

Advanced Reactors

NAVIGATING THE LICENSING PROCESS

New reactor designs must undergo rigorous reviews by the U.S. Nuclear Regulatory Commission (NRC). Understanding regulatory requirements is key to submitting a successful application for an advanced reactor license.

CHALLENGE



LICENSING NEW REACTOR DESIGNS

Nuclear reactors are the most difficult technology to obtain licenses for because of the stringent regulations in place to protect people and the environment.



BROOKHAVEN LAB SOLUTION



ENGINEERING SUPPORT

For decades, Brookhaven National Laboratory has provided in-depth support to the NRC to ensure that nuclear power plants and research and test reactors operate safely and reliably. With this experience, Brookhaven Lab can help guide advanced reactor developers through the regulatory landscape.

In 2018, Brookhaven Lab provided reports to the NRC on phenomena important in molten-salt and liquid-metal reactor simulations of steady-state and transient neutronic and thermal-hydraulic behavior. These reports were used to develop a licensing framework for these advanced reactors.



WORK WITH US

As part of its pursuits in fundamental and applied research, Brookhaven National Laboratory, which is located approximately 60 miles east of New York City on Long Island, partners and collaborates with public and private entities, including other federal agencies and national laboratories, academia, and industry—including small businesses and major corporations.

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DIVERSE EXPERTISE

Brookhaven Lab conducts research involving physical and environmental sciences, energy technologies, and national security, which includes

- Nuclear Energy Technologies
- Energy Storage Solutions
- Material and Chemical Sciences
- Computational Science and Data Analytics
- Climate and Atmospheric Sciences



RESEARCH FACILITIES

The Nuclear Science and Technology Department is a leader in nuclear technology research and development, reactor reliability and risk assessment, and advanced nuclear modeling and simulation. Brookhaven Lab's capabilities include

- Application of the Phenomena Identification and Ranking Table
- Development and understanding of risk analysis methodologies
- Evaluation of human factors to ensure operational safety
- Structural analysis of seismic events, aircraft crashes, material aging, and other scenarios
- Reactor analysis to simulate nuclear power plant performance and accidents
- Technical reviews of computational tools

<https://www.bnl.gov/nst/>



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