

# BACKGROUND

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## Fooled Again: The Nuclear Waste Administration Act Preserves Futile Status Quo

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### Abstract

*Commercial nuclear power provides 19 percent of America's electricity and has safely generated affordable, reliable, and clean energy for decades. But nuclear technology and the industry have been held back by the utter dysfunction of a federally controlled, centrally planned program for nuclear waste management and disposal. A new bipartisan Senate bill—the Nuclear Waste Administration Act, intended to reform nuclear waste management—does nothing to fix the basic structure of America's failed system. While the bill may meet some near-term government and industry interests, at best it delays a permanent waste repository for decades, and at worst makes implementing necessary reforms for rational, long-term management almost impossible. Given developments in the past several years to get nuclear waste management on track, Congress must seize the opportunity to put forth an approach that takes advantage of market forces and that properly aligns incentives and responsibility for lasting reform.*

The federal government has failed to meet its legal obligations to manage and dispose of America's spent nuclear fuel and nuclear waste. Once again, progress seems possible only after federal courts ended years of delay caused by the Obama Administration's refusal to follow the law under the 1982 Nuclear Waste Policy Act, as amended.<sup>1</sup> A new bill introduced by Senators Lisa Murkowski (R-AK), Maria Cantwell (D-WA), Lamar Alexander (R-TN), and Dianne Feinstein (D-CA) would only further delay and frustrate solutions to waste management and disposal.

The Nuclear Waste Administration Act (S. 854)<sup>2</sup> does not solve fundamental problems in the current approach; it continues, if not

### KEY POINTS

- The federal government is liable for over 71,000 tons of commercial nuclear waste. It has already paid \$4.5 billion to nuclear power plants for damages and breach of contract. Remaining liability could cost taxpayers an additional \$22 billion to \$50 billion.
- The proposed Nuclear Waste Administration Act (S. 854) does not address the root problems of nuclear waste management as it is currently conducted. S. 854 transfers waste management and development to a new unaccountable agency, requires a new industry fee, and incorporates the Obama Administration's misguided interim storage policy.
- S. 854 invites the same political manipulation that has plagued Yucca Mountain, and delays for decades the creation of the permanent repository that the nation needs.
- An efficient and sustainable waste management approach would require utilities to be responsible for waste, it would have market-based pricing, and it would allow competition.

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expands, the dysfunction of waste management during the past 30 years. Most notably, it gives the perception of progress by transferring the Department of Energy's (DOE) responsibilities for management to a new government entity. Simply re-assigning responsibility to another federal bureaucracy does nothing to fix the root problem—namely that the federal government is responsible for commercial nuclear waste management and disposal rather than the industry itself. Experience has shown that a federally controlled, centrally planned program for commercial nuclear fuel management does not work. Subjecting what should be a commercial activity to an endless political process has resulted in stunted technological growth, economic incoherence, and programmatic stagnation.

Even if the current approach of federal waste management were acceptable, the Nuclear Waste Administration Act fails to address the requirements for a repository at Yucca Mountain, Nevada, put forth by Congress in the 1982 Nuclear Waste Policy Act, as amended. It instead incorporates the Obama Administration's shortsighted policy.<sup>3</sup> Ultimately, the bill relieves economic pressure and political responsibility from the government in the short term by establishing temporary storage sites. Such an approach weakens the prospect of the permanent nuclear waste repository the nation needs. Rather than a problem or liability, nuclear waste management has the potential to be an asset—but only if Congress reforms the current broken system with market forces to spur competition and innovation.

## The Extent of America's Nuclear Waste "Problem"

The Nuclear Waste Policy Act of 1982 assigned responsibility for permanent disposal of spent nuclear fuel and high-level nuclear waste to the federal government, which was required to begin transporting nuclear waste to a repository by 1998. After evaluating alternative sites, Congress amended the act to designate Yucca Mountain as the site for a national repository. In 2008, the DOE applied for a license<sup>4</sup> with the Nuclear Regulatory Commission (NRC) to build a facility at Yucca Mountain because the site "brings together the location, natural barriers, and design elements most likely to protect the health and safety of the public, including those Americans living in the immediate vicinity, now and long into the future."<sup>5</sup>

Despite the clear direction of the Nuclear Waste Policy Act, and lacking any technical or scientific justification, the Obama Administration unilaterally decided that Yucca Mountain was "not a workable option," and directed the DOE to withdraw its license application.<sup>6</sup> The Obama Administration then proposed its *Strategy for the Management and Disposal of Used Nuclear Fuel and High-Level Radioactive Waste*, a policy document lacking any technical details, calling for interim storage facilities and a permanent repository, just like the one proposed at Yucca Mountain, by 2048.<sup>7</sup>

Following a series of court cases, the NRC was ordered to finish reviewing the DOE's Yucca Mountain application, the reasoning being that "unless

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1. Katie Tubb, "Court Kicks Yucca Mountain Review Back in Motion," *The Daily Signal*, August 13, 2013, <http://dailysignal.com/2013/08/13/court-kicks-yucca-mountain-review-back-in-motion/>.
  2. Nuclear Waste Administration Act of 2015, S. 854, 114th Cong., 1st Sess., <https://www.congress.gov/bill/114th-congress/senate-bill/854/text> (accessed June 22, 2015).
  3. U.S. Department of Energy, "Strategy for the Management and Disposal of Used Nuclear Fuel and High-Level Radioactive Waste," January 2013, <http://energy.gov/sites/prod/files/Strategy%20for%20the%20Management%20and%20Disposal%20of%20Used%20Nuclear%20Fuel%20and%20High%20Level%20Radioactive%20Waste.pdf> (accessed June 16, 2015).
  4. Nuclear Regulatory Commission, "DOE's License Application for a High-Level Waste Geologic Repository at Yucca Mountain," June 3, 2008, <http://www.nrc.gov/waste/hlw-disposal/yucca-lic-app.html> (accessed July 27, 2015).
  5. U.S. Department of Energy, "Recommendation by the Secretary of Energy Regarding the Suitability of the Yucca Mountain Site for a Repository Under the Nuclear Waste Policy Act of 1982," February 2002, [http://energy.gov/sites/prod/files/edg/media/Secretary\\_s\\_Recommendation\\_Report.pdf](http://energy.gov/sites/prod/files/edg/media/Secretary_s_Recommendation_Report.pdf) (accessed June 16, 2015).
  6. U.S. Department of Energy, Steven Chu, Secretary of Energy, "Statement of Steven Chu Secretary of Energy Before the Committee on the Budget," U.S. Senate, Washington, DC, March 11, 2009, <http://energy.gov/articles/statement-steven-chu-secretary-energy-committee-budget> (accessed June 16, 2015).
  7. U.S. Department of Energy, "Strategy for the Management and Disposal of Used Nuclear Fuel and High-Level Radioactive Waste."

and until Congress says otherwise or there are no appropriated funds remaining,” the President must promptly execute the law.<sup>8</sup> Further, the courts concluded that the Administration’s proposed alternative was inconsistent with the 1982 Nuclear Waste Policy Act, as amended. With no program in place, the court required the DOE to suspend collection of a fee it had charged nuclear power operators in order to pay for nuclear waste management and disposal.<sup>9</sup> The pivotal decisions in essence brought matters back to where they were in 2008, when the DOE first applied for a license. The NRC technical staff finished its safety evaluation report of the DOE application in January 2015 and concluded that a repository at Yucca Mountain would be technologically feasible and safe.<sup>10</sup> The NRC anticipates the process to complete the license will cost another \$330 million, an amount it did not request in the President’s fiscal year 2016 budget.<sup>11</sup>

Meanwhile, nuclear waste continues to pile up and taxpayer liability continues to grow. Today, the federal government remains liable for over 71,000 tons<sup>12</sup> of commercial spent nuclear fuel, which it has yet to collect and for which electricity users have been paying into the Nuclear Waste Fund through a fee assessed by the utilities. This liability grows as America’s nuclear power reactors continue to produce roughly 2,000 tons of waste every year. The federal government has already paid out \$4.5 billion in taxpayers’ money in settlements to nuclear power plants that store nuclear waste on site. The DOE estimates the remaining liability at \$22.6 billion, assuming a pilot storage facility by 2021. Industry, however, assumes at least \$50 billion in liabilities.<sup>13</sup>

## The Nuclear Waste Administration Act

Introduced on March 24, 2015, the Nuclear Waste Administration Act (S. 854) focuses on three provisions intended to address the growing amount of spent fuel and provide permanent storage.<sup>14</sup> It would transfer responsibility for nuclear waste facility siting, licensing, construction, and management from the DOE to a new government agency, the Nuclear Waste Administration. Second, it would create a new fee paid by utilities for nuclear waste management and disposal. Finally, the bill adopts the Obama Administration’s *Strategy* for a consent-based process for interim storage and a permanent repository.

While the intentions may be well-meaning, the bill would, at a minimum, likely delay action for decades and continue, if not further expose, waste management to the delays and politics of the past 30 years. It would further stunt growth and innovation in the nuclear industry. The bill keeps in place the federal government’s faulty approach to centrally plan a single waste disposal solution and work backwards to determine details, such as location and fees.

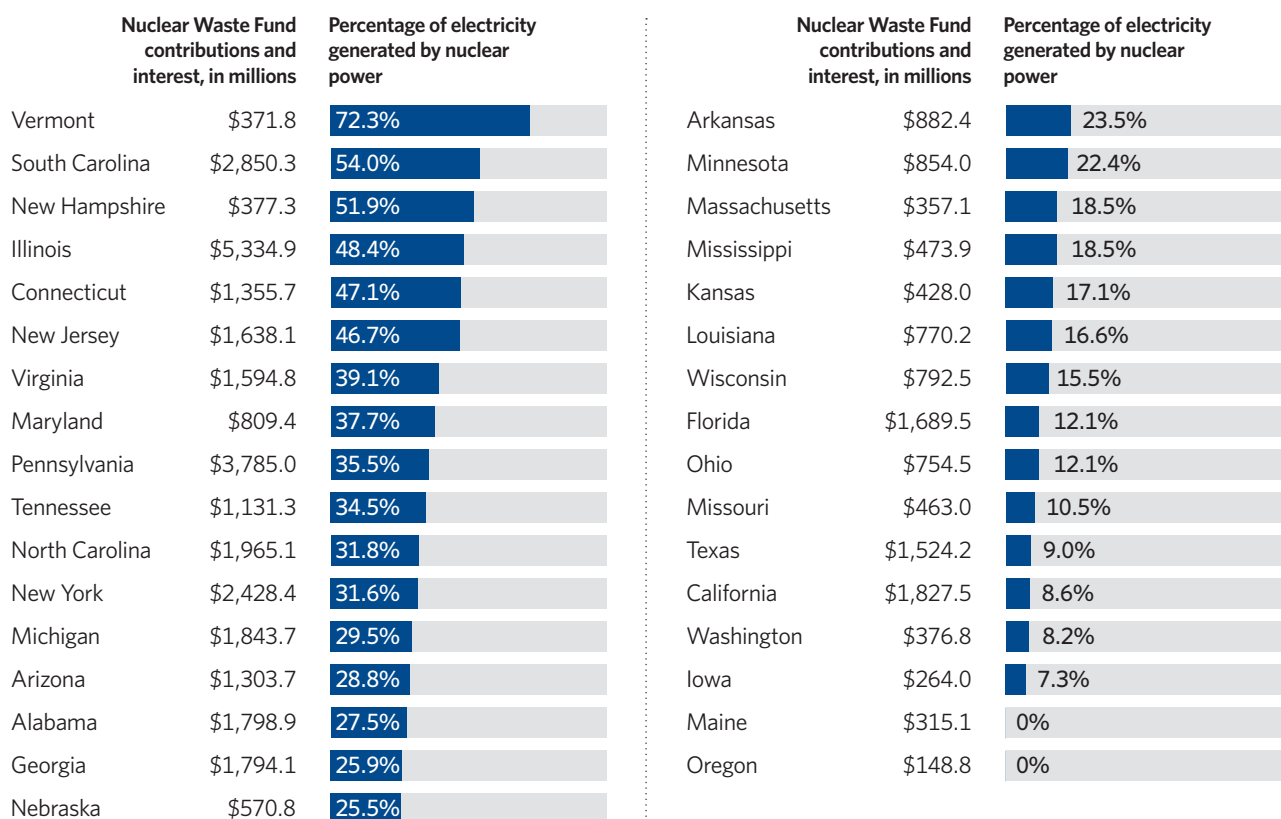
By contrast, removing government responsibility for management solutions would open the entire nuclear fuel cycle<sup>15</sup> to innovation, as utilities would have a direct financial stake in how waste is produced as well as potential cost-effective ways to manage it. Utilities would have different variables to consider when deciding which fuels to purchase and which nuclear technologies to use, as these decisions would affect how they would ultimately manage their waste. For some utilities, it could be most cost-effective to place waste directly in a repository, while

8. Tubb, “Court Kicks Yucca Mountain Review Back In Motion.” See also Jack Spencer and Cornelius Milmoie, “Obama Administration: No Confidence in Nuclear Energy,” Heritage Foundation *Background* No. 2657, March 5, 2012, <http://www.heritage.org/research/reports/2012/03/obama-administration-no-confidence-in-nuclear-energy>.
9. Katie Tubb, “Court Decision on Nuclear Waste Fee Offers Chance for Reform,” The Daily Signal, November 21, 2013, <http://dailysignal.com/2013/11/21/court-decision-nuclear-waste-fee-offers-chance-reform/>.
10. U.S. Nuclear Regulatory Commission, “Safety Evaluation Report Related to Disposal of High-Level Radioactive Wastes in a Geologic Repository at Yucca Mountain, Nevada,” January 29, 2015, <http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1949/> (accessed June 16, 2015).
11. “NRC: Yucca Mountain License Will Cost Another \$330 Million,” Nuclear Energy Institute, March 5, 2015, <http://www.nei.org/News-Media/News/News-Archives/NRC-Yucca-Mountain-License-Will-Cost-Another-330-M> (accessed June 16, 2015).
12. Nuclear Energy Institute, “On-Site Storage of Nuclear Waste: Used Nuclear Fuel and High-Level Radioactive Waste,” <http://www.nei.org/Knowledge-Center/Nuclear-Statistics/On-Site-Storage-of-Nuclear-Waste> (accessed June 16, 2015).
13. U.S. Department of Energy, *Fiscal Year 2014 Agency Financial Report*, November 14, 2014, pp. 76–77, [http://www.energy.gov/sites/prod/files/2014/11/f19/DOE\\_FY2014\\_AFR.pdf](http://www.energy.gov/sites/prod/files/2014/11/f19/DOE_FY2014_AFR.pdf) (accessed June 16, 2015).
14. Similar versions of the bill were introduced in 2012 and 2013.
15. Nuclear Regulatory Commission, “Stages of the Nuclear Fuel Cycle,” October 21, 2014, <http://www.nrc.gov/materials/fuel-cycle-fac/stages-fuel-cycle.html> (accessed July 27, 2015).

CHART 1

## Nuclear Energy Use in States Where Spent Nuclear Fuel is Stored

The federal government has collected billions of dollars from nuclear electricity consumers to fund the collection and disposal of commercial spent nuclear fuel. Washington has yet to handle any of the 71,000 tons being stored at nuclear power plants. Consequently, the courts determined in 2014 that the federal government could no longer continue to charge the fee.



Sources: Nuclear Energy Institute, “Nuclear Waste Fund Payment Information by State,” December 31, 2014, <http://www.nei.org/Knowledge-Center/Nuclear-Statistics/Costs-Fuel,-Operation,-Waste-Disposal-Life-Cycle/Nuclear-Waste-Fund-Payment-Information-by-State> (accessed June 29, 2015); Nuclear Energy Institute, “State Electricity Generation Fuel Shares,” <http://www.nei.org/Knowledge-Center/Nuclear-Statistics/US-Nuclear-Power-Plants/State-Electricity-Generation-Fuel-Shares> (accessed June 29, 2015).

others might find interim storage or another process to be more economical. These choices would encourage new technologies (such as small nuclear reactors with different waste streams) and services (such as reprocessing) to be introduced as new market demands emerge. The current system, and the one recommended in S. 854, discourage such innovation.

### The Nuclear Waste Administration

Under the Act, the DOE’s responsibilities for waste management—from siting, constructing, and

operating waste facilities to entering into contracts with commercial utilities as well as broad regulatory power—would be transferred to the new Nuclear Waste Administration. The Administrator and a Deputy Administrator would be appointed by the President to six-year terms and confirmed by the Senate.

S. 854 also establishes a bureaucracy of career assistants, as well as a second bureaucratic institution—the Nuclear Waste Oversight Board—to oversee the Administration in addition to an Inspector

General. This board of five individuals consists of presidentially appointed members, no more than three of whom may be of the same political party, and is tasked with overseeing progress by the Administration, the fee on nuclear operators, use of funds, and government liability.

There are a number of problems with the new government entity as set up in S. 854. The bill:

- **Surrenders power of the purse and regulatory authority.** Under the current system, the federal government is responsible for nuclear waste management. Though that approach is inherently flawed, S. 854 effectively makes matters worse by diluting consistent congressional accountability and enabling Congress to deny responsibility if the Nuclear Waste Administration fails to manage nuclear waste. Congress would give the new agency broad regulatory power and would fund the agency with a fee from nuclear operators that would not be dependent on congressional appropriations.<sup>16</sup> Such a fee at once hides the true size of government spending and removes the incentive for oversight by congressional appropriators. Operating outside the annual appropriations process puts the program on autopilot and removes congressional oversight.

The bill further deteriorates congressional participation by repealing §302(a)(4) of the Nuclear Waste Policy Act. Under current law, if the Secretary of Energy decides to adjust the fee levied on nuclear power providers, he must submit the change to Congress. The fee change would become effective after 90 days unless Congress votes to disapprove the change; S. 854 would eliminate that opportunity for congressional oversight.<sup>17</sup> Though the Oversight Board must annually report its findings and recommendations to the President, Congress, and the Administrator on progress and the use of funds, the Administrator is required to do nothing beyond provide a written response to the board within 45 days.<sup>18</sup>

If Congress is determined to maintain federal control of an otherwise commercial activity, it must have responsibility and meaningful tools, such as control of appropriations, to enforce accountability. This is far from the ideal approach to run a commercial activity and underscores why reform is needed.

- **Treats nuclear waste as a bureaucracy rather than part of the nuclear energy business.** It was the express concern of the President's Blue Ribbon Commission on America's Nuclear Future (BRC) and others that a new agency or federal corporation take over nuclear waste management for the very reason that the public had lost confidence in the DOE. (The BRC was formed to study and recommend alternatives for nuclear waste management after the Obama Administration unilaterally decided that Yucca Mountain was not an option and attempted to withdraw the DOE's license application.) A new entity could be "less vulnerable to political interference."<sup>19</sup>

S. 854 fails to take this into account. The Nuclear Waste Administration Act is inherently political, from the presidentially appointed administration and board to the curious restriction that the Administrator's salary not exceed that of the Tennessee Valley Authority's chief executive officer.<sup>20</sup> To pretend that these presidential appointees will not be politically driven is naïve. There is no guarantee that this system, too, will not be subject to the unpredictability of politics as Yucca Mountain has.

A "smarter" approach for less politicized federal management is not the solution, however. Politics is an inherent and necessary characteristic of any activity of a democratic government. But it is not an appropriate approach for the management of commercial nuclear waste, which, as with other aspects of nuclear power, is part of a for-profit business activity. Though there are unique aspects to nuclear

16. Nuclear Waste Administration Act, §401(c).

17. *Ibid.*, §402(a).

18. *Ibid.*, §205(o).

19. U.S. Government Accountability Office, "Spent Nuclear Fuel Management: Outreach Needed to Help Gain Public Acceptance for Federal Activities that Address Liability," GAO-15-141, October 2014, <http://www.gao.gov/assets/670/666454.pdf> (accessed June 16, 2015).

20. Nuclear Waste Administration Act, §202(a)(7)(B).

power generation, it does not necessarily follow that a substantial portion of the commercial nuclear power industry should be turned over to government management. After all, American companies have been safely managing nuclear power construction and operation for half a century and are equally capable of managing waste. Indeed, they have been doing exactly that, given the federal government's failure to meet its obligations by safely managing waste on-site with dry storage and pool re-racking.<sup>21</sup>

The right approach would return responsibility for waste management to the private sector—namely, the waste producers. Ultimately, the federal government should provide fair, and efficient, regulation of waste management (such as establishing public health and safety standards), just as it does with other aspects of the nuclear industry; but the specifics of how waste is managed should be left to the private sector.

### Working Capital Fund

Until May 2014, nuclear utilities paid a flat fee per kilowatt hour (kwh), called a mil, into the Nuclear Waste Fund for the purpose of building a waste facility. Never once adjusted even for inflation, the mil equaled one-tenth of 1 cent per kwh generated, or roughly \$750 million a year and a total of \$42.8 billion (including interest) in the Nuclear Waste Fund.<sup>22</sup> The DOE was prohibited by the courts from continuing to collect the fee once it abandoned Yucca Mountain without a congressionally authorized alternative in place to justify the fee. That prohibition remains.

S. 854 would keep the federal government as a middle man and create a Nuclear Waste Administration Working Capital Fund under the Treasury Department. Congress could appropriate funds for defense waste management into the fund,<sup>23</sup> and a new fee levied on nuclear power plants would be used to pay for commercial waste management. The Administrator would have full access to the

fund without needing congressional appropriations, unlike the DOE, which currently does not have automatic access to the Nuclear Waste Fund.<sup>24</sup> There are, however, a number of problems with the fee. Specifically, the fee:

- **Forces current waste producers to pay for old waste again.** Nuclear power companies and their customers have been paying into the Nuclear Waste Fund for three decades for a facility and services they have yet to receive. The bill's commitment to the Obama Administration's *Strategy*, nebulous stance on Yucca Mountain, and apparent attempt to write off the bulk of the Nuclear Waste Fund would require utilities to pay yet again for the siting, licensing, construction, and operation of a new facility with the strained hope that the federal government will follow through this time. Nuclear power operators therefore would be paying into the new fund to manage waste already produced and paid for. Meanwhile, the Nuclear Waste Fund, which nuclear operators paid into for the express purpose of a permanent repository at Yucca Mountain, will at least in part be diverted to fund all the personnel, activities, and expenses of the Oversight Board.<sup>25</sup> The Nuclear Waste Fund should instead be used to pay for existing waste and should not be replaced with a new and equally dysfunctional, irrational fee.
- **Sets up a financing system that could be used as a government bailout.** The bill repeatedly charges the board with ensuring that nuclear power operators pay the full cost of the program, yet blurs this responsibility. S. 854 seems to allow the Administration to spend beyond the means collected by the fund through congressional appropriations should the fund prove insufficient (though the Oversight Board is presumably preventing this from happening): "Any contract

21 "Safely Managing Used Nuclear Fuel," Nuclear Energy Institute, August 14, 2015, <http://www.nei.org/master-document-folder/backgrounders/fact-sheets/safely-managing-used-nuclear-fuel> (accessed July 30, 2015).

22. Nuclear Energy Institute, "Nuclear Waste Fund Payment Information by State," April 2015, <http://www.nei.org/Knowledge-Center/Nuclear-Statistics/Costs-Fuel,-Operation,-Waste-Disposal-Life-Cycle/Nuclear-Waste-Fund-Payment-Information-by-State> (accessed June 16, 2015).

23. Nuclear Waste Administration Act, §308(c).

24. *Ibid.*, §401(c).

25. *Ibid.*, §205(w).

or agreement that authorizes an expenditure or obligation exceeding an amount available in the Working Capital Fund...shall be subject to appropriation.”<sup>26</sup> However, there not being enough money in the fund should not be a legitimate justification to trigger appropriations. In doing so, S. 854 seems to create a loophole for taxpayers to bail out the government if it fails in its nuclear waste responsibilities.

- **Is dislocated from actual costs.** The new fee does not solve the problem that the DOE has had in the past in determining whether the Nuclear Waste Fee was sufficient to adequately fund waste disposal. In 2014, the DOE determined that the cost of disposal was “somewhere between a \$2 trillion deficit and a \$4.9 trillion surplus,” a proposition to which the court responded in kind: “This presentation reminds us of the lawyer’s song in the musical, *Chicago*—‘Give them the old razzle dazzle.’”<sup>27</sup> The Oversight Board is to ensure that this does not happen again and that the fee is adequate to cover the full cost (and allegedly no more) of the pilot, interim, and permanent repository sites.<sup>28</sup>

The sufficiency of the Working Capital Fund fee seems even more uncertain. Though the Obama Administration estimates the cost of its *Strategy* at \$5.7 billion in the first 10 years,<sup>29</sup> the DOE lacks any technical criteria hinting at the cost of the full program. S. 854 would further increase the cost with incentive packages for negotiation with communities. That the cost of the program is uncertain is explicitly acknowledged in the bill’s provision to allow for appropriations when the fund is insufficient.

On the surface, S. 854 seems to correct, or at least avoid, the problems of the past by zeroing out the fee in 2025 if a management facility is not operating (a

sure sign that even the Senators believe their timeline for a pilot storage facility by 2021 is optimistic).<sup>30</sup> Yet nuclear operators would still rightly lack any confidence that their fees would lead to a timely repository, given that the bill indirectly enables the same political maneuvering and negligence that has plagued Yucca Mountain. Unless there is a clear plan with correctly aligned responsibility for waste management, setting a fee is an arbitrary exercise with the risk that industry (through fees passed on to customers) will merely be footing the bill for an elongated bureaucratic exercise.

Most important, a centrally planned system forgoes all the benefits of a market approach. Accurate pricing is critical to any functional and efficient marketplace. Market-driven prices provide suppliers and customers with critical data points to determine the attractiveness of a product or service. Prices also give potential competitors the information they need to introduce new alternatives. Market-driven prices would take waste characteristics, such as heat load, toxicity, and volume, as well as repository space, into consideration. Nuclear utilities—the waste producers—would then have incentives to consider new technology and fuel types tied to their waste-management decisions.

## The Mission

The vision of S. 854 is the Obama Administration’s *Strategy*, a plan that fundamentally ignores the structural flaws of nuclear waste management in the United States. The bill would set in motion a consent-based process to site, license, build, and operate a pilot storage facility for waste at decommissioned reactors by 2021, and a storage facility for lower-priority waste by 2025 to be pursued in tandem with a permanent repository, similar to the one at Yucca Mountain, by 2048.

One positive aspect of the bill is that it allows non-federal entities to operate the interim and permanent facilities, potentially introducing positive

26. *Ibid.*, §401(e).

27. *In re Aiken County*, 725 F.3d 255 (D.C. Cir. 2013).

28. Nuclear Waste Administration Act, §205(m)(1).

29. U.S. Office of Management and Budget, *The Budget for Fiscal Year 2015*, p. 407, <https://www.whitehouse.gov/sites/default/files/omb/budget/fy2016/assets/doe.pdf> (accessed June 16, 2015).

30. Nuclear Waste Administration Act, §401(f).

market forces and diluting the inefficiencies of government bureaucracy.<sup>31</sup> Also, in calling for a pilot interim storage facility the Senators take a good first step toward building familiarity and trust with the transportation of waste and protecting federal taxpayers from DOE liabilities. However, such a step is productive in the long run only insofar as it takes place simultaneously with completing the Yucca Mountain license. It must be recognized that interim storage is not a solution to waste disposal and is in fact largely redundant to current waste storage by the nuclear industry. Beyond this, however, the bill's emphasis on fixing the *federal government's* problems with nuclear waste leaves S. 854 lacking in long-term solutions for a sustainable approach to management. Specifically, the bill:

- **Ignores the requirement for and progress on Yucca Mountain.** The reality is that over \$15 billion has been spent studying the possibility of a permanent repository at Yucca Mountain.<sup>32</sup> The NRC's *Safety Evaluation Report* concluded that long-term storage of nuclear waste after the closure of Yucca Mountain is both technically feasible and safe.<sup>33</sup> Though a license is yet to be issued, the NRC found no significant problems in the technical design and application for Yucca Mountain.

Given the NRC's review and the fact that the Nuclear Waste Policy Act, as amended, is still the law, the Senators should have dealt directly with Yucca Mountain, clearly stating whether and how it was to continue forward under the new bill. S. 854 instead leaves the impression that Yucca Mountain is to be forgotten and wither away from lack of leadership as the government pursues a permanent repository just like Yucca Mountain

years from now, after having both wasted efforts up to this point and diverted funds to the Obama Administration's *Strategy*. By ignoring the 1982 Nuclear Waste Policy Act, as amended, S. 854 undercuts its own legitimacy.

- **Invites the process to be stalled by politics.** Before choosing an interim storage site, the Administrator must come to an agreement with the governor, local governments, and any affected Indian tribe.<sup>34</sup> The process for a permanent repository is similar. However, the Administrator can only evaluate sites that have been recommended by a governor, local government, or Indian tribe—or by the Administrator himself, after getting the consent of all three.<sup>35</sup> Before choosing a site for characterization, the Administrator must come to an agreement with each level of government and must provide compensation to “any affected units” of government for “any potential” impacts.<sup>36</sup>

As has been the case with Yucca Mountain, nothing prevents the process from being held up politically at any of these points, demonstrating the unnecessary complications of turning a business decision into a political one. If the *government* is primarily responsible for waste management, it cannot be seen as forcing a facility on a community. The government must instead resort to handouts to states simply for being considered. Not only does this erect unnecessary barriers to construct waste facilities, it also invites cronyism. What the bill tries to get the Administration to accomplish without the appearance of coercion, the market does naturally for the very reasons that private companies cannot use force and are inherently self-interested in doing what

31. Ibid., §305(a).

32. Mark Gaffigan, “Disposal Challenges and Lessons Learned from Yucca Mountain,” testimony before the Subcommittee on Environment and the Economy, Committee on Energy and Commerce, U.S. House of Representatives, June 1, 2011, <http://www.gao.gov/assets/130/126331.pdf> (accessed July 27, 2015).

33. U.S. Nuclear Regulatory Commission, “Safety Evaluation Report Related to Disposal of High-Level Radioactive Wastes in a Geologic Repository at Yucca Mountain, Nevada,” Vol. 3, “Repository Safety After Permanent Closure,” last update January 29, 2015, <http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1949/> (accessed June 22, 2015).

34. Nuclear Waste Administration Act, §305(b)(4)(B).

35. Ibid., §306(b)(2).

36. Ibid., §306(c)(4)(B).



is necessary to build mutual trust with a community through long-term outreach, education, and mutually agreeable terms of business.

Further, though the bill calls the final agreement for a storage or repository site “binding,”<sup>37</sup> there is nothing in the bill that makes it any more legally binding than the Nuclear Waste Policy Act, which the Obama Administration has skirted at every step despite also being legally bound to follow the law.

- **Delays a solution to a growing challenge even longer.** In 2006, Edward Sproat, then director of the NRC’s Office of Civilian Radioactive Waste Management, testified before Congress that Yucca Mountain could begin receiving nuclear waste in 2017 under the best scenario.<sup>38</sup> Several years after the Obama Administration’s Yucca Mountain abandonment, a 2012 Government Accountability Office (GAO) study determined that waste collection could begin by 2027 if the process were restarted in 2012. The same report concluded that a plan similar to the Obama Administration’s *Strategy* would take 20 years to complete two storage facilities, and 40 years for an alternative permanent repository, determining opening dates of 2032 and 2052, respectively. In reality, the licensing process for such an interim storage facility alone could take many years. For example, the license for Private Fuel Storage, a consolidated interim facility in Utah, took nine years to complete and was ultimately halted by the state.<sup>39</sup>

A repository is a critical part of managing nuclear waste and is needed as soon as possible. The bulk of current reactors will be decommissioned around 2040, assuming no new reactors or extended operating licenses. The longer the delay,

the more expensive solutions could become for ratepayers and taxpayers. For example, the government’s failure to begin collecting waste in 1998 forced nuclear utilities to develop interim solutions for dry storage on-site that were not envisioned in the government’s centrally planned approach.<sup>40</sup> While Yucca Mountain was behind schedule but still moving forward, the DOE developed specifications for temporary storage canisters that were suitable for Yucca Mountain, at least allowing nuclear utilities to plan ahead for the government’s lone disposal solution. Yet uncertainty on the part of the federal government only made long-term decisions by nuclear operators more difficult.

Ultimately, central planning does not allow for adjustments or innovation, and increases the likelihood that government inaction will lead to higher or unnecessary costs in the long run. The consequences are not borne by the government but by industry and, ultimately, their customers and federal taxpayers.

- **Concentrates too much decision making in Washington at states’ expense.** S. 854 retains the federal government as the primary authority for waste management and disposal. While it is not known what a final agreement between the Administration and state and local governments would look like, the bill leaves the Administrator to make a final decision on the location of the repository and management of the facility.<sup>41</sup> This places authority for nuclear waste decisions with the entity with the least moral authority to make those decisions—Washington.

In fact, this centralization of decisions in Washington is one of the reasons why progress on Yucca Mountain or any other waste

37. *Ibid.*, §305(b)(4)(C), and §306(e)(4).

38. Edward F. Sproat III, “DOE’s Revised Schedule for Yucca Mountain,” testimony before the Subcommittee on Energy and Air Quality, Committee on Energy and Commerce, U.S. House of Representatives, July 19, 2006, [http://www.yuccamountain.org/pdf/ocrwm\\_testimony071906.pdf](http://www.yuccamountain.org/pdf/ocrwm_testimony071906.pdf) (accessed June 16, 2015).

39. U.S. Government Accountability Office, “Spent Nuclear Fuel: Accumulating Quantities at Commercial Reactors Present Storage and Other Challenges,” GAO-12-797, August 2012, <http://www.gao.gov/assets/600/593745.pdf> (accessed June 22, 2015).

40. U.S. Government Accountability Office, “Spent Nuclear Fuel Management: Outreach Needed.”

41. Nuclear Waste Administration Act, §306(c)(1) and §306(d)(1).

management facility has been so difficult. States have expressed suspicion of the federal government that any federal interim storage facility would become a de facto permanent facility.<sup>42</sup> While both long-term and interim storage can and have been done safely, these concerns are understandable given the federal government's track record of broken promises. For example, in 1992, Governor Mike Sullivan (D) of Wyoming stopped an effort to build an interim storage facility because, as the GAO reports, "despite the assurances of federal officials, even those with 'personal integrity and sincerity,' he could not be sure that the federal government's attitudes or policies would remain the same over the next 50 years or that the state would have any future say in the program."<sup>43</sup>

Meanwhile, the very ones producing waste and paying for its management—the nuclear industry and its customers—have even less say in a waste facility. Conflict-of-interest restrictions in the bill prevent industry from participating on the board, though these are the very people who have an incentive to follow through with nuclear waste management solutions.<sup>44</sup>

A better approach would remove the federal government's responsibility for managing nuclear waste beyond evaluating and licensing facilities. Private companies could then negotiate with utilities, communities, and states to offer solutions that make sense for the unique conditions and interests of each group. This is already being done with low-level waste facilities.<sup>45</sup> The private sector should be able to work with states and the NRC to do so with high-level waste.

- **Incentivizes interim storage over a permanent repository.** Since the Nuclear Waste Policy

Act, commercial nuclear power operators have entered into what are known as "standard contracts" with the DOE to collect nuclear waste. Some 854 conditions any new contracts on an NRC-approved license for at least an interim storage facility.<sup>46</sup> This creates one more incentive for the government to settle with an interim storage site, even though nuclear power plants are in effect currently operating as interim storage sites and can safely do so well into the future.<sup>47</sup> As the government's liability grows for its failure to collect waste, its first priority is simply to relieve this pressure with short-term solutions to move waste from nuclear facilities. While this may temporarily solve the government's legal problem, it does not provide long-term solutions to waste management problems.

## Going Forward

Nuclear waste management in America has the potential to be an incredible opportunity for growth and innovation, not only in waste management solutions but also in new nuclear power plant design. The Nuclear Waste Administration Act moves America further from a permanent repository, even if one accepts the flawed premise that nuclear waste should be managed by the government. Given the opportunity to once again make progress on nuclear waste management, Congress should:

- **At a minimum, fund the evaluation of the Yucca Mountain license application.** The House Energy and Water Development Appropriations bill called for sound policy to provide funding for the NRC to finish the Yucca Mountain licensing process. It wisely prohibited the use of funds for any alternative plan unless Congress passes legislation for such a plan, as well as prohibiting the use of funds "to take actions that would irrevocably remove Yucca Mountain as an

42. U.S. Government Accountability Office, "Spent Nuclear Fuel Management: Outreach Needed."

43. Ibid.

44. Nuclear Waste Administration Act, §205(j)(2).

45. Nuclear Regulatory Commission, "Locations of Low-Level Waste Disposal Facilities," April 13, 2015, <http://www.nrc.gov/waste/llw-disposal/licensing/locations.html> (accessed July 27, 2015).

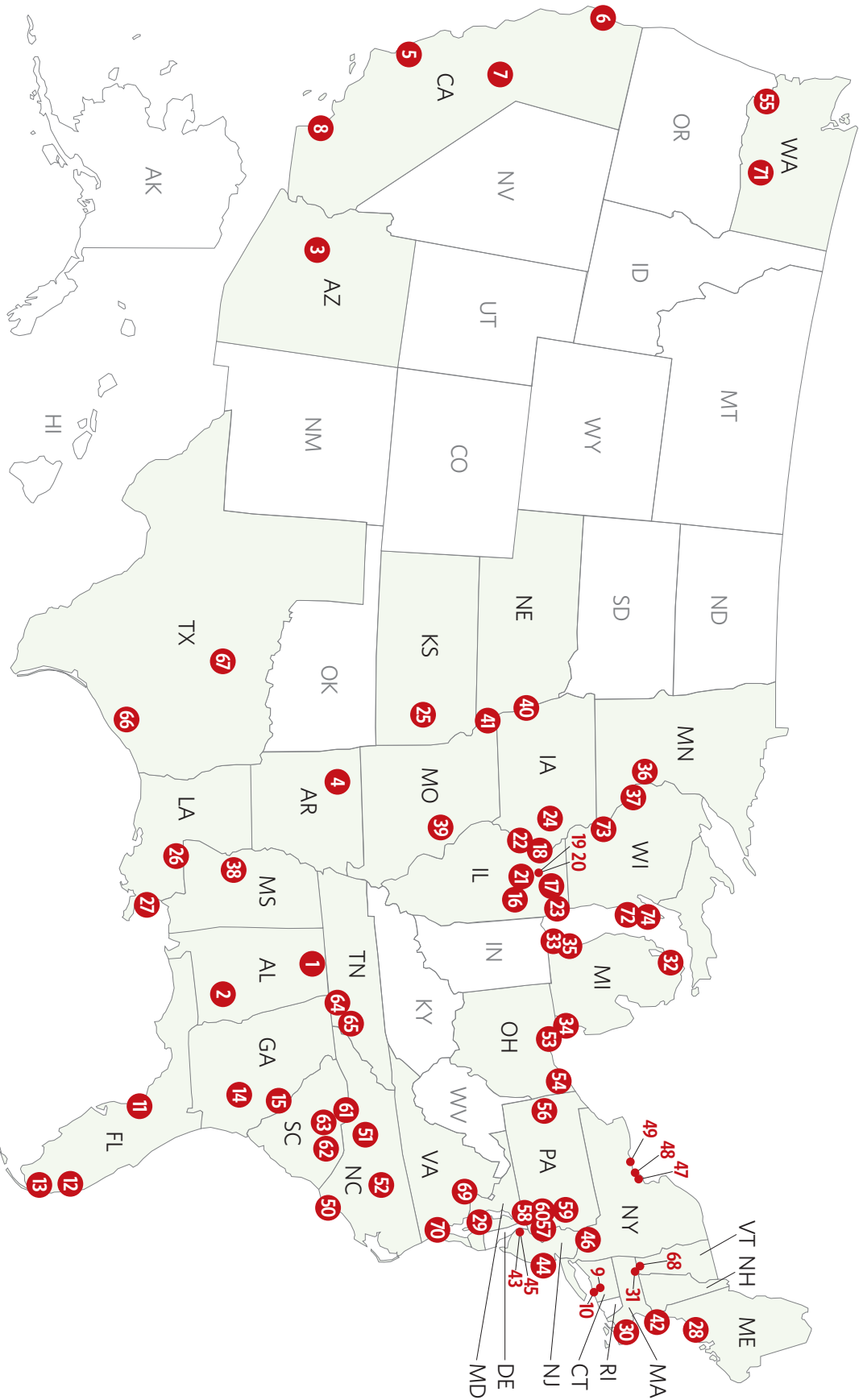
46. Nuclear Waste Administration Act, §406(d).

47. Hannah Northey, "NRC Finalizes Waste Rule, Lets Licensing Decisions Resume," *E&E News*, August 26, 2014, <http://www.eenews.net/greenwire/2014/08/26/stories/1060004936> (accessed July 23, 2015).

MAP 1

## Where Is America's Spent Nuclear Fuel?

The federal government has failed to meet its obligations to collect and dispose of spent nuclear fuel as directed by the 1982 Nuclear Waste Policy Act. As a result, the nuclear industry developed on-site interim storage to hold the spent fuel until a long-term solution is in place. Spent nuclear fuel is currently being held—with safety oversight by the Nuclear Regulatory Commission—at 74 active and closed power plants across the U.S.



STATE	FACILITY	STATE	FACILITY	STATE	FACILITY
<b>Alabama</b>	1 Browns Ferry 2 Joseph M. Farley	<b>Louisiana</b>	26 River Bend 27 Waterford	<b>North Carolina</b>	50 Brunswick Steam 51 McGuire 52 Sharon Harris
<b>Arizona</b>	3 Palo Verde	<b>Maine</b>	28 Maine Yankee	<b>Ohio</b>	53 Davis-Besse 54 Perry
<b>Arkansas</b>	4 Arkansas Nuclear One	<b>Maryland</b>	29 Calvert Cliffs	<b>Oregon</b>	55 Trojan
<b>California</b>	5 Diablo Canyon 6 Humboldt Bay 7 Rancho Seco 8 San Onofre	<b>Massachusetts</b>	30 Pilgrim 31 Yankee Rowe	<b>Pennsylvania</b>	56 Beaver Valley 57 Limerick 58 Peach Bottom 59 Susquehanna 60 Three Mile Island
<b>Connecticut</b>	9 Haddam Neck 10 Millstone	<b>Michigan</b>	32 Big Point Rock 33 Donald C. Cook 34 Fermi 35 Palsades	<b>South Carolina</b>	61 Catawba 62 H.B. Robinson 63 Virgil C. Summer
<b>Florida</b>	11 Crystal River 12 St. Lucie 13 Turkey Point	<b>Minnesota</b>	36 Monticello 37 Prairie Island	<b>Tennessee</b>	64 Sequoyah 65 Watts Bar
<b>Georgia</b>	14 Edwin I. Hatch 15 Vogtle	<b>Mississippi</b>	38 Grand Gulf	<b>Texas</b>	66 South Texas Project 67 Comanche Peak
<b>Illinois</b>	16 Braidwood 17 Byron 18 Clinton 19 Dresden 20 GE Morris 21 La Salle 22 Quad Cities 23 Zion	<b>Missouri</b>	39 Callaway	<b>Vermont</b>	68 Vermont Yankee
<b>Iowa</b>	24 Duane Arnold	<b>Nebraska</b>	40 Ft. Calhoun 41 Cooper	<b>Virginia</b>	69 North Anna 70 Surry
<b>Kansas</b>	25 Wolf Creek	<b>New Hampshire</b>	42 Seabrook	<b>Washington</b>	71 Columbia Generating Station
		<b>New Jersey</b>	43 Hope Creek 44 Oyster Creek 45 Salem	<b>Wisconsin</b>	72 Point Beach 73 LaCrosse 74 Kewaunee
		<b>New York</b>	46 Indian Point 47 James A. FitzPatrick 48 Nine Mile Point 49 R.E. Ginna		

Source: U.S. Government Accountability Office, "Outreach Needed to Help Gain Public Acceptance for Federal Activities that Address Liability," October 2014, <http://www.gao.gov/assets/670/666454.pdf> (accessed June 29, 2015).

option for a repository.<sup>48</sup> One option might be to then transfer a license to a Nevada-based entity to work directly with the nuclear industry. Giving Nevadans control of the license to build and manage Yucca Mountain would in itself be a powerful incentive.<sup>49</sup>

- **Ensure that the Nuclear Waste Fund remains attached to the disposal of existing waste.** The Nuclear Waste Fund was designed to pay for a repository at Yucca Mountain and should be used only for management of existing nuclear waste. Should Congress unequivocally reject Yucca Mountain, or should the project be found technically unsound, those funds should then remain attached to the management of the existing nuclear waste.
- **Allow waste producers to be responsible for waste management.** The biggest flaw of the Nuclear Waste Administration Act is that it fails to address the underlying problems with waste management as it has been attempted. A better approach would require nuclear waste producers to be responsible for waste management within the bounds of NRC regulations—treating nuclear utilities like other commercial, for-profit businesses. A new system would have accurate market pricing, rather than a flat fee managed by the government. And, it would allow competition.<sup>50</sup>

Though the current framework does not have a grid for multiple providers, the dysfunction of waste management thus far has inspired several promising attempts to offer waste management solutions in Texas and New Mexico. This should tell every politician that there is a market to supply nuclear waste management options.

The Nuclear Waste Administration Act addresses symptoms without looking at causes, ultimately locking in place a broken system for decades and moving Americans further from a cohesive nuclear waste management system. A rational, economical, and technologically diverse solution to nuclear waste management in America requires market reforms that have worked for every other successful industry—namely properly aligning incentives and responsibilities, market pricing, and competition.<sup>51</sup> Admittedly, this will not be easy. But after decades of frustrated efforts and dead ends, tinkering around the edges of a broken system simply will not do.

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48. Energy and Water Development Appropriations Bill of 2016, Report 114-92, 114th Cong., 1st Sess., p 79, <https://www.congress.gov/114/crpt/hrpt91/CRPT-114hrpt91.pdf> (accessed July 27, 2015).

49. Jack Spencer, “Yucca Mountain and Nuclear Waste Policy: A New Beginning?” Heritage Foundation *Issue Brief* No. 3085, December 16, 2010, <http://www.heritage.org/research/reports/2010/12/yucca-mountain-and-nuclear-waste-policy-a-new-beginning>.

50. Jack Spencer, “Nuclear Waste Management: Minimum Requirements for Reforms and Legislation,” Heritage Foundation *Issue Brief* No. 3888, March 18, 2013, <http://www.heritage.org/research/reports/2013/03/nuclear-waste-management-minimum-requirements-for-reforms-and-legislation?ac=1>.

51. 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, August 30, 2010, <http://www.heritage.org/research/testimony/introducing-market-forces-into-nuclear-waste-management-policy>.