, in my view, is the fact that the preliminary decision that the Secretary of State has come to is this is Justified, but we do not know what is going to happen to the waste. In the absence of a repository we do not know what the detriment profile is going to be of that waste. We do not know whether it is going to be stored, whether it will go down a hole in the ground or what will happen to it, so there is uncertainty again about the detriment side of the equation and it beggars belief that you can therefore Justify going ahead with nuclear power when the benefit side of it is ranged against something you cannot calculate.

Simon Wilson

Thank you very much indeed. We have a specific question from Trudy and an issue about the calculation of benefits and detriments from Pete. Who would like to comment on those?

Peter McDonald

I will have a go on Trudy's question, although I have to say I am struggling to understand the distinction between a no-fly area and a minimum separation. I guess I would defer to the regulators here. Again we are straying into the Nuclear National Policy Statement where we had detailed advice both from the Civil Aviation Authority, as you might expect, and from the

Nuclear Installations Inspectorate about the proximity from a nominated site to aircraft movements. This is something that is kept under constant review. You are right in the sense that this is a column of air, not a physical barrier, which perhaps might defeat the object if it was, but it is based on a continuous assessment of risk, which obviously is fundamentally for the NII to advise on. Obviously, we will continue to obtain the best advice from the most appropriate quarters.

Trudy Auty

I think you have to understand that there is a difference between an exclusion zone, which aircraft are not allowed to fly in, and the distance between a power station and an airport. If you looked at the NII's risk assessment, you would never be allowed to build an airport on the two-mile boundary that is at the exclusion zone. You would not be allowed to build it within the exclusion zone. The risk assessment is taken at a distance from there and covers all of the procedures associated with takeoff, landing and so on. My point was in relation to the dangers associated with there and therefore is it not appropriate to have a minimum separation between an airport and a nuclear power station to protect the population from the consequences of a plane crashing into the nuclear facility.

Simon Wilson

Thank you. That is a very helpful clarification. I am not sure it changes the response...?

Peter McDonald

I am not sure it does, but can I just urge you, Trudy, to make sure that point is registered in the NPS consultation process.

Adam Dawson

Pete raised two points, one of which was about low-level radiation and I will take that one first. You are right, I think it is fair to say that there is controversy about low-level radiation and I have seen arguments which are probably equally sustainable in the press recently about the lower risks or higher risks, so you are right, I think it is a matter of contention. That is why COMARE and others are continuing to scrutinise it. As Peter has indicated, it is a matter where we will not be doing an once-off exercise or requesting COMARE to look at it once. In fact, part of the answer to one of your questions about when will the reporting stop and we will have a final position, I do not think it ever will. I think it is something that we will have to continue to keep under review. Right now, the evidence from people like COMARE and the Health Protection Agency and others suggests that the risks are manageable, the doses that we receive that we might expect to see near new nuclear power stations are within regulatory limits and there is not an issue, from a regulatory perspective, in going ahead. However, I think you are right it is a matter that will continue to be looked at.

The other question was about the repository and you asked how you can make a Justification decision if you do not know what the ultimate disposal route is going to be. We have said that our policy is that a geological disposal facility will be built. We have accepted the recommendations of CoRWM and that is the route by which material will be disposed.

Peter Wilkinson

There is a point of clarification about what you just said, Adam. CoRWM did not say that disposal was the way to go. It said that disposal was the way to go in the current state of knowledge that we have. It was predicated on an R&D programme which has not materialised and it was also predicated on a storage review and volunteerism and, apart from the third one, we have not had any of the others, it seems to me.

Adam Dawson

Thanks for the clarification, Pete. It is important you put those points on the record. The basis for going forward with new nuclear power stations, as we have set out in the National Policy Statement and in the White Paper, is that there will be a route for disposal of radioactive waste from new nuclear power stations. We expect that will be geological disposal, though we recognise that there is a research programme that goes along with it.

The process for identifying a site for a geological disposal facility is advanced; it is progressing now. We are at the point where we have a number of communities that are interested in participating in hosting such a facility, so we are progressing towards the point that we will get there. In the meantime, we have also said –

Phil Davies

That is absolutely absurd.

Simon Wilson

You can make a point in a moment, Phil, but if Adam could finish that would be great.

Adam Dawson

We have also said that safe and secure interim storage is an integral part of the management of waste from nuclear power stations. Now, there is extensive global evidence on how radioactive waste can be managed from nuclear power stations on an interim basis and kept safe and secure until such time as it goes into a repository. We have relied on the evidence that we have been able to access from the global position on radioactive waste management to enable us to take what we think is a Justification decision that will stand.

Simon Atkins

The panel were asking us to what extent a public inquiry could help to improve the quality of the decision-making. It seems to me that there is ample evidence just in this room exactly how that could happen. There is clearly a great deal of debate over the evidence used and this evidence has, as yet, been untested in an open forum and scrutinised fully. If one looks just at these documents here, the blue books of the Justification process, yes, they are cited, but within them there is no real scientific evidence or technical data. They are just summaries of what conclusions you have already arrived at. I note also that within the online bundle there was the IDM report, which is a 25-page document. Clearly, that is not the only technical evidence that DECC has used to come to this decision, so my question partly is where is the rest of it? With respect to that document how

can the public have any faith that that is a fair, unbiased and transparent piece of technical data or how else can they do that? An inquiry would have to be about testing that evidence in an open way.

Jill Sutcliffe

I seem to be the consistency tester on the quotes on low-level radiation. Firstly, the German study will only tell COMARE that there is an excess, they do not know why it is there, they will take € million and 10 years to do the research to finish the explanation. It is not yet the link between nuclear power and leukaemia.

What concerns me is I feel that the role of the Health Protection Agency needs to be more central in providing information and making the decision. I do not think they should be an outer moon that gets pulled in on certain things. I think they should have a more central role and their governance therefore should be changed, particularly given the long-term effects and possibilities of the health issues. There are other health issues in the pipeline not yet published. There is a long-term study of the Mayak workers undertaken by Colin Muirhead at the HPA which is showing up possible cardiovascular effects, and there is also evidence from x-rays currently being considered by ICRP Committee 1 which could lead to quite dramatic changes in radiation dose limits. The other issue is that of the long-term implications of radiation-induced changes on biota. We are still at very, very preliminary understanding. The evidence is very gappy, because we have only looked at mice and rats and occasional types of particular radionuclides.

Again, therefore, and to echo a point made by Andy Blowers, these long-term considerations defy our understanding. That was the point at which the inspector at the Nirex public enquiry threw out the so-called scientific case, because it was so deeply flawed. There is a very good American book on geological disposal where they all came together and said, 'What do we know, what do we not know and how long will it take us to find out?' We need all that preliminary stuff to even consider justification and we do not have it.

Jo Brown

Could I raise the matter of benefits and costs and detriments? It is basically whether or not we need nuclear power. There are two pie charts published by DECC, one for the year 2009 and one for the year 2020, on the UK's electricity mix. The 2009 chart puts gas at 45%, nuclear at 13%, if we just look at those two. The chart for 2020 puts gas at 29% and nuclear at 8%. Now, if we did not reduce gas by such a large amount we do not need nuclear at all. In other words, the difference between 45% and 29% gas, if you only reduced gas to 35% you would not need nuclear at all, so why do we need it?

Simon Wilson

Thank you very much indeed. That is the high-level question of them all. We have Simon's point about the potential benefits of a public enquiry, we have Jill's points about the state of knowledge and how long it will take to make an effective assessment, and we have Jo's point about why we need to reduce dependency on gas and therefore why do we need nuclear power at all.

Jo Brown

Why do we need to reduce dependence on gas by such a large amount?

Simon Wilson

By such a large amount, excuse me, yes. Let us turn to the panel.

Owen Jenkins

On the sources of technical evidence, we have three lots: the NIA's original application, which is quite a detailed document that we have published. There are the references in the documents themselves, which include references to previous publications by us, such as the nuclear White Paper, which also have supporting material. The third one is probably the responses we have had to previous consultations, which are often in quite a lot of detail and those are all on our website. I think those are the main sources of evidence we are relying upon.

Simon Atkins

But how do you compare these with each other?

Adam Dawson

I think you are making the point those are matters that we should test in a public inquiry, so we will note that, thank you.

Peter McDonald

On your point, Jill, I guess there will always be new studies, there will always be work. I think that is entirely right, that we continue to move our understanding forward. What I would say to that is that is entirely right, that Justification is not a once and for all decision, you come back to it. If there is something that challenges the original assumptions then it should be considered fresh.

Jill Sutcliffe

I agree and I was glad you made that point, but I also remember what happened when Concord was being reassessed and we had already made so much investment we could not pull back.

Adam Dawson

Picking up Jo's point on the more profound question of whether we need nuclear or not, I suppose the answer to that question depends on – going back to first principles – the credentials that nuclear brings to the energy mix. One is it is a low-carbon source of energy. I know David may have a different view and he has already alluded to the fuel cycle things, but our position is that it is low-carbon and that it can make a significant contribution to achieving our extremely ambitious decarbonisation targets. This is something that the Government is passionate about, achieving a very significant reduction (80%) by 2050 and in that context I think we need all of the low-carbon sources that we can get. That is one of the reasons why we think nuclear has a role.

The second one is around security of supply and you were asking about the 2020 numbers. In the UK, we have been in a very fortuitous position of having North Sea gas on our doorstep for the last three decades. North Sea gas is beginning to run out and we are becoming much more dependent upon imported gas from the Ukraine, Russia, and North Africa and so on. I think one of the things

that the Government is quite keen to ensure is that we have diversity in our fuel supply and that we are not reliant on single sources of either technology or single geographical areas for our fuel. Hence the second reason why we think nuclear has a role to play is because it brings diversity and security to our energy mix.

Jo Brown

It seems extraordinary to me that just in order to have a bigger mix you are considering an industry that has been shown to harm hundreds and thousands of people. In whichever country it is, the evidence is there already and you are prepared to take an even bigger risk. As far as diversity is concerned, we can do diversity: you can do the Severn barrage, you can do the offshore wind, you can do the North Sea wind and tidal grid, you can do all the other tidal things they are doing in Scotland. Is that not enough diversity? Furthermore, we do not need to import no gas at all; I am just saying do it more slowly. Therefore, why would you be prepared to risk so many people's lives? You also mentioned earlier the fact that coal was also dangerous. I think I am right in saying that you have a choice as to whether you go and work in a coal mine or not. If you live near a nuclear power station, you are the victim. You have no choice and no benefit whatsoever.

Can I just also say that if this goes ahead and if the waste situation at Hinkley is not sorted out I shall be one of many families moving out of the area, if not emigrating altogether. I can just about afford to do that. Hundreds of people will not be able to afford to do that and you are still going to say 'there is no evidence that you are all dying'. It is very important.

Simon Wilson

Thank you very much indeed, Jo. I think those points are clearly made.

Phil Davies

I thought Adam's pre-emption of the Environment Agency's duty to assess and authorise the repository was outrageous and proves beyond any further necessity that DECC is biased and cannot be trusted to determine this justification question. It should go to an inquiry; I think it is conclusive.

David Lowry

My point is a little bit complicated, I am sorry, but I would like to make it because it has not been addressed yet in the meeting. It is to do with security provisions and how it is possible, as an outsider, to have any confidence that the provisions put forward by the applicants and the assessment made by our security regulator, the OCNS, is sufficient to give people confidence that it will be okay.

I would like to start my comment by pointing out that the no-fly zones around nuclear installations have been broken on several occasions in the past, the most blatant of which was when a helicopter landed inside the security fence of one of the plants alongside the Severn; I cannot remember if it was Oldbury or Berkeley. The point about that is that the helicopter landed before the plant operators and manager knew who was on board and what it was carrying. Therefore, to designate an air exclusion zone around a nuclear installation is useless if people just fly through it, as that

case shows. It turned out to be a NATO helicopter on an exercise in fog and landed for its own safety, but the plant operators did not know that.

The point I want to make about the security documentation is as follows. In the documentation on Justification there are a few pages saying that the Office of Civil Nuclear Security has looked at the generic plans, it would look at the specific security plans and it is doing a good job as a security regulator. However, there is no way at the moment in the current situation where that security regulator's competence or ability to deliver its mission can be tested. In a series of meetings that BNFL held a few years ago there was a security working group which worked with the then deputy director of OCNS and produced a report on how you can engage the public in discussions with a very high level of access to security documentation. It seems to me that the way this report is written is that basically you just have to accept that the regulator is going to do a good job and go away and do not worry yourself. I think that is unacceptable.

As an example of the problem we have, yesterday I received a whole bundle of documents from the HSE that it has been doing as part of its generic design assessment programme and it has two documents in it on the security assessment of Westinghouse and the security assessment of the EPR. These documents in total run to two pages and they refer you to some documents that the OCNS has looked at and will continue to look at. What I would like to ask the panel is how are we, as citizens, expected to respond to the questions on security when the level of information that is put into the public domain is virtually zero? We know from other democratic societies, like the United States, that they have congressional hearings on their design basis threat. They have held open hearings on the competence or otherwise of those documents and in this country we are expected to rely upon our own regulator without question. I want to know what we are going to have in the public domain so we can make an evaluation of whether this is fit for purpose or not.

Simon Wilson

Thank you very much indeed, David. We had a follow-on point from Jo, we had Phil's comment and also David's, and as we are beginning to run towards the close of our allotted time I would just like to check whether there is anybody with another key point they would like to ensure that they make before we close this session. Would you like to make it now and then I will ask the panel to comment?

Jane Simmonds, Health Protection Agency

I just wanted to make a general comment about the health effects of radiation. The first thing to note is that they have been the thing that has been studied most in terms of health effects. Certainly, the health effects of radiation are more widely known and studied and vast quantities of money have been spent on studying these for many, many years. The difficulty is that the health effects that occur because of radiation are things that occur naturally in the population, such as, unfortunately, cancer. Therefore, what you are always looking for is whether there is an excess of really quite a rare event or, in terms of cancer, a very common event and that is what leads to all of the discussion.

I have with me a report which is an introduction to the estimation of risks, which covers a lot of the points. I could not go into them now and I do not think it is appropriate, but if anybody is interested I would be very happy for them to have a copy of the report.

Simon Wilson

Thank you very much indeed. That is very useful. I believe Jo has one more comment to make and then we will ask the panel to respond.

Jo Brown

This problem with the Health Protection Agency goes on and on and on. Jane Simmonds must be aware that studies showing excess cancers, just to look at those, do in fact record excess cancers, not those that would be expected to be found in the population in the normal way. There was a leukaemia study published in the *BMJ* in 1989 covering leukaemia in young people near Hinkley Point between 1959 and 1986. This was done by doctors at Musgrove Park Hospital. They are not going to suddenly decide that they have a whim and what they studied and the *BMJ* published was an excess of leukaemia. All of the other illnesses have also been shown and why is it that NGOs have to commission independent epidemiologists to do the studies and why does the HPA not do it?

Another problem with the health regulator's statistics is that they mislead by looking at areas going 25km inland from any nuclear site. That immediately distorts the outcome, because incidence falls away very sharply and it is usually within 5-10km of the source. Therefore, if you only get statistics within 25km it is not going to look as if there is any excess.

Simon Wilson

Thank you very much indeed for that additional point. I would like the panel to reflect on this last round of comments.

Peter McDonald

David, I will have a go at answering your points about OCNS and security. I do not think anyone is saying there is an absolute here, but despite the fact that, as you say, there have been breaches of no-fly zones, I think OCNS have a pretty solid track record. However, I think it is also worth emphasising that clearly there is a balance to be struck about putting information in the public domain that might deal with issues about the threat and obviously there are limitations on what can be made available. As you said yourself, however, there is information in the public domain which is being released as part of the generic design assessment process and that is available on the HSE and EA websites. There has to be a judgement, ultimately, though, and what we are saying based on what we know and what OCNS knows about the designs and the basis of threat is that there is no reason to exclude the Justification of these designs. Now, if that position were to change, clearly we could reappraise the assessment, but we are taking the best advice from the security regulator here. Indeed, we on this panel are probably not privy to most of the more sensitive information, and understandably so in terms of basis of threat, but on the basis of what they understand about the regulatory process and the designs, they have given us a clear assessment on what they think is appropriate.

Adam Dawson

Just to reflect on the dialogue between Jane and Jo, there is not a lot I would want to add to that. You have made a valid point. You have taken issue with the fact that you have to commission

these studies rather than the HPA. There is a wealth of information. I think people should not believe that this is an area which is neglected at all. It is subject to intense public scrutiny and will continue to be so. I think it is an area that the regulators will be applying even more interest to in the future, so I do not think there is a lot more I can add at this point.

Peter Wilkinson

I wonder if the panel could elaborate a little bit on when the decision on Justification will be made and what the process post-Justification might be in terms of additional evidence coming to light and whether that will be an iteration or a once and for all decision, as we heard earlier.

Simon Wilson

Thank you very much for a very helpful question.

Trudy Auty

I want to pick up on a very specific point, but just as a correction, when you were saying that the exclusion zones are penetrated, and I think you glossed over it a bit and said it was an isolated event, if you look at the exclusion zone surrounding the Dungeness power complex it has been breached twice in the last 10 years and there is a proposal to expand the airport to between 500 and 1,000 times its current throughput. Therefore, I think that is an area which needs consideration, which goes back to my point about DECC giving a commitment that it will look into the need for a minimum separation between an airport and a nuclear power station. I would just like you to give an undertaking that you will commit to look at that point. When you said to include it, I did put that into the NPS consultation.

Andy Blowers

I have just a reflection on what we have seen and heard today. I notice that this is badged as an engagement event. First of all, I would like to say that at least something has happened and DECC are to be congratulated on at least having this event. I am not trying to be too churlish about it, we do have one, but in no sense can it be called an engagement event. We are really having some kind of dialogue and it is very much a dialogue of the deaf, I think, in many respects. Engagement is altogether something different. The fact is I firmly believe that this sort of thing is good for DECC. It will look good on their CV when they come to publish it in terms of the whole consultation process. I do not think it is particularly valuable to those of us who are of a different disposition, because what we are finding is that the situation is really sealed up. It is closed off, as far as one can judge, because I do not see any movement on the part of DECC from the stated position, which is we must have nuclear for various reasons and we must have it now and we must have it on these sites. That is Government policy; that is the way it is doing it. It is just a very elaborate process in which to legitimate this and of course this is part of that legitimisation process.

What I would like to say in a more positive sense is if DECC feel any kind of evening up of the situation, trying to restore the imbalance of power that we see between the various positions on this, then I think they need to consider very seriously advising the minister, whether it be for this Government or the next, that a public inquiry is something that ought to be seriously considered. I think it is only through a public inquiry that you will have a more balanced debate and it will have the time, consideration and independence, above all, that is required. At the moment, we do not

have an independent situation. We have a series of things being rammed down the throats of the public and the victims of this will be the one or two sites that eventually get a nuclear power station and it will be seen to have been a palpable waste of resources and time generally for a very unfortunate outcome.

Simon Wilson

Thank you very much indeed for that and thank you for all the comments. I would just like some final thoughts from the panel. There is Trudy's specific question, Andy's reflection on the process, and also Pete's question about what happens next, which I think will be useful for all of us.

Peter McDonald

In relation to when a decision is made, it will take as long as it takes in terms of considering responses. Let me just re-emphasise that we will read everything. We have read all of the thousand pages that David Lowry submitted and if he submits something else we will read that too. At the same time, government normally tries to respond to consultation within three months and as this closes at the end of February that takes us towards the end of May. At that time, we may be in election purdah; we are very likely to be in the run-up to a general election, so a decision will most likely be after the general election. There will be the usual hiatus whoever wins the election, I guess, before decisions are taken.

No, it is not a once and for all. As I said earlier, this is a decision which is taken on the evidence base at a given point in time. If that evidence base changes, obviously there is an opportunity to reconsider.

Trudy, if you did not feel I answered your point earlier, if you submit your response to the NPS consultation about separation areas, we will consider it and obviously we will take the best advice we can on whether that has particular merits.

Adam Dawson

Andy, thank you for your comments on the event. I cannot really say much more than I said at the beginning. From our perspective, I think it has been extremely useful. It is not just something you do to tick a box. It is something you do because it helps us to come to conclusions in a more informed way. I think we have heard some very strong messages today from lots of different perspectives. Thank you for making your point on the public inquiry. It is something, of course, that we will have to continue to bear in mind.

You say you have not seen any movement on DECC's part. Well, this is a step on a journey which we started a long time ago. I think we have set out our views on nuclear over the last three years. We have heard what people have said. We have modified our policy as we have gone along and I expect to continue doing that in the future. I think there is a way to go yet and events like this I think help us to make sure that wherever we are going we get there in a manner that respects the sensitivities that members of the public and others have.

Simon Wilson

Thank you very much indeed. I would like now to draw things to a close. I would like to thank the Department very much indeed for organising the event and for inviting us, the organising team for making things happen practically, but above all could I thank you all for attending and, in particular, for the most helpful and respectful way in which you have made comments. These will be recorded and then posted in a transcript, as I said, on the website as part of the consultation process.

We will now have lunch when there will be an opportunity also for some informal discussion and networking. Thank you once again for attending. I hope you enjoy the lunch and I would also, after that, like to wish you a safe journey home. Thank you very much indeed.

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