

**INTERNATIONAL CONFERENCE ON MANAGEMENT OF SPENT FUEL FROM
NUCLEAR POWER REACTORS: AN INTEGRATED APPROACH TO THE BACK END
OF THE FUEL CYCLE**

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Vienna, VIC, Board Room A, M Building

Conference Presidents Introduction

By

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- Good morning ladies and gentlemen. It gives me great pleasure to be here this week in Vienna and chairing this international conference on spent fuel from Nuclear Power Reactors
- The last conference on this topic was held in May 2010, and since then a number of challenges have happened across the world that have brought the importance of the management of spent fuel to the forefront of any nuclear energy programme..... And nothing more so than the Fukushima Dai-ichi accident in 2011.
- This has, in some cases, reshaped some countries thinking on their nuclear power programmes with early closures creeping onto their agendas. Germany is an example of this, where a planned phase out is now underway for energy generated from nuclear power. The Swiss Government, on the other hand, has taken a decision not to extend or replace their existing fleet.
- In addition, and despite the accident at Fukushima, a number of countries are powering ahead with lifetime extensions to existing power plants, together with the implementation of some highly challenging new power plant construction programmes. This construction, being planned in places like China, the United Arab Emirates and even my country, the United Kingdom, will generate spent fuel challenges in their own right.
- What is clear is that whether nuclear power is being phased out, being maintained at current levels, or undergoing expansion programmes, the management of spent fuel will be key to each country's success in their nuclear energy programme.

- Whether a closed or an open fuel cycle is chosen, a demonstrable route must be implemented for the management of the spent nuclear fuel.
- Countries considering closed fuel cycle options discuss benefits on the use of scarce resources like repositories through minimising waste volumes and radiotoxicity content. However, we also hear about the considerations for non-proliferation of special nuclear materials like Plutonium and Uranium with these cycles. For a closed fuel cycle to be viable though, reprocessing services need to be more commercially attractive. It's areas like this that R&D can play a significant role through plant improvements, waste management and step changes in technology.
- Countries considering open fuel cycle options are typically progressing on the short-term economics of the fuel cycle. This is especially the case where smaller nuclear programmes are in place and the investment required for a reprocessing facility is too great in comparison with that nations energy requirement.
- Good progress was made at the recent meeting of the IAEA Joint Convention on the safety of spent fuel management and on the safety of radioactive waste management, and this will contribute and enable the continuation of higher levels of safety management.
- In addition, the Euratom basic safety standards directive will make the focus on spent fuel even more important for newcomers to the industry and mature players alike. A key aspect is about having effective lifecycle strategies in place for the management of both spent fuel and waste.
- Within the U.S., The Blue Ribbon Commission on America's Nuclear Future was formed by the Secretary of Energy to conduct a comprehensive review of policies for managing the back end of the nuclear fuel cycle. From this a new strategy emerged including key elements focus and engagement on waste management, storage, disposal, transportation and innovation.
- In addition, the U.S. DOE have published a report on R&D investment priorities where programs have been established to support scientific excellence and technological innovation.
- A key aspect for effective spent fuel management is in developing and collecting the information required for successful delivery of the back end of the fuel cycle. This includes;

- The collection of data to support relicensing or continued operations safety assessments... This is especially important in relation to systems going decades beyond original design life;
- The collection of data to support recycling; and
- The collection of data to support high-level waste (including fuel disposal).

Knowledge management is especially important here and the sharing of data globally through accessible databases is key to achieving this. Through R&D programmes these data bases are kept up to date with validated information to assist in decision making.

- Surveillance programmes are also important in confirming that both the spent fuel and storage system are safe which in turn provides evidence to key stakeholders.
- As new enhanced safety standards are developed the focus will not only be on the reactor system of choice, but also on the fuel and associated fuel cycle. Accident Tolerant Fuels, for example, could make a significant impact on enhanced fuel safety under accident conditions. Much work is being carried out globally on the cladding and fuels which will enable further accident tolerance and understanding the behaviour of these fuels post irradiation will be key in any future decision making on their use.
- Even where a country's key stakeholders perceive nuclear power as a positive energy source, when asked what their key area of concern would be, management of spent fuel and waste is always highlighted. Deferral of disposal will have an immediate consequence for storage safety through pushing storage beyond current license lifetimes.....and so integrated approaches must be developed.
- This conference will bring a number of these key challenges here today for discussion and as such I'm so pleased to be here opening the debate on effective spent fuel management and bringing together the experience across many nations through sharing best practice.
- I'd like to welcome all of you here to Vienna and I look forward to meeting with you throughout the event. I'm convinced that you will find this conference as exiting and as thought provoking as the title suggests.....