



Supplier Opportunities: Traveling Wave Reactor Program

The following paragraphs summarize an area in which TerraPower plans to engage supplier support for system and equipment development as part of the Traveling Wave Reactor (TWR) Program. This list of potential opportunities will be updated periodically. Some of the items or design features will be classified as important to safety or nuclear safety-related; as such, work will need to be performed under a quality program meeting the applicable requirements (e.g., Augmented Quality, NQA-1, ASME).

To be considered as a potential supplier for any opportunities listed below:

Complete the registration form at <http://www.terrapower.com/suppliers> to share information about your company's capabilities with us.

Intermediate Sodium Pumps

Major elements: Intermediate Sodium Pumps, 2 locations

Systems: Intermediate Heat Transport (IHTS)

Scope: Develop the intermediate sodium pumps (ISP) and related system interfaces. The ISPs circulate intermediate liquid sodium from the secondary-side of the intermediate heat exchanger (IHX) to transport heat to the steam generators and return the sodium back to the IHX. Features of these pumps will require design per ASME code (as applicable for high temperature sodium application).

Auxiliary Liquid Metal System Pumps

Major elements: Electromagnetic Pumps, 7 locations; size-range from ~ 100 to 1000 L/min.

Systems: Fuel Handling (FHS), Auxiliary Sodium Processing (ASPS)

Scope: Develop the auxiliary liquid metal pumps and related system interfaces for liquid sodium (Na) or sodium-potassium (NaK) service. Features of these elements will require design per ASME code (as applicable for high temperature sodium application).

Auxiliary Liquid Metal Heat Exchangers

Major elements: Heat Exchangers, Sodium-to-Sodium-Potassium (Na-to-NaK), NaK-to-air, various, 8 locations

Systems: ASPS, Direct Reactor Auxiliary Cooling System (DRACS)

Scope: Work will include design per ASME code (as applicable for high temperature sodium application), design for manufacturing, and system interfaces.

Fuel Handling Equipment

Major elements: Fuel Handling Systems & Equipment

Systems: FHS

Scope: Perform a review of the systems and related data and conduct trade studies. Support development of equipment requirements/interfaces. Develop the ex-vessel handling equipment, currently envisioned to include an ex-vessel handling machine (EVHM) and a bottom-loading transfer cask (BLTC). Handling of fuel assemblies and other core components requires temperature control, inert gas environment, valves, fixtures, transfer components, and related power supplies to maintain containment. Included will be plug handling fixtures (PHF) and a core-component conditioning station (CCCS). Some features of the equipment will invoke design per ASME code (as applicable for high temperature sodium and containment applications), design for manufacturing, and system interfaces.

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Fuel and Core Component Storage

Major elements: In-plant Fuel and Core Component Storage (in Sodium)

Systems: FHS

Scope: Perform a review of the systems and related data and conduct trade studies. Support development of equipment requirements/interfaces. Develop the ex-vessel fuel and core component storage systems, including the Ex-Vessel Sodium Tank (EVST) and related auxiliary systems. EVST is envisioned with the capability to provide storage in liquid sodium for 100+ components, many of which may be spent-fuel assemblies each generating up to a maximum of 12 kilowatts decay heat. Other stored components may include new fuel assemblies in queue for installation in the reactor, new or removed absorber assemblies, and various material test assemblies. A NaK cooling system is planned for temperature control, and a sodium processing system is planned to maintain coolant purity.