

# USNIC NEWS

March 17, 2016

## **Urgent Action Needed by Congress and DOE to Address Growing Costs, Stakes From Political Impasse over Nation's Nuclear Waste Management Program**

Citing growing costs to U.S. taxpayers in the billions of dollars and mounting collateral impacts on American nuclear energy, the U.S. Nuclear Infrastructure Council (USNIC) called for decisive, swift and tangible action by the Congress, the Trump Administration and the U.S. Department of Energy (DOE) under Energy Secretary Perry to enact a comprehensive program for used nuclear fuel and high-level waste storage including immediate steps to re-establish the DOE's "vacated" Office of Civilian Radioactive Waste Management; re-engagement by the DOE in the ongoing NRC Yucca Mountain review; and enactment of supporting legislative provisions. The Council ([www.usnic.org](http://www.usnic.org)) is the leading business consortium for new nuclear energy and promotion of the U.S. supply chain globally.

The omnibus recommendations also include consolidated interim storage solutions with an emphasis on existing private-sector initiatives although not as a substitute for a permanent geological repository; management and funding reform over the medium term; transportation planning and execution with maximum reliance on the private-sector; research, development and demonstration of backend technologies to optimize the fuel cycle; and incentives for host communities.

According to an issue brief prepared by the Council's Backend Working Group, "the Nation's nuclear waste management program stands at an impasse, largely due to universally recognized political reasons. As a result, there is no available disposal pathway for the Nation's growing inventory of both commercial and defense used nuclear fuel and high-level waste. Currently, used fuel and high-level waste (HLW) from both commercial and defense activities remain in safe storage at 121 sites in 39 states. U.S. spent fuel inventories now exceed 75,000 metric tons at 99 operating reactors and 14 shutdown sites. It has been more than 30 years since enactment of the Nuclear Waste Policy Act (NWPA); more than 18 years since the federal government failed to meet its statutory and contractual obligation to begin removing used fuel from nuclear energy reactor sites; more than eight years since the license application review process by the U.S. Nuclear Regulatory Commission (NRC) began; and more than six years since the Obama Administration defunded the repository program and vacated the Office of Civilian Radioactive Waste Management (OCRWM).

"This impasse is costing U.S. taxpayers billions of dollars. The current estimate of federal liabilities is approximately \$25 billion and growing - an \$11 billion increase since the Obama Administration first moved to terminate the Yucca Mountain project. In addition to these mounting costs, failure to bring closure to the backend of the nuclear fuel cycle adversely impacts nuclear energy as a vital component for reliable, affordable and clean electricity - and

energy independence, jobs, exports and competitiveness. Some members of Congress have balked at funding new nuclear technology development based on the lack of a disposal pathway. For two years, after the U.S. Court of Appeals struck down its Waste Confidence Rule, the NRC placed a moratorium on new nuclear plant licenses and license renewals. Ten states have a ban or restrictions on the construction of new nuclear energy facilities in large part due to the lack of a disposition pathway for used fuel. Globally, as noted by former President Obama's own Blue Ribbon Commission on America's Nuclear Future (BRC), the continued stalemate is damaging America's international standing on issues of nuclear safety, nonproliferation and security."

The report concludes: "While the nuclear waste management program has been stymied for years in the executive and legislative branches of government, it cannot be allowed to remain so indefinitely... It is time for the new Administration to join with Congress and re-establish the Nation's leadership role in the safe, peaceful and responsible use of nuclear energy.

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*The USNIC Backend Working Group is a project of the U.S. Nuclear Infrastructure Council ([www.usnic.org](http://www.usnic.org)), the leading business consortium for new nuclear energy and promotion of the U.S. supply chain globally. The views above represent a consensus of the USNIC's Backend Working Group and the Council, but do not necessarily represent the specific views of individual member companies and organizations.*

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## **U.S. NUCLEAR INFRASTRUCTURE COUNCIL (USNIC)**

### **USNIC Backend Working Group Issue Brief**

#### **Charting a Path Forward**

**March 2017**

#### **Issue**

Today, the Nation's nuclear waste management program stands at an impasse, largely due to universally recognized political reasons. As a result, there is no available disposal pathway for the Nation's growing inventory of both commercial and defense used nuclear fuel and high-level waste. Currently, used fuel and high-level waste (HLW) from both commercial and defense activities remain in safe storage at 121 sites in 39 states. U.S. spent fuel inventories now exceed 75,000 metric tons at 99 operating reactors and 14 shutdown sites.

It has been more than 30 years since enactment of the Nuclear Waste Policy Act (NWPA); more than 18 years since the federal government failed to meet its statutory and contractual obligation to begin removing used fuel from nuclear energy reactor sites; more than eight years since the license application review process by the U.S. Nuclear Regulatory Commission (NRC) began; and more than six years since the Obama Administration defunded the repository program and vacated the Office of Civilian Radioactive Waste Management (OCRWM).

This impasse is costing U.S. taxpayers billions of dollars. The current estimate of federal liabilities is approximately \$25 billion and growing – an \$11 billion increase since the Obama Administration first moved to terminate the Yucca Mountain project. In addition to these mounting costs, failure to bring closure to the backend of the nuclear fuel cycle adversely impacts nuclear energy as a vital component for reliable, affordable and clean electricity – and energy independence, jobs, exports and competitiveness. Some members of Congress have balked at funding new nuclear technology development based on the lack of a disposal pathway. For two years, after the U.S. Court of Appeals struck down its Waste Confidence Rule, the NRC placed a moratorium on new nuclear plant licenses and license renewals. Ten states have a ban or restrictions on the construction of new nuclear energy facilities in large part due to the lack of a disposition pathway for used fuel. Globally, as noted by former President Obama's own Blue Ribbon Commission on America's Nuclear Future (BRC), the continued stalemate is damaging America's international standing on issues of nuclear safety, nonproliferation and security.

Urgent action by the Congress, the Trump Administration and the U.S. Department of Energy (DOE) under Energy Secretary Rick Perry is required to re-establish the basic foundational elements of a comprehensive program for used nuclear fuel and high-level waste storage and disposal.

## **USNIC Backend Working Group Recommendations**

The U.S. Nuclear Infrastructure Council's Backend Working Group was established in 2012 to follow matters related to used fuel management and encourage actions to resolve the impasse over the Nation's nuclear waste management program.

It is crystal clear that decisive, swift and tangible action is needed to re-establish a comprehensive program to address the federal government's statutory and contractual obligations for disposition of growing inventories of spent nuclear fuel and high-level waste – as well as to provide a path forward for the backend of the fuel cycle for currently operating reactors and pave the way for new nuclear energy plants required for U.S. energy independence, jobs, exports, made-in-America clean energy leadership and national security.

The USNIC Backend Working Group believes that Congress and DOE should address needed program reforms through the adoption of an omnibus approach that advances the Yucca Mountain project, develops supportive consolidated interim storage capabilities as needed, assures the availability of associated transportation infrastructure, and aligns organizational focus and resources behind the effort while looking to recycling and advanced reactor technologies that can optimize the fuel cycle.

Specific features of this multi-faceted approach include:

- ***Yucca Mountain Repository Project.*** As a cornerstone to any comprehensive program, the NRC environmental and safety review of the DOE Yucca Mountain license application must be completed, culminating in a final agency decision to authorize (or not) construction of the repository. This action should include immediate action to re-establish the DOE waste management organization (OCRWM); re-engagement by the DOE in the NRC Yucca Mountain review; and enactment of legislative provisions for (i) securing the necessary land withdrawal and water rights and (ii) providing benefits to local and state governments in return for hosting a repository. The 2015 Presidential decision to develop a repository other than Yucca Mountain for waste resulting from defense activities should be reversed unless and until there is a formal opportunity for stakeholder input and the benefits of a separate repository are clearly shown to outweigh the costs.
- ***Consolidated interim storage.*** While completing Yucca Mountain licensing, consolidated interim storage solutions should be pursued, with an emphasis on existing private-sector initiatives. Consolidated storage is not a substitute for a permanent geologic repository but it does offer potential advantages as part of an integrated used fuel management system. First priority for consolidated storage spent fuel acceptance should be given to used fuel currently residing at sites with no operating reactor. Consistent with the NWPA, any tangible federal action related to consolidated storage should not pre-empt completion of licensing of the Yucca Mountain repository.
- ***Management and funding reform.*** Over the medium term, this action should include the establishment of a separate, politically independent but accountable federal corporation-type organization which is mission-based and structured to execute all necessary steps and activities to develop, license, construct, operate and decommission nuclear used fuel and high-level waste

storage facilities and permanent repositories. In addition, the Nuclear Waste Fund<sup>1</sup> must be restructured so that access to both the fund's assets and annual receipts are available for expenditure by the new entity, subject to appropriate congressional oversight.

- ***Transportation planning and execution.*** Near-term work should focus on assuring the availability of necessary infrastructure and capabilities (railcars, rail spurs/alternatives, etc.) to move used fuel and high-level waste. To the maximum extent practicable, the private sector should be utilized to implement these activities consistent with the current provisions of the NWPA.
- ***Research, development and demonstration.*** Continued work must enable advanced reactor and backend technologies that offer the promise of improved economics, enhanced safety, maximize utilization of energy resources and optimization of waste management and disposal.
- ***Assuring shared value for host communities.*** The development of facilities for management and disposal of used nuclear fuel and HLW represents a significant investment in nuclear infrastructure and provides a unique platform for economic development and future research development and demonstration. As a committed partner in assuring the successful siting and operation of these facilities, the federal government should provide the necessary resources for impact assistance along with tailored incentives that support the long-term mission of nuclear waste storage and disposal sites and their value to the host community.

## **Background and Discussion**

Upon taking office the Obama Administration sought to terminate the Yucca Mountain Project for which the DOE had submitted a license application to the NRC in 2008. The Administration's actions contravened the will of the legislative branch of the federal government, as expressed first in 1987 when Congress designated Yucca Mountain, Nevada as the only candidate site for the characterization as the nation's permanent geologic repository for used fuel and HLW, and then again in 2002 when a large bipartisan majority in Congress overrode a State of Nevada veto of the site selection consistent with the NWPA, as amended.

In 2010, Secretary of Energy Steven Chu announced the establishment of the Blue Ribbon Commission on America's Nuclear Future. In March 2010, Secretary Chu stated that Yucca Mountain is not a "workable option" for a geologic repository, and subsequently the DOE made a motion in the NRC Yucca Mountain licensing proceedings that the Yucca Mountain license application be withdrawn with prejudice. Significantly, the DOE lawyers defending the DOE withdrawal motion conceded that the application was neither flawed nor the site unsafe. The NRC licensing board denied the motion – a decision that was subsequently upheld by a vote of the Nuclear Regulatory Commission.

After receiving recommendations from the BRC in 2012, a year later in January 2013, the DOE released a "Strategy for the Management and Disposal of Used Nuclear Fuel and High-Level Radioactive Waste". The Administration's strategy recommended a consent-based approach to siting and developing both pilot and larger-scale consolidated storage facilities<sup>2</sup> for used fuel to be available

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<sup>1</sup> The Nuclear Waste Fund is the government's accounting of money paid by nuclear power plant operators for management and disposal of used fuel pursuant to the NWPA (i.e., nuclear waste fees), plus accumulated interest on the balance, minus expenditures.

<sup>2</sup> Utilities are currently storing used fuel safely and securely at reactor sites using a combination of underwater storage in purpose-built pools and dry storage in robust shielded containers. Consolidated storage refers to

in 2021 and 2025, respectfully. The strategy also called for the siting and development of a geologic repository other than Yucca Mountain for the disposal of used fuel and HLW with an operational date beginning in 2048. However, following the release of the strategy in 2013, the Obama Administration made no concrete progress. In March 2015 former President Obama issued a memorandum to Secretary of Energy Moniz documenting the president's finding that "... the development of a repository for the disposal of high-level radioactive waste resulting from atomic energy defense activities only is required."<sup>3</sup> In December 2015 DOE solicited public input on how to implement "... a consent-based siting process to establish an integrated waste management system to transport, store, and dispose of commercial spent nuclear fuel and high level defense radioactive waste." In December 2016, DOE released its proposed framework for consent-based siting, but no implementing actions have been undertaken.

During this time, the federal courts rebuked the Obama Administration's policy in three separate actions. In 2012, the U.S. Court of Appeals struck down the NRC's revision of the Waste Confidence Rule, which codified NRC's confidence, that nuclear spent fuel storage and disposal facilities would be available when needed. The Court remanded the rule back to the NRC, which responded by initiating a new rulemaking on Continued Storage supported by a new generic environmental impact statement. The NRC also placed a moratorium on the issuance of new reactor and independent spent fuel storage installation licenses and license renewals until the NRC completed action on the new rule. The NRC's licensing moratorium on new nuclear plant licenses lasted over two years until the NRC implemented the Continued Storage Rule which held that used fuel could be stored safely indefinitely on reactor sites or at one or more consolidated storage facilities. The new rule was challenged again in the U.S. Court of Appeals, but this time the court supported the NRC's new rule and associated environmental impact statement.

In addition to action on the Continued Storage Rule, the U.S. Court of Appeals issued in 2013 a writ of Mandamus compelling the NRC to continue the Yucca Mountain license application review as long as there is available congressionally-appropriated funding. Separately and also in 2013, the U.S. Circuit Court ordered the DOE to reduce the nuclear waste fee<sup>4</sup> to zero, unless and until either the DOE implements the NWPA and therefore continues with the Yucca Mountain Project, or Congress passes an alternative nuclear waste management program.

As a result of the Court's writ of Mandamus, the NRC early in 2015 issued a Safety Evaluation Report (SER) that found a Yucca Mountain geologic repository as designed and presented in the DOE license application was safe and met the NRC's long-term performance standard for isolating the spent fuel and high-level waste from the biosphere. In 2016 the NRC issued a supplement to the Yucca Mountain Environmental Impact Statement addressing impacts on ground water which found, similar to the SER, that any radiological doses from the ground water pathway would be small and well within regulatory limits.

Since DOE terminated its work on Yucca Mountain in 2010, the House of Representatives has repeatedly, by large bipartisan majorities, voted to provide funding to the NRC and DOE to complete

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collecting used fuel and storing it at one or a few locations, rather than scattered around the country at dozens of reactor sites.

<sup>3</sup> The Obama memorandum reversed a 1985 finding by DOE and President Reagan that there was no need to develop a separate defense repository. The 2015 decision was made with no formal solicitation of stakeholder input and no justification from a cost/benefit perspective.

<sup>4</sup> The nuclear waste fee was established by the NWPA and consisted of an ongoing levy on nuclear power reactor operators to cover the government's costs associated with managing and disposing of used nuclear fuel. A fee of \$0.001 per net megawatt-electric of nuclear electricity was assessed until DOE reduced the fee to zero in 2014 in compliance with the court ruling.

the NRC Yucca Mountain licensing process. The Senate has not voted to fund the Yucca Mountain project<sup>5</sup>, but the Senate Appropriations Committee has supported provisions for consolidated storage, including consolidated storage at private-sector sites. Under the fiscal year 2017 stop-gap funding resolution, neither Yucca Mountain nor consolidated storage received funding.

With regard to authorization legislation, S.854, “The Nuclear Waste Administration Act of 2015” was introduced in the Senate and referred to the Senate Energy and Natural Resources Committee in the 114<sup>th</sup> Congress. Sponsored by the leadership of both the Senate Energy and Appropriations Committees, S.854 is generally modeled after the recommendations of the Blue Ribbon Commission and is essentially identical to S.1240 introduced in the 113th Congress. The bill would establish a new federal agency to implement the nation’s nuclear waste management program, institute funding reform providing that agency with increased access to money in the Nuclear Waste Fund, and authorize a consent-based siting process for both consolidated storage facilities and geologic repository sites.

In the House, there has been no comparable authorizing legislation introduced, though legislation remains under active development and is anticipated in 2017. Targeted proposals introduced in the 115<sup>th</sup> Congress include H.R. 433, a measure limiting development of a separate repository for defense waste, and H.R. 474, the reintroduction of “The Interim Consolidated Storage Act” authorizing a private consolidated storage initiative with priority given to used nuclear fuel located on sites without an operating nuclear reactor.

While the nuclear waste management program has been stymied for years in the executive and legislative branches of government, it cannot be allowed to remain so indefinitely. The Court decisions discussed herein highlighted the failures of the government to discharge its duties and responsibilities, and responsible congressional leaders are pushing for action in both appropriations and authorization bills that would get the country’s nuclear waste storage and disposal program moving again. It is time for the new Administration to join with Congress and re-establish the Nation’s leadership role in the safe, peaceful and responsible use of nuclear energy.

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<sup>5</sup> Democratic Senator Harry Reid of Nevada, an adamant opponent of the repository, used his influence as Majority Leader through 2012 and Minority Leader thereafter to prevent Senate votes on Yucca Mountain funding. Senator Reid retired from the Senate at the end of 2016.