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CONGRESSIONAL TESTIMONY

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**Committee on Science, Space, and Technology's Energy & Environment and
Investigations & Oversight Subcommittees**

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**“Review of the Blue Ribbon Commission on America’s Nuclear Future Draft
Recommendations”**

Chairman Broun, Ranking Member Harris, and Members of the Subcommittee: My name is Jack Spencer. I am the Research Fellow for Nuclear Energy Policy at The Heritage Foundation. The views I express in this testimony are my own, and should not be construed as representing any official position of The Heritage Foundation.

Thank you for inviting me to testify before the Energy & Environment and Investigations & Oversight subcommittees regarding the very important draft recommendations of the Blue Ribbon Commission on America’s Nuclear Future.

As we sit here today there are approximately 440 commercial nuclear reactors operating around the world. One hundred and four of them are operating in this country alone. With the exception of a few highly publicized and, I might add, often misunderstood accidents, these reactors have operated safely, cleanly, and to the benefit of society.

This is not to suggest that no problems have ever arisen as the accident in Fukushima, Japan makes abundantly clear. It is merely to acknowledge the good track record of nuclear power.

Strong, predictable policy is needed for nuclear expansion

Nuclear energy is among America's least expensive electricity sources, emits nothing into the atmosphere, and has a safety record that includes no injuries, much less fatalities. Despite these facts, no new plants have been ordered in the U.S. for three decades.

Given what we know about nuclear energy, there must be some underlying problems that would make investment in this proven technology so scarce. Indeed, today, despite all of the benefits of nuclear power, the industry insists that it will not build new plants without backing from the U.S. taxpayer.

Providing taxpayer support has been the approach of most politicians in recent years. They recognize that nuclear energy has many benefits, and to show their support they propose subsidies. In fact, looking at most of the proposals in recent years, one might conclude that Washington thinks that it can subsidize nuclear energy into commercial viability. Essentially, doing so was the basic premise behind the Energy Policy Act of 2005 (EPACT) proposals. That legislation put forth a series of subsidies to build five or so nuclear plants. That was supposed to help the industry get off the ground so that they could begin privately building plants. While the legislation instigated a series of permit applications to build new plants and even site work at two locations, it has not brought about the advertised nuclear renaissance. Indeed, since the 2005 law passed, quite the opposite has occurred.

Instead of helping the nuclear industry to reestablish itself in the marketplace, the law has merely led to a proliferation of requests for additional taxpayer support. Since EPACT 2005, Congress has introduced a virtual parade of legislation to broaden the federal government's support for the nuclear industry. These proposals would increase capital subsidies, use taxpayer money for such activities as workforce development and manufacturing improvements, empower the Department of Energy to decide which technologies should move forward, and create mandates that essentially dictate that nuclear power is used.

One of the basic problems with using subsidies to promote an industry is that it allows both industry and government to ignore the underlying problems, from a business or government standpoint, that give rise to the need for subsidies to begin with. This perpetuates those structural issues and creates a cycle where industry becomes dependent on federal government—and that is where the nuclear industry is today.

I believe that this dependence is not a financial one. Commercial nuclear reactors and the businesses that support them operate profitably in the United States, largely subsidy free, despite an enormous and growing regulatory burden and an organized anti-nuclear opposition. Instead, the U.S. nuclear industry depends on the U.S. government for

strong, predictable, and rational policies that govern how the industry operates. It is the lack of these policies that increase the financial risk of new nuclear investment and drives the pursuit of subsidies to counter it.

This dearth of policy fall into two major categories: nuclear waste management and disposal and an antiquated, unpredictable regulatory approach. The Blue Ribbon Commission on America's Nuclear Future attempts to address one of these problems: nuclear waste.

Reforming spent nuclear fuel management and disposal

Despite growing political and public support for nuclear power, progress toward actually building any new plants has been a struggle. While the blame for this stagnation often goes to inefficient government subsidy programs, the real problem lies in why those subsidies are necessary to begin with. Chief among these structural problems is the nation's incoherent nuclear waste policy. Ultimately, the lack of a pathway to waste disposal creates substantial unpredictability for nuclear investors. That risk must be offset to allow investment to move forward.

This was a problem prior to the Obama Administration. The federal government was legally obliged, according to the Nuclear Waste Policy Act (NWPA) of 1982, as amended, to begin collecting nuclear waste in 1998. Despite collecting approximately \$30 billion (fees plus interest) from electricity ratepayers and spending nearly \$15 billion (ratepayer and taxpayer funds), it has not collected one atom of nuclear waste. The one bright spot was the progress on Yucca Mountain made by President George W. Bush's Department of Energy (DOE).

The Obama Administration's anti-Yucca policy destroyed this progress. It ignored existing statute, such as the NWPA and the Yucca Mountain Development Act of 2002, which stated clearly that Yucca Mountain shall be the location of the nation's nuclear materials repository. It unilaterally requested the withdrawal of the DOE's permit application for Yucca to the Nuclear Regulatory Commission (NRC). Questions over the legality of this policy are currently under review by the courts.

Meanwhile, in October 2010, former advisor to Senator Harry Reid and current NRC Chairman Gregory Jaczko ordered a stop to all Yucca-related NRC activities. He argued that his authority to close out the Yucca program was derived from President Obama's 2011 budget request. The problem is that neither the House nor the Senate had passed that proposed budget. Further, the order ignores the fact that the NRC's own Atomic Licensing and Safety Board agreed unanimously that the DOE lacked authority to withdraw the application. The chairman's actions were so unusual and contentious that fellow NRC commissioners were compelled to publicly denounce the decision.

The combination of federal promises to store nuclear waste, the Obama Administration's policy, and the NRC's actions has resulted in a complete lack of direction on nuclear waste management and a dereliction of responsibility on the part of the federal

government. This creates substantial government-imposed risk on the nuclear industry, which is the primary obstacle to an expansion of U.S. nuclear power.

The Blue Ribbon Commission on America's Nuclear Future

Understanding that his policy to end the Yucca program without a backup plan would essentially end the American nuclear renaissance before it started, the Obama Administration established the Blue Ribbon Commission on America's Nuclear Future to develop with a plan to manage and dispose of America's nuclear waste.

Unfortunately, the draft recommendations in President Barack Obama's Blue Ribbon Commission on America's Nuclear Future (BRC)¹ fall short of fixing America's nuclear waste policy dilemma. Though some of the recommendations were positive, they would, if implemented, not result in the fundamental reforms necessary for an economically sustainable and technologically diverse approach to nuclear power to emerge.²

While acknowledging the many challenges and failures of America's nuclear waste management and disposal program, the BRC unwisely accepts that the basic structure of the system is sound. This acceptance leads to recommendations that focus more on symptoms than on underlying flaws. Real progress requires first identifying the real problems.

There are three fundamental problems with nuclear waste management in the United States:

1. **No long-term geologic storage.** Deep geologic storage like that proposed for Yucca Mountain, Nevada, provides a safe, long-term solution and thus is critical to any comprehensive nuclear waste management plan. To date, despite having spent approximately \$15 billion in electricity rate payers' and taxpayers' money on Yucca Mountain and a statutory mandate to do so, the U.S. still has no functional geologic repository for nuclear waste.
2. **Waste producers are relieved of their responsibility for waste management.** Private nuclear plant operators produce waste, but under current law the federal government is responsible for managing it. This removes the incentive for those who financially depend on waste production, the nuclear utilities, to have any interest in how the waste is managed because the federal government is wholly responsible. Washington, however, has proven unable to implement anything close to a workable solution. This outcome is predictable given a structure that

¹Blue Ribbon Commission on America's Nuclear Future, "Draft Report to the Secretary of Energy," July 29, 2011, at http://brc.gov/sites/default/files/documents/brc_draft_report_29jul2011_0.pdf (August 10, 2011).

² Jack Spencer, "Introducing Market Forces into Nuclear Waste Management Policy," Statement to the Reactor and Fuel Cycle Technology Subcommittee of the Blue Ribbon Commission on America's Nuclear Future, Heritage Foundation *Testimony*, August 30, 2010, <http://www.heritage.org/research/testimony/introducing-market-forces-into-nuclear-waste-management-policy>.

fundamentally misaligns incentives, responsibilities, and authorities. The nuclear industry, which is fully capable of running safe nuclear power plants is likewise fully capable of managing its own waste and should have the responsibility to do so.

3. **No specific price for specific services rendered.** Under the current system, nuclear utilities produce waste, then pay the federal government a flat fee for an undefined, not-rendered service. Accurate pricing is critical to any efficient market place. Prices provide suppliers and purchasers a critical data point to determine the attractiveness of a product or service, and gives potential competitors the information they need to introduce new alternatives.

Although the BRC is missing an opportunity to address major underlying issues, it does provide a framework that, with some modification, could yield a long-term solution. To achieve it, the BRC's final draft should consider the following recommendations.

Nuclear Waste Management Responsibility

The centerpiece of the BRC's recommendations is its proposal to establish a federal corporation "dedicated solely to implementing the waste management program and empowered with the authority and resources to succeed." While the general proposition could help transition the United States toward a more market-based system, the BRC's version will not work because it maintains the current system's basic underpinnings. A government-based entity, separate from waste production, will remain responsible for waste management and disposal, relieving producers of all responsibility, and there would remain no direct connection between services rendered and pricing.

Though the BRC goes to great lengths to define the responsibilities of the new organization, these responsibilities are similar to those of the Department of Energy under the current system. In both cases, the federal government is fully responsible for all nuclear waste management and disposal responsibilities. Simply moving a function from one government agency to another (even if the new agency is called a federal corporation) without changing the system fundamentals only perpetuates existing deficiencies while creating the perception of action.

This approach assumes that the basic premise of the current system is correct—that nuclear waste management and disposal falls ideally within the purview of the federal government. It essentially blames the current problems on a misplaced federal bureaucracy when the actual problem is relegating a commercial activity to a government bureaucracy. Instead of trying to modify a fundamentally flawed system, the BRC's final report should recommend transferring the responsibility for nuclear waste management and disposal away from Washington and toward the private sector.

The BRC's recommendation to create a federal corporation could facilitate that transition to private-sector responsibility. Though the objective should be to remove federal responsibility for nuclear waste management and disposal, near-term privatization is

likely not practical. This is because the federal government is obligated by virtue of signed contracts to take responsibility for the disposal of nuclear waste produced at existing plants and the nuclear industry, through fees levied on nuclear power users, has already paid \$38.5 billion (about \$750 million annually) for that service.³ The result is that the federal government is currently responsible for disposing of a total of about 70,000 tons of waste. A federal corporation, limited in scope, could be the correct entity to take responsibility for disposing of that waste.

In preparing its final recommendations, the BRC should emphasize closely realigning incentives, responsibilities, and authorities in nuclear waste management. These recommendations should include:

- **Creating a federal corporation with a limited scope of responsibility, limited duration, and access to the Nuclear Waste Fund.** The federal corporation should have two basic responsibilities. First, it should site a geologic repository. If the repository is located at Yucca Mountain, as current law stipulates, then the federal corporation should assume the Department of Energy's responsibilities of completing the Yucca construction and operation permit application. Once issued, the permit to operate Yucca should be transferred to a non-federal entity to construct and operate the facility. If the Yucca location is deemed technically deficient, the corporation should be responsible for overseeing the selection of a new location. However, the permit application should be prepared by whichever entity will eventually construct and operate the facility.

The corporation's second responsibility should be to assure proper disposal of the existing nuclear waste for which the federal government is currently responsible and it should get access to the approximately \$25 billion in the Nuclear Waste Fund to finance its activities. This would allow the federal government to meet its existing contractual and regulatory waste disposal responsibility while allowing an eventual transfer of waste management responsibility to the private sector. It would also allow the Nuclear Waste Fund to be used for its intended purpose. Most important, however, it would create a significant market demand for privately offered waste management services like storage, transportation, and processing. Businesses would naturally emerge to meet this demand that would then be available for future private waste management operations.

Finally, the transitional federal corporation must be mission-specific and its creation must be accompanied by a dissolution plan. Once its two responsibilities are met, it should either be privatized or abolished.

- **Removing the federal role in geologic repository operations.** All geologic repositories should be operated by non-federal entities. The management organizations could be private, for-profit, non-profit, state-based, or a combination thereof. Among their most basic responsibilities would be to set

³Nuclear Energy Institute, "Costs: Fuel, Operation, and Waste Disposal," at http://www.nei.org/resourcesandstats/nuclear_statistics/costs/ (August 10, 2011).

market-driven prices for waste emplacement. Market-driven prices would take waste characteristics, such as heat load, toxicity, and volume as well as repository space into consideration. Waste producers would then have different variables to consider when deciding which fuels to purchase and what nuclear technologies to use as these decisions would affect how they would ultimately manage their waste. It could be most cost effective to place waste directly in the repository for some utilities, while others might find interim storage or another processes to be more economical. Market-based price signals would encourage new technologies, such as small nuclear reactors that have a different waste streams, and services, such as reprocessing, to be introduced as new market demands emerge.

- **Transferring responsibility for management of new waste to waste producers.** As noted above, the federal government through the corporation should meet its responsibility to dispose of existing waste. But moving forward, nuclear utilities should be made responsible for waste they produce. This responsibility should be accompanied by a repeal of the fee—1/10 of 1 cent per kilowatt hour of electricity produced at nuclear power plants—paid to the federal government for waste disposal. Utilities would then bear the responsibility and also have the freedom to choose how best to manage their waste. The federal role would be to ensure that private waste management activities meet adequate regulatory standards. In essence, waste management would be treated the same way the rest of the nuclear industry is treated. The federal government is not responsible for getting the fuel to the reactor and it should not be responsible for removing it.
- **Allowing the federal corporation to broker waste management services.** To further ensure that nuclear waste producers have access to waste management services, the federal corporation could be permitted, for a fee, to broker waste management services for private industry. Transportation, reprocessing or repository emplacement could be offered separately or as a bundled, comprehensive service. This would allow waste producers to hire the federal corporation to contract for waste management services on their behalf. It may be the case as the corporation gains experience and establishes relationships with waste management providers, it can negotiate better terms based on volume, or other variables, for specific services. Or waste producers may simply find the convenience of contracting with the federal corporation to manage its waste is worth a premium. Waste producers would not be obligated to seek waste management services through the federal corporation. This brokering service would only be available as long as the federal corporation is carrying out its chartered mission, and would not justify its existence beyond those specified responsibilities. However, one can imagine a business case where brokering such services could provide the basis for future privatization. Ultimately, while such an arrangement is not necessary, it does provide an additional transition step toward the new, market-based system.

- **Limiting the federal government’s long-term role to setting broad regulatory guidelines and taking final title of decommissioned repository sites.** Once the federal corporation carries out its mission and is dissolved, the federal government should have two roles. First, it should set the broad regulatory guidelines for waste management just as it does for other parts of the nuclear industry. Second, the federal government should take final legal possession, what is commonly referred to as “title,” of geologic repositories and their contents as they are decommissioned. While private actors should manage nuclear waste and finance its final disposal, including long-term maintenance, only the federal government has the guaranteed longevity to credibly take long-term possession and liability for whatever elements of waste end up in geologic repositories after decommissioning, when the repository would be permanently sealed.

Geologic Storage

Of the seven key elements addressed by the BRC, two are dedicated to geologic storage. One calls for a new, consent-based approach to searching out future nuclear waste management facilities, while the other calls for a prompt effort to develop one or more geologic repositories. While clearly stating the need for geologic storage is important, the BRC’s charge from the Secretary of Energy to rule out any consideration of the Yucca Mountain facility weakens the utility of its otherwise reasonable recommendations. For this reason, the BRC should address Yucca in its final recommendations, which is allowable per the BRC’s charter that gives no direction to preclude Yucca. Indeed, it does the opposite, by directing the BRC to consider *all* options. It states that the Secretary of Energy established to commission at the direction of the President 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.⁴

Furthermore, the BRC’s recommendations on geologic storage reflect its more general flaw—that nuclear waste management should remain within the purview of the federal government. These problems can be addressed in the final report by the following actions:

- **Address Yucca Mountain head on.** The BRC should state what it believes should happen with Yucca Mountain based on the best science and evidence available. If its members believe Yucca should be shut down, it should state why and provide a recommendation for disengaging from Yucca. If, on the other hand, it finds that Yucca should be pursued, perhaps as one of a number of options, then the commission should provided recommendations on how to move forward. Such a conclusion could reject the current Yucca program while proposing an alternative. Such an alternative could embody the recommendations of the BRC’s

⁴Blue Ribbon Commission on America’s Nuclear Future, “Charter,” March 1, 2010 at <http://brc.gov/index.php?q=page/charter> (August 10, 2011).

consent-based approach where the people of Nevada are given control over the future of the Yucca facility. Even though the Secretary of Energy directed the BRC to pretend Yucca Mountain does not exist, nothing in the BRC's charter prevents it from facing facts. For the sake of the commission's credibility, it must honestly and directly address Yucca in its final conclusions.

- **Demand that the Nuclear Regulatory Commission complete its review of the Department of Energy's Yucca Mountain application.** The reality is that the Blue Ribbon Commission can likely not make a truly informed decision on Yucca Mountain because the Nuclear Regulatory Commission has stopped work on the Department of Energy's application to construct the repository and refuses to release the NRC technical staff's findings regarding the application. Therefore, the single most important recommendation that the BRC could make would be to demand that the NRC complete the Yucca application and publicly release all data generated by the application process. Whether anyone ever builds a repository at Yucca or not, the NRC's completed review process will yield unique information that will have important future relevance. Furthermore, the public and electricity ratepayers deserve to have the application review completed given its \$15 billion investment.
- **Limit the federal government's responsibility to siting and permitting one geologic repository.** Whether at Yucca or elsewhere, the federal government's role should be limited to developing a single geologic repository. This repository should be located at Yucca Mountain unless the NRC deems that site to be technically deficient. Should that be the case, the new site must at least match the capacity of Yucca Mountain, which is sufficient to hold all of the waste produced by America's existing commercial reactors over their expected lifetimes. Once sited and permitted, a non-federal entity should operate the repository. Developing future repositories should be the responsibility of non-federal actors.
- **Rescind recommendation to develop one or more interim storage facilities.** The BRC is correct that interim storage of nuclear waste, like geologic storage, is a critical part of any comprehensive nuclear waste management system. Further, it correctly points out a myriad of reasons why interim storage makes sense, such as allowing for fuel removal from shutdown plants. However, the federal government should neither construct such a facility nor mandate that one be built. Instead, private-sector interim storage facilities would emerge to meet the demand for such services in a market-based system. The federal government's role should be to ensure that those willing and able to develop appropriate interim storage facilities have an efficient and predictable regulatory environment. The BRC makes very sound recommendations toward this end.

Financing nuclear waste management and disposal

The BRC correctly spent significant effort on making recommendations on how nuclear waste management should be financed. Indeed, it correctly identifies many of the

problems with the current system, namely that it does not work as intended and that continuing to collect fees for services not rendered is patently unfair. It also correctly recognizes that government accounting rules make gaining access to collected funds extraordinarily difficult. Finally, it recognizes that building a sustainable nuclear waste policy program is nearly impossible so long as it relies on the inherently inefficient and unpredictable congressional appropriations process.

Separating finance issues from larger organizational issues is impossible. The two are inherently related. How nuclear waste activities are financed will ultimately depend on who is responsible for its disposal. Therefore, any rational financing scheme must be developed congruently with larger organizational reform. So if one accepts the BRC's general proposition that the federal government should remain responsible for nuclear waste management, its recommendations on finance reform make sense. However, since its recommended actions would do little to change the underlying system fundamentals, the same inefficiencies that result from federal control would ultimately resurface.

Similar to its larger organizational recommendations, the BRC does provide a framework from which a more market-based, economically rational system could be constructed. Indeed, the BRC introduces some elements that are critical to a sustainable waste management system. Instead of attempting to modify the current system, the BRC should develop recommendations to allow the United States to transition to a new model for financing nuclear waste management while ensuring that existing resources are used for their intended purposes. To achieve this transition, the BRC's final recommendations should include the following:

- **Congress should immediately begin transferring the Nuclear Waste Fund to the new organization.** The BRC acknowledges that whoever is ultimately responsible for waste management and disposal must gain access to the \$25 billion in the Nuclear Waste Fund, and puts forth a basic plan to achieve this. The plan would allow limited access to those funds 10 years after the new organization is established. Near-term operations would be funded through on-going fee payments. This approach, however, assumes that the new organization would maintain ongoing responsibility for waste management and disposal. Under the modifications proposed in this analysis, the new organization would only be responsible for waste produced to date, and should be funded through fees already paid. Thus, the new organization would need immediate access to the Nuclear Waste Fund, although dispersal could take place over time.

Congress should mandate the creation of utility- or plant-specific escrow accounts to fund waste management activities. An innovative concept in the BRC report is to create escrow accounts held by an independent third party into which nuclear waste fees are paid. Only that amount appropriated by Congress for waste disposal activities would be paid to the U.S. Treasury out of the escrow accounts. This would ensure that only those funds actually being spent on waste disposal would go to the government thus preventing additional funds from being placed into the Nuclear Waste Fund.

This specific idea is not consistent with the overall reform that is necessary, but the introduction of waste management financed through escrow accounts is consistent with fundamental reform. A better model would mandate that nuclear utilities place in escrow adequate funds to dispose of whatever waste is being stored on site. No funds would ever go to the U.S. Treasury, and congressional appropriators would have no role. Utilities would simply pay for waste management and disposal services on an as-needed basis. This approach would benefit nuclear utilities by ensuring they have access to the funds set aside for waste disposal and it would protect the American taxpayer by making sure adequate disposal funds will be available even if a plant owner goes out of business.

- **Congress should repeal the fee paid to the federal government for future waste disposal services.** Since, under these reforms, existing nuclear waste disposal would be financed through existing nuclear waste fund fees, and future disposal through the privately held escrow accounts, there would be no need to continue paying the nuclear waste fee to the federal government.

Building on the BRC's Recommendations

The Blue Ribbon Commission on America's Nuclear Future has an opportunity to resolve America's nuclear waste policy dilemma. While it has provided a credible analysis and introduced some new ideas, it has focused more on the symptoms of America's failed approach to nuclear waste management than addressing the system's structural deficiencies. Nonetheless, its recommendations provide a starting framework that could be modified to address these difficult issues. Moving the responsibility for nuclear waste management away from the federal government will be difficult, but it is necessary to for an economically rational, technologically diverse, and sustainable resolution to America's nuclear waste dilemma.

That concludes my testimony.

I look forward to your questions.

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