



SUCCESS STORIES

The goal of the Million Solar Roofs Initiative is to install one million solar energy systems on U.S. buildings by 2010. The Initiative focuses on two types of solar energy technology — photovoltaics that produce electricity from sunlight, and solar thermal systems that produce heat for domestic hot water, space heating or heating swimming pools. The U.S. Department of Energy leads this effort in partnership with the building industry, other federal agencies, utilities, the solar energy industry, financial institutions, state and local governments, and non-governmental organizations. These partnerships concentrate on removing market barriers and developing and strengthening demand for solar energy products and applications. As progress is made toward the goal of one million solar roofs, greenhouse gases and other harmful emissions will be reduced, high tech jobs will be created, and the U.S. solar energy industry will retain its competitive edge.



Project: Banyan Street Manor

Type: Solar Water Heater

Location: Oahu, Hawaii

Background: Hawaii is located over 2,000 miles from the mainland coast. Therefore, fuel shipments to Hawaii are expensive and result in higher electricity costs than in most regions in the continental United States. In addition, Hawaii's warm, sunny climate, and lack of indigenous fossil fuel resources makes it an ideal environment for solar hot water systems.

The Hawaii Housing Authority decided to take advantage of Hawaii's great solar resource by installing a solar hot water system on Banyan Street Manor, a fifty-four unit public housing apartment building located in Honolulu, Oahu. In addition to providing substantial energy savings, the solar hot water system will drastically reduce the amount of greenhouse gas emissions into the atmosphere.

System Description: 131 solar collectors, each measuring three feet by eight feet. The centralized solar hot water system was installed on the roof of Banyan Street Manor in September 1997 and has a 6,275 gallon storage tank.

Financing: Hawaii Electric Company (HECO) provided \$44,000 in financial assistance, resulting in a net project cost of \$181,659.



Total Installed Cost: \$224,859

Maintenance Costs: Not significant. The residential manager performs routine preventative maintenance.

Direct Savings: Annually, the system generates \$15,286 in energy savings with a total savings of \$229,295 over its approximate fifteen-year lifetime.

Climate: Average annual peak sun hours are 5.8 hours per day.

Environmental benefits: The system replaces 212 barrels of oil per year or 3,185 barrels over its fifteen year lifetime, resulting in a drastic reduction in air pollutants. Annually this system prevents 246,360 pounds of carbon dioxide emissions, 816 pounds of sulfur dioxide emissions, 760 pounds of nitrous oxide emissions, and 113 pounds of particulate matter. Over the fifteen-year lifetime of the system this prevents 3.70 million pounds of carbon dioxide emissions, 12,248 pounds of sulfur dioxide emissions, 11,403 pounds of nitrous oxide emissions, and 1,689 pounds of particulate matter.

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