

Advanced Reactor Deployment Timelines

Multiple advanced reactor developers have announced domestic demonstration projects in the 2020s and early 2030s including demonstrations of non-light water reactors (non-LWRs), commercial small modular light water reactors (SMRs), demonstration and test microreactors, and university research microreactors (Figure 1). Reactor developers are already engaging with customers, local and state governments, and the Nuclear Regulatory Commission (NRC) to secure the regulatory approvals necessary for construction, commissioning and operation. These first-mover projects will provide the licensing, construction, and operational experience that enable rapid commercial deployment of advanced nuclear energy in the 2030s.

Technology, business, and regulatory lessons learned from first-of-a-kind (FOAK) projects and demonstration reactors will facilitate lower costs and shorter construction timelines for subsequent nth-of-a-kind (NOAK) reactors due to wide-scale deployment and technological learning. Utilities and other customers that gain early experience with FOAK or early NOAK projects will be in competitive positions to become technology leaders.

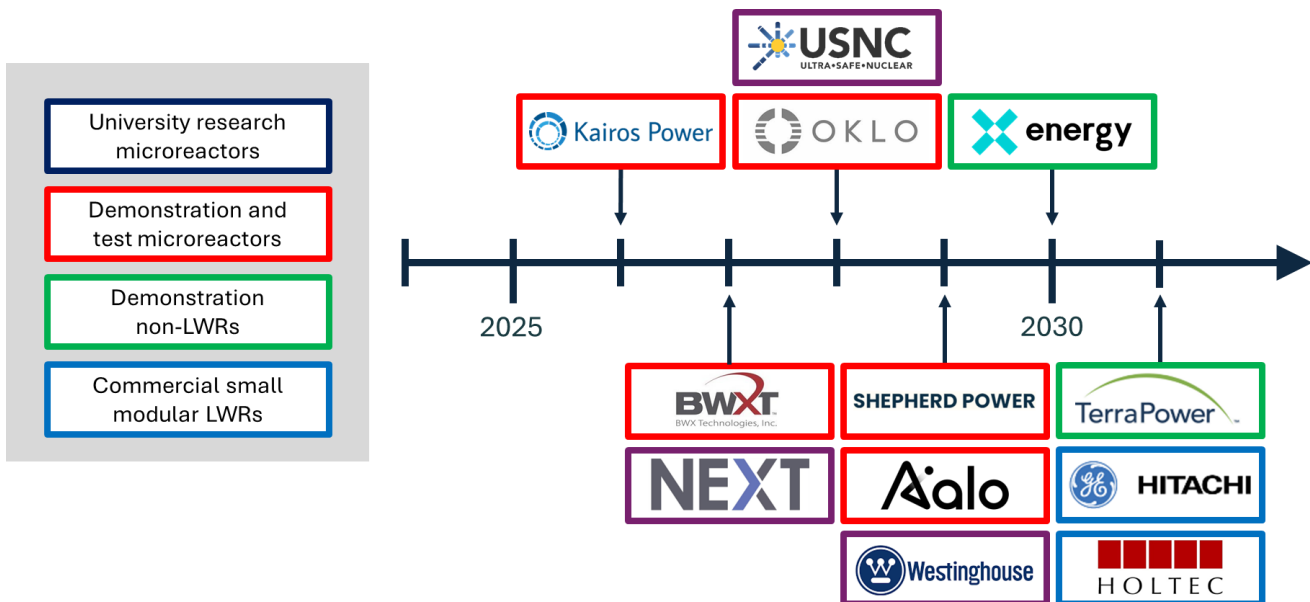


Figure 1: Announced Deployment Timeline for Selected Advanced Reactors Projects in the United States

Demonstration non-LWRs: The U.S. Department of Energy Advanced Reactor Demonstration Program (ARDP) made demonstration reactor cost-share awards to [X-energy](#) and [TerraPower](#). X-energy will build four Xe-100 reactors at Dow Chemical’s Sadrift Site in Texas to support industrial decarbonization and TerraPower will build their Sodium reactor to support clean repowering of a retiring coal facility in Kemmerer, Wyoming.

Commercial small modular LWRs: [GE-Hitachi](#) announced commercial partnerships with the Tennessee Valley Authority and Ontario Power Generation, and plans to deploy the BWRX-300 reactor technology at the Clinch River Site in Tennessee and the Darlington site in Canada. [Holtec](#) has announced plans to build the SMR-300 reactor technology alongside the restarted large LWR reactor at the Palisades Nuclear Power Plant in Michigan.

Demonstration and test microreactors: [Oklo](#) and [Aalo](#) have both announced plans to construction and operate commercial demonstration microreactors at the Idaho National Laboratory (INL). [BWXT](#) is also slated to deploy the Project Pele demonstration microreactor for the U.S. Department of Defense at INL. [Kairos Power](#) has begun construction on their Hermes test reactor near the East Tennessee Technology Park and is currently licensing two additional test reactors on the site. [Shepherd Power](#) has announced a partnership with BWXT to deploy the [BANR](#) technology in large numbers in West Texas to support oil and natural gas operations.

University research microreactors: Several reactor developers are working with universities as sites and partners for their initial research microreactors. [Ultra Safe Nuclear Corporation](#) (USNC) is partnering with [University of Illinois at Urbana Champaign](#) on a high-temperature gas microreactor, [NEXT Lab and Natura Resources](#) are partnering with [Abilene Christian University \(ACU\)](#) on a molten salt research reactor, and [Westinghouse](#) is partnering with [Penn State University](#) for the eVinci microreactor.