

Solar Water Heater

Background of the project:

Yantra Park is an ISO 14001 certified location for various environmental initiatives which it has implemented. In order to ensure that minimum power is used and also to take advantage of the extensive terrace available in various buildings, it has been decided to install Solar Water Heater system, using Thermosyphon principle.

Observations:

The solar system installed at Yantra Park is functioning on the natural thermal principal i.e. the circulation of the water will happen by using the property of water itself. The hot water has a lower density and cold water has high density due to which hot water will always rise above the cold water. This is thermosyphon principle with natural circulation of water with mixing type mode. No pump, no control panel is required and hence minimum maintenance and no power is required for proper circulation of solar water for the system.. The system comprises of 8 Nos. of Solar Panels & 1 No. of Hot water tank. The Solar Panels and the Hot water tank is installed on the terrace of the building. The system is designed for 24 hrs hot water @ 60°C ± 5°C at solar radiation level of 800 – 1000 watt per square per hour at ambient temp of 25 – 30°C.

Technical Analysis.

Salient Features

- Most eco-friendly and clean source of power
- No pollution & no recurring fuel costs
- Simple installation. Can be mounted on Roof-top or on the ground
- Very few moving parts - negligible maintenance required
- Very good quality power output with steady voltage & frequency

Financial analysis

1 unit of electricity heats 21.5 ltrs. of cold water.

Rate of 1 unit of electricity = approx. Rs. 5.00 /-

Total units consumed per day = 3000 ltrs. / 21.5 = 139.53 units.

Total units consumed for 315 days = 43,952 units

Total cost saved per year. = approx. 43,952 x Rs. 5.00 /- = Rs. 2,19,760 /-

System Cost 4,27,440.00

----- = 1.95

Annual Electrical Savings 2,19,760.00

Impact:

It has been observed that the solar system with 3000 LPD capacity installed will generate 43952 units of power in a year and will be able to recover the expense incurred with in a period of 1.95 years. Besides, the system also has got the following advantages.

- Highly reliable source of energy
- No effect of hike in electricity rate
- Long life of system provides trouble-free operation
- Contribution to Environment

Energy Conservation Measure implemented in 2007-2008


(To be filled up separately for each Energy Conservation Measure)

ID to be filled by BEE	Title of the measure				Sector	
Year to be filled by BEE					Technology	
Description of the energy conservation measure:						
Building Management System & AC scheduling.						
Picture/ sketch/ drawing before modification (if available)			Picture/ sketch/ drawing after modification (if available)			
Agency that executed the project (with complete address and email): Johnson Controls						
Total investment, Rs.: 25 lakhs			Year of implementation: 2007 - 2008			
First year energy cost savings, Rs.: Rs.8.30 lakhs						
First year other savings, Rs.:						
On annual basis	kWh 000'	Coal (Tons)	Gas Nm ³	Oil (kL)	Other	
Energy consumption before						
Energy consumption after						
Energy tariff, Rs/ kWh/ Ton/ Nm ³ / kL ...						
Company complete address:				We authorise Bureau to use this information for dissemination		
Contact person who could be contacted for more information:						
				Signature		
				Date		

Note: Please submit this sheet separately for each Energy Conservation Measure implemented in 2007-2008 and a CD containing the above information may be please be enclosed.

Energy Conservation Measure implemented in 2007-2008

(To be filled up separately for each Energy Conservation Measure)

ID to be filled by BEE	Title of the measure		Sector			
Year to be filled by BEE			Technology			
Description of the energy conservation measure: Solar water heater of 3000 LPD is used for canteen dishwasher and for gym geyser.						
Picture/ sketch/ drawing before modification (if available)			Picture/ sketch/ drawing after modification			
						
Agency that executed the project (with complete address and email): Urja Solar, 101, Sanskututi Pasad, Ram Maruti Road, Thane (W) 400 602 . Email: urjasolar@gmail.com						
Total investment, Rs.: 4,27,440.00			Year of implementation: 2007 - 2008			
First year energy cost savings, Rs.: 1.95 lakhs						
First year other savings, Rs.:						
On annual basis	kWh 000'	Coal (Tons)	Gas Nm ³	Oil (kL)	Other	
Energy consumption before						
Energy consumption after						
Energy tariff, Rs/ kWh/ Ton/ Nm ³ / kL ...						
Company complete address:				We authorise Bureau to use this information for dissemination		
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