

# Nuclear Power

## Background

Nuclear power is the nation's largest source of emissions-free electricity, accounting for 53.2 percent of domestic emissions-free electricity generation and 19.4 percent of total electricity generation. There are 95 reactors in 29 states. It is a reliable source of baseload (i.e., available most of the time) energy, operating with an average capacity factor greater than 90 percent. Given these characteristics, nuclear plays a significant part in ensuring reliable, zero-emissions electricity service.

In 2018, public power utilities generated 16 percent of their electricity from nuclear power. Public power utilities both own and operate nuclear reactors outright, or partner with other utilities to co-own a facility. In addition, public power utilities receive power from nuclear power plants through bilateral contracts, indirectly through electricity markets, or in the case of those located in the Tennessee Valley, by purchasing power generated by the Tennessee Valley Authority (TVA), which owns and operates several nuclear power plants.

The American Public Power Association (APPA) supports the continued use of nuclear power, a key source of baseload, emissions-free electricity. APPA believes the federal government should make the construction of an interim storage facility for nuclear waste in a willing host community a priority. The Department of Energy (DOE) must also follow its statutory obligations and construct a final repository for nuclear waste, whether at Yucca Mountain, or another location. APPA also believes that federal policies should be enacted to facilitate the construction of new nuclear facilities and further the development of small modular reactors (SMRs).

## Spent Nuclear Fuel

The United States has long searched for a solution to address the back end of the nuclear fuel cycle (also referred to as spent nuclear fuel or nuclear waste). In 1982, Congress passed the Nuclear Waste Policy Act (NWPA), which assigned responsibility to DOE to site, construct, and operate a final repository for spent nuclear fuel. In 1987, Congress amended the NWPA and

designated Yucca Mountain as the sole site for DOE to consider, after conducting studies of nine potential sites.

As part of the NWPA, a surcharge of one-tenth of one cent was placed on electricity produced from nuclear power plants to fund the federal government's efforts to construct the final repository. Nuclear energy consumers, through this surcharge, paid a total of \$30 billion into the nuclear waste fund, or more than \$750 million per year. In 2008, DOE began pursuing a license with the Nuclear Regulatory Commission (NRC or Commission) to construct a facility at Yucca Mountain. However, despite spending nearly \$15 billion dollars on the project, in 2009, the Obama Administration eliminated funding for the project, and a year later, DOE moved to withdraw its license.

Due to the federal government's failure to fulfill its obligations under the NWPA to construct a repository, in 2013, the U.S. Court of Appeals for the D.C. Circuit ordered DOE to stop collecting the nuclear waste fee. Separately, on August 13, 2013, the court also ordered the NRC to use already obligated funds to resume its review of DOE's Yucca Mountain license, which the Commission had stopped doing in 2010.

In 2014, NRC staff finished a five-volume safety evaluation report and found Yucca Mountain to be a safe location for the long-term storage of spent nuclear fuel. However, the report recommended against NRC approval of the site until land and water rights are acquired and a supplement to DOE's environmental impact statement (EIS) is completed. While the NRC has been pressed to use its own funds to complete the EIS, it is unlikely that other necessary actions for approval will be completed without DOE cooperation or congressional action.

While, in previous years, the Trump Administration requested funding to restart work on Yucca Mountain, the President's fiscal year (FY) 2021 budget request did not include funding for Yucca Mountain and instead requested \$25 million for an interim storage program for spent nuclear fuel. On Yucca Mountain, the FY 2021 budget request stated, "the Administration is strongly committed to fulfilling its legal obligations to manage and dispose of the Nation's nuclear waste and will not stand idly by given the stalemate on Yucca Mountain." Given this change

in administration policy, as well as the opposition of the Nevada congressional delegation, it is unclear whether the site will ever open.

### Small Modular Reactors

SMRs have the potential to be an important addition to America's energy mix. They are small nuclear reactors that could generate up to 300 megawatts of power and be linked together to provide incremental power as load grows. SMRs could yield significant economic, energy security, and environmental benefits. They are expected to be an attractive option for generating electricity from a non-greenhouse gas emitting energy source and could provide utilities with flexibility through scalability and plant siting. Because of the potential benefits of SMRs, DOE has provided funding for the accelerated development and commercialization of this technology.

On February 19, 2016, DOE announced an agreement to support possible siting of an innovative SMR project at its Idaho National Laboratory (INL). The Site Use Permit allows APPA member Utah Associated Municipal Power Systems (UAMPS) to access the INL site to analyze environmental, safety, and siting conditions to identify potential locations suitable for building its Carbon Free Power Project. On January 12, 2017, NuScale Power, working in conjunction with UAMPS, submitted its design application to the NRC to approve its SMR commercial power plant design. This is the first-ever SMR design certification application (DCA) to be submitted to the NRC. In December 2019, NuScale's SMR design completed the fourth phase of review for its DCA. NuScale reports the NRC is on track to approve the DCA by September 2020. If approved, this project will be a 12-module power plant built on the site of the INL near Idaho Falls, Idaho. Also, in December 2019, TVA became the first utility to receive an early site permit to build and operate two or more SMR modules at the Clinch River Nuclear Site near Oak Ridge, Tennessee.

In May 2020, DOE launched the Advanced Reactor Demonstration Program (ARDP), to demonstrate advanced nuclear reactor technology. Using cost-sharing partnerships with the private sector, the ARDP will provide \$160 million to build two advanced reactors that are operational within five to seven years.

### Congressional Action

Nuclear energy and nuclear waste policy remain important topics in the 116th Congress. On April 30, 2019, Senate Energy & Natural Resources Committee Chairman Lisa Murkowski (R-AK), Senator Cory Booker (D-NJ), and thirteen other senators introduced S. 903, the Nuclear Energy Leadership Act (NELA). The bill seeks to promote the development of advanced nuclear reactors by extending the maximum length of a federal power

purchase agreement from 10 to 40 years. In addition, it would require DOE to enter into at least one power purchase agreement with a commercial reactor by 2023. The bill was approved by the committee on July 16, 2019. A companion bill (H.R. 3306) was introduced in the House in June 2019 by Representatives Elaine Luria (D-VA), Denver Riggleman (R-VA), Connor Lamb (D-PA), and Rob Wittman (R-VA). In June 2020, APPA joined several utility and nuclear industry stakeholders in a letter to the Chairman and Ranking Member of the Senate Armed Services Committee supporting the inclusion of NELA in the FY 2021 National Defense Authorization Act (NDAA).

On April 30, 2019, Senator Murkowski also introduced S. 1234, the Nuclear Waste Administration Act, along with Senators Lamar Alexander (R-TN) and Dianne Feinstein (D-CA). The bill would establish an independent agency to manage the country's nuclear waste program, implement a consent-based process for consolidated storage facilities and a new long-term repository, and authorize the siting of a pilot storage facility for priority waste. A legislative hearing was held on the bill on June 27, 2019, at which Chairman Murkowski lamented the stalemate on Yucca Mountain and suggested policymakers need to consider next steps on the disposition of nuclear waste.

In addition, the Senate Environment & Public Works Committee held a hearing in May 2019 on a draft bill, the Nuclear Waste Policy Amendments Act of 2019, that is aimed at advancing the development of permanent and temporary nuclear waste disposal sites. Sponsored by Committee Chairman John Barrasso (R-WY), the legislation (S. 2917), which was formally introduced in November 2019, would advance the licensing of Yucca Mountain as a permanent repository for nuclear waste, as well as promote the development of interim storage. The bill is similar to legislation introduced by Representatives Jerry McNERney (D-CA) and John Shimkus (R-IL) in May 2019 (H.R. 2699). In November, the House Energy & Commerce Committee approved H.R. 2699 by voice vote. The bill now awaits further consideration by the full House. APPA supports the legislation.

### American Public Power Association Position

APPA supports the construction of a consolidated interim storage facility in a willing host community in the next 10 years. The association also supports the creation of a congressionally chartered federal corporation dedicated to implementing the waste management program and construction of a final repository for nuclear waste, including, but not limited to, Yucca Mountain. In addition, APPA supports federal efforts to further the development of SMRs, including the licensing and commercialization of such technologies for use by electric utilities in the U.S.

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The American Public Power Association is the voice of not-for-profit, community-owned utilities that power 2,000 towns and cities nationwide. We represent public power before the federal government to protect the interests of the more than 49 million people that public power utilities serve, and the 93,000 people they employ. Our association advocates and advises on electricity policy, technology, trends, training, and operations. Our members strengthen their communities by providing superior service, engaging citizens, and instilling pride in community-owned power.