

SDERC

Demand Management

San Diego
REGIONAL
ENERGY
OFFICE



Technology Description

Demand management is a strategy within the practice of energy management that focuses on limiting or deferring electrical demand during peak periods when electricity is most scarce and expensive.



Demand Management Advantages

System Reliability: Customer demand management can enhance the reliability of the electric system by providing reductions in use during emergency conditions. Inadequate power quality already cause economic losses to the nation conservatively estimated at more than \$100 billion a year.

Cost Reduction: A key driver for demand management is cost avoidance and reduction. Demand response can permit customers to avoid incurring costs for generation, transmission, and distribution, including capacity costs, line losses, and congestion charges.

Market Efficiency: One study concluded that a 2.5% reduction in electricity demand statewide could reduce wholesale spot prices in California by as much as 24%; a 10% reduction in demand might slash wholesale price spikes by half.

Risk Management: Providers of retail energy purchase power in wholesale markets where prices can vary dramatically from day to day and hour to hour. They can use demand response to substantially reduce their risk and their customers' risk in the market.

Environmental: Demand response can help reduce environmental burdens placed on the air, land, and water. Demand response can reduce or defer new plant development, and transmission and distribution capacity enhancements.

Customer Service: Many customers welcome opportunities to manage loads as a way to save on energy bills and for other reasons such as improving the environment.

Case Study

During the California energy crisis, Hewlett Packard's Rancho Bernardo Facility stepped up to help reduce the threat of rolling blackouts by participating in the San Diego Regional Demand Responsiveness Program. HP was able to reduce its peak demand automatically by 294 kW by controlling equipment through their energy management and control system. Actions taken to achieve the demand reduction included reducing lighting levels in open office areas, raising space temperatures in non-critical areas and limiting the power drawn from central plant and air handling units.



Considerations

A 424,000 sq. ft manufacturing/testing/office facility in San Diego participated in the 2002 Energy Management Program, a California Energy Commission program designed to design, install and test an automated demand responsiveness system. With the help of SDREO and Siemens, the facility was able to automatically reduce load by 500 kW. After the system test, facility engineers soon realized that the load shedding did not disrupt occupancy comfort. Instead of load shedding only during potential Stage 2 and 3 emergency alerts, the facility engineer decided to perform this action on a daily basis. He calculated the company would save over \$70,000 in electricity costs during the summer alone.

San Diego Energy Resource Center
8520 Tech Way San Diego, CA 92123
1-866-SDENERGY
www.sdenenergy.org