Demand Response Doesn't Have To Be Demanding:

HOW AUTOMATED LOAD AGGREGATION CAN TURN RETAIL FACILITIES INTO A SOURCE OF SYNTHETIC POWER GENERATION

WITH MORE THAN 880,000 RETAIL CHAIN STORES IN THE U.S. alone, it is no surprise that the commercial sector is the largest and fastest growing market sector for energy consumption. However, utilities have historically been unable to tap into this market as a reliable source of load reduction and demand response.

Issues from both sides of the equation have stood in the way of overcoming this challenge. On the utility side, the administrative costs of reaching individual locations have been prohibitive. There are simply too many individual headquarter locations controlling the energy usage for each chain to deal with effectively – both in paperwork required to enroll individual locations, as well as the logistics of executing demand response events on short notice.

On the retailer side, many chains see demand response as a potential business risk, thinking that turning off lights and raising temperatures at each location could drive away customers. The financial and publicity benefits are perceived as too small to outweigh the cost of potential lost sales and damaged brand equity. In addition, energy management is a non-core function which could distract store managers from customer service and merchandising.

Site Controls, a leader in intelligent enterprise-based energy management, operational and grid efficiency solutions, has developed and deployed technologies to aggregate retail electricity loads into a single homogenous power source, lowering the transactional barriers on both sides.

For retailers, Site Controls provides on-going electricity reductions through its on-site energy management platform that monitors and controls key energy-consuming equipment such as HVAC, lighting, signage and refrigeration. Site Controls' retail customers have reported energy use reductions of 15 percent and a reduced company-wide carbon footprint of 13.5 percent. Site Controls' automated Intelligent Load Management (ILM) algorithm executes peak load reductions based on site-specific business rules designed to drop the maximum amount of load while protecting the customer environment. The company also handles utility rebate application and payment processing, offloading another non-core administrative burden.

For the power providers, Site Controls serves as a demand response "aggregator," delivering distributed demand response resources to utility operators on behalf of its customers through the ILM platform. Site Controls automatically and intelligently manages electrical loads across hundreds of locations, taking the retailer and site-specific business rules into account while automatically reducing load in real-time, based on changing grid conditions. The result is synthetic power generation – a grid resource that takes on all of the characteristics of a physical power plant, including:

- Two-way communication
- Closed-loop control
- Verifiable in real-time
- Granular dispatch
- Renewable
- Scheduled resource
- Firm delivery

Just one example of Site Control's demand response capabilities involves the October 2007 San Diego wildfires. During the uncontrollable firestorm, San Diego Gas & Electric issued an urgent call for emergency energy conservation. Site Controls, working collaboratively with its customers, responded quickly and automatically, reduced demand for electricity in the affected areas. Leveraging its web-based distributed control systems in participating commercial locations, Site Controls and its customers eliminated over three mega-watt hours (MWh) of peak electrical demand from the San Diego grid.

In a letter to Site Controls, Michael R. Niggli, COO for SDG&E wrote, "I want to express my appreciation and thanks for your participation in SDG&E's Demand Response programs during the recent firestorm. Your immediate response played a significant role in helping maintain the integrity of our power supply system."

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