

Solar Water Heating System

(Potential & Savings)

Potential

The technical overall potential assuming that 75% of pucca houses of the country occupied by the owners will have solar water heaters could be taken as 140 million sq. m. of collector area. The achievable/economic potential based on purchasing power of people/ requirement of hot water in a year/ availability of space for installation of system/ availability of solar radiation etc. may, however, be taken as 35-40 million sq. m. of collector area

Electricity/Diesel Savings

- A 100 lpd system (2 sq.m of collector area) installed in a home can save 4-6 units of electricity/day depending on the place of installation & hot water use. On an average it could be taken as 5 units/day. Maximum average saving with 300 clear days, therefore, could be taken as 1500 units/year.
- Assuming 300 days of solar hot water use in Bangalore and 150 days in Delhi, the savings could be 1500 & 750 units per year respectively i.e. replacement of a 2 KW electric geyser working for 2 ½ hours in a day. Considering all parts of the country and maximum installations in areas where hot water requirement is more during the year, average saving could be taken as 1200 units/year/100 lpd system.
- 1 million such systems installed will be able to save 1200 million units of electricity/year
- A 100 lpd system (2 sq.m of collector area) installed in an industry can save around 140 litres of diesel in a year.

Peak load shaving

- 1 system of 100 lpd can replace an electric geyser of 2 KW capacity in a home.
- 1 million such systems will replace 1 million geysers of 2 KW capacity each in homes. Assuming that at least 50% of geysers are switched on at a time, this will have a peak load shaving of 1000 MW.

CO₂ Reduction

- A 100 lpd system on an average saves up to 1500 units of electricity/yr. To generate that much of electricity from a coal based power plant, 1.5 tone of CO₂ /year is released in atmosphere. One million solar water heating systems installed in homes will , therefore, also result in reduction of 1.5 million tone of CO₂ emission in atmosphere.