

## **Demand Response – Avoiding Brownouts**

As a first year partner in Enernoc's demand response program, Building Management Systems felt that it was pertinent to communicate our experiences with demand response. Firstly a very brief definition of demand response is the curtailment or reduction of electricity use to a point that is manageable when the demand on the electric grid is high enough to warrant brownouts. In other words, organizations that demand a large amount of electricity agree to reduce their demand to alleviate stress on the electrical grid when it has reached its peak. By removing that demand on the electric grid, hopefully more brownouts will be avoided because there is more power available. Demand response is power shedding, not power generation; you are not feeding excess power generated back to the electrical grid.

Companies that provide demand response services on a contractual basis have been organized through agreements with the Department of Homeland Security and the companies that supply electricity to the regional electric grids. These companies, like Enernoc and Hess, bid to provide a certain amount of capacity for a predetermined monetary value. The suppliers of electricity cover these payments through capacity charges that are a part of *your* bill. In order to reach the capacity that was bid, high demand organizations are contracted to reduce their consumption by a previously stated amount and are compensated financially.

Organizations that have been contracted to curtail their electricity demand in times of crisis are allowed to do whatever is necessary to meet the savings that has been agreed upon. This can involve anything from turning a lot of lights off to converting to backup power generation. It is wise to discuss the feasibility of any venture with your facility manager. When an event occurs the contracted organization is notified two hours beforehand via automated voice message and email. The recipient acknowledges receipt of the message and continues to take the steps necessary to curtail the amount of electricity that was agreed upon. An event may last up to four hours and is called off by the demand response company after the peak in power subsides. The demand response season lasts from June 1 through September 30 and contracts are generally setup for three to five years.

There are two major benefits to demand response. Firstly, it is a great way of gaining community outreach and environmental awareness. Large commercial companies are taking the responsibility to save smaller residential customers the hassle of power outages. Also, by curtailing electrical use the power plants are able to ease production. If enough power can be curtailed in times of crisis, then power generation plant construction can be postponed because the demand has already been met. Although these outcomes may go unnoticed by most, a well-placed public relations announcement will earn its accolades.

The second major benefit to demand response is the financial incentives involved. Organizations are given a capacity payment regardless of whether a peak-event is or is not called. This capacity payment can be very large (five to six figures annually) and is set five

years in advance. Since this is a fixed capacity payment it can provide funding for planning future projects. Organizations are also reimbursed a few thousand dollars for overhead if an event is called. This covers any maintenance and additional management costs that might result.

There are many large commercial and government organizations that are already involved with demand response reaping the benefits including hospitals, manufacturing plants, storage facilities, educational facilities, and military bases. Demand response might be very appealing to an organization that has high energy consumption, especially if there is room for temporary reduction. Organizations with the ability to run off of an alternative energy source have an additional advantage because large savings can easily be achieved.