

Introduction :

In these days of power shortages non-conventional and renewable sources of energy are gaining importance. India, with its tropical climate, can tap Solar energy for heating water for domestic & industrial purposes & various non-heating purposes, like street lighting etc. The non-conventional water heating system based on solar energy has a major advantage in that, once the initial installation is carried out, the consumer will have minimum recurring expenditure. This system consist of collector panels of 2M X 1M, a cold water tank & insulated piping. If a stainless steel tank is installed, the water thus heated can be stored in those tanks, in 100, 200 & 250 lps for domestic purposes & 1000, 2000 & 3000 lps for non-domestic segments like hotels, hostels etc. Relevant specifications are IS:11907:1986-Recommendations for calculations of solar radiation on building, IS:7025:1973-Guidance on solar radiation testing.

Process of Manufacture: The manufacturing process involves the following activities are : a) Fabrication of panel and storage tanks b) Assembly of tank, panel coil and other components c) Inspection and commissioning. **Raw materials** required for the manufacturing of Solar Water Heater are Copper Aluminium MS Sheet, Pipe, Glass Fibre, GI Sheets, Thermostat, insulation material and others. **Market potential** Solar water heating systems are useful for both domestic & institutional segments. The various State Govt. under their programmes for dev. of non-conventional sources of energy, offer attractive subsidies to consumers who prefer to install these systems. This, alongwith the fact that it eliminates recurring expenditure on energy, makes these systems attractive, and a manufacture who can produce good quality, defect-free systems, will be able to capture a good share of the growing market. Details of the water heating systems and the subsidies allowed by the Govt. can be obtained from Secretary, Department of Non-Conventional Energy Systems, Govt. of India, New Delhi. The unit can be located at any place including rural areas.

1 Name of the Product : SOLAR WATER HEATER

Project Cost :

a Capital Expenditure

| | | | | |
|-------------------|------|-----|------------|-----|
| Land | : | | | Own |
| Workshed in sq.ft | 1050 | Rs. | 210,000.00 | |
| Equipment | : | Rs. | 426,000.00 | |

Welding machine, Brazing machine, Rolling machine, Buffing machine, Drilling machine, Compressor, Hydro Testing machine, Furnace, Grinders, Engineering tools, Bench Grinder, Lathe.

| | | |
|-----------------------------|------------|-------------------|
| Total Capital Expenditure | Rs. | 636,000.00 |
| b Working Capital | Rs. | 226,840.00 |
| TOTAL PROJECT COST : | Rs. | 862,840.00 |

3 Estimated Annual Production Capacity: (Rs. in 000)

| Sr.No. | Particulars | Capacity in No./Q. | Rate | Total Value |
|--------|--------------------|--------------------|-------------|----------------|
| 1 | SOLAR WATER HEATER | 85 Heaters | | 1390.04 |
| | TOTAL | 0.00 | 0.00 | 1390.04 |

| | | | | |
|---|-----------------------------|---|-----|------------|
| 4 | Raw Material | : | Rs. | 862,000.00 |
| 5 | Labels and Packing Material | : | Rs. | 10,000.00 |
| 6 | Wages (Skilled & Unskilled) | : | Rs. | 200,000.00 |
| 7 | Salaries | : | Rs. | 40,000.00 |

PAGE (2)

| | | | | |
|----|-----------------------------|---|-----|--------------|
| 8 | Administrative Expenses | : | Rs. | 40,000.00 |
| 9 | Overheads | : | Rs. | 100,000.00 |
| 10 | Miscellaneous Expenses | : | Rs. | 20,000.00 |
| 11 | Depreciation | : | Rs. | 53,100.00 |
| 12 | Insurance | : | Rs. | 6,360.00 |
| 13 | Interest (As per the PLR) | | | |
| | a. C.E.Loan | : | Rs. | 82,680.00 |
| | b. W.C.Loan | : | Rs. | 29,489.00 |
| | Total Interest | | Rs. | 112,169.00 |
| 14 | Working Capital Requirement | : | | |
| | Fixed Cost | | Rs. | 189,040.00 |
| | Variable Cost | | Rs. | 1,201,489.00 |
| | Requirement of WC per Cycle | | Rs. | 231,755.00 |

15 Cost Analysis

| Sr.No. | Particulars | Capacity Utilization(Rs in '000) | | | |
|--------|----------------------|----------------------------------|--------|---------|---------|
| | | 100% | 60% | 70% | 80% |
| 1 | Fixed Cost | 189.04 | 113.42 | 132.33 | 151.23 |
| 2 | Variable Cost | 1201.00 | 720.60 | 840.70 | 960.80 |
| 3 | Cost of Production | 1390.04 | 834.02 | 973.03 | 991.93 |
| 4 | Projected Sales | 1620.00 | 972.00 | 1134.00 | 1296.00 |
| 5 | Gross Surplus | 229.96 | 137.98 | 160.97 | 183.97 |
| 6 | Expected Net Surplus | 177.00 | 85.00 | 108.00 | 131.00 |

- Note :
1. All figures mentioned above are only indicative.
 2. If the investment on Building is replaced by Rental then
 - a. Total Cost of Project will be reduced.
 - b. Profitability will be increased.
 - c. Interest on C.E.will be reduced.