

PROJECT PROFILE

ORLANDO, FL

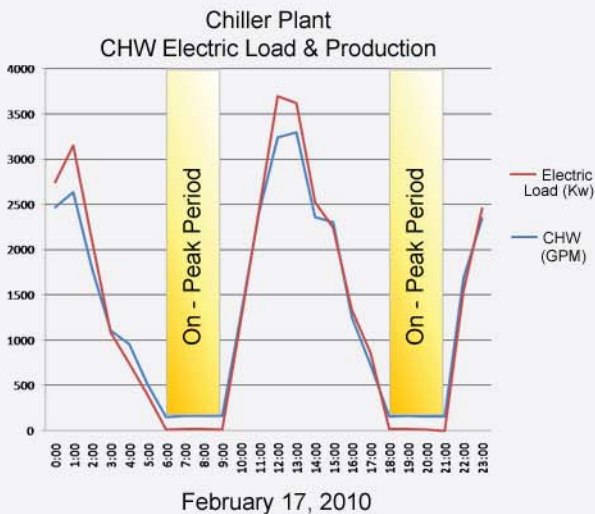
UNIVERSITY OF CENTRAL FLORIDA (UCF)
 3.0 MG THERMAL ENERGY STORAGE TANK



In 2008, The University of Central Florida (UCF) selected the Perry-McCall team to design and build a Thermal Energy Storage (TES) system for their existing chilled water district cooling loop. This chilled water system provides cooling for 8+ million square feet of this campus located in Orlando, FL. UCF is the third largest university in the country (by enrollment). David Norvell, the UCF Director of Sustainability and Energy Management, and a team of key UCF managers selected the Perry-McCall (General Contractor) team which included Wilkerson-Sims (engineer of record), and Natgun (TES tank builder).

This 3.0 MG TES tank is designed to provide 26,200 ton-hrs of cooling capacity at a maximum chilled water flow rate of 8,300 gallons per minute. The TES system provides the facilities staff at UCF with the flexibility to operate their chilled water cooling system more cost effectively. This is accomplished by operating the chillers during off-peak periods instead of during the on-peak periods. By operating in this way, the peak electric load at the central plant is reduced by 3,000 kW and UCF will reduce their electric energy consumption as well as reduce energy costs. David Norvell estimates that the TES system will save them over \$700,000 annually. In addition to the operational improvements, the tank appearance was enhanced using a combination faux brick and stucco column design so that the tank would blend in with the campus architecture.

Figure 1 CHW Stratification Chart



The on-peak electric period is Monday through Friday from 6:00 a.m. to 10:00 a.m., and 6:00 p.m. to 10:00 p.m. During the off-peak periods of time, the chiller plant provides chilled water for cooling the main campus while charging the TES tank with supply temperature water. Then during the on-peak periods, the chiller plant is de-energized and the cold water in the TES tank is discharged providing cooling for the campus. Figure 1 shows actual electric load and chilled water production on February 17, 2010 and illustrates how the chiller plant shuts down during the on-peak periods, thereby significantly reducing UCF's energy bill.

This is another project proving how Natgun TES tanks are built watertight and maintenance-free ensuring owners of decades of continuous service.

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