U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY
Joint Hearing:
Subcommittee on Investigations & Oversight
Subcommittee on Energy & Environment

HEARING CHARTER

Review of the Blue Ribbon Commission on America's Nuclear Future Draft Recommendations

Thursday, October 27, 2011
10:00 a.m. to 12:00 p.m.
2318 Rayburn House Office Building

Purpose

On Thursday, October 27, 2011, at 10:00 a.m. in Room 2318 of the Rayburn House Office Building, the Committee on Science, Space, and Technology's Energy & Environment and Investigations & Oversight Subcommittees will hold a hearing titled *"Review of the Blue Ribbon Commission on America's Nuclear Future Draft Recommendations."* The purpose of this hearing is to examine the recommendations contained in the Blue Ribbon Commission on America's Nuclear Future (BRC) Draft Report to the Secretary of Energy. Additionally, the Subcommittees will consider science and technology issues associated with spent nuclear fuel management.

Witnesses

- **Mr. Jack Spencer**, Research Fellow, Nuclear Energy Policy, Heritage Foundation
- **Dr. Peter Swift**, Distinguished Member of the Technical Staff, Sandia National Laboratory
- **Dr. Roger Kasperson,** Professor and Distinguished Scientist, Clark University
- **Mr. Gary Hollis**, Chairman, Nye County Board of County Commissioners
- **Mr. Rick McLeod,** Executive Director, Savannah River Site Community Reuse Organization
- **Dr. Mark Peters,** Deputy Laboratory Director for Programs, Argonne National Laboratory

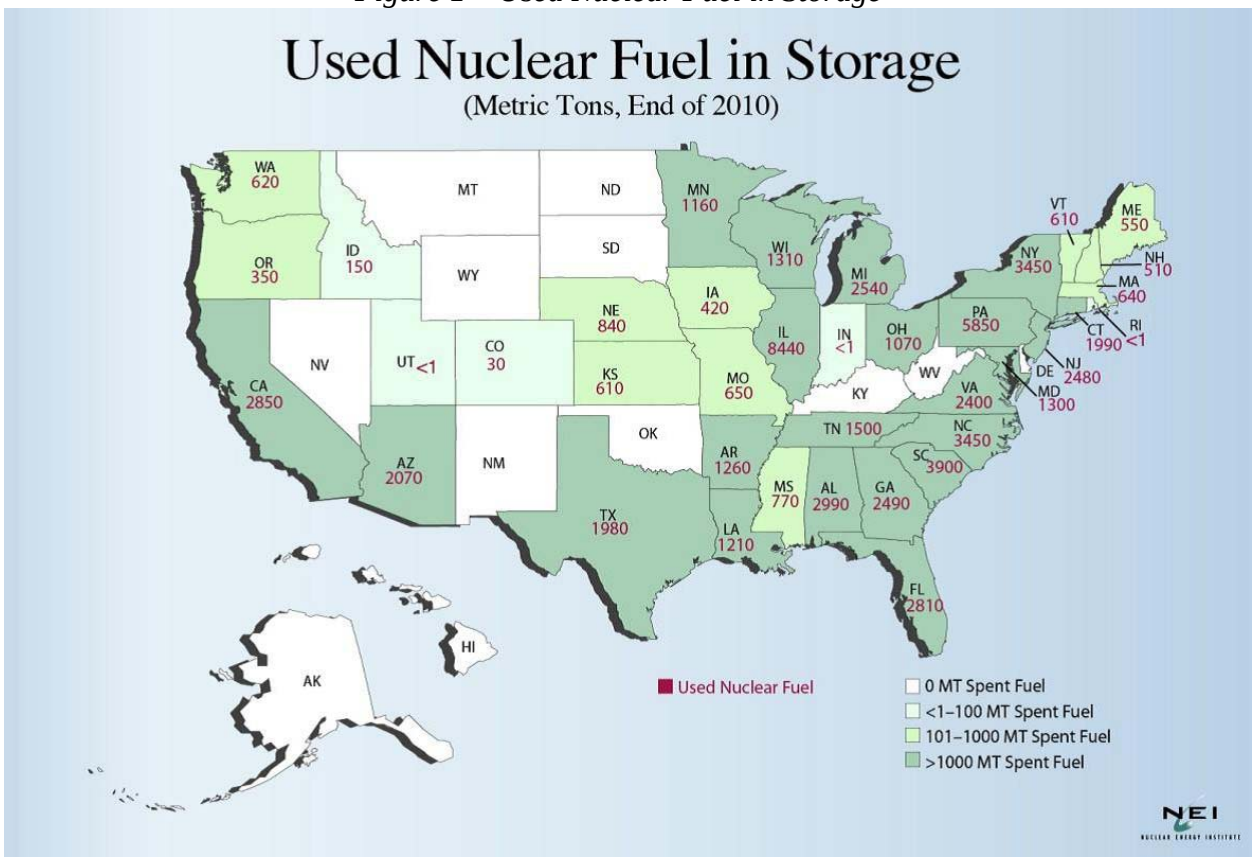
Nuclear Waste Management Policy Background

All nuclear related activity, be it related to research, commercial, military or otherwise, generates waste byproducts of varying radioactivity. These byproducts range from low-level waste such as tools, equipment, and clothing to high-level waste such as used fuel and reactor components. Under the Low-Level Radioactive Waste Policy Act, first enacted in 1980 and amended in 1985,

each state is responsible for low-level radioactive waste generated within its borders.[1] In contrast, the federal government is responsible under the Nuclear Waste Policy Act of 1982 (NWPA) for the disposal of high-level waste (as defined in 42 U.S.C. 10001).[2]

Today, 104 commercial nuclear power reactors generate approximately 20 percent of the United States electricity needs. Each reactor uses about 20 metric tons of uranium fuel per year, and collectively the industry creates 2,000 to 2,400 metric tons of spent fuel on an annual basis (one metric ton is about 2,200 pounds).[3] This spent nuclear fuel, considered high-level waste, is currently stored at the generation site in spent fuel pools (to cool the most recently used fuel rods) or in above ground dry casks.

Figure 1 – Used Nuclear Fuel in Storage[4]



[1] P.L. 96-573 and P.L. 99-240.

[2] 42 U.S.C. §10001 Section 12 - The term "high-level radioactive waste" means - (A) the highly radioactive material resulting from the reprocessing of spent nuclear fuel, including liquid waste produced directly in reprocessing and any solid material derived from such liquid waste that contains fission products in sufficient concentrations; and (B) other highly radioactive material that the Commission, consistent with existing law, determines by rule requires permanent isolation.

[3] *"Blue Ribbon Commission on America's Nuclear Future Draft Report to the Secretary of Energy,"* p. 14, July 29, 2011. Accessible at: http://brc.gov/sites/default/files/documents/brc_draft_report_29jul2011_0.pdf

[4] Nuclear Energy Institute, "Used Nuclear Fuel in Storage," 2010. Accessible at: http://www.nei.org/filefolder/Used_Nuclear_Fuel_Map_2010.jpg

In addition to storage at operating nuclear reactors, spent nuclear fuel is also currently held at nine decommissioned U.S. reactor sites throughout the country.[5] Storage of spent fuel at decommissioned sites is disproportionately expensive, estimated to be $4.5 to $8 million per year[6], as security is still necessary to guard the waste. The most notable of these sites is Maine Yankee, located in Wiscasset, ME, which stores 542 metric tons of heavy metal (MTHM). Zion reactors 1 & 2 are in the process of decommissioning the site, which when completed will store approximately 1,019 MTHM.[7] The Department of Energy (DOE) currently manages radioactive material at multiple locations in the United States, with the largest located in Hanford, Washington followed by the Savannah River Site, South Carolina, and Idaho National Laboratory.

History of the Waste Isolation Pilot Plant[8]

The Waste Isolation Pilot Plant (WIPP), located 26 miles southeast of Carlsbad, New Mexico, currently serves as the world's only deep geological repository for long-lived nuclear waste. WIPP is operated by DOE and only accepts radioactive waste from defense programs. WIPP does not receive high-level waste, but material that contains radioactive transuranic elements such as plutonium.

In 1974, local officials sought consideration of the site, prompting the selection of WIPP for exploratory work. In 1979, Congress passed a law stipulating WIPP would not serve as permanent disposal of spent fuel. However, the Congressional action did not assuage the State of New Mexico's full concerns regarding the projects, which filed suit against the Federal Government to halt construction of the facility. Once the lawsuit was resolved, DOE continued moving forward with WIPP. In 1987, DOE announced the facility would open the following year; however, ongoing difficulties and litigation led to further delays. EPA certified WIPP met the regulatory thresholds for disposal of waste and the facility received its first shipment of waste in 1999. As of June 2010, WIPP "had received 8,641 shipments for a total waste volume of approximately 68,200 cubic meters."[9]

History of a Deep Geological Repository

Establishment of a deep geological repository has long been the most agreed upon method by numerous credible scientific bodies, such as the National Academies of Science, to permanently dispose of radioactive waste. Detailed study and consideration of this approach began in the 1970s, when the U.S. government undertook a serious review of geological repositories, focusing on three specific sites: Yucca Mountain, Nevada; Hanford, Washington; and Deaf Smith County, Texas.

[5] A list of decommissioned sites and quantities of stranded fuel can be found in the BRC Draft Report, p. 40.
[6] BRC Draft Report, p. 41.
[7] BRC Draft Report, p. 40.
[8] Condensed from BRC Draft Report, p. 21
[9] Ibid.

Enactment of the NWPA in 1982 furthered this effort by providing a statutory framework to govern the disposal of U.S. high-level waste.[10] The Act directed the Federal government to assume ownership of civilian high-level nuclear waste and a one- mil (or one-tenth of one cent) per kilowatt-hour fee of nuclear generated electricity was mandated to provide funding for development of the eventual site.[11] Since no long-term storage facilities were available, it was expected that existing locations where nuclear waste was stored would continue to store that waste until a more permanent solution became available.[12]

To advance study and development of a permanent disposal solution, the Act established the Office of Civilian Radioactive Waste Management (OCRWM) within DOE and tasked it with the study of potential storage locations, taking into account criteria including but not limited to geology, seismic risk, proximity to water supplies, and nearby populations. The Secretary of Energy was required to provide to the President a list with a minimum of five sites that met these criteria.[13]

In 1987, DOE ultimately judged Yucca Mountain, located approximately 100 miles from Las Vegas, to have the "best overall prospects for being considered a suitable repository site,"[14] and the NWPA was amended to focus long-term storage facility efforts at the site.

Additional key dates in the development of a permanent geological repository in the United States[15] include:

- **1957:** the first recommendation for the disposal of radioactive waste in a permanent geologic repository.
- **1982:** Congress passes the Nuclear Waste Policy Act of 1983 (NWPA), which centralized the long-term management of nuclear waste and mandated the construction of a safe and permanent nuclear waste repository.
- **1984:** DOE publishes a draft environmental assessment of the Yucca Mountain Project.
- **1985:** DOE's Office of Civilian Radioactive Waste Management (OCRWM), submits the "Mission Plan for the Civilian Radioactive Waste Management Program" which sets overall goals, objectives, and strategy to dispose of spent nuclear fuel and high-level waste.

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[10] P.L. 97-425.

[11] Although no long-term facility has been opened, this fee is still required by law to be paid by civilian reactor operators. Some utilities have successfully sued the federal government to reclaim the money paid so far since no waste storage facility has been opened.

[12] Current spent fuel storage locations can be found at http://www.nrc.gov/waste/spent-fuel-storage/locations.html.

[13] See *Supra* note 10.

[14] Hearing titled "Nuclear Waste Program" Committee on Energy and Natural Resources, U.S. Senate, June 29, 1987. Available at: www.archive.org/stream/nuclearwasteprog04unit/nuclearwasteprog04unit_djvu.txt

[15] A more detailed timeline and description of events can be found in the Majority Staff Report of the House Science, Space, and Technology Committee, *"Yucca Mountain: The Administration's Impact on U.S. Nuclear Waste Management Policy*," June 2011. Accessible at: http://science.house.gov/sites/republicans.science.house.gov/files/documents/Letters/Yucca%20Mountain%20-%20The%20Administration%27s%20Impact%20on%20U.S.%20Nuclear%20Waste%20Management%20Policy%20FULL.pdf

- **1986:** DOE issues a report on multi-attribute utility analysis to rank possible sites on pre-closure and post-closure technical guidelines.
- **1987:**, Congress amends the NWPA by designating Yucca Mountain as the only site to be considered as a repository.
- **December 1998:** DOE publishes five volumes assessing the viability of the Yucca Mountain Project.
- **February 2002:** OCWRM releases *"Yucca Mountain Science and Engineering Report: Technical Information Supporting Site Recommendation Consideration."*
- **February 2002:** DOE publishes 15-chapter Environmental Impact States required by the NWPA in accordance with the National Environmental Policy Act.
- **April, July 2002:** Congress reaffirms the selection of Yucca Mountain as a high-level radioactive waste repository.
- **May 2002:** Secretary of Energy Abraham recommends Yucca Mountain as the site of the high-level waste repository. President Bush formally recommends Yucca Mountain to Congress**.**
- **June 3, 2008:** DOE submits the License Application for a High-Level Waste Geologic Repository at Yucca Mountain (License Application) to the U.S. Nuclear Regulatory Commission (NRC).

Recent Events Relating to a High-Level Waste Repository

In order to proceed with construction of Yucca Mountain, the NRC must first approve the DOE License Application for the site. This approval is contingent upon the site meeting detailed scientific and technical criteria defined in NRC regulations that govern permanent disposal of nuclear waste.

In February 2010, DOE announced its intention to withdraw the License Application for Yucca Mountain. Additionally, the Administration declared it would dismantle OCRWM by the end of the fiscal year. While concurrently establishing the BRC, DOE formally filed the motion on March 3, 2010 with the NRC to withdraw the License Application. The NRC's Atomic Safety and Licensing Board (ASLB) rejected DOE's Motion to Withdraw on June 29, 2010, stating DOE did not have the authority under the NWPA to withdraw the License Application. The ASLB decision was appealed to the full Commission and on September 9, 2011, the Commission issued a decision stating that the Commission was evenly divided on the appeal and directed the ASLB to complete all necessary and appropriate case management activities.[16]

Until further regulatory or legal action is taken to permit the License Application to move forward or be withdrawn, it remains pending before the Commission. As a result, no long-term nuclear waste management program is currently in place. The Administration has stated its intention to wait for the BRC Final Report to inform future policy decisions regarding the direction of America's nuclear waste management policy.

[16] U.S. Nuclear Regulatory Commission, Memorandum and Order CLI-11-07, Docket No. 63-001-HLW, ASLBP 09-892-HLW-CAB04, September 9, 2011.

Background on the Blue Ribbon Commission's Draft Report

On January 29, 2010, President Obama issued an Executive Order (Appendix A) directing the Secretary of Energy to establish a Blue Ribbon Commission on America's Nuclear Future to "conduct a comprehensive review of policies for managing the back of the nuclear fuel cycle, including all alternatives for the storage, processing, and disposal of civilian and defense used nuclear fuel and nuclear waste."[17] The BRC was directed not to consider a number of issues in its report. Specifically, the BRC did not "rende[r] an opinion on the suitability of the Yucca Mountain site or on the request to withdraw the license application for Yucca Mountain" or identify any sites to conduct activity related to a waste management system.[18]

The 15 member Commission operates under the authority outlined in the Advisory Committee Charter.[19] The BRC held numerous open meetings and site visits in an effort to operate the BRC in an "open and inclusive manner"[20] The BRC and its subcommittees held 26 public meetings and 11 site visits[21] prior to the release of the Draft Report, and received over 2000 public comments from a wide variety of stakeholders and interested parties on all aspects considered under the BRC's Charter.[22]

Blue Ribbon Commission Subcommittee Structure and Recommendations

The BRC was divided into three subcommittees: Reactor and Fuel Cycle Technology (RFCT), Transportation & Storage (TS), and Disposal.

The Reactor and Fuel Cycle Technology Subcommittee was formed to consider issues relating to the "evaluation of existing fuel cycle technologies and R&D programs."[23] The Subcommittee specifically evaluated the options using criteria to include "cost, safety, resource utilization and sustainability, and the promotion of nuclear nonproliferation and counter-terrorism goals."[24] The RFCT Subcommittee submitted its draft report on June 20, 2011, centering on four key recommendations:

> (1) "provide stable, long-term (Research, Development, and Demonstration) RD&D support for advanced reactor and fuel cycle technologies," to achieve both near-term safety improvements and performance of existing light-water reactor technology and longer-term efforts to identify potential "game-changing" nuclear technologies and systems;

[17] The White House, *"Memorandum for the Secretary of Energy*: *Blue Ribbon Commission on America's Nuclear Future*," January 29. 2010. Accessible at: http://brc.gov/index.php?q=page/executive-order
[18] BRC Draft Report, p. vi.
[19] The Advisory Committee Charter is Appendix B and the full list of membership and subcommittee assignments is Appendix C.
[20] Blue Ribbon Commission on America's Nuclear Future, *"About the Commission."*Accessible at: http://brc.gov/index.php?q=page/about-commission
[21] The full list of meetings and events can be found at: http://brc.gov/index.php?q=calendar/
[22] Public Comments can be found at: http://brc.gov/index.php?q=comments
[23] Blue Ribbon Commission on America's Nuclear Future Advisory Committee Charter. Accessible at: http://brc.gov/index.php?q=page/charter
[24] Ibid.

(2) coordination of energy policies and programs across the federal government and more federal support for energy-related research, development, demonstration, and deployment;
(3) additional RD&D funding for the NRC to "accelerate a regulatory framework and supporting anticipatory research for novel components of advanced nuclear energy systems;" and
(4) continued international leadership to address global non-proliferation concerns and improve safety and security of nuclear facilities and materials worldwide.[25]

The Transportation and Storage Subcommittee addressed the question, "[s]hould the United States change the way in which it is storing used nuclear fuel and high level waste while one or more final disposal locations are established?"[26] The TS Subcommittee issued its report on May 31, 2011, focusing on seven key recommendations:

(1) expeditiously establishing consolidated interim storage facilities;
(2) continued research on current storage technologies;
(3) removal of spent fuel stored at decommissioned reactor sites;
(4) establishment of a new quasi-governmental waste management organization;
(5) a "science-based, consent-based, transparent, phased, and adaptive" approach to "develop and implement all aspects of the spent fuel and waste management system;"
(6) continued coordination for the transport of spent fuel and high-level waste; and
(7) restructuring the manner in which the Nuclear Waste Fund (NWF) is accessible.[27]

The Disposal Subcommittee addressed five issues contained in the BRC Charter:

- Options for permanent disposal of used fuel and/or high-level nuclear waste, including deep geological disposal;
- Options to make legal and commercial arrangements for the management of used nuclear fuel and nuclear waste in a manner that takes the current and potential full fuel cycles into account;
- Options for decision-making processes for management and disposal that are flexible, adaptive, and responsive; options to ensure that decisions on management of used nuclear fuel and nuclear waste are open and transparent, with broad participation; and
- The possible need for additional legislation or amendments to existing laws, including the Nuclear Waste Policy Act of 1982, as amended.[28]

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[25] Blue Ribbon Commission on America's Nuclear Future, "*Reactor and Fuel Cycle Technology Subcommittee Report to the Full Commission*," June 20, 2011. Accessible at: http://brc.gov/sites/default/files/documents/rfct_fullreport_rev20june11.pdf

[26] Blue Ribbon Commission on America's Nuclear Future "Transportation & Storage." Accessible at: http://brc.gov/index.php?q=subcommittee/transportation-storage

[27] Blue Ribbon Commission on America's Nuclear Future, "*Transportation and Storage Subcommittee Report to the Full Commission,*" May 31, 2011. Accessible at: http://brc.gov/sites/default/files/documents/draft_ts_report_6-1-11.pdf

The Disposal Subcommittee also made seven recommendations to the BRC:

> (1) moving forward with the development of one or more permanent deep geological facilities for permanent disposal of high-level nuclear waste;
> (2) establishment of a new single-purpose organization to handle the transportation, storage, and disposal of nuclear waste;
> (3) access of that organization to the balance of the NWF;
> (4) a new approach to site and develop nuclear waste management and disposal facilities in the United States that is consent-based, transparent, phased, adaptive, and standards- and science-based;
> (5) joint coordination of regulatory responsibilities and safety standards between the U.S. Nuclear Regulatory Commission and the U.S. Environmental Protection Agency;
> (6) involvement of key stakeholders, including all affected levels of government, and providing the respective stakeholders direct authority over aspects of regulation, permitting, and operations in order to protect interests and generate confidence; and
> (7) retaining the Nuclear Waste Technical Review Board for independent technical advice and review.[29]

Blue Ribbon Commission Draft Report

On July 29, 2011, the BRC released the Draft Report for public comment. The public comment period concludes on October 31, 2011. The Draft Report incorporates the recommendations of the three subcommittees and provides additional policy context and commentary. The Draft Report notes, "[t]he Commission was asked to recommend a better strategy for managing the back end of the nuclear fuel cycle in the United States. We have concluded that the central flaw or gap in the U.S. program to date has been its failure, despite decades of effort, to develop a permanent disposal capability as required by the NWPA."[30]

Specifically, the BRC Draft Report identifies the following high-level recommendations:[31]

> "The Blue Ribbon Commission concludes that the United States needs a new, integrated strategy for managing the back end of the nuclear fuel cycle, including, in particular, a new approach to siting nuclear waste storage and disposal facilities. The strategy we recommend has seven key elements:
>
> 1. An approach to siting and developing nuclear waste management and disposal facilities in the United States that is adaptive, staged, consent-based, transparent, and standards- and science-based.

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[28] Blue Ribbon Commission on America's Nuclear Future, *"Disposal Subcommittee Report to the Full Commission Draft,"* June 1, 2011. Accessible at http://brc.gov/sites/default/files/documents/draft_disposal_report_06-01-11.pdf
[29] Ibid.
[30] BRC Draft Report p. 30
[31] BRC Draft Report p. xv

2. A new, single-purpose organization to develop and implement a focused, integrated program for the transportation, storage, and disposal of nuclear waste in the United States.
3. Assured access by the nuclear waste management program to the balance in the Nuclear Waste Fund and to the revenues generated by annual nuclear waste fee payments.
4. Prompt efforts to develop, as expeditiously as possible, one or more permanent deep geological facilities for the safe disposal of spent fuel and high-level nuclear waste.
5. Prompt efforts to develop, as expeditiously as possible, one or more consolidated interim storage facilities as part of an integrated, comprehensive plan for managing the back end of the nuclear fuel cycle.
6. Stable, long-term support for research, development, and demonstration (RD&D) on advanced reactor and fuel cycle technologies that have the potential to offer substantial benefits relative to currently available technologies and for related workforce needs and skills development.
7. International leadership to address global non-proliferation concerns and improve the safety and security of nuclear facilities and materials worldwide."

Additional Findings and Recommendations are included in Appendix D.

Legislative Requirements, Near-Term Actions, and Legal Considerations of the BRC Draft Report

The BRC Draft Report notes that in order to fully implement many of the recommendations, Congress must take legislative action. Many of the required changes in law would necessitate changing the NWPA. The most significant recommendation would require the NWPA to authorize a "new consent-based process to be used for selecting and evaluating sites and licensing consolidated storage and disposal facilities in the future."[32] Other proposed legislative changes include "authorizing consolidated interim storage facilities, establishing a new waste management organization, ensuring access to dedicated funding, and promoting international engagement to support safe and secure waste management."[33] The Draft Report did not provide any legislative text for the necessary statutory changes.

While key recommendations will require specific legislative action, the BRC suggests some actions can be accomplished with near-term, non-legislative steps. Those areas include modifying the manner in which the Nuclear Waste Fee is collected, preparing to implement consolidated storage, continuing the development of regulations associated with transporting spent fuel, "keep[ing] a repository program moving forward through valuable, non-site specific activities,"[34] and "develop[ing] a RD&D plan and roadmap for taking the borehole disposal concept to the point of a licensed demonstration."[35]

[32] BRC Draft Report, p. 5.
[33] Ibid.
[34] BRC Draft Report, p. 134.
[35] Ibid.

To help identify which near-term actions can be taken within the bounds of existing law, BRC staff requested a "Legal Analysis of Commission Recommendations for Near-Term Actions."[36] The Legal Analysis considered the recommendations relating to the initial development of consolidated interim storage facilities, the modification of the order in which DOE receives spent commercial fuel, and how to alter the timing and method in which the nuclear waste fee is paid.

The analysis concluded that these recommendations can be implemented under existing law. The document suggests a legal issue may arise should DOE formally designate a Monitored Retrievable Storage (MRS) facility[37] to serve as consolidated interim storage for nuclear waste.[38] Further, legal authority exists to alter the order in which DOE would accept spent nuclear fuel, permitting DOE to first accept spent fuel currently located at decommissioned reactor sites.

The NWF currently holds a balance of approximately $25 billion; however it is currently difficult to access and utilize the NWF.[39] The Legal Analysis identifies certain near-term actions in which the NWF could be made available for funding activities associated with the creation of a consolidated storage facility.[40]

Public Comment Period and Final Report

Between the release of the Draft Report and the conclusion of the public comment period, the BRC will hold five regional public meetings to specifically solicit feedback and public comment on the Draft Report. The BRC will review public comments and deliver the final report to the Secretary of Energy on or before January 29, 2012.

[36] Van Ness Feldman, "*Legal Analysis of Commission Recommendations for Near-Term Actions*," to Blue Ribbon Commission on America's Nuclear Future, July 29, 2011, revised October 11, 2011. Accessible at http://brc.gov/sites/default/files/documents/20111011_legal_authorities_memo_revised_final_clean_1.pdf

[37] The NWPA provides DOE authority to site, construct and operate a Monitored Retrievable Storage (MRS) facility. A MRS facility could store spent fuel and high-level waste, but would be designed to permit for continuous monitoring, management and retrieval of the materials, rather than permanent storage. In 1987, Congress amended the NWPA prohibiting construction of a MRS facility prior to the licensing of a permanent repository.

[38] Van Ness Feldman, p. 3.

[39] A detailed explanation of how the Nuclear Waste Fund is administered and budgetary restrictions can be found in the BRC Draft Report, Chapter 8.

[40] Van Ness Feldman, p. 13.

Appendix A

Executive Order Creating the Blue Ribbon Commission on America's Nuclear Energy Future

THE WHITE HOUSE Office of the Press Secretary
For Immediate Release January 29, 2010
January 29, 2010

MEMORANDUM FOR THE SECRETARY OF ENERGY
SUBJECT: Blue Ribbon Commission on America's Nuclear Future

Expanding our Nation's capacity to generate clean nuclearenergy is crucial to our ability to combat climate change, enhance energy security, and increase economic prosperity. My Administration is undertaking substantial steps to expand the safe, secure, and responsible use of nuclear energy. These efforts are critical to accomplishing many of my Administration's most significant goals.

An important part of a sound, comprehensive, and long-term domestic nuclear energy strategy is a well-considered policy for managing used nuclear fuel and other aspects of the back end of the nuclear fuel cycle. Yet the Nation's approach, developed more than 20 years ago, to managing materials derived from nuclear activities, including nuclear fuel and nuclear waste, has not proven effective. Fortunately, over the past two decades scientists and engineers in our country and abroad have learned a great deal about effective strategies for managing nuclear material. My Administration is committed to using this advanced knowledge to meet the Government's obligation to dispose of our Nation's used nuclear material.

Accordingly, I request that you establish a Blue Ribbon Commission on America's Nuclear Future (Commission) and appoint its members. Those members should include recognized representatives and experts from a range of disciplines and with a range of perspectives, and may include participation of appropriate Federal officials. The Commission's business should be conducted in an open and transparent manner.

The Commission should conduct a comprehensive review of policies for managing the back end of the nuclear fuel cycle, including all alternatives for the storage, processing, and disposal of civilian and defense used nuclear fuel and nuclear waste. This review should include an evaluation of advanced fuel cycle technologies that would optimize energy recovery, resource utilization, and the minimization of materials derived from nuclear activities in a manner consistent with U.S. nonproliferation goals.

In performing its functions, the Commission should consider abroad range of technological and policy alternatives, and should analyze the scientific, environmental, budgetary, economic, financial, and management issues, among others, surrounding each alternative it considers. Where appropriate, the Commission may also identify potential statutory changes.

The Commission should provide an interim report to you within18 months of the date of this memorandum, and that report should be made available for public comment. The Commission should provide a final report to you within 24 months of the date of this memorandum. The

Department of Energy shall provide funding and administrative support for the Commission, as you determine appropriate, so that it can complete its functions within these time periods. Additionally, all executive departments and agencies shall provide such information and assistance to the Commission as you or the Commission may request for purposes of carrying out the Commission's functions, to the extent permitted by law. Nothing in this memorandum shall be construed to require the disclosure of classified, proprietary, law enforcement sensitive, or other information protected under governing law. This memorandum shall be implemented consistent with applicable law and subject to the availability of appropriations. This memorandum is not intended to, and does not, create any right or benefit, substantive or procedural, enforceable at law or inequity by any party against the United States, its departments, agencies, or entities, its officers, employees, or agents, or any other person.

You are hereby authorized and directed to publish this memorandum in the Federal Register.

BARACK OBAMA

# # #

Appendix B

Blue Ribbon Commission Charter

Blue Ribbon Commission on America's Nuclear Future
U.S. Department of Energy

Advisory Committee Charter

1. **Committee's Official Designation**. Blue Ribbon Commission on America's Nuclear Future (the Commission).

2. **Authority**. The Commission is being established in accordance with the provisions of the Federal Advisory Committee Act (FACA), as amended, 5 U.S.C. App. 2, and as directed by the President's Memorandum for the Secretary of Energy dated January 20, 2010: Blue Ribbon Commission on America's Nuclear Future. This charter establishes the Commission under the authority of the U.S. Department of Energy (DOE).

3. **Objectives and Scope of Activities.** The Secretary of Energy, acting at the direction of the President, is establishing the Commission to conduct a comprehensive review of policies for managing the back end of the nuclear fuel cycle, including all alternatives for the storage, processing, and disposal of civilian and defense used nuclear fuel, high-level waste, and materials derived from nuclear activities. Specifically, the Commission will provide advice, evaluate alternatives, and make recommendations for a new plan to address these issues, including:
   The Commission will produce a draft report to the Secretary and a final report within the time frames contained in paragraph 4.

a. Evaluation of existing fuel cycle technologies and R&D programs. Criteria for evaluation should include cost, safety, resource utilization and sustainability, and the promotion of nuclear nonproliferation and counter-terrorism goals.

b. Options for safe storage of used nuclear fuel while final disposition pathways are selected and deployed;

c. Options for permanent disposal of used fuel and/or high-level nuclear waste, including deep geological disposal;

d. Options to make legal and commercial arrangements for the management of used nuclear fuel and nuclear waste in a manner that takes the current and potential full fuel cycles into account;

e. Options for decision-making processes for management and disposal that are flexible, adptive, and responsive;

f. Options to ensure that decisions on management of used nuclear fuel and nuclear waste are open and transparent, with broad participation;

g. The possible need for additional legislation or amendments to existing laws, including the Nuclear Waste Policy Act of 1982, as amended; and

h. Any such additional matters as the Secretary determines to be appropriate for consideration.

4. **Description of Duties**. The duties of the Commission are solely advisory and are as stated in Paragraph 3 above.
   A draft report shall be submitted within 18 months of the date of the Presidential memorandum directing establishment of this Commission; a final report shall be submitted within 24 months of the date of that memorandum. The reports shall include:

a. Consideration of a wide range of technological and policy alternatives, and should analyze the scientific, environmental, budgetary, financial, and management issues, among others, surrounding each alternative it considers. The reports will also include a set of recommendations regarding policy and management, and any advisable changes in law.

b. Recommendations on the fees currently being charged to nuclear energy ratepayers and the recommended disposition of the available balances consistent with the recommendations of the Commission regarding the management of used nuclear fuel; and

c. Such other matters as the Secretary determines to be appropriate.

5. **Official to Whom the Committee Reports**. The Commission reports to the Secretary of Energy.

6. **Agency Responsible for Providing the Necessary Support**. DOE will be responsible for financial and administrative support. Within DOE, this support will be provided by the Office of the Assistant Secretary for Nuclear Energy or other Departmental element as required. The Commission will draw on the expertise of other federal agencies as appropriate.

7. **Estimated Annual Operating Cost and Staff Years**. The estimated annual operating cost of direct support to, including travel of, the Commission and its subcommittees is $5,000,000 and requires approximately 8.0 full-time employees.

8. **Designated Federal Officer**. A full-time DOE employee, appointed in accordance with agency procedures, will serve as the Designated Federal Officer (DFO). The DFO will approve or call all of the Commission and subcommittee meetings, approve all meeting agendas, attend all Commission and subcommittee meetings, adjourn any meeting when the DFO determines adjournment to be in the public interest. Subcommittee directors who are full-time Department of Energy employees, as appointed by the DFO, may serve as DFOs for subcommittee meetings.

9. **Estimated Number and Frequency of Meetings**. The Commission is expected to meet as frequently as needed and approved by the DFO, but not less than twice a year.

   The Commission will hold open meetings unless the Secretary of Energy, or his designee, determines that a meeting or a portion of a meeting may be closed to the public as permitted by law. Interested persons may attend meetings of, and file comments with, the Commission, and, within time constraints and Commission procedures, may appear before the Commission.

   Members of the Commission serve without compensation. However, each appointed non-Federal member may be reimbursed for per diem and travel expenses incurred while attending Commission meetings in accordance with the Federal Travel Regulations.

10. **Duration and Termination**. The Commission is subject to biennial review and will terminate 24 months from the date of the Presidential memorandum discussed above, unless, prior to that time, the charter is renewed in accordance with Section 14 of the FACA.

11. **Membership and Designation**. Commission members shall be experts in their respective fields and appointed as special Government employees based on their knowledge and expertise of the topics expected to be addressed by the Commission, or representatives of entities including, among others, research facilities, academic and policy-centered institutions, industry, labor organizations, environmental organizations, and others, should the Commission's task require such representation. Members shall be appointed by the Secretary of Energy. The approximate number of Commission members will be 15 persons. The Chair or Co-Chairs shall be appointed by the Secretary of Energy.

12. **Subcommittees**.

a. To facilitate functioning of the Commission, both standing and ad hoc subcommittees may be formed.

b. The objectives of the subcommittees are to undertake fact-finding and analysis on specific topics and to provide appropriate information and recommendations to the Commission.

c. The Secretary or his designee, in consultation with the Chair or Co-Chairs, will appoint members of subcommittees. Members from outside the Commission may be appointed to any subcommittee to assure the expertise necessary to conduct subcommittee business.

d. The Secretary or his designee, in consultation with the Chair or co-Chairs will appoint Subcommittees.

e. The DOE Committee Management Officer (CMO) will be notified upon establishment of each subcommittee.

13. **Recordkeeping**. The records of the Commission and any subcommittee shall be handled in accordance with General Records Schedule 26, Item 2 and approved agency records disposition schedule. These records shall be available for public inspection and copying, subject to the Freedom of Information Act, 5 U.S.C. 552.

14. **Filing Date**.

Date filed with Congress: March 1, 2010
Carol A. Matthews
Committee Management Officer

Appendix C

List of Blue Ribbon Commission Members and Subcommittee Structure[41]

- **Lee Hamilton** - Co-Chair
- **Brent Scowcroft** - Co-Chair
- **Mark Ayers** - President, Building & Construction Trades Department, AFL-CIO
- **Vicky A. Bailey** - Principal, Anderson Stratton Enterprises, LLC
- **Albert Carnesale** - Chancellor Emeritus and Professor, UCLA
- **Pete V. Domenici** - Senior Fellow, Bipartisan Policy Center; former U.S. Senator (R-NM)
- **Susan Eisenhower** - President, Eisenhower Group, Inc.
- **Sen. Chuck Hagel** - Distinguished Professor, Georgetown University; Former U.S. Senator (R-NE)
- **Jonathan Lash** – President, World Resources Institute
- **Allison Macfarlane** - Associate Professor of Environmental Science and Policy, George Mason University
- **Richard A. Meserve** - President, Carnegie Institution for Science and Senior Of Counsel, Covington & Burling LLP; former Chairman, U.S. Nuclear Regulatory Commission
- **Ernie Moniz** - Professor of Physics and Cecil & Ida Green Distinguished Professor, Massachusetts Institute of Technology
- **Per Peterson** - Professor and Chair, Department of Nuclear Engineering, University of California - Berkeley
- **John Rowe** - Chairman and Chief Executive Officer, Exelon Corporation
- **Phil Sharp** - President, Resources for the Future

Reactor and Fuel Cycle Technology

Co-Chair(s):	Ex Officio(s):
Per Peterson	Brent Scowcroft
Pete V. Domenici	Lee Hamilton

Albert Carnesale
Susan Eisenhower
Allison Macfarlane
Richard A. Meserve
Ernie Moniz
Phil Sharp

Transportation and Storage

[41] For full biographies see: http://brc.gov/index.php?q=commission-members

Co-Chair(s):	Ex Officio(s):
Phil Sharp	Brent Scowcroft
Richard A. Meserve	Lee Hamilton

Mark Ayers
Vicky A. Bailey
Albert Carnesale
Pete V. Domenici
Ernie Moniz
John Rowe

Disposal

Co—Chair(s:)	Ex officio(s):
Chuck Hagel	Brent Scowcroft
Jonathan Lash	Lee Hamilton

Mark Ayers
Vicky A. Bailey
Susan Eisenhower
Allison Macfarlane
Per Peterson
John Rowe

Appendix D

ADDITIONAL FINDINGS AND RECOMMENDATIONS[42]

- The current division of regulatory responsibilities for long-term repository performance between the U S. Nuclear Regulatory Commission (NRC) and the U.S. Environmental Protection Agency is appropriate and should continue. The two agencies should develop new, site-independent safety standards in a formally coordinated joint process that actively engages and solicits input from all relevant constituencies.
- The jurisdictions of safety and health agencies should be clarified and aligned. New site-independent safety standards should be developed by the safety and health agencies responsible for protecting nuclear workers through a coordinated joint process that actively engages and solicits input from all relevant constituencies. Efforts to support uniform levels of safety and health in the nuclear industry should be undertaken with federal, industry, and joint labor–management leadership. Safety and health practices in the nuclear construction industry should provide a model for other activities in the nuclear industry.
- The roles, responsibilities, and authorities of local, state, and tribal governments (with respect to facility siting and other aspects of nuclear waste disposal) must be an element of the negotiation between the federal government and the other affected units of government in establishing a disposal facility. All affected levels of government (i.e., local, state, tribal, etc.) must have, at a minimum, a meaningful consultative role in important decisions; additionally, states and tribes should retain—or where appropriate, be delegated—direct authority over aspects of regulation, permitting, and operations where oversight below the federal level can be exercised effectively and in a way that is helpful in protecting the interests and gaining the confidence of affected communities and citizens. At the same time, local, state, and tribal governments have responsibilities to work productively with the federal government to help advance the national interest.
- Recognizing the substantial lead-times that may be required in opening one or more consolidated storage facilities, dispersed interim storage of substantial quantities of spent fuel at existing reactor sites can be expected to continue for some time. The Commission sees no unmanageable safety or security risks associated with current methods of storage (dry or wet) at existing sites in the United States. However, to ensure that all near-term forms of storage meet high standards of safety and security for the multi-decade-long time periods that they are likely to be in use, active research should continue on issues such as degradation phenomena, vulnerability to sabotage and terrorism, full-scale cask testing, and other matters.
- The Commission recommends that the National Academy of Sciences (NAS) be tasked with carrying out an assessment of the lessons learned from Fukushima and their implications for conclusions reached in earlier NAS studies on the safety and security of spent fuel and high-level waste storage arrangements.
- Spent fuel currently being stored at shutdown reactor sites should be “first in line” for transfer to consolidated interim storage.
- Although regulatory standards for different types of facilities will differ, the new organization should be responsible for developing consolidated interim storage and permanent disposal facilities and should apply the same principles of decision making to

[42] BRC Draft Report, p. xv

all aspects of the waste management program (i.e., science-based, consent-based, transparent, phased, and adaptive).

- Siting processes for future waste management facilities should include a flexible and substantial incentive program.
- The current system of standards and regulations governing the transport of spent fuel and other nuclear materials has functioned well, and the safety record for past shipments of these types of materials is excellent. However, planning and coordination for the transport of spent fuel and high-level waste is complex and should commence at the very start of a project to develop consolidated storage capacity.
- The federal government should take steps to resolve ongoing litigation between the Department of Energy and the utilities regarding fuel acceptance as expeditiously as possible.
- A well-designed federal RD&D program will enable the United States to retain a global leadership position in nuclear technology innovation. Public and private RD&D efforts should focus on two distinct areas of opportunity:
    - Near-term improvements in the safety and performance of existing light-water reactor technology, as currently deployed in the United States and elsewhere as part of a once-through fuel cycle, and in the technologies available for storing and disposing of spent nuclear fuel and high-level waste.
    - Longer-term efforts to advance potential "game-changing" nuclear technologies and systems that could achieve very large benefits across multiple evaluation criteria compared to current technologies and systems.
- A portion of federal nuclear energy RD&D resources should be directed to the NRC to accelerate a regulatory framework and supporting anticipatory research for novel components of advanced nuclear energy systems. An increased degree of confidence that new systems can be successfully licensed is important for lowering barriers to commercial investment.