

# THE NATRIUM™ PLANT IN WYOMING

A TerraPower project

# NATRIUM

TerraPower has partnered with the utility Rocky Mountain Power, a division of PacifiCorp, to build the first Natrium™ reactor near a retiring coal plant in Kemmerer, Wyoming. **The project will provide clean, reliable power to the electricity grid and good-paying jobs to the state for decades to come.**

## WYOMING WILL CONTINUE TO LEAD IN ENERGY

TerraPower is proud to add our technology to Wyoming and Kemmerer's rich history of energy production. We look forward to partnering with the community and local workforce to provide new clean energy jobs for the region. Wyoming has a lot to offer and has been a leader in energy for more than 100 years. Wyoming communities understand what it takes to produce energy, and its highly skilled workforce is experienced in building and operating complex projects. The availability of Wyoming's highly skilled workforce and Rocky Mountain Power's Naughton coal plant workers is one of the most exciting and valuable aspects of the decision to build near a retiring coal plant in Wyoming.

## NATRIUM TECHNOLOGY OVERVIEW

The Natrium technology is a 345-megawatt sodium fast reactor coupled with a molten salt-based integrated energy storage system that will provide clean, flexible energy and stability for the grid. The system can boost power output to 500 megawatts for more than five and a half hours to serve peak demand.

### NATRIUM PLANT QUICK FACTS

- **Location:** Kemmerer, Wyoming
- **Estimated jobs:** 2,000 construction jobs and 250 jobs at operational plant
- **Estimated completion:** 2028
- **Power output:** 345–500 MW, the equivalent of powering 250,000–400,000 homes



## WHAT MAKES IT DIFFERENT FROM CONVENTIONAL NUCLEAR PLANTS?

The Natrium reactor builds on existing nuclear energy plant technology but differs in several ways.

- **SMALLER.** The Natrium plant is much smaller than most conventional nuclear plants that are around 1,000 megawatts in size. It is easier and faster to construct, and more cost effective for utility customers.
- **SAFER.** By using sodium near atmospheric pressure, the plant both enhances safety and can reduce costs by using a much simpler architecture.
- **INTEGRATES WITH RENEWABLES.** The reactor's heat can be stored in the molten salt tanks, much like a large thermal battery. This enables a Natrium plant to operate as a baseload power source or as a flexible, load-following system to support grids with variable-output renewables.

## PROJECT OVERVIEW

TerraPower is building the Natrium plant through a public-private partnership with the U.S. Department of Energy's (DOE) Advanced Reactor Demonstration Program (ARDP). This program authorizes up to \$2 billion for the Natrium project and TerraPower and partners will match this investment dollar for dollar. Upon completion, the Natrium plant will be a fully functioning commercial power plant.

**Along with PacifiCorp and DOE, Bechtel, a world-class engineering and construction company will guide the development of the site.**



Visit [www.NatriumPower.com](http://www.NatriumPower.com) for more details and to contact TerraPower.

## APPROXIMATE TIMELINE AND PROCESS

The Natrium plant is expected to be operational in seven years, aligning with the U.S. ARDP schedule mandated by Congress. The seven-year clock started in April 2021 and runs to 2028. The TerraPower team and partners will be working on many different areas like plant design, methods development, U.S. Nuclear Regulatory Commission (NRC) licensing, equipment testing and qualification, procurement, construction, operating program development, fuel development and supply, and program management throughout the entire process.

<b>2021</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2028</b>
Project begins & site selection	Nuclear construction permit application to NRC	Early, non-nuclear construction begins	Nuclear island construction begins	Operating license application to NRC	Completion of commercial plant

ENGINEERING, CONSTRUCTION, TESTING AND QUALIFICATION, SUPPLY CHAIN DEVELOPMENT, OPERATIONS PROGRAMS AND TRAINING

## FREQUENTLY ASKED QUESTIONS:

### What kind of workforce is needed to build and operate this plant and what specialized training will be needed?

There are many similarities between running a coal plant and the power system that will generate electricity in the Natrium system. While there are some jobs unique to nuclear, there are many other jobs where the skills possessed by the existing coal workforce are transferable. One of the reasons TerraPower is building at the site of a retiring coal plant is to utilize and train the workforce in these communities on the Natrium system.

### Can local businesses get involved in the project?

The Natrium plant is being built through a public-private partnership including a large U.S. government grant, and we will follow all federal contracting and tendering rules. Bechtel Corporation will build the reactor with the help of many direct employees and subcontractors. There is strong capability in Wyoming, and the project will be looking for local partners. The improved logistics of partnering with nearby vendors will be a success factor for the project. Bechtel is leading a majority of the vendor selection for construction materials and services – more information can be found at [www.bechtel.com/supplier/](http://www.bechtel.com/supplier/).

### How is TerraPower engaging the Kemmerer community on future needs related to population growth like housing, infrastructure, etc.?

TerraPower is partnering closely with community leaders to provide support and counsel to ensure project success and continuity for the community. TerraPower will also engage with the local community and the federal government's Interagency Working Group on Coal and Power Plant Communities.

### Is the Natrium plant safe?

Yes. The Natrium technology enhances safety, relying on natural forces and advanced design. The Natrium reactor operates near atmospheric pressure and uses sodium, instead of water, as its coolant. The reactor operates at a temperature more than 350 degrees Celsius (the equivalent of 662 degrees Fahrenheit) below the boiling point of sodium.

Further, the Natrium reactor is a pool-type reactor, so there are no penetrations in the reactor vessel below the lid, which eliminates the possibility of a leak or loss of coolant accident. The design also relies on natural forces, like gravity and hot air rising, to cool the reactor if an unexpected shutdown occurs. This means the plant does not rely on power to cool itself.

### Where will the spent fuel be located?

Like any nuclear reactor, the Natrium plant will produce spent fuel, which will be stored safely and securely onsite until a permanent federal geologic repository is identified. Utilities have successfully stored spent fuel onsite at hundreds of locations across the U.S. Additionally, the Natrium technology will reduce the volume of spent fuel compared to conventional reactors because of the efficiency with which it uses fuel.

### I have more questions. Where do I go?

Visit the website [www.NatriumPower.com](http://www.NatriumPower.com) for more details on the project, technology, a full FAQ list and contact information for your questions and comments.