



CASE STUDY: VIRGINIA BEACH CONVENTION CENTER

Located where the Chesapeake Bay meets the Atlantic Ocean, the City of Virginia Beach is anything but a sleepy resort town. It is the most populous city in the Commonwealth of Virginia, and boasts an economy comprising tourism, national and international corporate headquarters, advanced manufacturing, military bases, and agribusiness.

The Virginia Beach Convention Center (VBCC) is the crown jewel among the city’s facilities. It was the first convention center in the state to receive certification from Virginia Green, the Commonwealth’s voluntary campaign to promote environmentally friendly practices in Virginia’s tourism and hospitality industries. It is also the nation’s first convention center to earn LEED® Gold certification as an existing building from the U.S. Green Building Council. These certifications are increasingly important in the competitive convention planning industry, where the VBCC competes nationally. Customer awareness of, and insistence on, “sustainable destinations” plays a greater and greater role in siting conventions.

The VBCC is also a shining example of how state-of-the-art energy projects can enhance a city’s energy budget as well as its national reputation. Nearly all lighting in the convention center is LED lighting, and the HVAC is controlled through a state-of-the-art Direct Digital Control (DDC) system that incorporates an automated demand response program to control spikes in peak electricity demand. The automation limits any impact to convention-goers and still saves energy dollars.

It’s also a perfect example of how the city and CPower Engineering worked together to successfully address one of the biggest challenges facing active convention centers: controlling peak demand electricity and total kilowatt usage. Event load-ins and load-outs at VBCC can be particularly problematic because the bay doors open directly from the loading dock into conditioned exhibit space.

The first step was to analyze the status of the bay doors during times of peak demand. The Center’s zoned DDC system, which controls the Center’s HVAC, was programmed to prevent the air conditioning from running in the exhibit halls if the bay doors were open. In addition, the DDC system receives power pulses from the electricity switch gears throughout the day. In the next phase, an automated demand response program was integrated into the DDC system.

When the system reads that the Center’s demand is getting ready to peak, it automatically implements one of three phases. Phase 1 changes back-of-house temperatures by one degree. If demand continues to peak, it implements Phase 2, which changes back-of-house temperatures by two degrees, all the way to three degrees at Phase 3. This automated program reduces the demand on VBCC’s chillers, which in turn reduces peak electricity demand.

“Our CPower engineers worked with VBCC’s staff to understand how the bay doors and events taking place in the building impact peak demand and usage,” says Leigh Anne Ratliff, CPower Account Executive. “Together, we developed a process to systematically go through the building to reduce demand with the least impact on customer events.”

With its DDC system program finalized and firmly in place, the Convention Center was able to ease demand on the grid, with near-zero disruption to its customers’ activities. In fact, the Center saved an astonishing 15 percent off their peak during its first year. And since the price of electricity peaks along with demand, this translated into significant cost savings that they otherwise would not have been able to attain.

SAVINGS AND EARNINGS Virginia Beach Convention Center

	PROJECTS	ESTIMATED DR (kW)	FORECASTED GROSS\$
2017/2018	2	172.52	\$13,781.49
2018/2019	2	172.52	\$16,374.31
2019/2020	2	172.52	\$9,497.01
2020/2021	1	40.95	\$1,143.73
TOTAL	7	558.51	\$40,796.54

In November, 2017, the Commonwealth of Virginia retained CPower through 2020 to continue to offer integrated demand response (DR) services to state agencies and departments through the state’s Department of Mines, Minerals and Energy (DMME). The Convention Center currently participates in CPower’s Demand Response (DR) program with DMME, and earns substantial revenue.

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