

## **25,000-LPD capacity project for LREDA at Leh Ladakh**

### **Project Description**

Leh, Ladakh has one of the most extreme atmospheric conditions with extremely cold and long winters and low precipitation. Conventional fuels are extremely costly due to various issues such as transportation; also hot water is a very limited resource for the local people. But the government's solar energy initiative with WAAREE Energies Ltd. has provided some respite to the people as they combat the elements.

For decades, the norm was diesel generators for lighting and kerosene and firewood for water-heating and cooking. This not only polluted the atmosphere but also involved huge finances for transporting fuel to Ladakh, given its remoteness and its rugged terrain. To address the same, LREDA (Ladakh Renewable Energy Development Agency) initiated a 25000 LPD solar water heater project which was executed by WAAREE Energies Ltd. Installing a solar water heating system for this location was very challenging given the inadequate water supply, low temperature conditions, scarcity of electricity, lack of conventional fuels and facility of hot water. In spite of facing huge challenges such as elevation at 12,000 feet, temperature ranging from  $-40^{\circ}\text{C}$  to  $30^{\circ}\text{C}$ , inadequate water supply, we have managed to successfully commission the project.

The Research and Technology team has played a major role in the execution of this project under such extreme weather conditions. The dynamic approach of Research & Development with support of manufacturing and project team has led to the execution of this project in such a short span of time. While designing the thermodynamics special consideration for the extreme atmospheric conditions were the focal point. A vacuum tube with special coating Cu-SS-Al technology has also been used for this project.

With this project of 25000 LPD, WAAREE is penetrating the solar thermal market with installations at areas with challenging topography depicting its wide reach and also contributing to reduce carbon emissions in the environment.

### **Project Benefits**

To generate 25,000 litres of hot water by using diesel oil, 58.85 kg/day carbon dioxide would be added to the environment per, and by wood 1.45 kg/day, with this installation WAAREE will help reduce carbon emissions sizably.

This project will solve water problems of the residents of Leh and Ladakh to a great extent. Waaree is also going to support the environment by reducing 17,000Kg CO<sub>2</sub> emission per day with its 25,000LPD solar thermal system.

The impact of the solar energy initiative is visible and quantifiable. Over 40 villages, which were either un-electrified or had extremely unreliable sources of power, have been provided with reliable solar energy and solar water heaters.