



Service Packages

Understanding Thermal Energy in Solar Hot Water Systems

To analyze energy generation, efficiency, and value in solar hot water systems, SolarWave measures and reports energy in five different ways

1. Load: Hot water demanded

This is the amount of thermal energy used by the hot water systems of the building. It is important because energy that is produced but cannot be used by the building is not valuable.

2. Solar Resource: Available solar thermal energy

This is the maximum amount of thermal energy available to the collectors, given the intensity of sunlight and the ambient temperature. This is used to evaluate the efficiency of the system and optimize its production.

3. Solar Production: Thermal energy generated

When the sun hits solar collectors, they generate heat. This thermal energy is generally used to heat the water in a storage tank, where it is stored until needed. Solar Production is the thermal energy actually generated by solar hot water collectors and delivered to the tank.

4. Solar Contribution: Thermal energy delivered

When a hot water tap is turned on, hot water flows from the storage tank to meet the load. The water loses heat while it is being stored, so solar contribution is generally lower than solar production. If there is little or no load in a given period, it can be significantly lower.

5. Fossil Fuel Displacement: Fossil fuel that would be required to replace solar contribution

Solar hot water systems are paired with a conventional gas, oil or electrical system which supplements delivery of hot water when solar cannot meet the load. Fossil Fuel Displacement measures the fossil fuel that would be required by the conventional hot-water system to meet the load that is instead being met by solar energy.

Ultimately, the value of the solar contribution is the fossil fuel displaced.

Our services give installers, manufacturers, and utility planners tools to easily optimize, maintain and administer multiple systems

Energy Optimization

- Load Utilization: Load, Contribution, and Production
- Solar Efficiency: (Includes Collector Efficiency): Load, Contribution, Production and Solar Resource
- Total System Efficiency: Load, Contribution, Production, Solar Resource, and Measured Displacement

Basic Reporting

Contribution & Estimated Displacement

Status and Maintenance

Temperature monitoring to ensure proper system function.

For more information, contact:

Henry K. Vandermark hkv@solarwave.com

Jefferson Goethals

jefferson@solarwave.com

617.242.2150