

# NATRIUM<sup>®</sup> PROJECTED RFP OPPORTUNITIES

We are excited to release this list of potential supplier opportunities for the Natrium Reactor<sup>1</sup> Demonstration Project and look forward to hearing from interested parties who want to help bring the demonstration plant to fruition. Bear in mind that the details of this list are subject to change, revision, or cancellation.

There is no guarantee that these opportunities will result in a solicitation for products or services. Below is a list of anticipated vendor opportunities for the Natrium Reactor Demonstration Project, separated by Demonstration Plant Equipment and Test and Fill Facility equipment.

## TERRAPOWER<sup>®</sup> NATRIUM EQUIPMENT OPPORTUNITIES

EQUIPMENT	DESCRIPTION	RFP TIMEFRAME
<b>Ex-Vessel Storage Tank</b>	The design, fabrication, testing, and delivery of an Ex-Vessel Storage Tank which will be a sodium filled American Society of Mechanical Engineers Boiler and Pressure Vessel Code Section III pressure vessel with internal rotating carousel for storage of new and spent core components.	2024 Q3
<b>Pool Handling Machine</b>	Design, fabrication, testing, and delivery of a pool handling machine to move spent fuel within Natrum's spent fuel pool. This machine will be like spent fuel handling machines used in spent fuel pools at pressurized water reactors.	2024 Q3
<b>Nuclear Instrumentation System</b>	Supplier will provide design support, fabrication, testing, delivery, and training of a Nuclear Instrumentation System (XIS). This system monitors neutron flux in a high temperature environment around the core as well as the associated electronics for signal amplification and conditioning.	2024 Q3
<b>Sodium Cover Gas – Sampling and Monitoring Equipment</b>	Design, fabrication, testing and delivery of gas monitoring/ sampling equipment, cabinets, and skids for the argon cover gas. Includes cabinet for concentrating/measuring stable xenon and krypton isotopes, impurity monitoring, and sampling capabilities.	2024 Q3
<b>Gamma Spectroscopy Design Study &amp; Analysis Cabinet</b>	Design, analysis, fabrication, testing and delivery of a gamma spectroscopy analysis cabinet. This cabinet will provide radiation monitoring of the sodium cover gas exhaust.	2024 Q3
<b>Sodium Cover Gas – Routing and Control Equipment</b>	Design, fabrication, testing and delivery of gas routing and control equipment for the argon cover gas, including gas accumulator skids, overpressure protection skids, a safety isolation valve skid, and an oil bubbler.	2024 Q3

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# TERRAPOWER NATRIUM EQUIPMENT OPPORTUNITIES (cont.)

EQUIPMENT	DESCRIPTION	RFP TIMEFRAME
<b>Plant Security System</b>	Design, testing, delivery, and training of a plant cyber system (PCS). The cyber defense architecture for the System employs a multilayered approach to ensure robust protection against potential cybersecurity threats. This strategy is built on layers to provide a comprehensive defense mechanism. Equipment would include Security Information and Event Management (SIEM), firewalls, certificate authority, asset monitoring, data diodes, & Portable Media and Mobile Device (PMMD).	2024 Q3
<b>Primary Heat Transfer Flow Meters</b>	Design and manufacture of electromagnetic flow meters in conjunction with a differential pressure flow transmitter.	2024 Q4
<b>Pool Racks</b>	Design, fabrication, and delivery of racks to store spent fuel within Natrium's spent fuel pool. These pool racks will be like spent fuel pool racks used at pressurized water reactors	2024 Q4
<b>Sodium Level Instruments</b>	Design, fabrication, testing, and delivery of Sodium Level Instruments. These instruments will be located in drywells passing through the reactor head. The sensing devices will not contact Sodium, but will be exposed to high radiation and elevated temperatures.	2024 Q4
<b>Expansion Tanks</b>	Design, fabrication and delivery of a head tank partially filled with sodium. This tank are designed to ASME BPVC VIII – Division 1.	2024 Q4
<b>Sodium Drain Tank</b>	Design, fabrication and delivery of three sodium drain tanks. Two large tanks are identical, and one is a smaller supplemental tank. These tanks are designed to ASME BPVC VIII – Division 1.	2024 Q4
<b>Rotating Plug Assembly Seals</b>	Design, fabrication, testing, inspection and delivery of Rotatable Plug Assembly (RPA) Seals. These are static and dynamic, provide the seal functions at the pressure retaining boundary in the Reactor Enclosure system to prevent egress of cover gas to out of the Reactor Vessel. These will be a part of the ASME Section III, Division 5 pressure boundary.	2024 Q4
<b>Bulk Sodium</b>	Sourcing and delivery to site of elemental sodium for use in the Natrium Reactor and the Test and Fill Facility.	2024 Q4
<b>Reactor Head Equipment Removal Cask</b>	Design support, Fab and Test for equipment that will be a set of shielded casks and supporting equipment used to remove, store, and install major reactor head equipment. This includes shielded casks for long-term storage, as well as floor valves, beams, and adapters to support the casks and mate them to the reactor vessel. Design codes applicable to all or parts of this work would be ASME BPVC-III-I, ASME B31.3, ANSI N14.6, IEEE 1290 and AWS D1.6.	2024 Q4
<b>Anticipatory Seismic Trip</b>	Design, fabrication, testing and delivery of a anticipatory seismic trip system that measures ground motion, applies required signal processing and logic, and automatically generates output actuation signals to the reactor trip breakers.	2024 Q4

# TERRAPOWER NATRIUM EQUIPMENT OPPORTUNITIES (cont.)

EQUIPMENT	DESCRIPTION	RFP TIMEFRAME
<b>Fuel Transfer Lift</b>	Design, fabrication, testing, and delivery of a fuel transfer lift and associated prototype. This elevator-like lift has three primary functions: charge and discharge core components into and out of the reactor, provide a portion of the primary containment boundary for the reactor vessel during refueling, and provide adequate shielding during normal operations and refueling outages.	2025 Q1
<b>Physical Security System</b>	Fabrication, fill, testing and delivery of Fixed In-Vessel Shielding (FIVS) containers filled with powdered neutron shielding material. The FIVS is permanently installed shielding within the Reactor Vessel that must last the lifetime of the plant. This will be a ASME III Div 5 fabrication.	2025 Q1
<b>Fixed In-Vessel Shielding</b>	Fabrication, fill, testing and delivery of Fixed In-Vessel Shielding (FIVS) containers filled with powdered neutron shielding material. The FIVS is permanently installed shielding within the Reactor Vessel that must last the lifetime of the plant. This will be a ASME III Div 5 fabrication.	2025 Q1
<b>Pool Immersion Cell</b>	Fabrication and delivery of a Pool Immersion Cell (PIC). The PIC removes residual sodium coolant from core assemblies and transfers them to the Spent Fuel Pool. Includes a process skid, a pressure vessel, an elevator, and trolley.	2025 Q1
<b>Plug Handling Fixture</b>	Design, fabrication, testing and delivery of a Plug Handling Fixture (PHF). This portable machine has a hoist assembly and grapple enclosed in an airtight container to remove, transport and replace shield plugs.	2025 Q1
<b>Intermediate Heat Transport System Sodium Drain Valves</b>	Design, fabrication, testing (TBD), and delivery of sodium drain valves on small bore piping.	2025 Q2
<b>Pin Removal Cell</b>	Design, fabrication, testing, and delivery of the Pin Removal Cell (PRC). This machine has remote manipulators for the manual operation of handling socket removal/reinstallation, the Lead Test Pins (LTP) attachment to the Plug Extraction Machine (PEM), and pin canister opening/closing.	2025 Q2

# BECHTEL POWER CORPORATION NATRIUM DEMONSTRATION PLANT OPPORTUNITIES

EQUIPMENT	RFP TIMEFRAME
Seismic Monitoring System	2024 Q3
Bulks, Pipe and Fittings - PVC	2024 Q3
HRS – CW – Cooling Tower - Supply and Install	2024 Q3
Pipe, Circulating Water (Concrete Pipe)	2024 Q3
Circulating Water Pumps	2024 Q3
Sewage Treatment Plant (Extended Aeration Skid)	2024 Q3
Demineralized Water Treatment	2024 Q3
Shop Fabrication of High Density Polyethylene (HDPE) Pipe Spools	2024 Q3
Valves, Ductile Iron, Underground/Buried	2024 Q3
Bulks, Ductile Iron (including cement lined) Pipe & Fitting	2024 Q3
Bulks, HDPE Pipe	2024 Q3
Tank, Field Fabricated Tanks, Salt Tanks	2024 Q3
Air Dryer	2024 Q3
Crane – Overhead Crane – Nuclear Island	2024 Q3
RWG Filters	2024 Q3
Condensate Polisher	2024 Q3
Tank, Shop Fabricated, ASME Section VIII	2024 Q3
Treatment, Sludge Dewatering and Drying – RWS	2024 Q3
Compactor, Rad Waste (RWS)	2024 Q3
Louvers and Vents	2024 Q3
CFW Feedwater Pumps	2024 Q3
Condensate Pumps	2024 Q3
Immersion Heater	2024 Q3
Reinforcing Steel & Rebar Splices, Detailing & Purchase	2024 Q3
Concrete Batch Plant - Supply and Operate	2024 Q3
RWG Charcoal Absorber Beds, ASME Section VIII	2024 Q4

# BECHTEL POWER CORPORATION NATRIUM DEMONSTRATION PLANT OPPORTUNITIES (cont.)

EQUIPMENT	RFP TIMEFRAME
Physical Model Testing, Cooling Tower CW Pump Intake	2024 Q4
Bulk, Fiberglass Pipe and Fittings	2024 Q4
Condenser and Polishers	2024 Q4
Bulks - Raceway (Conduit/Tray) and Fittings (NST)	2024 Q4
Cathodic Protection System – Design & Supply	2024 Q4
Compressors, Recipr., Special Purpose	2024 Q4
RWL Evaporator	2024 Q4
Filters, Non-Pressure Vessel – RWL	2024 Q4
Filters, Tubular Ultrafiltration – RWL	2024 Q4
Oil/Water Separator	2024 Q4
Pumps, Centrifugal, Horizontal, Slurry	2024 Q4
RWL Demineralizer	2024 Q4
Reverse Osmosis System – RWL	2024 Q4
Hydrants	2024 Q4
Pressure Vessel (NSS Drain Vessel)	2024 Q4
Bulks, Flange Bolts, Gaskets, and Insulation Kits (NST)	2024 Q4
Metal Reflective Insulation (MRI) – Supply and Install	2024 Q4
Material Testing Services for Concrete and Earthwork (SR/Non-ASME)	2024 Q4
Shop Fabricated Spools – CS, SS, & Alloy (NST)	2024 Q4
Filter, HEPA	2024 Q4
Windows, Radiation Shielding	2024 Q4
Heat Exchanger, NWS – CCW	2024 Q4
Heaters, CFW Feedwater	2024 Q4
Heater, Deaerating Feed Water Heater (FWH)	2024 Q4
Insulation, Concrete - Supply and Install	2024 Q4
Large AWWA Steel Pipe Spools	2024 Q4

# BECHTEL POWER CORPORATION NARIUM DEMONSTRATION PLANT OPPORTUNITIES (cont.)

EQUIPMENT	RFP TIMEFRAME
Pumps, Vertical Turbine	2024 Q4
Tank, Field Fabricated	2024 Q4
Basket/Concial Strainers (NST)	2024 Q4
Switchyard, Design, Fabricate and Deliver	2024 Q4
Pumps, Fire Water	2024 Q4
Temporary Fencing, Supply and Install	2024 Q4
Pumps, Centrifugal	2024 Q4
Crane – Overhead Cranes – Turbine Bldg EI	2024 Q4
Tank, Shop Fabricated, API 650	2024 Q4
Heat Exchanger, Air to Air	2024 Q4
Chiller, Centrifigual (EWS)	2024 Q4
Treatment, Oil/Water Separator	2024 Q4
Pumps, Sump, Vertical	2024 Q4
Pressure Relief Valves, Stainless Steel	2024 Q4
Air Handling/Filtration Units - Ventilation	2024 Q4
Fan-Coil Units	2024 Q4
Compressor, Air, Screw Type	2024 Q4
Electrical Heaters (Immersion, Inline) for NSS Drain Vessel/TSS Tanks	2024 Q4
Heaters, Air/Gas Inline, Electric	2024 Q4
Water Heaters, Electric	2024 Q4
Dehumidifier	2024 Q4
Humidifiers	2024 Q4
Sewage Lift Station	2024 Q4
N <sub>2</sub> /Argon Storage & Supply	2024 Q4

# BECHTEL POWER CORPORATION NATRIUM DEMONSTRATION PLANT OPPORTUNITIES (cont.)

EQUIPMENT	RFP TIMEFRAME
Tank, HDPE (Acid/Caustic)	2024 Q4
Safety Showers & Eyewash Stations	2024 Q4
Cable Bus and Isophase – Installation and Test	2024 Q4
SC Dampers (Potential CGD)	2024 Q4
Precast Concrete Items (Manholes, Duct Bank, Trenwa, Catch Basins, etc.)	2024 Q4
Precast Concrete Items (Manholes, Duct Bank, Trenwa, Catch basins, etc.) (SR)	2024 Q4

# BECHTEL POWER CORPORATION TEST AND FILL FACILITY OPPORTUNITIES

EQUIPMENT	RFP TIMEFRAME
Water Treatment Skid	2024 Q3
Harsh Environment Winch	2024 Q3
Shop Fabricated Pressure Vessels STE (PSP Test Tank)	2024 Q3
Shop Fabricated Pressure Vessels (Test)	2024 Q3
Office and Control Trailer	2024 Q3
MEP (Mechanical, Electrical and Piping) Contractor - Supply and Install	2024 Q3
PSP Variable-Frequency Drive (VFD)	2024 Q3
CCTV System	2024 Q3
Severe Service Control Valves (FCV)	2024 Q3
Heat Exchangers, Sodium-Sodium (Shell and Tube) (CRD/SPS)	2024 Q3
Electric Heat Tracing and Insulation - Design/Supply	2024 Q3
CRD Water Loop Module (Integrator)	2024 Q4
AC Switchboard	2024 Q4
Severe Service Control Valves (Small)	2024 Q4
Metal Expansion Joints	2024 Q4
Conductivity Level Switches and Leak Detectors	2024 Q4
Flowmeters, Magnetic	2024 Q4
Flowmeters, Sonic/Ultrasonic	2024 Q4
Inductive Level Transmitters	2024 Q4
Pressure Transmitters (Gauge/Differential) (Non-sodium)	2024 Q4
General Purpose On/Off Ball Valves – Soft Seated	2024 Q4
Radar Level Transmitters	2024 Q4
Temperature Transmitters/Thermocouples Assembly	2024 Q4
Pressure Relief Valves (Section VIII)	2024 Q4
Pressure Transmitters (Gauge/Differential) (Sodium Only)	2024 Q4
Fire Protection /Detection - Design, Supply and Install	2024 Q4
AC Power Distribution Board – 480V, 65kA Switchgear (Panel Board)	2024 Q4