

ASE Stars of Energy Efficiency Award Nomination 1 Pager for Electric Transportation Programs

The Sacramento Municipal Utility District (SMUD) has had an ongoing electric transportation program dating back to 1990, making it one of the longest continuous electric transportation programs in the nation. Through 25 years of leadership SMUD has been an innovator in promoting electricity as fuel to increase transportation efficiency and improve air quality: Technologies SMUD has supported include vehicles and charging systems:

- Light-Duty battery electric vehicles, plug-in hybrids, fuel cell electric vehicles,
- Medium/Heavy-Duty electric vehicles including: electric school buses, transit buses, auxiliary truck power systems, truck stop electrification and truck refrigeration unit electrification.
- Industrial electric vehicles including forklifts and airport ground support equipment
- Charging infrastructure support: SAE codes and standards development, charging hardware distributorship for General Motors, installation service provider, Level 2 and DC Fast Charging network, owner operators and workplace charging incentive provider

During the 1990's through the mid 2000's, SMUD was one of the original 7 federal research consortiums for the U.S DOD/DARPA Electric and Hybrid Electric Research Program, which later became the U.S. DOT Advanced Vehicle Program. Under that combined effort SMUD managed over \$27M worth of research to help jump start early efforts to develop the basic electric vehicle technologies and charging systems. During that same time SMUD installed over 140 Level 2 charging stations in Sacramento, which became the backbone of SMUD's public/workplace charging network.

Since the modern EV market launch in 2010, SMUD has been active with fleet electrification, residential EV incentive rates, public DC fast charging, workplace charging, truck stop electrification and electric truck refrigeration unit deployment. For fleet electrification, SMUD has 17 light duty EV's and 6 plug-in hybrid line trucks, displacing an estimated 5000 gallons of petroleum to-date. From SMUD's residential EV incentive rate, over 1000 customers have signed up, displacing 1300 gallons of gasoline a day and over 795,000 gallons over the program to-date. SMUD's DC Fast Charging program has installed 2 fast chargers and will expand to 6 charging locations by the end of 2016. Over 5800 gallons of gasoline has been displaced through that program. For workplace charging SMUD has over 19 charging stations for employees displacing approximately, 6933 gallons. Through truck stop and truck refrigeration electrification, SMUD has helped displace over 191,400 gallons of diesel. In total, SMUD has displaced over 1,000,000 gallons of petroleum through its transportation electrification efforts. Through SMUD's research, extensive EV grid impact modeling and multiple managed charging experiments have been completed. SMUD even hosted the Electric Power Research Institute's "Big Charging Demo" where control signals sent out by SMUD controlled charging functions to 7 different automakers spread across 3 different locations in California. This showed how charging can be aggregated to increase value for utilities by providing flexibility in load shaping.

SMUD is not resting on its laurels. SMUD will launch a new residential market electricity fuel incentive program later this spring. SMUD will complete a workplace/multi-family infrastructure pilot that will deploy another 48 charging stations. SMUD will complete construction of its DC Fast Charging network with 6 stations by year-end. Provisions for up to 70 fleet and 400 workplace charging stations are being designed into SMUD's Headquarters Building remodeling project. At SMUD's Operations Center there are plans to add 16 new light duty charging stations and upwards of 20 stations to support larger fleet vehicles. Managed charging research will also continue with a new emphasis on real time pricing for customers to enable them to save money. The future in transportation is electric!