



Clean **Reliable. Nuclear.**

Small Modular Reactor Siting Projects in the U.S.

The U.S. Department of Energy (DOE) vigorously supports the deployment of advanced small modular reactors (SMRs) through public-private partnerships to advance and develop these innovative designs, certify their safety, and assist site permitting and licensing. SMRs are a clean, safe and economical option to re-energize retired fossil energy power plants or fill the need where smaller capacities are needed.

With DOE support, NuScale Power has significantly accelerated the engineering and licensing of its unique design. NuScale's SMR is an advanced light-water reactor technology in which each self-contained reactor module operates independently. The design eliminates many costly, complex systems, and the compact design allows for the efficiency of factory manufacturing.

The result will be a safe, reliable, carbon-free, economical, and scalable power source. NuScale submitted its design certification application to the U.S. Nuclear Regulatory Commission

(NRC) in January 2017, with design approval expected around 2020.

DOE is currently in a partnership with Utah Associated Municipal Power Systems (UAMPS) and NuScale to deploy a commercial NuScale SMR power plant at the Department's Idaho National Laboratory (INL) site in 2026. DOE is providing cost-shared financial assistance for the analysis supporting the development of a Combined Operating License (COL) application. DOE has issued a Site Use Permit outlining terms and conditions for use of land on the INL site. UAMPS is currently conducting internal analyses to inform a Decision to Proceed to the development of a license application.

DOE also provides cost-shared financial assistance to the Tennessee Valley Authority (TVA) in its efforts to permit and license an SMR at its Clinch River site near Oak Ridge, Tennessee. The NRC accepted TVA's Early Site Permit (ESP) application for review in December 2016; once granted, an ESP will certify the Clinch River

site meets safety and environmental standards for the construction and operation of an SMR. TVA plans to begin development of a COL application for submission to the NRC for review around 2020.

One of the goals of DOE's work with SMR developers and first-mover utilities is to potentially access the capabilities of the reactor as a research and development test bed.

INL, NuScale, and UAMPS are exploring a Joint Use Modular Plant (JUMP) proposal, making two NuScale reactor modules available to DOE to enable industrial-scale research applications in areas like grid security and hybrid energy.

DOE will partner with nuclear technology developers in 2018 through cost-shared awards to overcome many barriers to deployment. The pending solicitation will be focused on, but not limited to: finalizing the most mature designs; improvements in manufacturing; fabrication and construction techniques; sensors; digital instrumentation and control systems; plant auxiliary and support systems; operational inspection and monitoring capabilities; modeling and simulation of various elements of plant life cycle; and resolution of regulatory risk.

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