



AWARD WINNING DEMAND RESPONSE

CASE STUDY

“This project serves as a case study for how innovative rate programs and new technology can create more astute consumers. Advanced notice of critical periods armed homeowners with the information they need to reduce their electricity bill.”

- Rick Morella, Manager / Interim Technology Development



CHALLENGE

As the thermostat rises so does stress on the energy grid. Anaheim is a typical municipal public utility that experiences critical peaks during hot summer afternoons when air conditioners, fridges and other high consumption devices run full out. Although these periods account for less than 100 hours per year, they consume one-quarter of its annual energy budget. Anaheim’s goal was to lessen the load during these periods. With demand side management programs already in place for large commercial customers, Anaheim wanted to explore ways to shift usage away from peak hours to times when costs are lower and supply more plentiful. The utility believed that minor adjustments in residential consumption could provide quick and effective load relief and, ultimately, help it prevent brownouts which regularly occur in many Southern California cities.

SOLUTION

In August 2004, Anaheim launched Spare the Power Days, a DR (Demand Response) initiative to help homeowners and small commercial customers reduce consumption and costs during critical periods. The utility recognized that success relied on equal parts education, rate incentives, and enabling technology. Anaheim enlisted eMeter to serve as the program administrator and economists from Stanford University to evaluate results. TUNet – Tantalus Utility Network – was selected as the communications backbone. The wireless network could be quickly established and allowed Anaheim to deploy advanced metering modules at volunteer homes anywhere within the service area. Using TUNet, Anaheim would be able to record consumption in 15-minute intervals and incorporate data into existing billing and customer service tools so that the day-to-day effectiveness of Spare the Power Days could be closely tracked.

RESULTS

Customer feedback showed strong support for the program, with load reductions in the range of 20% achieved during critical peak events. The program followed a simple model. Anaheim identified critical peaks days in advance based on forecasted temperatures and notified participants via phone or email the day before an event. Those who reduced consumption between noon and 6:00 pm on a Spare the Power Day received a rebate on their hourly rate; those who did not were not rebated. Aggregate results were then reported to all participants the following day. Results show that advanced notice of critical events motivates most people to reduce consumption. When spread over a wider population, access to this type of information could ease demand and the pressure to either generate more energy, buy it from the expensive spot market, or force service interruptions. Anaheim’s long-term goal is to provide dynamic pricing information to all residential customers. With the two-way, wireless network already in place, Anaheim has the freedom to expand the pilot as well as use the TUNet network for other initiatives that bring new efficiencies to the way it monitors and manages energy distribution.

Anaheim's pilot earned top marks from the Utility Planning Network, winning the 2004 award for Best Demand Response Initiative. This organization recognizes utilities for excellence in gas, water, and electric metering initiatives worldwide. Applications are judged by a committee of utility professionals on the project’s technological innovation and success in helping utilities achieve customer service and operational excellence.

ANAHEIM BRIEF

- Anaheim, California
- 50 square mile service territory
- 110,000 customers; 24th largest public power utility in the US
- Lowest power costs in Orange County
- 3.5 million MWh annual energy sales

ADVANTAGES

- City-wide radio network established in 1.5 days enabled Anaheim to select participants anywhere within the city
- Existing meters retrofitted with “smart” TUNet modules to protect utility assets
- Enabled Anaheim to gauge daily consumption in 15-minute intervals and quantify effectiveness of demand response program
- Peak load reduced by apx. 20% during critical periods
- Minimal program administration costs
- AMI network in place to support future energy management initiatives including expanded DR programs, and water & gas metering
- Winner - Best Demand Response Initiative 2004; Utility Planning Network