



U.S. DEPARTMENT OF  
**ENERGY**

**Nuclear Energy**

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# **Blue Ribbon Commission Potential Program Impacts**

**Dr. Pete Lyons**

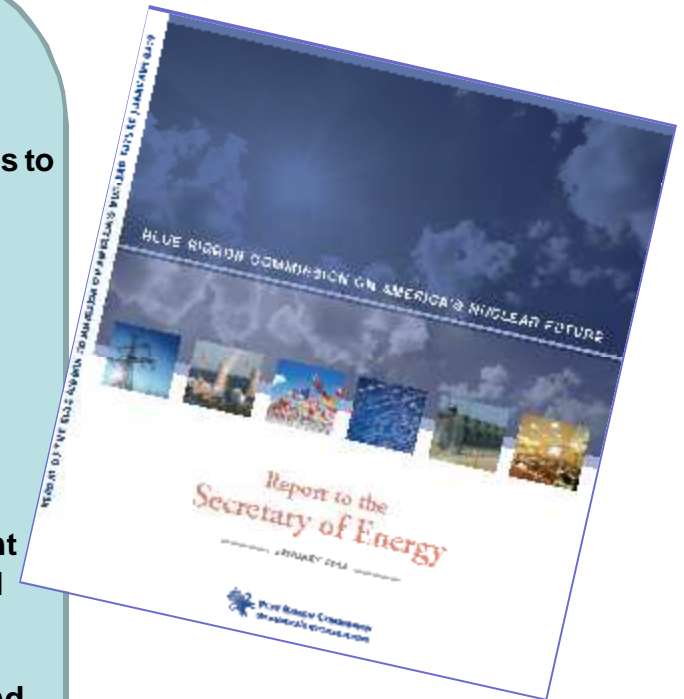
**Assistant Secretary for Nuclear Energy  
U.S. Department of Energy**

**WM2012 Conference  
Phoenix, AZ  
March 1, 2012**



# Blue Ribbon Commission Recommendations

1. A new, consent-based approach to siting future nuclear waste management facilities.
2. A new organization dedicated solely to implementing the waste management program and empowered with the authority and resources to succeed.
3. Access to the funds nuclear utility ratepayers are providing for the purpose of nuclear waste management.
4. Prompt efforts to develop one or more geologic disposal facilities.
5. Prompt efforts to develop one or more consolidated storage facilities.
6. Prompt efforts to prepare for the eventual large-scale transport of spent nuclear fuel and high-level waste to consolidated storage and disposal facilities when such facilities become available.
7. Support for continued U.S. innovation in nuclear energy technology and for workforce development.
8. Active U.S. leadership in international efforts to address safety, waste management, non-proliferation, and security concerns.





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## Secretary of Energy Dr. Steven Chu Statement on the BRC Recommendations



The Department recognizes that the BRC Report represents *“a critical step toward finding a sustainable approach to disposing used nuclear fuel and nuclear waste”*.

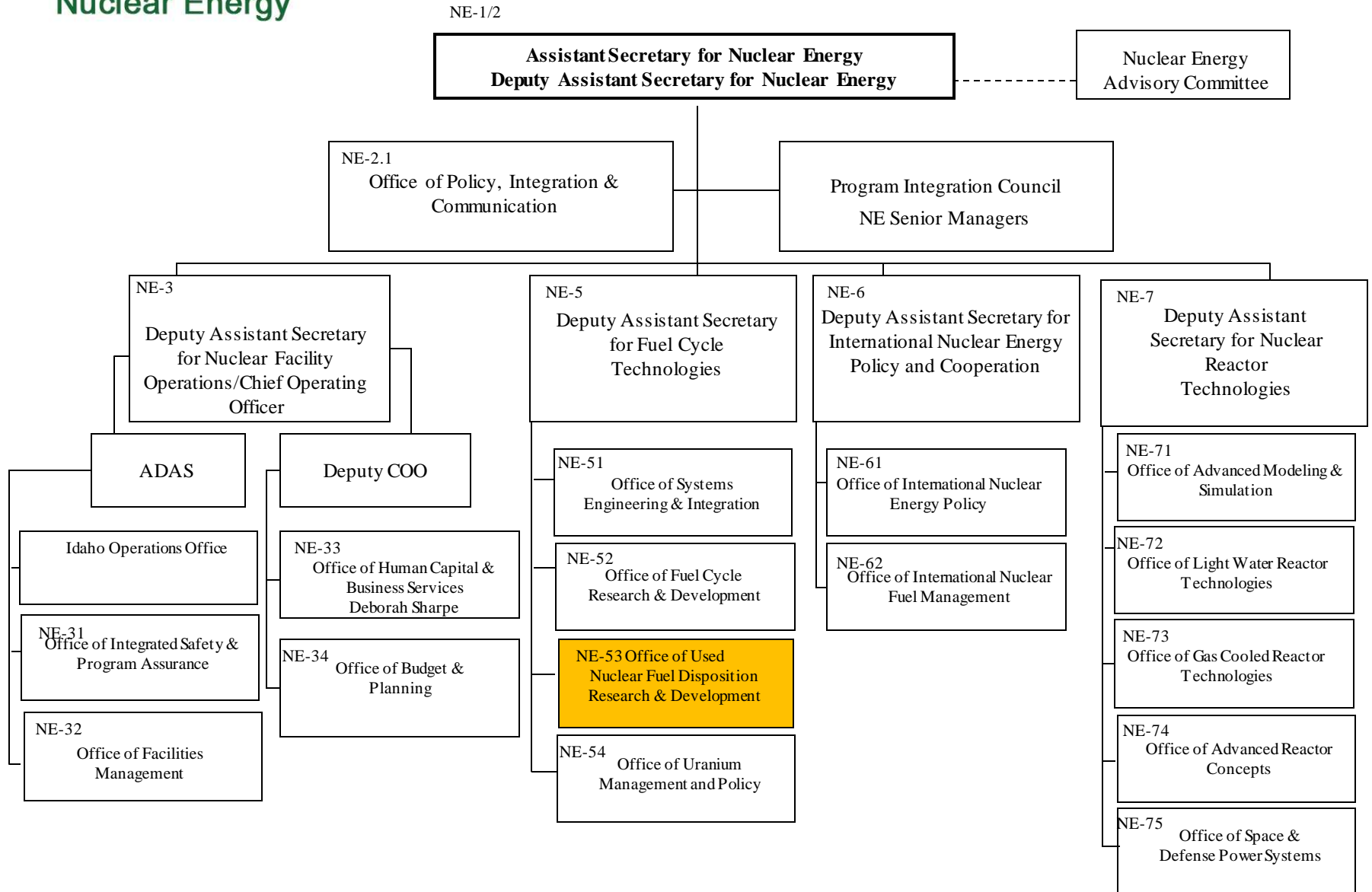
The Department acknowledges that *“the specifics of a new strategy for managing our nation’s used nuclear fuel will need to be addressed in partnership with Congress”*.

The Department *“will work in parallel to begin implementing the new strategy”* by taking sensible steps toward the implementation of near-term recommendations.



# Used Fuel Disposition Program

## Nuclear Energy

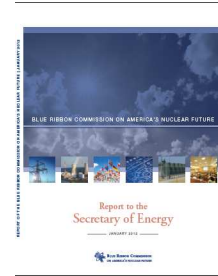




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## BRC Assessment of Current DOE-NE UFD Program (Section 7.8 Near-Term Steps)



**Confirms the importance for “DOE to keep the program moving forward through non-site specific activities, including R&D on geological media and work to design improved engineered barriers”**

**Recommends the continuation of activities currently conducted under the DOE-NE Used Nuclear Fuel Disposition Campaign**

***“Identify alternatives”***

***“R&D on transportation, storage, and disposal options for SNF from existing and future fuel cycles”***

***“Other non-site specific generic activities, such as support for and coordination with states and regional state government groups on transportation planning”***



## Current Program Objectives

### Near Term

- **Address BRC recommendations for Used Fuel Disposition**
- **Increase focus on advanced LWR fuels with enhanced accident tolerance.**
- Down select fuel cycle options for further development.

### Medium Term

- **Complete implementation plan for developing a Test and Validation Complex for extended storage of used nuclear fuel.**
- **Evaluate disposal concepts in various media.**
- Conduct science based, engineering driven research for selected fuel cycle options.

### Long Term

- **Execute Test and Validation Complex for extended storage of Used Fuel.**
- **Conduct engineering analysis of disposal site(s) for selected geologic media.**
- Demonstrate the selected fuel cycle options at engineering scale.

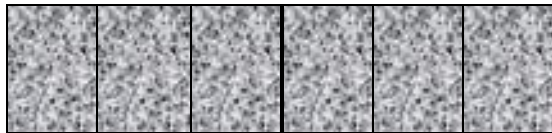


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# Building the Foundation to Support the Potential New Waste Management Organization

DOE- NE  
UFD Campaign





## FY 2012 - Activities in Storage

*(Blue items are new/expanded activities in FY12 funding provided over the President's Budget Request)*

### ■ Begin laying the ground work for evaluating consolidated storage.

- Building on previous DOE work and industry storage licensing efforts, evaluation of design concepts for consolidated storage will be initiated.
- Develop communication packages for use in interaction with potential host communities, which describe various attributes of a consolidated storage facility.



### ■ R&D to better understand potential degradation mechanisms in long term dry cask storage including:

- Continue material testing to support modeling and simulation of used fuel aging;
- Complete the identification of data gaps to support license amendments beyond 40 years for dry storage;
- Define facilities needed to conduct the required additional testing of irradiated nuclear fuel. Data with respect to high burn-up fuel is particularly needed.





## FY 2012 - Activities in Transportation

*(Blue items are new/expanded activities in FY12 funding provided over the President's Budget Request)*

- In conjunction with the R&D identified previously to support extended storage, data gathered will continue to support the licensing of transportation casks required to transport used fuel following extend periods of storage.
- Revisit the recommendations of the 2006 National Academy report on transportation of used fuel and high level radioactive waste and will prepare a report on an approach to address these recommendations, including re-engaging the regional transportation groups to understand stakeholder issues.
- Pursuant to section 180 (c) of the Nuclear Waste Policy Act, the program will finalize the policy and procedures for providing technical assistance and funds to States for training local and tribal public safety officials through whose jurisdictions the Department of Energy plans to transport used nuclear fuel or high-level waste.
- Begin conducting evaluations to improve efficiency of transportation by serving decommissioned sites. This will include evaluation of the hardware requirements, timing, and costs.





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## FY 2012 - Activities in Disposal

*(Blue items are new/expanded activities in FY12 funding provided over the President's Budget Request)*

- Continue conducting R&D on generic geological media. The lessons learned in this country and internationally in evaluating the performance of repositories in various geologic environments are valuable; however, we need a more advanced understanding of various disposal concepts in geologic media.
- Work on geologic disposal will include:
  - Initiating workshops to determine the best approaches for understanding the behavior of salt in response to heat producing radioactive waste;
  - Working with industry to initiate the development of an RD&D plan and roadmap for the borehole disposal concept;
  - Expanding work with our international partners for disposal in granite and clay rocks.



## FY 2012 - Other Strategic Near-Term Activities

*(Blue items are new/expanded activities in FY12 funding provided over the President's Budget Request)*

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- **Initiate work on standardized cask systems to enable storage, transportation, and disposal without repackaging of the used fuel including:**
    - Initiating the evaluation of transporting and disposing existing nuclear power plant storage and transportation systems;
    - Expanding the efforts already initiated on a “can-in-can” packaging concept that would allow flexibility in used fuel handling;
    - Conducting system evaluations of various used fuel packaging approaches. Work with the cask vendors and users, to evaluate possible approaches and specifications for advanced standardized packaging systems that would reduce handling of used fuel.
  - **Initiate development of models for potential partnerships to manage waste**



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## Next Steps

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- **The BRC Report will be subject to intensive Congressional Review**
    - Feb 1- House Energy and Commerce Hearing
    - Feb 2- Senate Energy and Natural Resources Hearing
    - Feb 8- House Science, Space, and Technology Hearing
    - Upcoming FY 13 Budget Hearings
  
  - **The Administration looks forward to evaluating the Commission's recommendations and proposing a broad strategy.**