

CSI-Thermal Program Contractor Resources



Solar Thermal for Commercial Car Washes

Market Potential

Solar thermal water heating provides an opportunity for the more than 100 full-serve car washes in San Diego County to garner a greener brand. The International Car Wash Association reports that the majority of consumers prefer environmental car washes, but the increasing demand for green facilities is usually confined to using less water.

Industry experts realize hot water helps remove grime and grease and activate chemicals, but owners know using it requires an expensive heater, extra energy and regular maintenance. That's where solar water heating comes in to supply heated water at less cost – and fewer greenhouse gas emissions. A solar-powered car wash may earn media publicity and develop a greater number of loyal customers.

Example Solar Thermal Car Wash Modeling Assumptions

The following “drainback” solar system is for a San Diego car wash that services 85 cars a day and uses ten gallons of water for each wash at 120 degrees Fahrenheit. The water heater efficiency is 70%.

System components

- Solar collectors: 12 glazed, flat plates (40.9 square feet each)
- Storage: 1 gallon/square foot of collector
- Drainback system design

F-Chart output (MACRS depreciation not considered)

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|-------------------------------------|------------------|
| • System cost (\$100/s.f.) | \$ 49,080 |
| • Incentives: CSI-Thermal rebate | \$ 29,114 |
| • Incentives: federal ITC (30%) | \$ 5,990 |
| • Total project cost | \$ 13,976 |
| • Annual energy savings (\$1/therm) | \$1,442 |
| • Simple Payback | 9.7 years |

The expected solar thermal system lifetime is 20 to 25 years.

¹<http://www.sunmaxxsolar.com/documents/solar-thermal-article-solar-carwash-the-dollars-and-sense-of-solar-hot-water.pdf>

