

## **Proposed Action**

The Department of Energy (DOE) is proposing to authorize the expenditure of federal funding by US SFR Owner, LLC (USO), a subsidiary of TerraPower, LLC (TerraPower) to conduct preconstruction activities for the Natrium<sup>TM, 1</sup> Reactor, Kemmerer Power Station Unit 1 (Kemmerer Unit 1). The work under the proposed action would at no time involve radioactive material and does not meet the Nuclear Regulatory Commission's (NRC) 10 CFR 51.4 definition of construction.

Kemmerer Power Station Unit 1 is based on TerraPower's Natrium Reactor Plant, an 840-megawatt thermal (MWt) pool-type sodium-cooled, fast neutron spectrum reactor that contains a molten salt energy storage system which enables the plant to vary its supply of electrical energy to the grid, up to 500 megawatts electric (MWe) net, while maintaining constant reactor power.

## Project Phases

The National Environmental Policy Act (NEPA) at 40 CFR Parts 1500-1508) requires federal agencies to assess the environmental impact of federal actions and to inform and involve the public in the decision-making process. The Department of Energy's (DOE's) decision whether to authorize the expenditure of federal funds is subject to NEPA review. The Nuclear Regulatory Commission's (NRC's) decision whether to issue a construction permit and operating license for a domestic nuclear plant would be made pursuant to the Atomic Energy Act of 1954, as amended, and the NRC's regulations at Title 10, Code of Federal Regulations.

To ensure that all components of TerraPower's Natrium Demonstration Project – including the Test and Fill Facility (TFF), Kemmerer Unit 1, and the Fuel Fabrication Facility – are appropriately evaluated under NEPA, DOE and NRC have agreed to conduct the review of the project in four phases.

- Phase 1- Test and Fill Facility (TFF): DOE completed an Environmental Assessment (EA) and reached a Finding of No Significant Impact (FONSI) for the TFF in May 2024.
- Phase 2 – Kemmerer Unit 1: Preconstruction activities would be evaluated by DOE under an EA. Any preconstruction activities not analyzed by the DOE NEPA review will not occur prior to issuance of the Final Environmental Impact Statement (EIS) by the NRC, for items outside the definition of construction in NRC's 10 CFR 51.4, or the Construction Permit, for items within the definition of construction.
- Phase 3 – Kemmerer Unit 1: Construction and licensing activities would be evaluated by NRC under an EIS. NRC published a Notice of Intent to Prepare an EIS in the Federal Register on June 12, 2024, and is seeking public comments through August 12, 2024. Comments regarding construction and licensing activities should be directed to NRC and are separate from DOE's scoping notice for the preconstruction activities.
- Phase 4 – Natrium Fuel Fabrication Facility: DOE and NRC will coordinate on the appropriate NEPA pathway.

## Project Location

The Kemmerer Unit 1 site is located on approximately 290 acres within Sections 19 and 20, Township 20 North, Range 116 West, Principal Meridian, Lincoln County, Wyoming. The site would be accessed from US Highway 189 (US-189). Figure 1 depicts the Kemmerer Unit 1 site and vicinity.

## Phase 2 – DOE Preconstruction Activities Scope

The proposed project would consist of preconstruction activities that would include, but are not limited to: site preparation, non-structural backfill, set up of trailers, construction of multiple buildings (including the Reactor Fabrication Building (RFB) located just south of the TFF, the Kemmerer Training Center

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<sup>1</sup> a TerraPower & GE-Hitachi Technology

(KTC), and buildings in the Energy Island (EI), installation of underground services, laying foundations, installation of stormwater management ponds, locating portable bathroom facilities, establishing temporary power for Kemmerer Unit 1, and establishing temporary parking areas. This phase of Kemmerer Unit 1 would include a peak workforce of approximately 1,361 people and is estimated to take roughly 18 months to complete. All work would be done in accordance with local, state, and federal regulations and permits and be completed with Best Management Practices, outlined by TerraPower, in place to ensure proper environmental protection. Throughout preconstruction water would be used for dust suppression per permit requirements and site plans.

### Project Facilities and Components

#### *Reactor Fabrication Building (RFB)*

The RFB would serve as a warehouse to provide on-site assembly facilities and would be a single-story building approximately 66,000 square feet. The RFB would be a prefabricated metal building with two bays, a high and low bay. It would not have any permanent utilities or restroom facilities but will be supplied with temporary power and other temporary construction services as needed during reactor assembly activities.

#### *Kemmerer Training Center (KTC)*

The KTC is the primary location of training for nuclear personnel of Kemmerer Unit 1 and initial training for subsequent units in the Sodium Reactor Plant fleet. The KTC would include space for the simulator, which is a mockup of the Main Control Room; labs and classroom environments, and spaces for instructors and training administrative staff to perform their day-to-day work. The KTC would be a two-story structure approximately 30,000 square feet.

#### *Energy Island (EI)*

Preconstruction in the EI would consist of excavation and backfill of foundations; installation of mud mats; formwork; rebar and embeds; and placement of concrete.

#### *Earthworks*

To perform the proposed work, cut and fill activities are required to level the existing site and prepare the ground for future construction activities. Site preparation activities would include establishing erosion controls and benchmarks as well as clearing and grubbing the project area and installing stormwater pipe and catch basins for removal and collection of surface water. Excavation and backfill would occur including import and placement of common and structural backfill along with general excavation for the site.

#### *Other Structures*

Other structures to be completed during preconstruction activities would include:

- Cooling tower forebay
- Laying foundations
- Concrete batch plant
- Phased parking areas
- Water pipe installation
- Water treatment building
- Transformer area
- Cooling tower

- Fire water pumphouse
- Switchyard building
- Turbine building
- Steam generator building
- Installation of underground services
- Installation of stormwater ponds