



U.S. DEPARTMENT OF
ENERGY

Nuclear Energy

Used Nuclear Fuel Disposition Program

**Dr. Patrick R. Schwab, Acting Director
Office of Used Nuclear Fuel Disposition
Research and Development**

**Nuclear Waste Technical Review Board
Idaho Falls, ID
June 29, 2010**



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Future of Nuclear Energy

Nuclear Energy

“Virtually every analysis of energy supply and demand ... has concluded that nuclear energy must grow beyond the current 20% share of electricity generation in the U.S. to meet the nation’s energy and environmental goals. ”

Dr. Warren “Pete” Miller
Assistant Secretary for Nuclear Energy
November 20, 2009.





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Office of Nuclear Energy Mission

- **The primary mission of NE is to advance nuclear power as a resource capable of meeting the nation's energy, environmental, and national security needs by resolving technical, cost, safety, security and proliferation resistance issues, through research, development, and demonstrations, as appropriate.**



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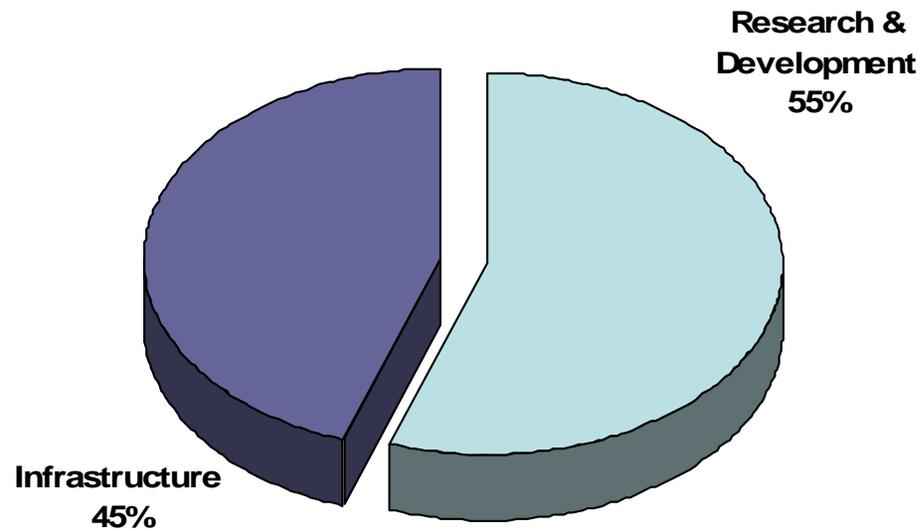


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FY2011 Budget Request

Nuclear Energy

Total: \$912,252,000





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Nuclear Energy Objectives

- 1. Improve the reliability, sustain the safety, and extend the lives of the current reactors**
- 2. Develop improvements in the affordability of new reactors**
- 3. Develop sustainable nuclear fuel cycles**
- 4. Understand and minimize the risks of nuclear proliferation and terrorism**



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Blue Ribbon Commission

- On January 29, 2010, Secretary Chu announced the formation of the Blue Ribbon Commission on America's Nuclear Future.
- The Commission will provide advice and make recommendations on issues including alternatives for the storage, processing, and disposal of civilian and defense used nuclear fuel and nuclear waste.
- Interim report July 2011.
- Final report January 2012.





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FCR&D Technical Areas

- **Separations and Waste Forms**
- **Advanced Fuels**
- **Systems Analysis and Integration**
- **Modeling and Simulation**
- **Materials Protection, Accounting, and Control for Transmutation**
- **Used Nuclear Fuel Disposition**



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UFD Mission Statement

- **The Used Fuel Disposition Campaign will identify alternatives and conduct scientific research and technology development to enable storage, transportation, and disposal of used nuclear fuel and wastes generated by existing and future nuclear fuel cycles.**



■ The Used Fuel Disposition

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FY 2011 Budget Request

Used Nuclear Fuel Disposition R&D Appropriations

FY 2010 Appropriation: \$9,124,000

FY 2011 Request: \$45,000,000

This represents an increase of almost 400%.



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UFD FY 2011 Budget Details

Nuclear Energy

Activity	Estimated Cost (\$ million)
Science Programs transferred from RW to NE	12
University research related to Used Fuel Disposition	9
RW Science Program closeout costs	8
Disposal evaluations and experiments	8
Storage and transportation evaluations and experiments	6
External interactions and collaborations	1
Used Fuel Disposition Campaign Management	1
Total	45



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Transfers of RW functions

- **Technical work from RW to NE**
- **Standard Contracts from RW to GC**
- **Fee Adequacy Report from RW to GC**
- **Litigation Support from RW to GC**
- **Records Retention from RW probably to LM, with funding from NE**



Collaboration on Storage

The Electric Power Research Institute has initiated the Extended Storage Collaboration Program.

- **Purpose of the program is to provide the technical bases to ensure safe, long-term used fuel storage and future transportability.**
- **Includes representatives from EPRI, DOE-NE, DOE-EM, NRC, cask vendors, utilities, NEI, and national laboratories.**



Used Fuel Disposition: Storage

Extend the technical basis to allow:

- **storage of LWR fuel to 100 years or more**
- **storage of high burnup LWR fuels**
- **different fuel types and waste forms**



Connecticut Yankee ISFSI



Used Fuel Disposition: Storage

- Evaluate concepts for distributed, regional, and centralized storage.
- No site-specific investigations.



Sellafield HLW Storage



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Used Fuel Disposition: Transportation

Develop the technical basis to allow safe and secure transportation of high-burnup fuels and a variety of waste forms. (To be started in FY 2011.)





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Used Fuel Disposition: Disposal

- **Geologic disposal will be required. Period.**
- **Establish the technical bases for a variety of potential disposal environments, including**
 - **Granite**
 - **Clay/Shale**
 - **Salt**
 - **Deep Boreholes**
- **No site-specific investigations.**



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Next UFD Campaign Meeting

- **The Used Fuel Disposition Campaign is having a working group meeting July 28 – 30, 2010 in Las Vegas.**
- **The NWTRB will be invited to send a representative.**



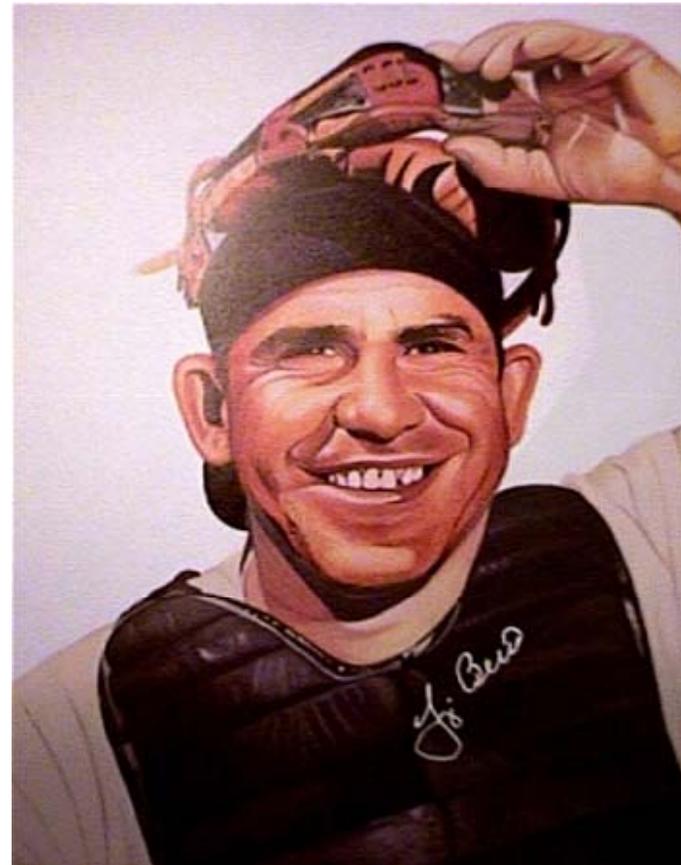
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Future of Nuclear Energy

“It ain’t over ‘til it’s over.”

Yogi Berra





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Backup Slides



Office of Nuclear Energy: New Organization

