

NATRIUM™ PROJECTED RFP OPPORTUNITIES



Below is a list of anticipated vendor opportunities for the Natrium Reactor¹ Demonstration Project. These potential opportunities are subject to change, revision, or cancellation. There is no guarantee that these opportunities will result in a solicitation for any of this work.

EQUIPMENT	RFP TIMEFRAME	DESCRIPTION
Intermediate Air-Cooling System	First Quarter, 2023	Design, fabrication, testing, and delivery of an Intermediate Air-Cooling System comprised of a sodium-air heat exchanger and the corresponding air stack structures and equipment.
Primary Sodium Pumps	First Quarter, 2023	Design, fabrication, and testing approach of Primary Sodium Pumps (PSP) that provide primary sodium coolant flow through a pool type sodium fast reactor core. These pumps provide safety related flow and primary pressure boundary functions.
Intermediate Sodium Pumps	First Quarter, 2023	Design, fabrication, and testing approach of two loop style pumps that provide important to safety flow and pressure boundary functions for heat removal from the Natrium Sodium Fast Reactor.
Seismic Isolators	Second Quarter, 2023	The design, prototype development, qualification, production, delivery to site, and assistance with installation of a three-dimensional seismic isolation system.
Distributed Control System	Second Quarter, 2023	The design, fabrication, testing, delivery, start-up assistance, and operator/engineer's training of a distributed control system (DCS). The DCS shall include supply of necessary cabinets, displays, operator/engineer stations, and hardware/software necessary to furnish a complete system for at least 3 projects.
Ex-Vessel Storage Tank	Second Quarter, 2023	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.

1. A TerraPower and GE Hitachi Technology

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Sodium System Pump	Third Quarter, 2023	Design, fabrication, and testing of a unit to pump primary sodium through a processing system. This pump provides safety related primary pressure boundary features.
Reactor Internals / Core Barrel Structures	Third Quarter, 2023	“Design for manufacturing” support, fabrication, testing, and delivery of fixed structures including the core restraint system, in-vessel storage, core inlet plenum, assembly receptacles, flat baffle plates and other structures (cylindrical risers and baffles) as well as support and flow piping for reactor coolant pumps.
Pool Handling Machine	Third Quarter, 2023	Design, fabrication, testing, and delivery of a pool handling machine to move spent fuel within Natrium™’s spent fuel pool. This machine will be like spent fuel handling machines used in spent fuel pools at pressurized water reactors.
Reactor Supports	Third Quarter, 2023	“Design for manufacturing” support, fabrication, testing and delivery of a Reactor Support Assembly (RSA). The RSA is the connection between the reactor to the reactor building. It is expected to bear the load from the vessels’ weight while being flexible enough to handle seismic activity/thermal expansion during operation. It is a Safety Related component. The reactor supports will be a plate type design.
Reactor Vessel Head	Third Quarter, 2023	“Design for manufacturing” support, fabrication, testing, and delivery of a Reactor Vessel Head (RVH). The RVH shall structurally support the reactor module and various reactor components. The RVH shall anchor the reactor module to the adjacent building structure. The reactor head will be designed to ASME BPVC Section III, Division 5, subsection HBB. The RVH provides support for the reactor and guard vessels. It is expected the RVH head will require welding of at least several forgings.
Neutron Monitoring System	Third Quarter, 2023	System integrator is required to supply detectors which monitor neutron flux in a high temperature environment around the core as well as the associated electronics for signal amplification and conditioning.
Sodium Flow Meters	Fourth Quarter 2023	Design and manufacture of electromagnetic flow meters in conjunction with a differential pressure flow transmitter.

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Reactor Vessels	Fourth Quarter, 2023	"Design for manufacturing" support, fabrication, testing, and delivery of two major Class 1 pressure vessels which will be designed to ASME BPVC Section III, Division 5, Subsection HBB/HCB. Construction of these vessels is expected to use primarily rolled plate, with limited forgings exclusive to the bottom head and the top flanges.
Fueling Floor Valve	Fourth Quarter, 2023	Support the design process and manufacture of a Fueling Floor Valve. Floor valve is used as a temporary closure and opening device for reactor vessel and other containers during refueling and maintenance operations. The fueling floor valve is used at transfer ports provided in the storage cells and vessels, including reactor vessel, to permit the entrance or exit of material.
In Vessel Transfer Machine Instrumentation & Control	Fourth Quarter, 2023	Design, fabrication, testing and delivery of a control system that integrates motor controllers, field sensor data acquisition equipment, field control device signal output equipment, a local human machine interface, and a programmable controller.
Rotating Plug Assembly (including Upper Internal Structure)	Fourth Quarter, 2023	"Design for Manufacturing" phase support and manufacture of a Rotatable Plug Assembly (RPA) integrated with the Upper Internal Structure. The RPA facilitates operation of the fuel handling systems and is supported by an opening in the reactor head. The upper RPA forms part of the primary pressure boundary (ASME BPVC Section III, Division 5, Subsection NB/HBB) while the lower part of this component provides reactor internals functionality (ASME BPVC Section III, Division 5, Subsection NG/HGB).
Core Component Conditioning Cell	Fourth Quarter, 2023	Design, fabrication, testing, and delivery of a core component conditioning station. This cell is an argon inert pressure vessel with an internal rotating carousel that will provide a controlled heating process for taking core components from ambient temperatures to a temperature appropriate for insertion into the core. (ASME BPVC Section VIII).