Microturbines have significantly lowered the chance that 120-mph hurricane winds or crippling power outages will once again shut down a key United States government office.

In the past, disasters have pummeled the office, which features a laboratory that analyzes items to ensure national security. For years, the laboratory completely relied on electricity from the local utility to power the building and sensitive laboratory instruments. Disaster first struck in 2005, when Hurricane Katrina destroyed the previous location. Just two years later, Hurricane Ike battered the Center’s new offices. For nearly a month after Ike, surrounding homes and businesses were without utility electricity. Businesses with liquid-fueled emergency generators couldn’t find replacement fuels.

After years of design engineering, a new laboratory opened in April 2009 in the Southern United States. Needing a power source for the new laboratory more reliable than the local utility, and to gain greater control over energy costs, officials decided a change was needed. They turned to Capstone Turbine for microturbine-produced onsite power for emergencies and to reduce peak demand from the utility.

In February 2009, Capstone installed its UPSource, an independent, IT-grade power source that features 6 Capstone C65 Microturbines that generate up to 390kW of continuous power.

- Capstone Heat Recovery Modules installed on each microturbine use exhaust heat and specific control functions to re-use otherwise wasted energy to heat water for laboratory use.

Results
- Independent IT-grade power source with no reliance on electric utility.
- Nearly eight 9s of reliability for N+1 configurations.
- 100% up-time solution.

On average, 20% less cost of ownership than traditional UPS in N+1 requirements.
Needing a power source for the new laboratory more reliable than the local utility, and to gain greater control over energy costs, officials decided a change was needed and turned to Capstone.

Five of the six Capstone microturbines create a combined UPSource/dual-mode installation that provides onsite electricity and a steady supply of domestic hot water to the labs, as well as building heating requirements. Each unit produces 251,000 BTU/hr (74kW) of clean waste heat used to heat the hot water.

The ICHP microturbines eliminated the need for a secondary boiler system. In addition, without the use of any additional energy costs, the system can operate at efficiencies much greater than conventional UPS systems and diesel-generator back-up systems.

As with all Capstone UPSource applications supplied in N+1 configurations, concerns of load coverage during service or single-module failures are greatly reduced.

Capstone also offers IT System Application assistance for all UPSource applications.