

Syracuse University: microturbines, data centres & UPS

For the past 15 months Capstone Hybrid UPS MicroTurbines® have been installed in one of the world's greenest data centres based at Syracuse University, New York, USA. The facility, which opened 15 months ago, uses 50 % less energy and produces fewer greenhouse gases.

Escalating demand for greater computing capabilities and data storage meant Syracuse University needed to replace its outdated data centre, which had been housed in an old brick building for decades.

The university - regularly ranked among the Top 100 in the US - responded with the opening of the Green Data Center, one of the world's most energy efficient and green data centres. The 12,000-square-foot facility, which opened 15 months ago, is designed to use 50 % less energy and produce fewer greenhouse gases than traditional data centres.

Key to the center's energy savings are 12 patented Hybrid UPS MicroTurbines® from Capstone Turbine Corp. that power the entire facility. Capstone's Hybrid UPS is the first onsite power system to integrate clean-and-green C65 (65-kilowatt) microturbines directly with a dual-conversion UPS to provide power for mission-critical loads.

The low-emission microturbines are the heart of an innovative trigeneration - or combined cooling, heating and power (CCHP) system - which further boosts the

data centre's energy efficiency. Capstone distributor BHP Energy integrated the design of the CCHP system so the 12 natural-gas microturbines produce electricity and supply heat and cooling power to the data centre and a nearby building.

Traditional data centres rely on power from the utility and have banks of batteries that keep servers and equipment running during a short power loss. A stand-by emergency diesel generator is typically used for longer outages.

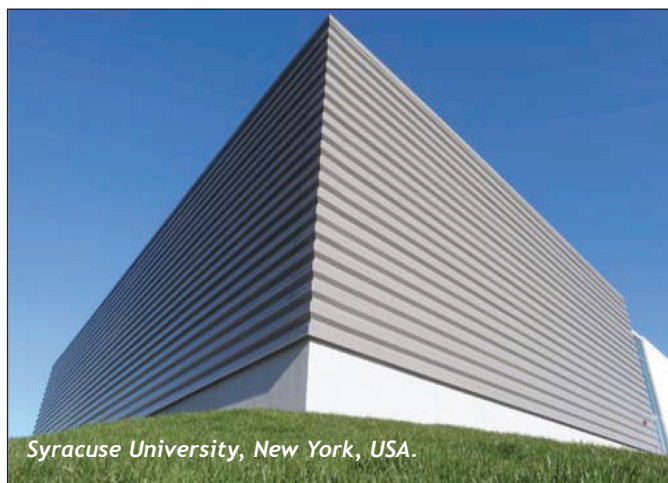
At Syracuse, the Capstone microturbines allow the data centre to be isolated from the utility, yet draw on the utility as a backup power source.

A 40-ton EnerSys battery bank with enough power to carry the maximum load for 17 minutes is available for rare catastrophic situations.

It is highly unlikely, however, that the batteries ever will be used because microturbines are renowned for their high reliability and low maintenance, says the company.

The Green Data Center achieves its renowned energy savings and efficiency through the integration of several advanced technologies, many of which never have been used together in a data center setting.

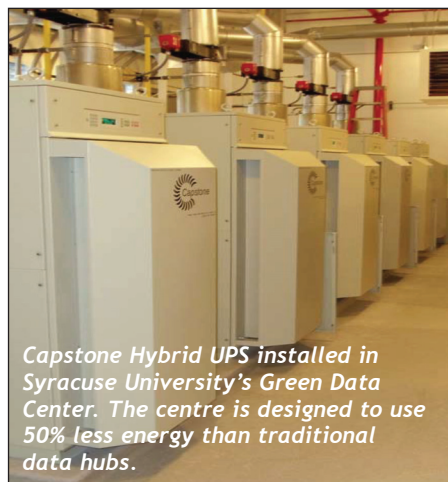
The 12 Capstone microturbines and the trigeneration system are a hallmark of the innovative onsite technologies. IBM was a major partner in the project and provided US\$5 million in design services, support



Syracuse University, New York, USA.



Thermax® absorption chillers



Capstone Hybrid UPS installed in Syracuse University's Green Data Center. The centre is designed to use 50% less energy than traditional data hubs.

and equipment, such as cooling doors which use chilled water to cool each server rack independent of its neighbours. This reduces cooling and energy costs. Two 150-ton ThermaxR absorption chillers onsite convert exhaust heat from the microturbines into energy which chills water used to cool the racks and the entire building.

A Cain Industries heat exchanger can be used at the same time as the chiller to produce hot water to heat peripheral areas of the data centre and the building next door.

Internet link
www.capstoneturbines.com

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