



Nuclear Safety Post-Fukushima: Alternatives for Spent/Used Fuel

Edward Kee
Vice President

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The slides that follow are not a complete record of the presentation and discussion

The views expressed in this presentation and discussion are mine and may not be the same as those held by NERA's clients or by my colleagues

- 2010 OECD NEA Partnering Report
- 2011 ANS Report
- 2011 MIT Study on Future of Nuclear Fuel Cycle
- 2011 BRC draft report

- **“Partnering for Long-term Management of Radioactive Waste, Evolution and Current Practice in Thirteen Countries,” OECD NEA, 2010**
- **“Engage, interact and co-operate” partnership approach**
 - **Voluntarism**
 - **Right of veto for affected communities**
 - **Collaboration with local stakeholders**
 - **Community benefits packages**
 - **Formal agreements**
- **These 5 aspects were examined in: Belgium, Canada, Czech Republic, Finland, France, Hungary, Japan, Korea, Spain, Sweden, Switzerland, UK, US (WIPP & Yucca Mountain)**

- **“Report of the ANS President’s Special Committee on Used Nuclear Fuel Management Options,” 30 Jan 2011**
- **3 options for used/spent nuclear fuel management**
 - **Once-through fuel cycle with direct disposal**
 - **Limited recycling with MOX LWR fuel**
 - **Full recycling with fast reactors**
- **Issues that must be resolved in any approach**
 - **Interim (perhaps long-term) storage**
 - **Ultimate disposal**
 - **Transport**

- **“The Future of the Nuclear Fuel Cycle, an interdisciplinary MIT study,” 4 May 2011**
- **Economic factors**
 - Uranium availability (and price)
 - Nuclear power plant global fleet size
 - Fuel cycle option economics, including cost of storage
- **Options approach**
 - Long-term (i.e., 100+ yrs) storage of used nuclear fuel
 - Allows multiple future fuel cycle approaches
 - Allows time to resolve permanent disposal (of SNF or HLW)
- **Proposes multiple analyses, R&D, & demo projects**

- **“Blue Ribbon Commission on America’s Nuclear Future,”
Draft Report to DOE, 29 Jul 2011**
 - **Consent-based approach to siting facilities**
 - **New nuclear waste management organization**
 - **Access to the nuclear waste funds**
 - **Prompt efforts to develop consolidated interim storage facilities and geologic disposal facilities**
 - **Continued U.S. innovation in nuclear energy technology**
 - **Active U.S. leadership on safety, waste management, nonproliferation, and security concerns**

- **Focused on funding, politics, and government**
- **New nuclear waste organization with clear mandate and access to Nuclear Waste Fund**
- **Interim storage recognized as default option**
 - “...the only element of the back end of the fuel cycle that is currently deployed on an operational scale in the United States.”)
 - “...extended interim storage preserves options and enhances flexibility...” of any comprehensive approach
 - Consolidated storage cost lower than multiple ISFSIs
 - Consolidated storage may allow DOE to meet SNF commitment

- **Long-term interim storage is likely way forward**
 - Technology is now in use
 - Low-cost approach with fewer siting issues
 - Preserves option for later fuel cycle decisions
 - Fits with all credible nuclear power scenarios
- **Much more than ‘kicking the can down the road’**
- **Still some issues to resolve**
 - Siting - remember PFS?
 - How many? DOE interim storage facility in each state?



Contact Us

Edward Kee

Vice President
NERA – Washington DC
+1 202 370 7713
edwardkee@neracom