

ESCO: Empowering Energy Efficiency through Innovative Financing

Application : Pre-Treatment for plating Application
Fuel Replaced : Super Kerosene Oil (SKO)

Customer : Auto Component Manufacturer
Sector : Automotive

BACKGROUND

A leading auto components manufacturer is a pioneer in environmental sustainability in India and is a winner of several awards on efficient usage of energy. The customer wanted to reduce fossil fuel consumption used in its pretreatment plant and was interested in replacing the thermic fluid heater with heat pump. However, due to budgetary constrains, the customer did not want to invest upfront and was exploring innovative financing models

SOLUTION

On the technical side, after the thermal energy audit, our team proposed the installation of 107 kW Heat Pumps. On the financing side, Aspiration Cleantech Ventures (ASPCV) proposed to undertake the project under an ESCO model, wherein Aspiration Cleantech Ventures would own and operate the system, and the client would pay to ASPCV based on the energy saved by the Heat Pumps.

INSTALLATION

Design:

107 kW ((65 kW X 1 Nos.) + (28 kW x 1 Nos.) + (14 kW x 1 Nos.)) - water source heat pumps was proposed to be installed to meet the process heat requirement. The system was designed to recover heat from the process return line.

Integration:

The heating solution was provided to an application of pretreatment line - plating (8-tank) that required temperatures ranging from 60°C to 80°C. Each one of the tanks, with different volumes, needs to be maintained at different temperatures.

The installed water source heat pumps delivers heat to the plating line tanks and cooling load to the process return line by assisting the cooling tower operation. The installed system also has electrical hot water generator for startup and backup heating.

TYPE OF MACHINE : WATER SOURCE

MAX. OUTLET TEMPERATURE : 90 Deg. C

COMPRESSOR TYPE: SCROLL

DESCRIPTION	BEFORE	AFTER
HEATING SOLUTION	Thermic fluid heater	Heat pump
ENERGY SOURCE	SKO	Electricity
CAPACITY	1163 kW	107 kW
FUEL COST	Rs. 65/Litre	Rs. 6.3/kWh
CONSUMPTION PER DAY	385 Litres	900 kWh
ANNUAL OPERATIONAL COSTS	Rs. 82.6 Lakhs	Rs. 18.7 Lakhs

PERFORMANCE COMPARISON



INSTALLATION PICTURE

BENEFITS



Build - own - operate model. Hassle - free operation and maintenance.



- Unique financial model offered (ESCO) with no investments from the client side
- More than 70% energy savings compared to the baseline.



The Heat Pump system reduces CO2 emission by about 17.8 Tonnes of CO2/year.

Heat Pump will save Rs. 64 Lakhs annually.