



Hockey arena upgrades central plant controls with ILC 2050 BI

Summary

- An arena in Florida used an obsolete building control system that no longer met the building's needs.
- Different types of events can have vastly different temperature requirements, so the system needed to be flexible and robust.
- EnergyIQ designed and built four control panels incorporating the ILC 2050 BI controller and other Phoenix Contact products.
- The new building automation system made it easier for the building managers to control and maintain the diverse temperature needs for different events.

Customer profile

An arena in Florida hosts more than 200 events annually, including professional hockey games, concerts, and more.

Challenge: Obsolete building control

The different types of events at the arena all had different temperature needs. Karl Zimmerman, president and CEO of EnergyIQ, explained, "The hockey locker rooms have very specific needs because of the equipment storage. Normally the temperature is maintained around 72 to 74 for the basic day and when the team is using the gym. After a game they drive the temperature in the room up to 125 degrees, to quickly dry out the team gear to prevent mold and mildew from growing on the wet gear." During special events and concerts, the temperatures are maintained based on requests from the specific performers.

The original building automation system was obsolete and failing, with little to no support, so it was time for an upgrade.



Figure 1: The ILC 2050 BI

“The hockey locker rooms have very specific needs because of the equipment storage.”

Karl Zimmerman,
EnergyIQ

Solution: A comprehensive control system based on Niagara and BACnet

The arena selected EnergyIQ, a Phoenix Contact system integrator partner specializing in building controls, to implement a new solution.

During Phase 1, EnergyIQ designed and built four control panels.

1. The front end was built using a Phoenix Contact industrial PC loaded with Niagara N-4 software.
2. The chiller plant controller was integrated directly to three 1200-ton Trane Centrifugal Chillers with a Phoenix Contact ILC 2050 BI loaded with a Trane Comm 4 driver. EnergyIQ also integrated some flow meters, frequency drives, and the Ice Plant Chiller System via BACnet. Pump and valve control use onboard ILC I/O slices.
3. The controller for heating the hot water system (eight gas-fired boilers) also uses an ILC 2050 BI with I/O slices. The ILC was selected to control start/stop and monitor the boilers, pumps, and bypass valve. This system maintains a constant leaving water temperature that the air handlers use to control humidity.
4. The controller for the domestic water (two gas-fired boilers and one electric heater) uses an ILC 2050 BI with I/O slices to control start/stop of the boilers and circulate pumps. These pumps provide constant domestic water temperature

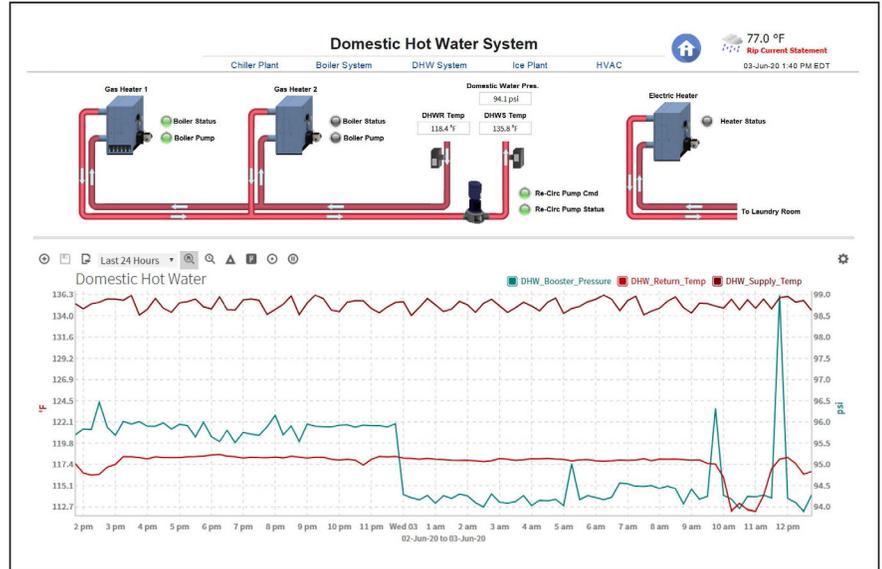


Figure 3: The domestic hot water system maintains a constant water temperature to restrooms and kitchens throughout the arena.

throughout the facility, including the water supplies to the restrooms and multiple kitchens.

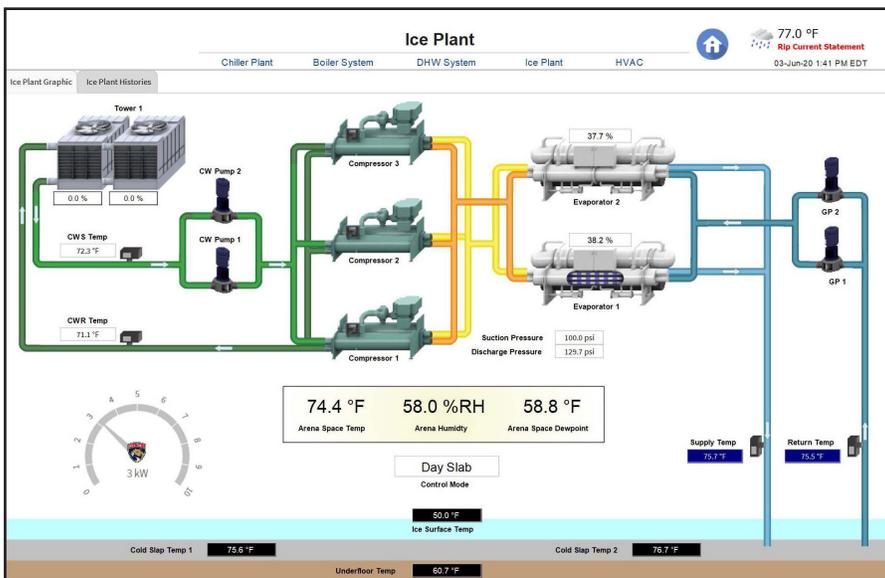


Figure 2: The Ice Plant Chiller system integrates flow meters and frequency drives via BACnet.

According to Zimmerman, “We also took over three air handlers that cool/heat the locker room, the guest locker room, and a press room.”

Results: Complex temperature control – simplified

EnergyIQ created new graphics for the central plant. The control logic included an automated Hockey Mode, which puts the air handlers at full cooling and starts a second chiller. The system tries to maintain 55 degrees in the bowl during hockey events, and normal space temperatures when the center is unused. The new system makes it easier to adjust the arena temperature to meet the request of performers during concerts and other events.