



CPower


Case Study: Houston Independent School District

Houston Independent School District: A Good Steward of Energy for its Community and the Grid

**State's Largest School System
Shares the Story and Benefits of
Demand Response.**

Stephanie Walker had never heard about the Electric Reliability Council of Texas (ERCOT) or demand response until Winter Storm Uri hit Texas in February 2021. However, from frozen pipes at her home to media reports of the state coming within three minutes of blackouts, Walker became painfully aware of extreme weather's potential to strain the power grid and cause outages.

"The weather is just not stable. Now, we have winter storms on top of the summer heat that we have always



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had here,” said Walker, analyst II, energy and sustainability, for HISD.

Having learned first-hand, the importance of balancing the grid to keep the lights on during extreme weather, Walker and her team at the **Houston Independent School District (HISD)** have become a leading participant in — and advocate of — demand response. Not only has the district earned more than \$200,000 in two years for its willingness to conserve electricity when the grid is stressed, but it has also educated others on the human element.

“People have come to understand that we’re not just doing this to get a

check but to save lives. If, as educators, we can teach more people that, then it will make a big difference,” Walker said.

Being Good Citizens

The **state’s largest public school system**, and the nation’s eighth, with almost 190,000 students and 274 schools across 333 square miles within greater Houston, HISD began participating in demand response through CPower in October 2021. HISD is now enrolled in several **Texas grid services programs**, including ERS (Emergency Response Service) available through ERCOT, the state’s grid operator, and SOP (Standard Offer Program) available through

CenterPoint Energy, the local utility.

Walker and Kirby Williams, director of energy and sustainability, have led the district’s efforts to help their community and the grid while earning revenue that benefits students and staff. For example, in 2023, HISD **earned a combined \$114,753**, or the equivalent of the salaries of at least two teachers, by participating in ERS and SOP Summer Season (June-September) demand response programs.

“We want to be good stewards of our energy and citizens for our city and state, and to make sure we don’t have blackouts,” Williams said.



HISD's mission has been easier said than done, however. The district has had to overcome resistance to change both physically and mentally.

Investing in Infrastructure

Physically, HISD has been limited by old equipment and obsolete processes that make it hard to turn down HVAC systems to curtail load upon demand. A school's equipment may work one day but not the next.

"Our control systems have been most challenging because older ones can't perform tasks like automatically increasing or decreasing the building's temperature by a few degrees," Williams said.

HISD has steadily improved its infrastructure by re-investing demand response revenue into upgrades whenever possible. As it has automated more HVAC and control systems and enrolled more schools in demand response programs, the district has gradually increased the amount of load it can curtail, and thereby the potential revenue it could generate for reinvestment in infrastructure or other purposes.

Just shy of one out of five campuses participated in demand response as of February 2024. "We don't want to risk anything by saying that we could curtail more load than we can," Williams said.

The physical challenges have only partially contributed to the district's deliberate pace, however. Williams and Walker have also encountered resistance from staff entrenched in their ways.

Changing Minds

Shifting behavior has been difficult at times. For example, technicians with decades of running equipment one way are not always easily convinced that there is a better way. Thus, Williams and Walker have met with school leaders to explain the new systems and processes.

"If they have a question, we always guide them," Walker said. "Everyone participating has been educated on how we now run from an automation standpoint."

Still, staff may worry when equipment goes quiet. "If we set the A/C to go on at a temperature four degrees higher during demand response testing, people hear the system cycle off. Then they start panicking, thinking the building's going to get screaming hot when it is already 100 degrees outside," Williams said.

Thus, Williams and Walker explain to principals and others that the system still works, even if it is not running, so that administrators can educate the school's staff more broadly. "People should know that they still have residual cooling, and that the A/C will turn back on by the time they realize it's getting a little warm," Williams said.

Case Study: Education

Houston Independent School District
Houston, TX
CPower customer since October 2021

Grid service(s)

- CenterPoint Energy Standard Offer Program (SOP) - Summer
- ERCOT - Emergency Response Service (ERS) Program (Winter, Spring, Summer and Fall)

Locations Enrolled

- 37 (As of March 2024)

Earnings to Date

- \$200,000 (As of November 2023)

Additional Benefits

- Grid services earnings and savings support students and educators.
- Good stewardship of grid resources helps the community.
- Automated demand response makes buildings efficient and comfortable.

Success Factors

- Upgrading HVAC and control systems
- Automating demand response
- Educating staff on demand response benefits and best practices



Whereas old units were either off or on, new systems can also be set for occupied mode, much like a home thermostat. That is, systems will power down when no one is in the school, like late at night, early in the morning or on weekends.

So, rather than heating or cooling around the clock as they did before, schools that have upgraded their control systems run their HVAC about half as much. “We save money on our bills and also wear-and-tear on our equipment,” Williams said.

The more knowledge staff gain, the more supportive they become. “Sometimes change is uncomfortable, especially if you don’t get someone to see and understand the benefits of what we’re doing. So, we break everything down to where they can see the big picture,” Walker said.

CPower has helped them in that regard.

Delivering Value with CPower

HISD does not have live meter data so CPower provides test results and other data to help the district decide how much load it can curtail. The district can then realize the benefits.

“We’re looking forward to working with CPower to see how much we can curtail with new control systems. We want to make sure we’re doing our part to help the grid and our community,” Williams said.

HISD will continue to increase its curtailable load by enrolling campuses



in demand response after they improve their HVAC and control systems, and by educating school leaders as they do.

“Normally, in the past, if someone’s school got hot, they went right to the superintendent to complain,” Williams said.

“But no one has called to say they were uncomfortable since their schools started participating in demand response. They haven’t even noticed when we’ve increased the set points on their systems by three or

four degrees,” he continued.

Williams and Walker are proud of how HISD has helped keep the lights on for its community by being a good steward of the district’s energy.

“I was one of those people who didn’t know what demand response was before **Winter Storm Uri**, which unfortunately impacted a lot of the

district’s employees and teachers,” Walker said. “Now, I am excited to see the benefits of demand response.”

After all, as Williams has found, it’s not all about the money. With extreme weather increasingly impacting the grid, and potentially disrupting power for many people, demand response can help save lives as well.

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