

Procurement Description*	ARRA Funded: Sandia National Laboratories' National Thermal Test Facility has a need for two high temperature forced air molten salt air coolers, which include a heat exchanger, vertical discharge propeller style fan(s), high temperature insulated louver dampers above and below the heat exchanger, fan motor electrical termination connection panel, and structural steel support cabinet which includes insulated panels which support the entire fan/heat exchanger assembly.
Statement of Work*	<p>Sandia National Laboratories' Solar Technologies organization has a need for two high temperature forced air molten salt air coolers. This includes a heat exchanger, vertical discharge propeller style fan(s), high temperature insulated louver dampers above and below the heat exchanger, fan motor electrical termination connection panel, and structural steel support cabinet which includes insulated panels, which support the entire fan/heat exchanger assembly.</p> <p>Temperature control of the molten salt shall be field installed by others; however, the fan motor(s) conductors shall be terminated in a factory unit mounted electrical cabinet for field connections to variable frequency drive provided in the field by others and installed by others. Heat rejection control shall be performed by modulating the air flow across the heat exchanger by modulating the dampers and fan speed control via the variable frequency drive fan(s).</p> <p>Pre-heat of the heat exchanger shall be provided by others in the field. A closed loop forced air supply pipe connection and return air pipe connection shall be provided on the sides of the salt air cooler for pre-heating the heat exchanger. The fan, electric resistant heater, controls and inner connecting pipe shall be provided by others and installed in the field by other.</p>
Mandatory Requirements*	<p>The system shall:</p> <ol style="list-style-type: none"> 1. The salt air cooler will be designed and constructed in accordance with NFPA-79 (2007) Electrical Standard for Industrial Machinery, NFPA-70 (2008) National Electric Code and ASME Section VIII, Division 1. 2. The heat exchanger shall be constructed of SA-312 Gr. TP347 stainless steel ERW and shall be sloped a minimum of 1/8-inch per foot for positive gravity drainage so that no salt fluid is standing within the exchanger during shutdown mode of operation. The heat exchanger shall be built, tested and certified in accordance with ASME Section VIII, Div. 1 and carry ASME Stamp. 3. The fan motor(s) shall be inverter duty rated for service at 5500 ft. elevation and capable of minimum operation down to 25%. 4. Salt air cooler unit shall be provided with factory installed automated high temperature internally insulated louver dampers located on both sides (bottom and top) of the heat exchanger. (The purpose of the dampers are to isolate (minimum 95% air tight) the immediate area around the heat exchanger in order to pre-heat the heat exchanger from an ambient temperature to 572°F (300°C) prior to circulating molten salt through the heat exchanger.)

	<p>5. The salt air cooler shall be capable of handling molten salt with a salt mixture of 60% sodium nitrate and 40% potassium nitrate. (The molten salt operating temperature will be a minimum of 572°F to a maximum of 1076°F and shall be capable of daily temperature swings between outdoor ambient to 572°F and then increased to a maximum temperature of 1076°F.)</p> <p>6. The salt air cooler shall be capable of modulating heat rejection from the molten salt fluid between a minimum capacity of 250 KW to a maximum capacity of 6.5 MW.</p>
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