Facility to be serviced:

**Northwest Correctional Facility (NWCX)**
960 State Route 212
Tiptonville TN 38425-0279

**Background:**

The requisition is needed to replace the domestic hot water units inside Housing Unit 11 and 12 at NWCX. This will include two packaged plate and frame heat exchangers and all the related domestic water system piping, valves and insulation installed at the building’s mechanical room.

Currently, the existing domestic water heater system has failed and there is no hot water for Housing Units 11 and 12 so the building is not being occupied at this time. The contractor will provide demolition of the existing electric water heating system and installation of the new skid mounted packaged plate and frame heat exchanger type water heater system inside of the existing mechanical room. No work is expected outside of the approximately 12’x14’ equipment rooms.

**Existing Conditions:**

Respondents may request a site visit to view existing conditions by contacting the facility point of contact, Donnie Myatt, referenced above. All bidders shall be allowed a one-time visit, all contractors will be invited on a single date and time to be determined such that everyone has the same opportunity to see the site on the same day and at the same time.

**Scope of Work:**

1. The awarded Contractor shall disassemble and remove two (2) Precision 50KW electric hot water heaters located within the mechanical room serving Units 11 and 12 of the facility.
2. The Contractor will provide all demolition and removal of domestic hot water heaters and piping out approximately 5 feet from the new unit and install blind flanges and all new piping in a way that the operation is simple and easy to understand with all labels and shut offs clearly marked. New valves, strainers, expansion tanks circulating pumps and appurtenances will be designed by the contractor to fit inside in the confines of the existing mechanical room in accordance with shop drawings prepared by the contractor and approved by the Facility Manager.

3. The contractor will connect the new plate and tube heat exchangers water heaters into the existing hot water heating loop and also the contractor will check for and repair all leaks inside the mechanical room.
4. While room is open the contractor will take apart the main domestic water supply line and install one (1) new four inch (4”) flanged actuated valve. This valve shall have the ability to be manually shut off/on and have the capabilities to be connected to medesys building management system to control position of valve. Water will be turned on and checked for leaks.

5. Two (2) new pieces of Equipment will be provided in the mechanical room that serves Building 11 and Building 12. Each shall be a Plate and Tube Heat Exchanger skid package instantaneous water heater and shall be mounted on a steel I-beam support skid and shall have lifting lugs and a control unit that can be connected to the existing energy management system. Heater shall be factory assembled and piped to include Factory provided Solid State Control Module, 2-way electronically operated control valve, boiler water thermometer, heat exchanger will be a 316-L stainless steel double wall plate and frame type, ASME relief valve, temperature gauges, inlet boiler water equipped with strainer and heat exchanger fouling indicator light.

   1. Provide BACnet protocol Building Automation System (B.A.S.) interface to relay all controller points to B.A.S.

   2. Provide terminals for on/off control.

The provided Solid State Control module shall indicate the following functions with individual pilot lights: On-off switch, remote start-stop, alarm horn with alarm silence button, power on, primary high limit, and secondary high limit. Module shall have built in PID Control signal with LED display of set point and operating temperature read out and contacts for Building Automation System.

The entire unit shall be factory assembled, pre-wired and tested. Water heater shall meet the energy efficiency requirements of ASHRAE 90.1 (latest adopted version). This packaged unit shall be augmented with expansion tanks, three way mixing valves for the recirculating hot water lines and maintenance shut off and control valves, all these features shall be placed in the same mechanical room where the original existing electric water heating units to be removed are located. Each unit will be designed by the vendor. The calculations for sizing are the vendor responsibility and shall be based on the hydronic loop supplying hot water at 180F, the required flow from the hydronic boiler water will be 90gpm supplied at 180F with the return boiler water being 95F. The pressure drop through the unit will be 4.8 psi. The units will be piped where both units can work together giving 124gpm or one unit can be isolated if needed. Adequate water flow from city main line shall be verified in the room that electric water is located to provide 62 gpm of hot water @120 degrees F.

Acceptable Manufacturer’s include:

A. PVI Industries, 425 West Everman Parkway Suite 101, Fort Worth, Texas, 76134; Phone 817-335-9531 Local Supplier HESCO Memphis, TN Phone 901-363-4499

B. Cemline Corporation, 808 Freeport road, Cheswick, PA 15024, Phone 724-274-5430

C. AERCO, 100 Oritani Drive, Blauvelt, NY, 10913 USA Phone 1-845-580-8000

D. Lochnivar, 300 Maddox Simpson Parkway, Lebanon, TN 37090; Phone 800-772-2101
Provide information about which acceptable manufacturer will be used in your bid.

6. Contractor shall provide new supply lines from the heat source side that will be connected to the hot water loop system with the proper flow meter and shut off valves.
7. The contractor will provide water piping on the domestic side plumbed to the remaining existing hot water piping after demolition with the new shut off valves and insulation per their design.
8. Return hot water pump will be replaced and connected to the new hot water system.
9. New electrical will be installed to each unit with the proper disconnect from the existing building electrical line previously feeding the existing water heaters extending over to the new water heaters point of entry. Contractor may reuse as much of the original feeders to the electric water heaters as possible or run a new pipe and circuit from the existing panel.
10. The completed water heating system including all piping and electrical will be put into service and checked for both leaks and proper operation.
11. Contractor shall provide and install all new insulation on all new piping and fittings in mechanical room and this insulation will be covered with PVC jacket.
12. Contractor will provide and install labeling showing flow direction on all new piping. All new valves will be labeled by contractor to show correct operation.
13. Contractor to provide WARRANTY.
   A. Include warranty for complete water heater package for 1 year as manufactured and delivered to site including materials, labor, and freight cost.
   B. Heat exchanger shall carry a 18 month warranty against failure caused by defective workmanship or material.
14. Contractor shall provide an operation and maintenance manual and training Illustrating system operation shall be provided to TDQC at the time installation is completed.
15. Area will be cleaned and any debris from project will be removed and disposed of.
16. Sign off of project shall be start of warranty period.