

Sacramento Municipal Utility District

Solar Photovoltaics Program

Sacramento Municipal Utility District (SMUD) is unparalleled in its commitment to renewable energy -- particularly solar -- as well as comprehensive energy efficiency and load management programs. (See Profiles #13,66,83,91) Through its dedication to the development of solar energy as a business strategy, and in collaboration with a number of research and marketing organizations such as UPVG, PV4U, and PVUSA, SMUD has implemented a range of solar technologies to procure resources, to build local expertise and product availability, to educate Sacramento's citizens, to support peak power generation, and fundamentally to stimulate an important market transformation whereby solar technologies become commercially viable.

SMUD's solar programs encompass a number of applications ranging from the world-renowned and record-sized PV1 and PV2 projects (fully 2 MW of arrays located at its retired Rancho Seco nuclear power plant), to its rooftop solar initiatives in the residential and commercial sectors. SMUD has also installed nearly 600 kW of PV arrays at its Hedge substation where it has developed a highly cost effective single-axis mounting strategy while exploring the economics of substation-interfaced capacity. SMUD also built the West's first public solar PV electric vehicle recharging stations.

The Solar Photovoltaics (PV) Program offers an insight into SMUD's corporate philosophy regarding its role in PV commercialization as well as a range of experiences and lessons learned. PV Pioneers, for example, involves the installation of 4 kW PV panels on customers' roofs. SMUD has found that customers are eager to pay a premium for the satisfaction of generating clean, renewable electricity! So far over 240 systems have been installed in Sacramento's residential neighborhoods allowing the utility to gain valuable insights about the distributed utility concept whereby customers also become generators, feeding small increments of power into the fingers of the distribution network where it is often needed most. SMUD has extended the PV Pioneers concept to the commercial sector and recently installed an impressive array on a quite prominent church roof in town!

One of the remarkable aspects of the Solar PV program is the level of community support that it has received and cultivated. Market research commissioned by SMUD in 1993 found that fully 26% of its customers were willing to pay a premium for PV power generated on their rooftops. Fully 70% were willing to participate in a "green pricing" program in which they would pay more on their monthly utility bills so that SMUD could establish a "Clean Energy" program. This support, coupled with the remarkable responsiveness of local contractors to refine their solar expertise, has paved the way for SMUD's solar commitment.

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SACRAMENTO MUNICIPAL UTILITY DISTRICT Solar Photovoltaics Program

Sector: Residential, Commercial

Measures: Variety of systems; fixed and single-axis; rooftop initiatives and centralized installations; projects include electric vehicle recharging station, mobile demonstrations, and remote power applications

Mechanism: Leadership role in state and national utility photovoltaic commercialization efforts leveraging internal funds through external collaborations

History: World's largest PV installation in 1986; Board approves Solar Utility concept in 1992; PV Pioneers (the rooftop program) initiated in 1993

1994 PROGRAM DATA

Energy contribution: 1,792 MWh
Capacity contribution: 933 kW
Cumulative contribution: 20,049 MWh
Cost: \$5.9 million

CUMULATIVE DATA

Energy contribution: 7,524 MWh
Cumulative contribution: 63,971 MWh
Capacity contribution: 3.7 MW
Costs: \$16.3 million

The Results Center produced 126 profiles of the most successful energy efficiency and renewable energy programs in the United States and around the world in the early and mid 1990s. With the support of the John D. and Catherine T. MacArthur Foundation, Ted Flanigan directed a research team at Colorado-based IRT Environment to produce and distribute these exceptional examples. Thanks to strong demand for solid case studies, The Results Center was supported by dozens of major utilities and energy associations worldwide. Today, The Results Center is managed again by Ted Flanigan, now at California-based EcoMotion Incorporated, a firm focused on strategic consulting, information dissemination, program design, outreach services, and aggressive implementation. To nominate highly successful programs, contact: The Results Center, c/o EcoMotion, 15375 Barranca Parkway, F-104, Irvine, CA 92618, (949) 450-7155, or TFlanigan@EcoMotion.us