

Questions for the Record for the Blue Ribbon Commission

Hearing to receive testimony on the final report of the Blue Ribbon Commission on America's Nuclear Future Senate Energy and Natural Resources Committee—February 2, 2012

From Senator Bingaman:

Adequacy of the nuclear waste fee

The Department of Energy says it has spent about \$7.5 billion from the Nuclear Waste Fund in the past 29 years, most of which has been spent on Yucca Mountain.

The program the Commission is proposing appears to be considerably more expensive than the Yucca Mountain-only program. The Commission is proposing, in addition to a geologic repository, one or more interim storage facilities, more generous incentive payments to host states and communities, more shipments to move spent fuel from reactors to interim storage and then to a repository, more financial assistance to states and tribes for transportation planning, and the cost of a new waste management organization.

At the same time, the Commission says that it is confident that its recommendations can be implemented using the existing nuclear waste fee.

1. Does that mean that the one mil per kilowatt-hour fee is sufficient to pay for the proposed program or will the fee need to be increased to ensure full-cost recovery for the expanded program?

The BRC makes no determination as to the adequacy of the current level of the nuclear waste fee. Depending on a number of factors affecting the needs of the program in the long term, the waste fee may need to be increased or even decreased if necessary to ensure full cost recovery as determined by the Secretary. The BRC notes that the existing nuclear waste fee generates approximately \$750 million per year, and that any realistic program activity to implement the BRC's recommendations in the short term will not likely need additional funding.

2. The Secretary of Energy currently has authority to raise or lower the fee, but has never used it. Assuming that the fee might need to be adjusted someday, who should have the authority to adjust it? If responsibility for implementing the program is transferred to a new government corporation, should the corporation have that authority, or should it remain with the Secretary? What role, if any, should Congress have in approving a fee increase?

Under current law, the Secretary of Energy is required to make adjustments to the fee, as necessary, to ensure recovery of the full costs of managing and disposing of commercial spent nuclear fuel. Giving authority to review and approve fee increases to an independent organization with suitable expertise and staff would enhance confidence that the increases are just and reasonable and are not simply the result of ineffective use of the program’s resources. In 1984, DOE’s Advisory Panel on Alternative Means of Financing and Managing Radioactive Waste Management Facilities (also known as the AMFM Panel) recommended that a “Waste Fund Oversight Commission” be established for the specific purpose of ensuring that NWF fees are being used cost-effectively and to approve or disapprove proposed changes to the level of the fee. In its 2001 update of the AMFM study, DOE instead recommended that the Federal Energy Regulatory Commission (FERC) serve this purpose.

Since the FERC already exists and deals with rate issues, the Blue Ribbon Commission recommends that it be used for this function. As it determines how to carry out this new responsibility, we encourage FERC to consider the development of a “joint board” with state commissioners as provided for under Section 209 of the Federal Power Act.

The BRC believes that requiring congressional action for approving nuclear waste fee changes could frustrate the objective of timely adjustments to ensure that neither too little nor too much is being collected, and could add to the belief by many stakeholders that the process was being unduly influenced by political considerations. Although the Nuclear Waste Policy Act of 1982 provides for a one-house veto of any fee change, a subsequent court decision ruled that the one-house veto provision is unconstitutional and that fee changes proposed by the Secretary will automatically go into effect unless Congress passes legislation to prevent it. In its 2010 Fee determination letter, the DOE stated: “The Eleventh Circuit in *Alabama Power* struck the ‘unless’ clause from the fee adjustment statutory provision as violative of the Supreme Court decision in *INS v. Chadha*, 462 U.S.919 (1983). See *Alabama Power Co. v U.S. Department of Energy*, 307F. 3d 1300 (2002). As a result, the statute that remains reads ‘the adjusted fee proposed by the Secretary shall be effective after a period of 90 days of continuous session have elapsed following the receipt of such transmittal [to Congress],’ while the clause ‘unless during such 90-day period either House of Congress adopts a resolution disapproving the Secretary’s proposed adjustment...’ was invalidated.”

3. Should the utilities be expected to pay more if the program is restructured?

Yes, if lifetime costs of the program increase as a result of the restructuring. The Commission does not recommend a change to the full-cost-recovery principle that was established in the Nuclear Waste Policy Act and the contracts with utilities. Certainly it will cost something to implement a successful U.S. waste management program; however, trying to implement a flawed program that is not working could

be even more costly

Authority to change the timing of fee collections

The Nuclear Waste Policy Act expressly require nuclear utilities, through the waste contracts, to pay to the Secretary of Energy a fee of one mill per kilowatt-hour on all electricity generated by nuclear power and sold on or after April 7, 1983, and it expressly requires the Secretary to deposit those fees in the Nuclear Waste Fund in the Treasury.

The Commission proposes that the Secretary allow the utilities to pay all or part of those fees to a “third-party financial institution,” and asserts that the Secretary has the authority to do so under existing law.

4. Where in the Nuclear Waste Policy Act or other law is the Secretary given authority to allow payment of fees to a third-party financial institution, rather than to the Secretary for immediate deposit into the Treasury?

During the course of its investigation, the BRC asked outside legal counsel to examine this question. Their legal analysis of BRC recommendations for near-term actions has been submitted to the Committee.

Page 9 of this analysis states, “Section 302(a) of the Nuclear Waste Policy Act does not prescribe a specific method of collection of the nuclear waste fee. Rather, it gives the Secretary authority to establish procedures for the collection and the payment of the fees. This section gives the DOE broad discretion to select the method of collection and payment of the fee and a clear legal basis for prescribing a method that differs from the current methods, if DOE chooses to do so. There is nothing elsewhere in the NWPA that prohibits the Secretary from changing the current process of fee collection and payment, so long as contract-holders agree to the change. Moreover, there is long-standing administrative precedent under the Standard Contract for providing various options for structuring payment and collection of the fee.”

The analysis also points out that the Secretary is required to deposit funds in the NWF only upon “realization” of those funds. “Realize” is not defined in the NWPA, but the definition and interpretation under other laws (e.g. the Internal Revenue Code) support a conclusion that payment of nuclear waste fees into a third party trust account would not constitute a “realization” by the Secretary because the Secretary has not received or taken possession of the funds, and the funds in the trust account would be subject to a restriction precluding their disbursement except for specified purposes. For these reasons, fees deposited directly into an irrevocable trust account under the BRC’s proposal would not be “realized” by the federal government unless and until they are drawn down in accordance with the specific restrictions contained in the trust instrument.

The analysis concludes, “...we believe that there is a sound legal basis for concluding that the Secretary’s broad statutory authority under the NWPA to prescribe procedures for the payment and collection of the nuclear waste fee permits him to postpone the time of collection of a portion of the fee. That authority, together with the Act’s specific direction respecting timing of deposit of fees in the Treasury, permits the Secretary to require use of an irrevocable trust account to safeguard the government’s interest in ultimately receiving the fees.”

We also note that our proposal to delay collection of part of the fee is a modified version of an approach proposed by the Secretary of Energy in 1998 as part of a litigation settlement concept. Specifically, DOE proposed to offer to amend its contracts with utilities to allow utilities to retain the portion of the 1 mill/kwh fee that exceeded the annual appropriations level, to be paid (with interest) later. In proposing this approach, the Secretary of Energy stated that this “can be accomplished promptly within [DOE’s] current authority.” We have attached a copy of the May 18, 1998 letter from Secretary of Energy Federico Peña to Alfred William Dahlberg, Chairman, President, and Chief Executive Officer of Southern Company, making this offer.

5. Is the Commission’s proposal consistent with the express requirements of the Nuclear Waste Policy Act?

Based on the legal analysis we received, the BRC is confident that our recommendations are consistent with the requirements of the Nuclear Waste Policy Act.

Reclassification of waste fees

6. At the hearing, Rep. Hamilton stated that he and General Scowcroft had written to the Administration, requesting that appropriations language be included in the FY 2013 budget to offset the fees collected against funds appropriated to the waste program. Please provide the Committee with a copy of the letter.

A copy of this letter has been provided to the Committee.

Congressional oversight

The Committee recommends that the unspent balance of the Nuclear Waste Fund, which is estimated to be nearly \$27 billion, be transferred to the new nuclear waste management organization “so that it can carry out its civilian nuclear waste obligations independent of annual appropriations (but with congressional oversight).” It recommends that Congress transfer the entire balance of the Fund to the new organization on “a defined schedule ... over a reasonable future time period,” and yet still maintain rigorous oversight over the program.

7. Specifically, how does the Commission envision that Congress should exercise control over the new organization's use of the Fund if the Fund is no longer subject to appropriation?

If responsibility for implementing the program is transferred to a new government corporation, along with greater budget control and assured access to the NWF, the new organization must also be subject to independent financial oversight to ensure that public resources are being used appropriately in support of waste program objectives. Beyond a board of directors, most proposals provide for additional oversight in the form of independent audits of the new organization's finances along with reviews by the Government Accountability Office (GAO). The NWPA already requires an annual GAO audit of the activities of DOE's OCRWM, as well as a comprehensive annual report by OCRWM on its activities and expenditures and an annual report to Congress from the Secretary of the Treasury (after consultation with the Secretary of Energy) on the financial condition and operations of the NWF. These requirements could simply be extended to the new organization (except that the organization would not report to Treasury through DOE). A mechanism for Congress to review regular updates of the organization's mission plan and budget would provide an additional vehicle for overseeing the organization's use of funds.

If desired, legislation establishing the new organization could include an expedited process similar to that provided by the Congressional Review Act through which Congress could veto a proposed mission plan revision by passing a joint resolution, subject to presidential veto. This approach would allow substantial congressional control over changes in program direction and funding without requiring that legislation be passed to approve such changes whenever they are needed (or requiring approval to expend funds or otherwise proceed on a year to year basis).

Site selection process

The original Nuclear Waste Policy Act required the Secretary of Energy and the President to consider "regional distribution of repositories" in selecting repository sites and prohibited siting an interim storage facility in any state being considered for a repository, so that a single state would not have to host multiple disposal facilities.

8. Should the new waste management organization be required to consider "regional distribution"?

Consideration of "regional distribution" would likely make sense for the new waste management organization, since a regional distribution of facilities could potentially optimize the operation of the waste management enterprise. However the BRC does not believe that regional distribution of facilities should be mandated nor that any state should be prohibited from choosing to host multiple facilities – provided that

the consent-based process has been used in siting those facilities.

From Senator Cantwell:

1. Ability of the Yucca Mountain facility to accept nuclear defense waste from Hanford

As the Blue Ribbon Commission Report mentions, the Hanford site currently is storing 2,480 metric tons of spent nuclear fuel and approximately 53 million gallons of high level waste—approximately 90 percent of the nation’s total high level defense waste. Some of this waste was expected to be transferred to the Yucca Mountain facility for geological disposal when it was completed.

- a. Can you please provide an approximate estimate of how much of Hanford’s low-level waste and high-level waste at Hanford could be disposed at the Yucca Mountain facility if it were ever completed? Please take into consideration the national need to find disposal sites for both military waste and commercial spent fuel waste and any other relevant factors such as varying levels of radiation, safety risk, and storage requirements.

The Nuclear Waste Policy Act, as amended, prohibits the U.S. Nuclear Regulatory Commission from approving the emplacement of more than 70,000 MTHM (metric tons of heavy metal) into the first national repository until a second repository is in operation [Section 114(d)].

In 1985, the DOE published a report that required the Secretary of Energy to recommend to the President whether defense high-level radioactive waste should be disposed of in a geologic repository along with commercial spent nuclear fuel. That report provided the basis, in part, for the President’s determination that defense high-level radioactive waste should be disposed of in a geologic repository. Given that determination, DOE decided to allocate 10 percent of the capacity of the first repository (or ~7,000 MTHM) for the disposal of DOE spent nuclear fuel (2,333 MTHM) and high-level radioactive waste (4,667 MTHM).

The DOE’s 2008 report to Congress on the need for a second repository concluded that the “inventories of commercial and Federal Government SNF and HLW in the United States are projected to exceed 70,000 MTHM by 2010, therefore additional repository capacity is needed.” Based on a range of alternative configurations for a repository at Yucca Mountain, the report concluded that “those studies provide confidence that a repository at Yucca Mountain has the capacity to handle all of the DOE SNF and HLW and the projected inventory of commercial SNF assuming operating life extensions for all of the existing commercial nuclear power reactors.”

Some lower-level wastes such as Greater-Than-Class-C waste and Special-Performance-Assessment-Required wastes were included in an addendum (Inventory Module 2) of the final environmental impact statement for Yucca

Mountain (DOE/EIS-0250; Final Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada February 2002, Appendix A - Inventory and Characteristics of Spent Nuclear Fuel, High-Level Radioactive Waste, and Other Materials), but are not part of the initial 70,000 MTHM plans. Low-level wastes, suitable for surface and/or shallow land burial are not to be emplaced at Yucca Mountain.

- b. Can you please help us understand how the 56 million gallons of radioactive and chemical waste that is expected to be vitrified at Hanford's Waste Treatment Plant beginning in 2019 compares in volume to the commercial spent fuel that was planned to be disposed at the Yucca Mountain facility? Can Hanford's vitrified waste be stored in the same way and proximity as commercial spent fuel? Are there additional safety, engineering, and licensing concerns for storing Hanford's defense waste as compared to commercial spent fuel in the context of the Yucca Mountain Facility?

The BRC did not perform any detailed analysis of the defense wastes, and cannot provide insights about the technical differences affecting disposal of the defense wastes versus the commercial wastes. In submitting a license application to the U.S. Nuclear Regulatory Commission for Yucca Mountain, the DOE presumably believed there were no technical barriers for safely placing the contemplated quantities and types of defense and commercial wastes together in Yucca Mountain. However, the NRC would ultimately need to determine whether or not the DOE's design would comply with regulatory standards.

2. Ability of the Waste Isolation Pilot Plant (WIPP) to accept nuclear defense waste from Hanford

Waste retrievability and reversibility have historically been major limiting factors in the siting and cost of proposed waste disposal facilities. Yet the high level waste at the Hanford site is scheduled to be vitrified in the Waste Treatment Plant beginning in 2019, a process that will render materials in high level waste both stable and unrecoverable for future commercial or nuclear purposes. In addition, the Waste Isolation Pilot Plant (WIPP) seems to have high potential storage capacity and considerable geologic advantages over other sites. In the light of these facts, I would appreciate your thoughts on the following questions:

- a. Given that 5,106 cubic meters of Hanford waste have already been shipped to WIPP for geologic disposal, is there any technical barrier to disposal of additional volumes of vitrified high level waste, spent nuclear fuel, and other wastes from Hanford at the WIPP facility? Could the facility potentially accommodate higher

levels of both contact-handled and remote-handled wastes?

The BRC was directed not to investigate any specific locations or sites for geologic disposal or other nuclear facilities and therefore cannot comment on the barriers to additional disposal at the WIPP facility.

- b. Considering that WIPP has now been operated successfully for over a decade now, what barriers prevent the facility from being expanded beyond its current maximum of 175,500 cubic meters of defense-generated transuranic (TRU) waste?

The BRC was directed not to investigate any specific locations or sites for geologic disposal or other nuclear facilities and therefore cannot comment on the barriers to additional disposal at the WIPP facility.

- c. What advantages or disadvantages do you see in using WIPP to dispose of Hanford waste in terms of cost, safety, and timing?

Because the BRC did not evaluate any specific sites for waste disposal, we are unable to discuss the advantages or disadvantages of using WIPP to dispose of Hanford waste.

- d. Under the Land Withdrawal Act, does the Department of Energy have the authority to transfer larger quantities of defense wastes, including spent nuclear fuel and vitrified high level wastes, from Hanford to WIPP within the current limits of WIPP's license? If not, what authority would be necessary?

Section 12 of the Waste Isolation Pilot Plant Land Withdrawal Act states that, "The Secretary shall not transport high-level radioactive waste or spent nuclear fuel to WIPP or emplace or dispose of such waste or fuel at WIPP."

3. Hanford Waste Characterization

There seems to be significant confusion and apparent inconsistencies about the classification of nuclear waste at Hanford. There are a number of different units and categories to characterize the waste.

The BRC report states that the Hanford Reservation stores "by far the largest quantity of DOE's SNF inventory" as well as most of the 90 million gallons of DOE's high-level waste. The report characterizes the Hanford nuclear waste inventory in the following manner:

	Spent Nuclear Fuel	High-Level Waste
Defense	~2,172 MTHM	
Non-Defense	~309 MTHM	
Total DOE Canisters	~3,500	~9,700

- a. Could you provide more details about what each category includes and how to characterize the waste at Hanford?

The values in the above chart are for the DOE total – and not for the Hanford site. The Hanford values for spent nuclear fuel for defense and non-defense purposes are ~2,102 MTHM and ~27 MTHM respectively. Defense related spent fuel includes fuels used to generate plutonium and other useful materials for weapons production, while non-defense spent fuel includes fuels utilized for research, commercial or other civilian applications. Wastes at Hanford that require, or might require, deep geologic disposal fit into five general categories: DOE spent nuclear fuel, high-level radioactive waste, surplus weapons-usable plutonium, commercial Greater-Than-Class-C waste, and DOE Special-Performance-Assessment-Required waste.

We have included a paper that was written for us by Savannah River National Laboratory entitled, “U.S. Radioactive Waste Inventory and Characteristics Related to Potential Future Nuclear Energy Systems”, which may prove helpful. Any additional inventory information should be obtained from the Department of Energy’s Office of Environmental Management.

- b. Can the BRC also please provide a breakout of the quantities and types of spent nuclear fuel, high-level wastes, and other defense and non-defense nuclear wastes found at Hanford?

The most up-to-date information regarding the inventories of high-level waste across the DOE complex can be found at the Department of Energy’s Office of Environmental Management.

From Senator Murkowski:

1. We have heard a fair amount about Sweden’s consent-based approach in developing its nuclear waste repository. My understanding, however, is that the two municipalities that competed to host the repository have existing nuclear facilities within their jurisdiction

and as a result the local population was already supportive of nuclear in general, while other municipalities in Sweden that did not have nuclear facilities were not supportive of hosting a waste repository. This poses the question of whether we are more likely to achieve consent-based acceptance from a state and local unit of government that has existing nuclear facilities.

- a. Did you run into similar public sentiment in the other countries you looked at?

Similar public sentiment around existing nuclear facilities did exist in Finland and Sweden – and did contribute to successful siting of geologic repositories in those countries. However, other consent-based programs in Canada, France, and Spain, which all are in various stages of the siting process, have yet to show that pre-existing public sentiment regarding existing nuclear facilities factors into the success of their respective programs. In general, all of the countries the BRC visited stressed that several other elements were critical in establishing a foundation for public trust and support for siting nuclear facilities, including:

- **A clear and understandable legal framework**
 - **An opt-out option for the local affected community, up to a certain point in the process**
 - **The availability of financing for local governments and citizen organizations for conducting their own analyses of the site and siting issues**
 - **Compensation for allowing the investigation and characterization of the proposed site**
 - **A concerted effort to promote knowledge and awareness of the nuclear waste issue and plans for addressing it through mechanisms such as:**
 - **Seminars, study visits, and reviews conducted by the local government**
 - **Information to and consultation with local inhabitants**
 - **Socioeconomic studies and evaluations of impacts on local businesses**
 - **Openness and transparency among and within the implementing organization, the national government, local governments, and the public.**
- b. Are there potentially viable geologic sites in the United States near existing nuclear facilities where a repository would have public support?

Since 1954, when the Atomic Energy Commission (AEC) initiated the search for a deep geologic repository, more than 60 regions, areas, or sites involving

nine different rock types have been investigated. Given there are 104 operating reactors and several DOE nuclear facilities spread across the country, it is likely that favorable geology does indeed overlap existing nuclear facilities. However, because the BRC was instructed not to examine the suitability of specific sites, we cannot comment on which sites offer suitable geology for disposal and have a potential for public support based on their proximity to existing facilities.

From Senator Risch:

1. Idaho is among a number of states with high level waste that was created on-site by the federal government and we also house spent nuclear fuel from Three-Mile Island and West Valley in New York. You recommend creating a new entity to manage waste and disposal repositories, but the report does not provide details for how defense waste at sites like INL should be handled. How should defense wastes be treated and what entity should be responsible for it?

The BRC heard comments from several states that host DOE defense waste in support of leaving responsibility for defense waste disposal with DOE. These states generally agreed with the proposal in the Commission's draft report to establish a new organization to manage civilian wastes, but believe the government can more effectively meet its national security obligations and cleanup commitments if responsibility for defense waste disposal remains with DOE. The Commission also heard from interested parties, such as NEI, who provided credible arguments for why the original commingling decision should be sustained. Whatever one's view of the pros and cons of the current policy, a decision to move responsibility for defense wastes to a new organization (versus leaving that responsibility with DOE) would have major implications for the scope of responsibility for the new organization, as well as for key questions of funding, governance, and Congressional oversight.

The BRC was not in a position to comprehensively assess the implications of any actions that might affect DOE's compliance with its cleanup agreements, and we did not have the time or the resources necessary to thoroughly evaluate the many factors that must be considered by the Administration and Congress in making such a determination. The Commission urged the Administration to launch an immediate review of the implications of leaving responsibility for disposal of defense waste and other DOE-owned waste with DOE versus moving it to a new waste management organization. This review should include an assessment of issues associated with the disposition of DOE-owned wastes from non-defense sources (e.g. a portion of the high-level waste now stored at West Valley, New York, and a variety of wastes now in storage at INL such as damaged fuel from the Three Mile Island Unit 2 reactor). The implementation of other BRC recommendations, however, should not wait for the commingling issue to be resolved.

2. What path forward do you see for development of new nuclear power in the United States? Without Yucca moving forward, it will certainly be decades before another site is selected and vetted and without a plan for a repository where does that leave new nuclear projects?

The BRC believes a range of 15 to 20 years is appropriate for the waste management organization to accomplish new site identification and characterization and to conduct the licensing process for a geologic repository. While the BRC made no recommendations about the appropriate role of nuclear power in the nation's (or the world's) future energy supply mix, their final report does note that the successful management of spent nuclear fuel has long been viewed as necessary if nuclear power is going to remain a viable energy option. Laws in several states that put a moratorium on new nuclear plant construction until certain waste management conditions have been met, together with the NRC's Waste Confidence findings, create the most direct linkage between progress on nuclear waste disposal and the future prospects of the domestic nuclear power industry.

In 2010 the NRC issued revisions to the agency's waste confidence findings. The revisions expressed the NRC's confidence that: (1) the nation's SNF can be safely stored for at least 60 years beyond the licensed life of any reactor and (2) that sufficient repository capacity will be available when necessary (though the NRC did not specify an anticipated timeframe). The NRC also made clear, however, that by revising its earlier waste confidence findings it did not intend to signal that it was endorsing the indefinite storage of spent fuel at reactor sites.

On February 17, 2011, the Natural Resources Defense Council filed a petition for review with the United States Court of Appeals for the DC Circuit challenging the NRC's most recent waste confidence rule. The states of New Jersey, New York, Vermont, and Connecticut have also challenged the rule.

3. In your report, you suggest a number of incentives that communities could be eligible for if they were willing to be a site for a deep geological repository or a consolidated storage facility. How do you define "community"?

A community could be a village, town, city, county, or some collection of those – depending on local circumstances.

4. The \$15 billion that has been spent on Yucca Mountain is money that ratepayers and taxpayers will never get back. In addition, counties surrounding the project have repeatedly said that they want the project to move forward. Do you think the licensing process for Yucca Mountain should move forward so that the project can begin receiving waste so we can prove to the American people that the process can be completed and move our country's nuclear future forward?

Because the BRC was directed by the Secretary of Energy not to consider Yucca Mountain, the Commission has no official position on that site. The BRC has not passed judgment on whether the Yucca Mountain project should or should not be abandoned. What the BRC has recommended is a strategy that can succeed regardless of the fate of the Yucca Mountain project.

As you have noted, the Yucca Mountain project may indeed have support from several surrounding counties. However, it does not have support from a majority of its state or federal delegations. The BRC describes a consent-based process as one in which all affected levels of government must have, at a minimum, a meaningful consultative role in important decisions, and we believe that a good gauge of consent would be the willingness of the affected units of government – the host states, tribes, and local communities – to enter into legally binding agreements with the facility operator, where these agreements enable states, tribes, or communities to have confidence that they can protect the interests of their citizens.