



# Enrolling With a Demand Response Aggregator

Curtail load with less risk and larger incentive payments

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# The U.S. electric grid is straining to keep pace with our insatiable demand for electricity.

**The Smart Grid promises to help balance supply and demand, but not without smart consumption – the ability of intelligent buildings to automatically respond to changing conditions. Buildings are currently responsible for 40 percent of energy use and 20 percent of emissions worldwide. Facility professionals and building owners have a vital role to play in lowering overall consumption and reducing peak demand.**

**By enrolling in electricity load curtailment programs such as demand response, owners and operators can lower demand on our energy infrastructure and help prevent widespread blackouts. They can also reduce their energy costs and carbon footprint, as well as earn incentive payments for their curtailment. Promoting this as a step toward green building operations and improved corporate social responsibility is an additional benefit.**

## What is Demand Response?

The intent of demand response programs is to motivate end users to make changes in electric use, lowering consumption when prices spike or when grid reliability may be jeopardized. In order to encourage building operators to reduce electric use, incentive payments are often issued. Demand response programs are administered by utility companies, independent system operators (ISOs) or third-party aggregators that contract with utilities or ISOs.

Once enrolled, an audit of the facility(s) is performed to determine what demand response load is available. From the assessment, a list of operational changes for load curtailment is generated and discussed with the customer, who decides which should be implemented during a demand response event.

When an event occurs, customers are notified by the utility and typically respond by shedding load. This is often achieved by adjusting HVAC setpoints or turning off (or dimming) lights via a building automation system. Incentives for participating, which are issued by program administrators, range from a credit on the customer's utility bill to a check issued following an event or reduced kilowatt-hour rates for overall power. In some programs, building owners receive 'capacity' payments for agreeing to participate in demand response if requested, regardless of whether an event is actually called.

Unfortunately, not all buildings can take advantage of demand response programs because their curtailment volume (measured in kWh, kW) doesn't meet minimum load requirements. This is why aggregators are important. Buildings that could not otherwise participate can now reap the benefits of load response programs through an approved aggregator.

## What is Demand Response Aggregation?

Third-party aggregators enlist end users to participate in demand response curtailment and sell the combined load reduction to utilities and ISOs. Typically, the aggregator takes a percentage of the demand response incentive as compensation, passing the rest on to the end user. For sophisticated aggregators, data about the current consumption of multiple sites during an event is consolidated in real time so the aggregator can gauge the performance of the entire portfolio almost instantaneously.

Executed properly, demand response aggregation programs spread the risk. Compare it to a well-balanced stock portfolio. The more diversified your investment portfolio, the lower your risk. The same concept applies to demand response aggregation; load that is not curtailed from sites that opt out can be made up for by other facilities' participation. A building owner is not penalized if an individual site is unable to participate due to HVAC equipment problems or high occupancy – other locations take up the slack and the entire portfolio continues to meet its obligations.

This aggregation greatly improves the financial outcome. Since demand response aggregators can almost guarantee to the utility the aggregated curtailment volume resulting from combining load across multiple buildings, the value is greater, which benefits the customer.

## What is Automated Demand Response?

Although aggregation has many benefits, the financial rewards are often dependent on customers who must implement load-shedding strategies during an event. However, some third-party aggregators offer turn-key aggregation, whereby a participant's building automation system automatically initiates energy-saving measures at the onset of a demand response event.

Using an existing energy management system connected via an internet gateway, a facility's non-critical load is intelligently and automatically reduced by implementing predefined operational changes, such as cycling HVAC equipment, increasing air-conditioning setpoints, turning off or dimming a portion of facility lighting and/or controlling the use of other energy-intensive processes.

During a demand response event, site conditions are constantly monitored in real-time to protect business operations, worker productivity, occupant comfort or the customer experience. If, at any time, maximum building temperature, maximum CO<sub>2</sub> concentration or minimum lighting levels are reached, the site automatically reverts to its normal operations.

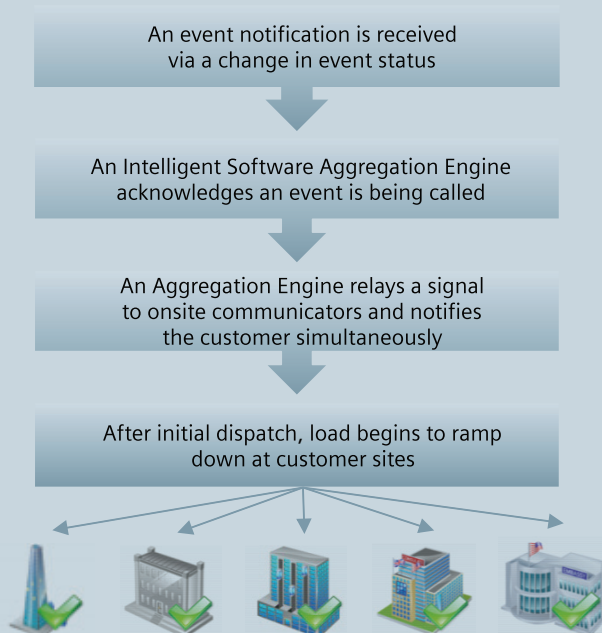
Automated demand response ensures that the demand response aggregator meets its load curtailment commitment to the utility and enables it to participate in short-notice programs that generally offer a higher incentive. Because the aggregator shares the capacity payments from utilities, participating via automated demand response is a benefit to all participants.

Since no manual labor is required with automated demand response, staff resources are not stretched during an event. Enrollment comes with much lower risk too. Customers can be assured that their participation in a demand response event will not have negative operational consequences. While load curtailment strategies are implemented automatically, facilities can opt out if participation will have a negative impact. For example, if a demand response event coincides with a commercial office facility's biggest customer event of the year and setpoints in the conference room cannot be raised, the facility simply opts out.

Additionally, rebates from utility companies are often available to cover building automation equipment, implementation and enablement costs.

When considering participation in a demand response program, look for one that aggregates load to reduce risk, reduces energy consumption automatically to maximize pay-out and minimize the amount of labor required and guarantees minimal disruption to building occupants, customers and employees.

## Automated Demand Response



**This high-tech approach facilitates reliable participation in short notice programs, generally offering a higher incentive.**

**Due to real-time visibility and this aggregation engine, customers are shielded from penalty risk.**

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