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Restarting the Yucca Mountain Project: The Case For and Against

The Obama administration's decision, in 2010, to stop work on a deep geological repository at Yucca Mountain in Nevada marked an important turn in the long, troubled history of efforts to find a safe and permanent way to dispose of America's spent nuclear fuel and high-level radioactive waste. Five years later, the U.S. nuclear waste management program remains largely paralyzed even as the quantities of spent fuel being stored at commercial reactor sites around the nation continue to grow. A Blue Ribbon Commission formed at the direction of President Barack Obama in 2010 to undertake a wholesale reexamination of the nuclear waste issue produced a number of recommendations but has yet to prompt significant congressional action.

Against this backdrop, the idea of restarting work on the Yucca Mountain project has been raised as one option for moving beyond the current impasse. As part of its Nuclear Waste Initiative, the Bipartisan Policy Center (BPC) asked proponents of this approach to (1) identify the specific steps required to restart the licensing process, and (2) articulate key arguments in favor of a restart. BPC then asked individuals with opposing points of view to respond and put forward their chief arguments *against* resuming efforts to license a repository at Yucca Mountain.

This document summarizes the primary points that emerged from the above-described exercise, *as articulated by the individuals BPC consulted*. In some cases, this summary includes additional perspectives or points expressed by members of BPC's Nuclear Waste Initiative Advisory Council. *It is important to stress that the views included in this summary do not represent the views of BPC or of BPC staff*. The purpose of this document is not to analyze the arguments or come to a position on Yucca Mountain. Rather the aim here is simply to offer a view of what might be involved in restarting the licensing process and to preview the chief arguments that would likely be raised by proponents and opponents if that approach were tried.



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Background and Context

The Nuclear Waste Policy Act of 1982 (NWPA) established deep geological disposal as the ultimate mode of disposition for spent nuclear fuel and high-level radioactive waste in the United States. In addition, the NWPA established a process for siting two disposal repositories and authorized the U.S. Department of Energy (DOE) to enter into contracts with nuclear utilities to begin removing spent nuclear fuel from reactor sites by 1998 and to collect a fee on nuclear-generated electricity to fund the government's commercial nuclear waste management program. In 1987, the NWPA was amended to designate Yucca Mountain as the sole site to be considered for a permanent geologic repository. (The law also capped the amount of spent fuel and high-level waste that could be disposed of at the site at 70,000 tons.)

After conducting detailed site-characterization studies in the 1990s, DOE issued an affirmative finding on the suitability of the Yucca Mountain site in 2002. A formal recommendation by President George W. Bush and subsequent congressional action to override the objections of the state of Nevada cleared the way for DOE to begin preparing an application to the Nuclear Regulatory Commission (NRC) for a license to authorize repository construction. Completing the license application took another six years and raised numerous complex technical, regulatory, and legal issues, but the license application was ultimately submitted in June 2008. Within the next year, the Obama administration signaled its intent to terminate the Yucca Mountain project, and in March 2010, DOE moved to withdraw its license application to the NRC. In August 2013, the U.S. Court of Appeals for the District of Columbia Circuit found that the NRC was legally required to continue its review unless Congress directed otherwise, or the NRC ran out of funds for this purpose.

Responding to the court's decision, the NRC affirmed its commitment to completing key documents (subject to available funds), and in January 2015, the NRC staff issued the last of five Safety Evaluation Reports (SERs) for the proposed Yucca Mountain repository design. The reports concluded that the facility described in the license application could meet regulatory requirements for post-closure performance, isolating spent fuel and high-level waste for more than one million years. The NRC staff also identified three outstanding sets of issues—concerning land ownership and control, water rights, and a required supplement to the environmental impact statement—that required resolution before a license to authorize construction could be approved. In addition, the SER proposed to attach 14 conditions to the construction authorization, including conditions that would significantly impact the repository design and others that would need to be satisfied prior to commencing construction. The NRC has not requested further appropriations to address these issues or to continue the license hearing process.

Restarting the Yucca Mountain Project: What Would It Take?

Any effort to restart the Yucca Mountain project would logically focus first on resuming the license hearing process at the NRC. At some point during these hearings, DOE could potentially proceed with work on other aspects of the project. The licensing process itself has been described as “long and arduous” since it would involve a hearing before an NRC administrative law panel on the hundreds of contentions that have already been submitted on the license application and of the many new contentions that would likely arise in the future. The matter would then be subject to appellate review by the NRC, followed by further review in a U.S. Court

of Appeals. At the same time, there would likely be contentious processes before the courts and other administrative agencies with regard to other authorizations related to land withdrawal, water rights, and transportation access.

The below list of specific steps in support of a resumption of the licensing process is condensed from a longer discussion prepared—at BPC’s request—by an advocate for restarting the Yucca Mountain program. Others may have a different view of what a restart would entail and of the relative difficulty of completing these steps. Some steps could be taken in parallel; others would have to proceed sequentially.

Assemble core management and technical teams at DOE and NRC:

This task is complicated by the departure in recent years of some of the project’s most experienced and knowledgeable personnel.

Resurrect the NRC’s Licensing Support Network:

Set up to provide Web access to 3.6 million-plus project-relevant documents, the network was deactivated in 2011.

Provide support for the state of Nevada, affected units of local government, and others with accepted contentions:

Under the NWPA, these stakeholders are entitled to federal funding to reassemble their own core management teams, secure legal counsel, engage expert witnesses, and support administrative functions.

Procure facilities to support licensing hearings:

Specifically, facilities are needed to house various staffs and functions throughout the process. This may be more or less difficult depending on whether existing DOE and NRC facilities can be used.

Assemble the contractor team needed to initiate hearings:

Outside experts are needed to address technical and scientific issues and to provide engineering and design support in the license hearing process.

Develop structures for addressing technical and regulatory issues in the licensing process:

This would include establishing teams of technical and regulatory experts to respond to issues and to interface with the licensing process. These “new” experts will have to understand and defend the work of those who prepared the application, including documents that reflect the internal deliberations of past experts.

Develop required supplements to the environmental impact statement (EIS):

The NRC has already determined that the existing EIS must be supplemented to adequately address impacts on groundwater and from surface discharges.

Support activities external to the license application process that are integral to a construction authorization:

Action is needed by Congress and by the state of Nevada on issues associated with land withdrawal and water rights, respectively; in addition, the courts have yet to rule on petitions filed by the state of Nevada against site-specific environmental standards and NRC regulations.

Resume activities to confirm repository performance:

This entails continuing work begun during the site-characterization phase (including surface and sub-surface testing at the Yucca site) and involves reopening and re-staffing key facilities, like the Sample Management Facility and the Exploratory Studies Facility.

Begin focused reviews of the technical literature and incorporate new information developed since the license application was filed:

In particular, findings from new research concerning groundwater flow and seismic hazard will have to be incorporated into the license application.

Assemble necessary contractor administrative support for license application activities:

Support is needed to produce and handle materials and records, manage contracts and procurement, and perform other clerical and secretarial functions.

Develop outreach capabilities and interface with stakeholders:

A restart would generate demand for information materials and outreach activities (such as press releases, presentations, site tours, etc.) and require interactions with stakeholders.

Assure adequate DOE and contractor structure is in place to support the quality assurance (QA) program:

A robust QA program, as detailed in the Quality Assurance Requirements and Description (QARD) document submitted with DOE's license application, is a core requirement for gaining license approval.

Assemble a team to assess and modify the QARD as needed to accommodate changes in the management structure since the license application was submitted:

Among other issues, high priority would need to be given to providing a quality work environment and to nurturing a strong nuclear safety culture.

Arguments For and Against Restarting the Yucca Mountain Project

Proponents for restarting the licensing process stress that the NWPA is still the law of the land and point out that Congress has shown no inclination to adopt a new approach. In this context, pursuing a repository at Yucca Mountain offers the only legally sanctioned path forward to meeting the federal government's waste management obligations. Moreover, billions have been spent to understand the Yucca Mountain site and to prepare the license application, and this investment will largely be lost if Yucca Mountain is abandoned. Developing an application for a different site, on the other hand, would require the investment of further billions of dollars and would set the waste management program back by several decades. In short, while acknowledging that completing the licensing process will not be easy or quick, restart proponents still see Yucca Mountain as the best and only viable option. In their view, not only is there no legal basis for starting over, doing so would mean substantially longer delays and higher costs.

Opponents of Yucca Mountain, by contrast, do not see a viable path to successful completion of the licensing process. They stress that Nevada will continue to vigorously oppose the project at every turn and could prevail at one of many stages of the licensing proceedings. In addition, Nevada can be expected to mount a vigorous campaign against other authorizations that are necessary to allow the project to proceed, such as land withdrawal, water rights, transportation access, and the like. According to this view, the fundamental point is that Yucca Mountain does not represent a “consent-based solution,” as recommended by the Blue Ribbon Commission. Therefore, any effort to resume the licensing process is a formula for continued fighting about this one site to the detriment of other possible solutions for at least another decade. The fact that billions of dollars have been spent on Yucca Mountain is not an argument for spending billions more on a project that is unlikely to succeed. Among those who take this view, some also take issue with the contention that Yucca offers the only realistic path forward. They argue that progress is possible on a path that focuses on developing interim offsite storage while laying the groundwork for a new, consent-based search for a permanent repository site, with possible separation of military and power-plant wastes.

The remaining bullets provide an issue-by-issue summary of pro- and anti- points of view toward restarting the Yucca Mountain licensing process. As stressed in the introduction, these bullets summarize views *expressed by individuals on both sides of the Yucca Mountain issue*. In paraphrasing these views, BPC does not intend to signal any judgment about, or endorsement of, their validity or merits.

Practical feasibility and cost

Advocates for a restart view the NRC licensing process, albeit delayed, as essentially functionally on track prior to DOE’s effort to withdraw the license application. They acknowledge some challenges in reassembling the necessary technical and managerial expertise, especially at DOE, but see this as doable. They also argue that the licensing process can be restarted at a reasonable cost (on the order of tens of millions of dollars to initiate the next steps in the process), especially since key supporting entities—including the national labs and major DOE contractors—have made detailed contingency plans for a restart.

Others take a different view of the practical feasibility and cost of restarting the licensing process. They emphasize that reassembling the legal and technical capability to defend DOE’s application will be a substantial challenge given that the relevant personnel have been widely scattered. In their view, “tens of millions of dollars” is unlikely to be nearly sufficient for assembling the technical team, bringing the team up to speed, and finishing work on outstanding issues. (They note that a 2008 DOE estimate put licensing costs at more than \$1.5 billion while the NRC’s own estimate for the cost of the licensing process is \$330 million.)

Necessity for changes in the repository design and other issues that could complicate the license application:

Proponents of a restart point to the NRC staff’s issuance of a positive SER for Yucca Mountain as indicative of the high quality of the license application. In their view, the various repository design issues raised by opponents either rehash old arguments or are not so significant as to warrant changes in the license application.

Opponents of Yucca Mountain point to several factors that, in their view, not only call into question key assumptions in the license application but are so significant as to require a “total rewrite” of the application. These include a trend toward storing spent fuel in larger casks; higher rates of reactor burn-up that translate to hotter spent fuel, with implications in terms of repository design and need for rail access to the repository site; and a recent change in DOE policy concerning the commingling of commercial spent

fuel with military waste. Construction of rail access to Yucca Mountain, in particular, could be uniquely difficult, entailing costs of at least \$2–\$3 billion, approvals from other federal agencies, additional water permits from the state of Nevada, and legal battles with private landowners.

Land use, water, and transportation issues:

Restart proponents acknowledge that resolving these issues will be contentious and difficult. But they argue the challenges are no different than they were before the license application was withdrawn and no different than they would be for any other site. In their view, one of the strongest reasons to follow through with licensing is precisely to build confidence in the process and to demonstrate that a facility can indeed be identified, characterized, and licensed under current laws and regulations. To opponents, these issues—some of which require congressional action and all of which must be addressed if the project is to go forward—offer further grounds for concluding that Yucca Mountain cannot succeed and that only a consent-based process offers hope for finding a site that will not be mired in endless legal and political battles.







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Founded in 2007 by former Senate Majority Leaders Howard Baker, Tom Daschle, Bob Dole and George Mitchell, the Bipartisan Policy Center (BPC) is a non-profit organization that drives principled solutions through rigorous analysis, reasoned negotiation and respectful dialogue. With projects in multiple issue areas, BPC combines politically balanced policymaking with strong, proactive advocacy and outreach.

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