Automated Demand Response Case Study

National Retail Chain

PROJECT SNAPSHOT	RESULTS
Location: 39 stores in PG&E territory **Industry:** Retail **Description:** Department store chain with 3,189,000 square feet of retail space in PG&E territory. **Project Timeline:** Dec 2012 to Nov 2013 **PG&E Programs Utilized:** PG&E Automated Demand Response Program, PG&E Aggregator Managed Portfolio (AMP)	**Automated Demand Response (Auto-DR) Program Incentive:** A $667,329 incentive to pay for Auto-DR equipment and a Swarm Energy Management System by Encycle Inc., used to cycle air conditioning loads and reduce electrical demand by 1.9 MW during Demand Response events. **Overall Savings:** Annual savings of $150,000 per year from increased energy efficiency and decreased peak demand use and AMP participation.

The department store chain has long recognized that savvy energy management strategies benefit both the bottom line and the environment. The customer implements rigorous policies to control energy use throughout its stores and is always looking for ways to cut its costs and carbon footprint. In 2013, The customer partnered with energy management technology company Encycle Inc. and PG&E to implement an innovative automated demand response system in facilities across PG&E territory.

Together, Building
a Better California

Participating in PG&E's Automated Demand Response Program was a very positive experience. Adding automated demand response capabilities to our HVAC equipment was quick and cost effective. The additional controls integrated seamlessly into our existing energy management systems, and improved overall control of our HVAC system. The one-time incentives covered virtually all of the project's costs. With the new system installed, participation in Demand Response events is easy, and we earn additional money for participating.

—ENERGY DIRECTOR, FORTUNE 500 COMPANY

Project initiation

In 2011, Encycle engaged with the customer to explore their interest in ADR. While many aspects of facility operations were already highly automated at that time, demand response was not. As a result, the customer decided to pilot ADR in two stores using Encycle's Swarm EMS controls. After the pilots proved successful, the customer identified 36 California stores in PG&E territory as candidates for implementing ADR. The combined financial benefits available through two types of PG&E incentives—demand response program incentives and ADR technology incentives—simplified the decision to implement.

Technology installed

The Swarm EMS reduces peak electrical demand while maintaining stable interior temperatures by minimizing the number and size of loads unnecessarily running concurrently. The Swarm EMS system uses wireless signals to coordinate the operation of multiple individual package HVAC units and reduces the duty cycle of each unit by 10–20 percent (or more), depending on building and space type tolerances. This approach allows the HVAC units to provide some cooling while still reducing load during a DR event. The Swarm EMS also avoids the generation of new demand peaks by staggering the start times of the HVAC units when DR events are complete.

Project outcomes

The customer has been pleased with the results of the ADR projects in their 36 PG&E stores. The customer received program incentives that paid for the cost of the Swarm EMS. Since installation, they have seen an annual savings of $69,106.69 per year from their participation in the Aggregator Managed Portfolio (AMP) Program. The customer has since implemented the Swarm EMS in other stores in other states.

One challenging aspect of this multi-site project was its complexity and size. This required detailed technical review and testing by the ADR program staff in order to ensure that incentive funds were allocated in accordance with CPUC guidelines. However, the customer felt that the time required to allow proper technical review was ultimately worth the incentives delivered to them by the program.

Auto Demand Response program information

The ADR Program provides incentives to cover the cost of equipment, controls, and programming to automate the ability of a facility to shed electric load during a demand response event. The ADR Program strives to ensure that facilities that have the necessary equipment do participate automatically in DR events. To accomplish this, all customers that receive an ADR incentive must also enroll in an eligible PG&E Demand Response Program for three years and are expected to participate in all DR events called by PG&E.

RECEIVE TECHNOLOGY INCENTIVES UP TO

$200/kW

of calculated DR load reduction

Automated Demand Response benefits

There are many benefits to an Automated Demand Response program:

Decreased Manual Operation

The building operator does not have to manually adjust any systems or turn any lights off in order to participate in Demand Response events.

Utility Support

Customers receive free technical services to identify DR opportunities and to support installation of control technologies. PG&E will also pay for electricity conserved during Demand Response events.

Protected Power Grid

Participation in Demand Response events helps protect the electrical grid and prevent power interruptions.

Support Growth of Renewable Generation

Increasing automated demand response resources prepares the grid for continued integration of renewable generation.

Next steps

To learn more about the Automated Demand Response Program, call 1-855-866-2205 or visit pge-adr.com. Call PG&E's Business Customer Service Center at 1-800-468-4763 for information on comprehensive energy management solutions.

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