



EBR-II Test Bed Information

Materials and Fuels Complex Building 767 – Experimental Breeder Reactor II

Background

Those involved in advanced reactor development need no introduction to the storied Experimental Breeder Reactor-II (EBR-II). EBR-II began operations in 1964, ceasing them only 30 years later. While the reactor and much of its supporting equipment has been dismantled, the dome containment structure remains, providing a new opportunity for nuclear reactor demonstrations. Since EBR-II demonstrated electricity generation, the dome is well suited for higher thermal power reactor projects and those that aim to demonstrate electricity generation. As such, NRIC envisions to utilize the dome to host reactor demonstration and other nuclear projects.



Why?

The EBR-II dome offers unique capabilities that make it attractive for NRIC projects:

- Originally housed a nuclear reactor that generated electricity
- Fuel production and reactor could be located at the same site, avoiding transportation costs and risks
- Size may allow for multiple concurrent demonstration projects
- Co-located with other capabilities at the Materials and Fuels Complex (MFC): hot cells, fuel fabrication, characterization, analytical chemistry laboratories, machine shop, etc.
- Enables the demonstration of electricity production

Facility Description

The EBR-II Dome is cylindrical in construction with a usable 70-foot diameter and 80-foot height. The facility will provide safety-class confinement supporting the operation of nuclear reactors. Other specifications and considerations include:

Existing

- Floor loading capable of 3,750 psf
- 200 kVA, 480V electrical service available
- ~4,800 square feet available within dome
- Hazards and Safeguards Category 2
- Near ground level entry point for installation of equipment and reactor packages

Planned

- 10 MW heat rejection capability with variable controls
- Aimed towards single-package microreactor innovators and can accept 20-foot long ISO shipping containers through confinement boundary
- Class 1E battery backup power as well as a non- safety-related 100 kW diesel generator available
- Available compressed gas systems

For more information, please contact nric@inl.gov