

Local Government Case Study:

City of Colton

Background

- Location: San Bernardino County
- Population: 47,350
- Size: 350 full-time employees
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Summary

Colton developed an Electric Demand Reduction Program in the summer of 2001 with three objectives: 1) assist low-income customers, 2) reduce energy use at city facilities and 3) coordinate action between the city and its largest electric customers to implement emergency demand reduction/load-shedding programs. Programs included replacing all traffic lights with LED lamps and a load curtailment program, which enabled the city to cut more than five MW, if necessary, in 15 minutes with minimum disruption of operations. The programs were a success: low-income customers reduced their energy costs by 26 percent on average; City Hall saved more than 10 percent by installing more efficient lighting and air-conditioning systems; and a load-curtailment program was developed that could cut more than 5 MW in 15 minutes.

Referenced in Local Government Guides:

- #2, "Reduce Energy Use in Local Government Facilities Through Efficiency Improvements"
- #4, "Promote Energy Conservation and Efficiency Through Public Services, Incentives and Technical Assistance"
- #5, "Target Low-Income and Senior Populations for Energy Conservation"

Plan

Low-Income: The program's goals were to identify low-income customers, who had the highest summer energy bills, determine the cause of the high-energy use and implement cost-effective measures to reduce energy use. The program targeted low-income customers with high-energy usage because these customers would be likely to have the least efficient energy devices in their

homes, the highest motivation to work to reduce energy use and the most opportunities to reduce demand.

Colton Public Utilities identified customers who met low-income guidelines and ranked those customers based on their energy usage. The City of Colton's utility company identified these customers by enclosing an application for low-income credit in electric bills. Low-income customer information was entered into the utility's billing system, which then produced a report with names, addresses, account numbers and electric costs. The report ranked customers by highest electric bills. Colton Public Utilities contacted the low-income customers with the highest energy use and offered a free home energy audit. A Senior Energy Service Specialist was designated to select participants, contact customers, perform the home audits with the assistance of a summer intern and track results.

The specialist also surveyed the residents about their use of air conditioning and hot water heaters, temp settings and hours of use.

City facilities: Colton developed lighting, HVAC and signal light improvement plans. City facilities with inefficient lighting and air conditioning systems, as well as backup generation systems, were targeted.

Contractors were selected to perform the work, including lighting audits conducted at 14 city buildings in Colton to determine the best retrofit method. Additionally, all the signal lights in the city were inventoried. An air conditioning consultant was hired to improve the efficiency of the old unit in City Hall.

Emergency Load Reduction Program: The load curtailment program identified all major loads and backup generators in the city and then determined which loads could be turned off and for how long without affecting operations of the city or its customers. The Colton Public Utilities Water and Wastewater divisions have backup generators capable of providing 1.5 MW. City facilities with backup generators and interruptible loads were the first phase of the load reduction.

Programs: Conservation

- ✓ **Alternative and/or renewable energy sources:**
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- Turned on 5 MW of generation at county medical center.
- The county water treatment facility provided 500 kW of generation and cut hundreds of kW of pumping load for up to four hours.
- Residential customers voluntarily participated in load reduction mutual benefits by phasing in their generation and load-shedding actions on a rotating basis.

Programs: Efficiency

✓ **HVAC:** Installed the following devices: Individual zone controls, a new duct section, dampers and computerized energy management system.

✓ **Lighting**

- Switched 1,394 traffic lights at 32 intersections from incandescent lights to LED lights, which use an average of 140 watts less per light.
- Replaced standard four-lamp fluorescent light fixtures with CFLs.
- Replaced exit lights with LED lights, which save 28 watts per light.

Programs: Public Outreach

✓ **Electric Demand Reduction Program:** Colton Public Utilities developed a program to assist low-income customers (determined by State low-income guidelines) with their high electric bills. Customers were selected based on two criteria: Their household income and their energy use. Sixty low-income customers with high electric bills (between \$140-\$290/month) received a comprehensive home energy audit. The audits – intended to determine the

source of high-energy bills and to suggest cost-effective measures to reduce energy use – were three-pronged:

- Evaluation of equipment (i.e., air conditioning, appliances and electronics).
- Distribution of energy conservation educational materials.
- Cost-effective solutions.

Fifty customers received portable evaporative coolers to use in place of their air conditioners.

Budget and Finance

The Public Benefits Fund paid for most Energy Services, including the lighting retrofits, portable coolers and air conditioning units.

SB 5X legislation provided Colton Public Utilities with \$189,000 under the condition that it be used to reduce energy demand by 140 kW in Colton’s service area.

Results

The savings due to the Demand Reduction Program varied:

- 15 percent of customers saved 40-65 percent on their energy bill.
- 27 percent of customers saved 30-40 percent on their energy bill.
- 64 percent of customers saved 20-30 percent on their energy bill.
- City facilities saved more than 10 percent and had better lighting and air conditioning.
- Traffic signal lights used 1/15 less energy and lasted more than 10 times longer.