



Hyatt Regency
Hill Country Resort and Spa
San Antonio, TX

DEMAND RESPONSE

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CPS ENERGY

FIFTH FUEL
MANAGEMENT™
by Servidyne

Servidyne Completes Successful Demand Response Pilot, Results Launch Fifth Fuel Management Capabilities

Demand response is a relatively new concept but it is widely being accepted as an effective means of addressing issues regarding electricity utilization such as pricing, reliability, deferment and emergency response as well as helping electric utilities and customers improve infrastructure planning and operations with consumption in mind.

Demand response works because it allows customers in both retail and wholesale electricity markets to choose whether or not to respond to pricing or other kinds of incentives by reducing or shifting their electricity usage, particularly during peak periods. This differs from simple energy efficiency in that it allows the customer to shed electricity in response to a pre-defined need, such as a request from a utility or in response to market prices.

As a result of the implied cost savings and environmental benefits of demand response systems, utilities are developing ways to provide this capability as a service to both residential and commercial customers. It also assists them in their infrastructure and operations planning in one way, among others, by reducing the need for new facilities.



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One such utility is CPS Energy, the largest municipally-owned electric utility in the United States and forerunner in the industry regarding energy efficiency and conservation. CPS Energy has employed demand response program as part of its Save for Tomorrow Energy Plan (STEP), which has resolved to reduce electricity consumption by its customers by 771 megawatts by 2020. That is equivalent to the amount of electricity generated by one large power plant – a plant that would otherwise cost taxpayers more than \$2 billion to build.

In addition to demand response, the STEP program offers incentives and rebates to both residential and commercial customers to improve air conditioning systems and increase the use of efficient lighting and appliances. The program cost CPS Energy more than \$22 million in 2009, and saved 30 megawatts.

To provide commercial demand response services within the program, CPS Energy turned to Servidyne and its new Fifth Fuel Management™ capabilities.

Developed in early 2009 by Servidyne, Fifth Fuel Management provides real-time demand response capabilities to operators of large, complex buildings, like office towers, manufacturing facilities, hospitals, universities and hotels. The system is built upon two core competencies: Servidyne’s proven engineering practice and its propriety software-as-a-service iTendant® platform.



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CPS Energy and Servidyne began working together in August 2009 to pilot Fifth Fuel Management capabilities, and enlisted the participation of two hospitality partners: the Hyatt Regency Hill Country Resort and Spa and Hyatt Regency San Antonio to complete the testing.

Coupled with testing the system, all parties were also focused on confirming that these properties could effectively contribute to the CPS Energy load reduction request in a reliable manner without incurring substantial investments or jeopardizing the comfort of their guests – no small feat during a Texas summer.

Pat Mitchell, Director of Engineering at Hyatt’s Hill Country Resort and Spa, said the operational challenges were, at first, intimidating and because of the nature of their business, they were not sure they would be always be able to participate in the curtailment events. “For example, we have a tent for special events. If it is in use, I am unable to turn off the air conditioning in the tent, and not doing so would affect our results. So at first we were not sure if the benefits would outweigh the challenges.”

Implementation

Fifth Fuel Management is backed by Servidyne’s iTendant platform, a Web-based, computerized maintenance management system (CMMS), hosted in a Tier I data center, which provides the reliable two-way, fast and secure communication and tracking platform needed for demand response.

Hyatt was already using its own software for curtailment as well as the iTendant Preventive Maintenance and Guest Services software system. As part of the pilot, Fifth Fuel Management provided an additional demand response module that was easily installed, without an investment in additional hardware.

The module came complete with a new user interface for demand response dispatch and two-way communications with the utility.

Before initiating demand response events (DREs), each property had to be audited to determine the amount of energy, or ‘load’, that could be called

upon during a DRE. A demand response audit was conducted by a Servidyne engineer at each property and generated a list of proposed demand response measures (DRMs) capable of delivering a certain amount of curtailable load.

Mitchell and Jimmy Yarbrough, Director of Engineering at the Hyatt Regency San Antonio, agree that the audit was a very important part of the success of the program. “Servidyne came in and found things that, although in hindsight they seem obvious, at the time we hadn’t even thought about doing. The process made us sit down and create a checklist, which was very beneficial,” says Mitchell.

Each accepted DRM was assessed using actual amperage readings, when available, obtained with metering equipment on a real-time basis. Those readings were then converted to estimated peak kW contributions. It was determined by the audits that the Hyatt Regency Hill Country facility had an estimated 154.9 kW load, and Hyatt Regency San Antonio, 84 kW. Together this totaled 238.9 kW, 19.5% more than the 200 kW minimum required by CPS Energy.

How it Works

With each DRM identified, Servidyne created a specific Fifth Fuel Management task in iTendant that included detailed information on location, task duration, default resources, detailed procedures and estimated kW saved. These tasks were added to the Hyatt work sites list and mapped to CPS Energy. The mapping operation, enabled by the two-way communication opened up by the new user interface, allowed Servidyne to enter demand response events and DRMs from a single source for both facilities.

This system was then used to transition an email from CPS Energy into a call for action. Using the new Fifth Fuel Management module in iTendant, staff at each property received notification that an event was planned along with the time of the event. Using their mobile devices, building personnel either accepted or rejected each specific demand response measure, providing advance notification to CPS Energy so that it was clear what demand response load would be delivered.

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In this case, the Fifth Fuel Management system worked on an “opt-in” basis, meaning each property needed to accept each unique demand response measure and take action to implement them. Each event was accompanied by all measures being accepted at both sites with one exception – there was a day at the Hill Country Resort when lobby lighting could not be dimmed, and when air conditioning and lighting could not be turned off in the special event tent, as predicted by Mitchell earlier. During that curtailment event the amount of energy was accordingly lower, but overall it did not disturb the success of the program.

The Result

At its conclusion, the pilot efforts resulted in an average 236 kilowatt (kW) of demand response across eight DREs in four weeks. This savings was 99% of the 238.9 kW that CPS Energy identified as available to be curtailed or shifted during that timeframe. Importantly, this result was achieved without additional customer support from CPS Energy, and with minimal activity at each facility.

Mitchell and Yarbrough say this energy savings amounts to savings of roughly \$450 a day, or \$4,300 to \$4,500 a month.

Further, the Fifth Fuel Management module designed to create a communication bridge between Hyatt and CPS Energy is now available and proven reliable for other CPS Energy customers. And, implementation at these Hyatt facilities means the benefits of this program can easily be expanded to

other Hyatt facilities in the area. Should additional sites be added in San Antonio, this program will be used to create and report on each facility’s DREs.

Mitchell says he got a lot out of the process, “It allowed me to sit down and really consider load shedding, whereas before I wouldn’t have even thought about it. And, if you think about it, the things that we are doing, even without a rebate from the utility, we are still saving money on energy costs. So, to me, working with Servidyne was beneficial and I learned a lot throughout the process.”

Yarbrough also agrees and adds, “A big part of the success for me was being able to measure the results and see where things were happening. Being able to identify a specific area where we can make changes for the better and then monitor and record those changes is very helpful.”

Servidyne has since secured a two-year exclusive contract to provide demand response services to other CPS Energy commercial customers.

In 2010, it expects to work with 20 to 25 facilities participating in the program.

Mitchell says, “Jimmy and I both agree, give it a shot. If you had asked me a year ago, I would’ve said no because on first glance it doesn’t seem worth jeopardizing customer comfort. But now, having gone through it I’d say — give it a shot, it is simpler than you’d imagine and there is a tremendous amount of savings and other benefits to be had that are too difficult to ignore.”



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