Solar Thermal for Coin-op and Commercial Laundromats

Market Potential

According to the Coin-Op Laundry Association, more than 225 coin-op laundromats are in operation in San Diego County, averaging 33 washers each. Adding to that total are a variety of specialized industrial facilities for uniform cleaning, prisons, the military and other commercial uses.

Laundromats are ideal for solar water heating because they use hot water 16-18 hours a day, as long as the facility has adequate roof space for the thermal collectors. Laundromat facilities have a fairly flat load shape and are well-suited for flat plate collectors or evacuated tubes. Solar water heating provides immediate utility savings on natural gas costs, free hot water for decades and a payback in just a few years.

Example Solar Thermal Laundromat Modeling Assumptions

Smaller solar systems outperformed larger ones in F-Chart simulations in terms of per square foot savings, but better economies of scale may favor a larger system. The best size of a system may depend on financing available and space, but solar fractions of 30–50% provide best life-cycle cost benefits. This example is from an actual application using 5,850 gallons per day and 1,440 square feet of collectors.

Average hot water use per application.² Washer average load = 0.67 x the rated load (#)
- Single Top Load (12#) = 0.82 Gal/#
- Single Front Load (14#) = 0.27 Gal/#
- Front Multiload (35#) = 0.32 Gal/#
- Front Multiload (55#) = 0.31 Gal/#

System components
- Less than one square foot of collector/gallon/day
- 1–1.5 gallons of storage per square foot of collector

F-Chart output (MACRS depreciation not considered)
- System cost ($100/s.f.) $144,000
- Incentives: CSI-Thermal rebate $113,629
- Incentives: federal ITC (30%) $9,111
- Total project cost $21,260
- Annual energy savings ($1/therm) $5,628
- Simple payback 3.8 years

¹http://www.worldslargestlaundry.com/easy-being-green/solar-power/