

Good morning. My name is Margaret Lemmerman and I am the Senior Energy Policy Advisor at the British Embassy in Washington DC. I want to thank the Sallan Foundation, the Environmental Law Institute and the Energy, Environmental Law and International Law Committees of the New York City Bar Association for welcoming our input and I hope that I am able to provide some perspective and insight by discussing the UK's progression on new nuclear energy over the past few years and what our plans are looking forward.

Clear cut questions dominate both the UK and US debate over new nuclear. Questions, such as -

- Is there a role for nuclear energy in a carbon-constrained future?
- What are the financial hurdles to building a new plant, and can they be met in a timely manner? And;
- How do we address the serious safety concerns surrounding the disposal of nuclear waste?

Just as in the US, there have been many different answers given in the UK to these questions. We have seriously weighed these issues, and under the leadership of Prime Minister Gordon Brown determined that –

- Nuclear Energy must be a part of the energy mix moving forward alongside other low carbon sources. In the UK we have an added incentive given our recent commitment to cut our greenhouse gas emissions by 80% under 1990 levels by 2050. Encouraging new nuclear energy is a key reason why we are confident we can reach this target.
- In response to financial questions, the government has been clear that energy companies will be responsible for funding, building and operating new nuclear power stations. Additionally, operators of new nuclear power stations – not taxpayers – must have secure financing arrangements in place to meet full costs of decommissioning of new nuclear power stations and their full share of waste management and disposal costs.
- And as for addressing the nuclear waste issue, the government is committed to openly and transparently establishing long-term geological storage, which is internationally recognised as the preferred approach for the long-term management of higher activity radioactive waste, and supported by UK learned societies, including the Royal Society, the Geological Society and the Royal Society of Chemistry.

I will come back to these issues, but before I proceed any further, I think it might be beneficial for me to give you a bit of background on nuclear power in the UK. Currently 15% of our electricity is generated by the UK's ten nuclear power stations, which are scattered across the country. At its peak in 1997, nuclear generated about 30 % of our electricity. All but one of our active 10 plants is due to close by 2023 (Sizewell). At the same time one third of our coal power stations are expected to close – currently coal makes up about 1/3 of our total energy mix. While UK growth in

electricity demand is slowing, it is still expected to increase by 2.5% between 2010 and 2020, leaving a sizeable electricity gap if new electricity sources do not come on line.

To widen the perspective here, over 350 of the world's reactors will have exceeded their operating life by the year 2030. Predictions are that world-wide orders on supply chains will increase from 4 reactors a year in 2000 to 12-20 reactors a year by 2020. While the decision to pursue civilian nuclear power must be done on a country by country basis, it is clear that there will be a global crunch for nuclear financing, materials and skilled workers in the not too distant future. This reality must be a part of any country's nuclear energy policy-making decisions.

During the last decade we have seen a simultaneous

- Tightening of global oil and gas supplies
- Alongside a growing desire to decrease our dependence on hydrocarbons, in an attempt to lesson the human impact on climate change.

These two factors are what led to the 2003 Energy White Paper which stated that the UK would not "rule out the possibility that at some time in the future new nuclear build might be necessary if we are to meet our carbon targets." This was a huge shift in the British political climate, where we have not seen new nuclear plant construction since 1988. The White Paper assured that we would be seeking the "fullest public consultation and the publication of a further White Paper" before the reconsideration of nuclear.

This led to a public outreach campaign where the dominant question asked to the public was "in the context of tackling climate change and ensuring energy security do you agree or disagree that it would be in the public interest to give energy companies the option of investing in new nuclear power stations?" At the same time, the government conducted stakeholder meetings, site meetings and public meetings; created a website, raised awareness through an advertising campaign encouraging public feedback. In total over 4000 individuals and groups responded to the consultation or attended one of our events. We received over 2700 written responses and we held a further 20 meetings with 600 stakeholders and those who live near existing nuclear sites.

This resulted in the 2006 Energy Review that supported adding new nuclear power to the UK energy mix. Just as here in the US, this was certainly not a unanimous decision or one that was accepted without a fight. While we were confident that we had conducted a through public consultation, Greenpeace challenged the Energy Review's conclusions and in February 2007, the High Court agreed with Greenpeace that the government's consultation had been "misleading," "seriously flawed" and "procedurally unfair."

In response, Trade and Industry Secretary Alistair Darling agreed that there would be a new consultation. He stated that the government remains convinced that new nuclear power plants are needed to help combat climate change and over-reliance on imported oil and gas.

Another consultation process began, which eventually led to this year's Nuclear White Paper, published on 10 January 2008. The White Paper set out the Government's view that nuclear should be part of the UK's low-carbon energy mix, that companies should have the option of building new nuclear power stations, and that the Government should take facilitative actions to enable this to happen. Against the challenges of climate change and security of supply the Government believes that nuclear is an important part of our energy policy, alongside reducing our energy use, increasing renewables, and investing in new technologies.

- The government concluded that the positive aspects of nuclear energy outweighed the negatives.
- Nuclear energy is low carbon and will help minimise damaging climate change.
- Nuclear is currently one of the cheapest low-carbon electricity generating technologies, helping us to diversify our goals effectively.
- Nuclear is dependable. It is a proven technology with modern reactors capable of producing electricity reliably.
- Nuclear energy is safe – backed up by a highly effective regulatory framework.
- And nuclear energy allows the UK to diversify our energy supply so that we do not become dependent on any one technology or one country for our energy or fuel supplies.

The timetable we are now looking at in the UK is to allow companies to make planning applications from 2010; begin constructing new nuclear power stations from 2013-2014; and expect to bring them into operation from 2017-2020. Referring back to a point I made earlier – by 2023 all but one of our nuclear plants is due to close as well as 1/3 of our coal-fired power stations. Aiming to have new nuclear up and running by 2020 will help alleviate the huge energy gap that is looming.

Set out in this year's White Paper, the government has established guidelines for the contentious issues surrounding waste and decommissioning. Later this year these policies are expected to be set in a legislative framework when the Energy Bill receives Royal Assent – the British equivalent of a bill being signed into law by the President.

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The framework we are putting in place through the Energy Bill currently before Parliament will require operators of new nuclear power stations to develop a "Funded Decommissioning Programme", or an FDP, to demonstrate how they will decommission the nuclear power station and manage and dispose of the waste and how they will fund such activities. The Funded Decommissioning Programme must

be approved by the Department for Energy and Climate Change Secretary of State before construction of the station can begin.

An advisory body of experts, the Nuclear Liabilities Financing Assurance Board (NLFAB), is being set up to advise the Secretary of State on the suitability of the Funded Decommissioning Programmes submitted by operators of new nuclear power stations.

In spring 2008 we consulted on two sets of draft guidance, to help operators understand what is required for an approved Funded Decommissioning Programme. We received many helpful comments and are pleased that most responses generally showed support for our overall approach. We will take all the comments into consideration as we develop the finalised guidance for publication following Royal Assent of the Energy Bill.

Alongside the draft guidance, we published further information on the Government's policy to set a fixed unit price for the disposal of operators' intermediate level waste and spent fuel and a schedule for operators to pass title to and liability for that waste to the Government.

The indicative fixed unit price for the disposal of intermediate level waste and spent fuel will be based on an estimate of the costs of disposing of these materials in a geological disposal facility (GDF). This costing will include:

- estimates of the costs of disposing of intermediate level waste and spent fuel in the geological disposal facility
- a significant risk premium to cover the risk that the eventual costs of building a GDF are higher than estimated, and the risk that the GDF is not available when required by the agreed schedule for the Government to take title to and liability for the waste.

The consultation document included an indicative timeline to give information on when we expect to be in a position to publish updated estimates of the costs of waste management, disposal and decommissioning and to publish the methodology we will use to determine the appropriate level for the fixed unit price.

The Government's response to the Funded Decommissioning Programme consultation was published on the 18th of September. In light of comments received during the consultation, it sets out a revised indicative timeline to provide stakeholders with further opportunities to feed in views as work progresses on the Department for Energy and Climate Change cost model and the associated methodologies for establishing the fixed unit price. We intend to hold a formal publication in early 2009 on a full set of proposals in these areas. The finalised approach will then be published in summer 2009.

I think it is important here to go into a bit more depth on our approach for dealing with nuclear waste. Clearly this is one of the most contentious issues surrounding new nuclear and one that was looked at quite closely in the UK. First of all, we made it clear that the energy companies competing for licenses will be responsible for meeting the full share of waste management and disposal costs. The aim is to minimise risk of liabilities falling to the taxpayer. In the 2008 Nuclear White Paper it

was clearly stated, “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.”

Providing a safe and secure interim storage until we have a disposal facility available is a key part of the solution. In 2006, the Committee on Radioactive Waste Management presented the Government with their recommendations. The Committee on Radioactive Waste Management process followed an extensive and rigorous consultation and analysis programme to reach their conclusions. The Government accepted the Committee’s recommendations that, within the current state of knowledge, geological disposal, preceded by a robust programme of interim storage, is the best approach for managing the UK’s inventory of higher activity radioactive waste. The Nuclear Decommissioning Authority is reviewing the adequacy of UK waste storage arrangements to ensure sufficient capacity and longevity.

The framework is in place for long-term disposal. Delivery of the geological disposal facility will be based on four key pillars:

- Strong and effective implementing organisation in the Nuclear Decommissioning Authority;
- Strong independent regulation by the statutory regulators;
- Independent scrutiny and advice to Government from the Committee on Radioactive Waste Management;
- A partnership arrangement with the host community – and to this end, we have already begun to invite local communities to begin discussions on location

Generic inspection of nuclear power plant designs has begun by independent regulators ahead of site – specific licence applications. Regulators will decide whether the designs will receive final approval at the end of the detailed stage around 2011. The three designs which are currently in process are:

- AREVA EPR
- General Electric ESBWR
- Westinghouse AP1000

The next step in the process is siting. The Strategic Siting Assessment process will determine where new nuclear power stations could be sited. The process will assess sites that are strategically suitable for the deployment of new nuclear power stations by the end of 2025. We are currently consulting on the criteria for assessing sites and the process for nominating sites.

Also last month we established the Office for Nuclear Development to increase Government focus on delivering new nuclear. Specifically, we are bringing together government teams and resources to incentivize domestic and international investment in new nuclear in the UK. On this point, the UK is working hard to maintain our position – 2nd only to the US - in the global competition for attracting investment in new nuclear. Through reducing regulatory risk and increasing investor certainty, we aim to make the UK an attractive investment for energy companies looking to invest in this low carbon technology.

Also in September we created the Nuclear Development Forum to provide industry and Government with the opportunity for regular review of progress towards new nuclear and to identify further actions needed and ensure they are taken. We feel that it is of the utmost importance that there is a continued dialogue between industry and government so that unforeseen risks or costs can be promptly and adequately assessed.

So while we have established the regulatory processes for energy companies to begin competing for new nuclear licences; as well as a framework for decommissioning nuclear plants and disposing of nuclear waste; in addition to new structures that foster oversight and accountability, there is of course dissent within the UK from those who do not see the value in resurrecting a nuclear energy program.

The government is clear that we are not saying that nuclear will on its own deliver reductions in carbon emissions. Rather, we need nuclear as part of diverse range of low-carbon energy sources. Nuclear power has the potential to reduce CO₂ emissions by a margin significantly greater than its share of the total energy mix as the current electricity generation mix is very carbon intensive and nuclear power is one of very few proven low carbon technologies. Without nuclear power as an option, we are looking at an even greater effort to reduce emissions through potentially more costly options outside of the electricity generation sector.

Furthermore, our policies are clear that nuclear will not crowd out renewables. Government is not setting a target for the number of stations, nor for the amount of electricity generated. Nor is it setting a limit. We see no reason why we cannot have both nuclear and renewables. Because of climate change and the closure of many existing plants, we need an electricity generation system, which by 2050 produces virtually no carbon emissions.

Another major criticism we must consider is the cost to the taxpayers. Measures in the Energy Bill ensure the taxpayer is properly protected by introducing a robust mechanism to ensure sufficient funds are built up by the operator in a secure way to cover the costs of decommissioning and waste management. We have no intention of subsidising new nuclear and this would include the cost of constructing the stations. Keeping the costs of construction under control is a matter for energy companies not the Government.

Finally, security is always a concern when it comes to nuclear facilities. Security of nuclear materials and processes is independently regulated by the Office for Civil Nuclear Security (OCNS), and kept under constant scrutiny. The OCNS receives from the Joint Terrorist Analysis Centre all relevant intelligence on the methods, capabilities and intentions of terrorist groups enabling appropriate security measures to be put in place and reviewed.

To conclude, in the UK we have set out on an aggressive course towards ensuring that nuclear energy will be a part of our low carbon mix in the near future. This has not been without much evaluation and constructive criticism. We feel that we have adequately addressed concerns over the cost, the fear of over-relying on nuclear, and developing regulatory measures for decommissioning plants and safely dealing with

nuclear waste. We are now actively pursuing outside investment into the UK nuclear sector – and indeed welcome investment from US energy companies. While we will continue to increase research and development of renewable energies, we are confident that nuclear energy will provide a critical stop-gap to the looming energy shortage in the not-to-distant future, when we will see a staggering number of nuclear and coal plants close. The US is facing a similar situation and I believe that the panellists you are going to hear from next will provide an comprehensive analysis of the numerous pros and cons here in the US. I hope that I was able to give you some insight into the UK thinking that brought us to this point. Included in the program are some websites, which go into some more specifics on what I spoke about today. And again, thank you to the Sallan Foundation, the Environmental Law Institute and the Energy, Environmental Law and International Law Committees of the New York City Bar Association for inviting us today.