Ybor City District Cooling Protects its Business and Community with EnerNOC

Innovative cooling company earns money while ensuring customer comfort

**The Big Picture**

Ybor City District Cooling cools more than 35 buildings in Tampa, Florida’s historic Ybor City area—including Hillsborough Community College, the Muvico Theatres, and the Hilton Garden Inn. Its cooling plant delivers chilled water via more than two miles of insulated pipe beneath the city—cooling more than 800,000-square feet of building space efficiently and cost effectively.

In 2008, plant owners enrolled in a demand response (DR) program offered by EnerNOC and its local energy provider, Tampa Electric Company (TECO). During DR dispatches, plant operators simply raise the temperature of the plant’s chillers a few degrees for temporary periods of time. This minor change has minimal effect on the plant’s customers, and enables Ybor City District Cooling to reduce its energy use by approximately 300 kilowatts (kW).

Ybor City District Cooling earns approximately $20,000 annually from EnerNOC for participating in DR. It also reduces its monthly electric bill by approximately $10,000 a month by carefully monitoring its energy use with EnerNOC’s energy intelligence software (EIS), which provides a real-time view of its energy consumption. Finally, participating in EnerNOC DR helps Ybor City District Cooling protect its business, customers, and community from disruptions in electrical service.

From the outside, the plant fits right into the historic Ybor City district, one of Tampa’s prime tourist attractions. Inside, you’ll find three high-efficiency chillers of various capacities—from 215 tons to 1,300 tons—as well as associated pumps and pipes. But you won’t find people. The plant is so automated that operators rarely need to venture inside. They operate the plant remotely.

The simplicity of the plant made it an ideal candidate for demand response. “All we do is chill water,” says Robert Garcia, VP of New Business Development. “Our electric use isn’t spread out over a lot of different equipment or systems. It just goes to power our chillers. So we have centralized control over our energy use.”

In 2008, Garcia and his partners enrolled the plant in Networked Demand Response, the EnerNOC DR program offered in conjunction with TECO. Participants in the program voluntarily reduce electricity usage.

**Keeping a Hot City Cool**

The Ybor City District Cooling plant is a remarkably advanced facility optimized to deliver chilled water for climate control—quickly, efficiently, and at a consistent temperature. This centralized facility frees its customers—which include many of the largest institutions in the Ybor City area—from the responsibility and expense of purchasing, running, and maintaining their own chillers. It serves as a model of efficiency and reliability, one that plant owners are working to franchise in other districts.
in response to unusually high peak demand periods, most of which occur primarily during the hottest summer months, or during unseasonably warm or cool temperatures during spring or fall.

Garcia knew that the plant had significant flexibility, thanks to its state-of-the-art chillers, precision control systems, and well-insulated pipes. “We understood exactly how changes in our chiller set-points affect our energy consumption,” he says. “And we were confident that we could reduce when necessary. So Networked Demand Response seemed like a great fit for us.”

During a demand response dispatch, the plant operator simply hits an icon that Garcia has installed on the desktop of the controller computer. This action raises the set-point in the appropriate chiller from 41 degrees Fahrenheit to 44 degrees. “We’re 100% computerized, so we can respond instantly and remotely,” says Garcia. “And the system is programmed to adjust the right chiller depending on the current conditions.” The plant may have different chillers running at any given time, depending on demand.

Raising the temperature of the water that the plant delivers to its customers has no effect on comfort, which is the company’s prime concern. “We’re under contract to deliver water at 44 degrees,” Garcia says. “But we generally keep it slightly cooler, at 41 degrees, because a lower temperature reduces humidity. But for a few hours, it really doesn’t matter.”

The Results
These minor changes enable the plant to reduce electrical use by 300 kW almost instantaneously. Achieving its expected capacity is not difficult, according to Garcia. For example, during a recent DR dispatch, Ybor City District Cooling delivered more than 120% of its energy reduction target.

EnerNOC pays Ybor City District Cooling approximately $20,000 per year for participating in the Networked Demand Response program. But the earnings and savings do not stop there. In addition to using EnerNOC’s EIS platform to maximize demand response dispatch performance, Garcia and his team actively log in to EnerNOC to gain visibility into a real-time view of energy consumption.

Garcia has become an avid user. “I check in three or four times a day, even from home,” he admits. “EnerNOC’s software gives us new insights into exactly how much electricity we’re using, and lets us track our energy expenses—as well as our cost per ton of chilled water, the key measurement to our efficiency and profitability. We can spot anomalies in use, such as when a mechanic left a chiller running after maintenance recently, and correct them quickly. And we can make changes that keep us from incurring extra fees during peak periods.”

As a result of using EnerNOC’s software, Ybor City District Cooling has lowered its monthly electric bill to approximately $25,000, nearly a 30% reduction. By putting its new energy knowledge into action, Garcia and his team were able to reduce monthly use and deliver a boost to the company’s bottom line.

The Benefits
With EnerNOC DR, Ybor City District Cooling can reduce its energy use without affecting customer satisfaction. Because the adjustments are minor and last only a couple of hours, the minor change in temperature goes unnoticed by tourists, students, and others in the dozens of buildings the plant serves.

Other benefits that EnerNOC DR brings to Ybor City District Cooling include:

A Solid Partnership
Garcia and his team were extremely pleased with the entire EnerNOC DR enrollment, implementation, and testing process. “EnerNOC was excellent,” says Garcia. “Their enrollment checklist walked us through the whole process. Their people were incredibly helpful and answered all our questions. And they’re always available when we need them. I wish everything went this smoothly.”

Higher Profitability
Ybor City District Cooling’s approximately $20,000 in annual DR payments from EnerNOC—plus its energy efficiency savings—add up to a significant bottomline benefit. Profitability is key for Ybor City District Cooling, and EnerNOC DR contributes to the company’s continued financial success.

“I’d recommend EnerNOC DR, in a heartbeat, to any company that’s able to participate.”
—Robert Garcia, VP of New Business Development
EnerNOC was excellent, their enrollment checklist walked us through the whole process. Their people were incredibly helpful and answered all our questions. And they’re always available when we need them. I wish everything went this smoothly.”

—Robert Garcia, VP of New Business Development

**Better Visibility Means Bigger Impact**
EnerNOC EIS enables Ybor City Cooling District to proactively monitor its energy use—raising efficiency, improving decision making, and saving money. “Knowing our actual usage on a daily basis is a phenomenal benefit to us,” says Garcia. “Now I can predict what my monthly bill will be. And we can see how the changes in how we operate impact electricity use, and ultimately, our cost per ton.”

**Better Control**
With EnerNOC DR, Ybor City District Cooling retains control over its energy reductions during DR dispatches. It can make decisions based on current conditions. It can also make mid-dispatch adjustments. “We really need to have control over what equipment gets adjusted during a dispatch,” says Garcia. “Depending on the season, we have different chillers running.”

**Community Support**
“The last thing we want is for the customers we serve to experience a brownout or blackout,” says Garcia. “When there are grid problems, the community that we’re an integral part of suffers. And from a financial point of view, we lose out as well.” By participating in EnerNOC DR, Ybor City District Cooling helps mitigate the risk of problems during peak demand periods. It also ensures that its business and the diverse organizations it serves can continue ahead, uninterrupted.

**The Future**
Ybor City District Cooling serves as a strong advocate for EnerNOC DR among its current customers. “I’d recommend EnerNOC DR, in a heartbeat, to any company that’s able to participate,” he concludes.