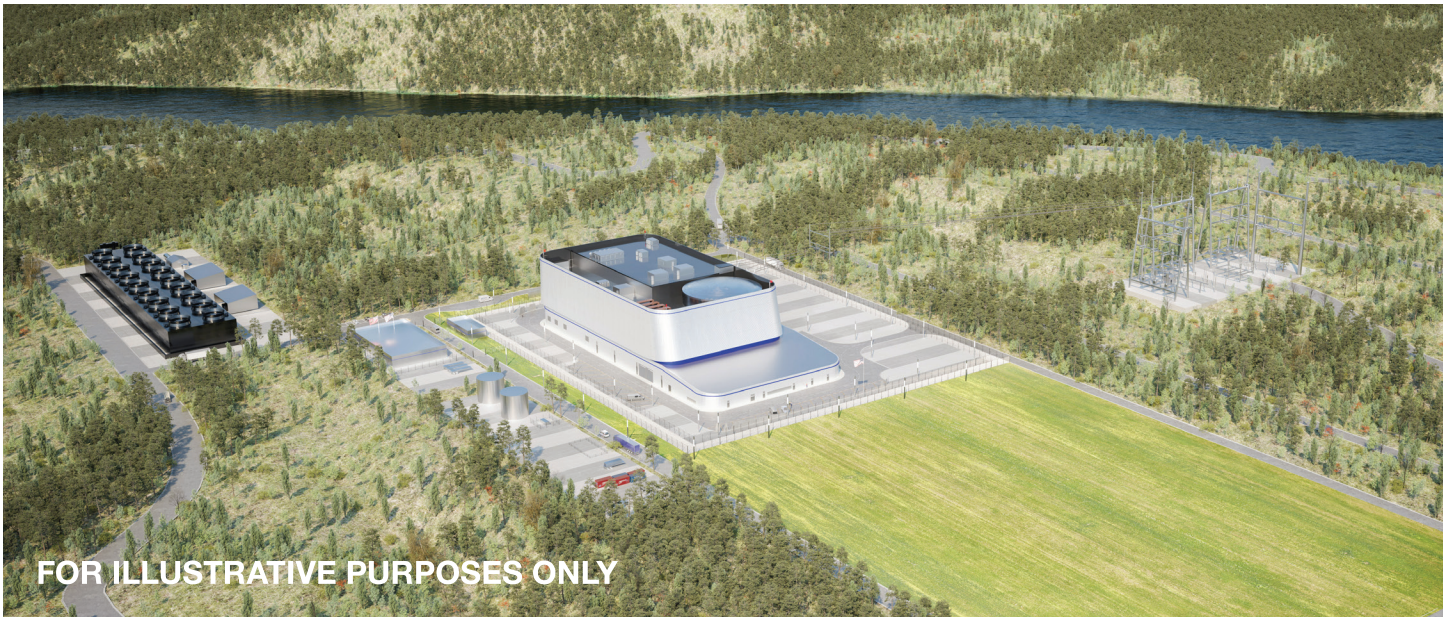
TENNESSEE VALLEY AUTHORITY

TVA's New Nuclear Program



TVA Goals

- TVA is exploring advanced nuclear power options – Small Modular Reactors (SMRs) – as one of several technologies for achieving its long-term decarbonization goals outlined in TVA's Strategic Intent and Guiding Principles document.
- Advanced nuclear power designs, SMRs, build on existing nuclear reactor designs and can provide flexible, carbon-free, baseload generation as a complement to intermittent renewable generation.
- As a leader in nuclear energy, TVA is committed to developing advanced nuclear technology as an essential component of TVA's and the nation's decarbonization efforts.
- TVA operates one of the nation's largest, most diverse generating portfolios. Long-term strategic planning and a diverse mix of generating options are essential to sustainably delivering affordable, reliable, resilient, and clean energy.
- TVA is an industry leader in developing innovative, cost-effective technologies that will decarbonize our economy and achieve our aspiration of a net-zero carbon energy future.
- Achieving net-zero carbon emissions by 2050 will require TVA to add clean energy generation from a variety of carbon-free generation sources. Carbon-free, reliable generating sources like advanced nuclear could be an essential part of a range of technologies to achieve this long-term goal.

Environmental Leadership

Carbon Reduction Goals

TVA is a national leader in carbon reduction, achieving a 63% reduction in mass carbon emissions in our energy supply since 2005. We are executing a plan to reduce carbon emissions 70% by 2030 and have a path to achieve an 80% carbon reduction by 2035 without raising costs or impacting reliability. A core TVA strength is our diverse, increasingly clean generation portfolio. We are committed to being a leader in innovation and decarbonization solutions.

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New Nuclear Program

- TVA's efforts in recent years, including the first early site permit for an advanced reactor at Clinch River Site, and the TVA Board's approval of a programmatic approach to new nuclear generation will drive nuclear technology and accelerate progress toward our aspiration of a net-zero carbon energy future.
- TVA is developing a roadmap for advanced nuclear in its New Nuclear Program, a key element of TVA's strategic priority of innovative methods of reducing carbon emissions while preserving low-cost and high reliability.
- With the Board's approval, TVA's New Nuclear Program provides up to $200 million to examine advanced reactor technology options for potential, future deployment at the Clinch River Site and other potential site locations, in anticipation of future TVA system needs.
- Safe, reliable, and economic advanced nuclear technology is an important part of TVA's strategies to pursue decarbonization by 2050.
- TVA is uniquely positioned to support carbon-free energy goals at the national level and provide energy security to the federal facilities it serves across the Tennessee Valley.

Advanced Reactor Evaluation Activities Underway for the Clinch River Nuclear Site

- Advanced Reactor designs under evaluation for the Clinch River Site include both light-water and non-light-water cooled reactors, with more than a dozen vendors providing TVA detailed information to support the Programmatic Environmental Impact Statement.
- TVA plans to continue evaluating advanced reactor designs for potential deployment at the Clinch River Site and other sites to support TVA's aspirational goal of decarbonization by 2050.
- Some light-water SMR designs use elements of proven light-water technology and new innovations that simplify construction, maintenance, and operations, to achieve a cost efficient and reliable design. These designs can also leverage the existing nuclear supply chain, including fuel supply, to increase cost effectiveness and reduce risk.
- TVA supports the continued development of these technologies. Considering the need for reliable, carbon-free generation, TVA views light-water SMRs, like the GE Hitachi Nuclear Energy BWRX-300, as a more mature technology that could be ready for commercial deployment within a decade. For that reason, we are in discussions with GE Hitachi to support the BWRX-300 design.
- These planning and design activities are required preliminary planning steps to license and build any nuclear technology at the CRN Site and beyond and to begin a construction permit application.
- Any planning actions related specifically to light-water SMRs, like GE Hitachi's BWRX-300, will be done while continuing to evaluate other advanced reactor designs for potential follow-on projects at the CRN Site.
- TVA's decision gates effectively offer a way to withdraw from this plan, should any of the decision gate metrics not lead TVA to believe that the continuation of the program is feasible or practicable for any reason.

Importance of Partnerships

- We cannot pursue new nuclear technology alone; this must be a national effort that we do in partnership with other utilities, research institutes, and state and federal governments.
- First of a kind nuclear technology, like any innovative technology, carries financial and technical risks better shared by multiple partners.
- TVA will collaborate with other entities to share the costs and risk associated with evaluating advanced reactor designs.
- Partnerships with others doing this work will enhance all of our efforts, as we learn from each other and optimize solutions together.

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