



CASE STUDY | NSU Series No. I Nova Southeastern University Central Energy Plant (Zone 4), New Lower School, and Classroom

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An extraordinary collaboration between Hill York and Nova Southeastern University.

When the ice tank is built out to full capacity, it will be one of the largest ice storage facilities within the United States.



Aerial Photo of the Central Energy Plant (Zone 4), NSU

Project Objectives

The goals for this milestone project for Nova Southeastern University (NSU) are to provide a new learning facility for its youngest students, and to be able to provide chilled water to cool the entire campus from one central location. Initially, the new Zone 4 Plant will be able to provide 4,600 tons of cooling capacity, with room for another 6,900 tons of cooling capacity as future campus expansion is constructed. One of the main concerns with this project is how to run the plant continuously at peak efficiency to reduce operating cost.

Solution

Going beyond the call of duty to uphold its motto, Making Life More Comfortable, Hill York proposed an innovative green technology, Utilivisor, to be implemented by its newly formed Performance Group, hygreen. This technology, Utilivisor, will allow NSU to monitor, in real-time, the efficiency of the plant as a whole. With this real-time data, the equipment within the plant can be properly operated to provide the maximum tonnage possible with the minimal amount of kW required. Underground piping will connect the new plant to the new lower school, auditorium and existing campus buildings. Branch lines have been installed underground and capped off for connections to future buildings. The Central Energy Plant has a large (103' x 65' x 42') ice storage tank, which will be expanded to three more tanks in the future to help run this plant with minimal cost.





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1. Central Energy Plant (Zone 4)
2. New Lower School
3. Auditorium



Aerial Photo of the Central Energy Plant (Zone 4),
New Lower School, and Auditorium, NSU

Project Synopsis

For more than twenty years, Hill York has been working with NSU installing HVAC systems, and this is the largest undertaking yet. This project includes Central Energy Plant (Zone 4), a new lower school and auditorium. The new lower school and auditorium will replace the existing lower school, and provide a facility for performing arts, visual arts and dance studios. Since the Central Energy Plant would be the facility providing cooling to these buildings, plant operation was a high priority.

Once Hill York installed all of the piping and equipment, **hygreen** was able to come in and install the monitoring devices. Flexim Ultra-sonic Flow Meters and Temperature Sensors were installed throughout the plant, monitored by Utilivisor. This will provide real-time monitoring of the flow and temperature through the HVAC equipment. The main chilled water supply and return lines to the campus were also metered for an overall plant efficiency calculation. An additional flow meter was installed on the cooling tower make-up line to reduce the sewage charge from the city since this water was not being returned for sanitation. With the major equipment being monitored, the plant can be fine-tuned to constantly run at peak efficiency, further reducing the cost to run the plant.



Flow Transducers
on Chilled Water Pipe





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Nova Southeastern University

Located on a beautiful 300-acre campus in Fort Lauderdale, Florida, NSU has more than 26,000 students and is the largest independent institution of higher education in the Southeast United States.



Nova Southeastern University Campus in Davie, Florida

Project Summary

Project Location: Davie, Florida	<p>HVAC Equipment: Two York Compound YK chillers, two 2 cell BAC cooling towers, two Tranter cross-flow plate frame heat exchangers, 144 8' X 3' X 6' BAC ice coils, and six Bell and Gossett pumps; two 200hp, two 150hp, two 100hp</p> <p>Total Cooling Tons: Phase one 4,600; final expansion 11,500</p> <p>Unique Features: Utilivisor Monitoring System installed by hygreen, Hill York's Performance Group to show real-time efficiency for the plant</p> <p>Installation Date: Phase one, main plant, all piping, and 40% of HVAC equipment, 2009; 2010 and beyond for future needs</p>
Project Type: New Construction	
Building Type/Size: Central Energy Plant to serve the entire NSU Campus and future campus expansions	
Objectives: Build a new plant that can sustain the current campus, provide ability for future expansion cooling, and construct a thermal storage facility to reduce run cost	
Design Considerations: Self sustainability, green designs and life cycle cost	
Major Decision Drivers: Cost reductions, efficiency, environmental impact and life cycle cost	

For more information about Nova Southeastern University Central Energy Plant project, Please call Hill York at 954.525.2971, or visit us at www.HillYork.com.

