nerej
CELEBRATING 55 YEARS

Sustainability through demand response programs: Generating revenue and meeting sustainability goals

October 15, 2008 - Green Buildings

Many regions of the country are experiencing continued growth in the demand for electricity; it is expected to increase unabated into the foreseeable future. The Northeast is especially constrained as demand for electricity continues to expand while generation stays fairly static.

In recent years utilities and wholesale grid operators have begun to implement programs called demand response. These programs provide a significant annual revenue stream to customers, allowing grid operators in highly congested regions with a lack of generation to meet capacity shortfalls when demand or pricing for electricity is high.

Demand Response is simply the temporary reduction or shifting of electrical usage, for a defined amount of time, when the reliability of the grid is in jeopardy or energy prices are high. Industrial, commercial and educational facilities as well as federal, state and local municipalities across the region are taking advantage of demand response as a hedge against rising energy costs while helping to better utilize their use of electricity.

There are a number of demand response programs available throughout the region, but all operate on the same premise: a participating facility becomes an on-call asset to reduce their electrical demand by a specified amount, for a specific amount of time, when the there is a grid emergency.

The financial benefit is that a customer is paid a recurring revenue whether an emergency occurs or not; they are paid as an on-call resource just for being available to reduce electric load. The customer essentially becomes an "insurance policy" for the grid operator should an emergency occur.

Payments are made by the wholesale grid operator as a way to insure the reliability of the grid, allowing the utilities and the power grid operators to meet peak demand without necessitating the continuous operation of older, less efficient power plants. This is an important point with regards to sustainability as energy generation is the largest producer of green house gases in the world. By implementing demand response programs, power companies reduce pollution, which in turn, lead to a significant reduction of greenhouse gases.

In fact, Laurie Wiegand-Jackson as President of the International Association of Energy Engineers (AEE) focused her keynote speech in Hong Kong this past winter on implementing programs such as demand response to decrease greenhouse gases worldwide. Ms. Wiegand-Jackson emphasized that the United States is the largest producer of greenhouse gases with a significant portion being generated to produce electricity. The power generation industry has widely been exempt from many of the clean air initiatives that were mandated for other industries. Demand response allows the electric grid to operate more efficiently and significantly lower overall emissions while insuring its reliability.

Customers that wish to participate in demand response programs must enroll through curtailment

service providers (CSP), which are registered within each of the regions where a wholesale grid or utility operates. CSP's enroll clients and administer the programs as well as collect and distribute payments. More importantly they work with sites to identify how much electric load they can safely reduce without jeopardizing operations while maximizing potential revenue.

Curtailment service providers vary widely with the services they provide but there are typically no up-front costs or set-up fees associated with enrolling. Generally costs are recouped through the revenue that is generated through participation in the programs. In most instances the provider will cover penalties that are incurred due to non-performance to a call, although continued failure to reduce load may lead to removal from the program. Providers may also install advanced metering; building controls or finance energy efficient upgrades through the revenue that is produced.

Sites can reduce load in many different ways including but not limited to, on-site generation, turning off or idling load bearing equipment or manufacturing processes, reducing chiller capacity, raising thermostat temperatures, reducing lighting or ventilation needs. Companies can participate by reducing electrical load by as little as 100 kW, producing a potential reward of as much as $5,000 annually. Obviously, the larger the load that can be reduced the better the revenue. Some customer sites generate in excess of $250,000 each year.

Participating in demand response programs is virtually risk-free and offers an exceptional opportunity to generate an annual recurring revenue stream with little downside to operations. Also, emissions control and carbon footprint reduction are fast becoming part of an organization's overall environmental strategy. As demand for energy continues to grow, demand response offers a hedge against high-energy costs allowing companies to better utilize their use of electricity. It can also aid in their efforts to meet corporate sustainability goals while having a direct impact on stabilizing the electric grid.

Gary Bell is a regional sales manger with North American Power Partners, Mount Laurel, N.J.