

BOSTON HEADQUARTERS

“Optimum Energy’s solutions are impressive in that they combine applications that optimize system efficiency with built-in measurement and management services. With this combination, this Boston facility has the continuous commissioning it needs to meet its long-term energy, greenhouse gas and cost reduction goals. The AEE New England Chapter is pleased to recognize Optimum Energy for their work on this project.” **Brian Crafts, AEE New England Chapter President**

Built for Green

The U.S. headquarters of this Canadian-based financial services group are housed in a modern, 15-story, 463,000 square foot building located in the emerging South Boston district. Built in 2002, the building incorporates a variety of eco-friendly features, including double-skin glazing and a green roof that provides insulation and lessens solar loads. Energy efficiency was also a top priority for the building’s mechanical systems, leading to the design of an HVAC system that incorporates free cooling.

Free cooling allows for highly-efficient HVAC during Boston’s cooler months, but it also increases the complexity of the HVAC system. System reliability is a key design consideration, as datacenters located in the facility require constant cooling with no interruption of flow as the system automatically switches between mechanical cooling, free cooling and overnight operation.

Built-in Reliability

The HVAC system in this building was designed from the beginning to be efficient and meet datacenter reliability requirements. The 1,400 ton chilled water plant is operated by Johnson Controls’ Metasys[®] building management system and was originally designed with variable speed chillers and a primary only configuration. With this design, the HVAC system operated at an annual operating average 0.87 kW/ton, an efficient performance for a conventionally designed and operated plant. But the company wanted to increase system energy efficiency even further.

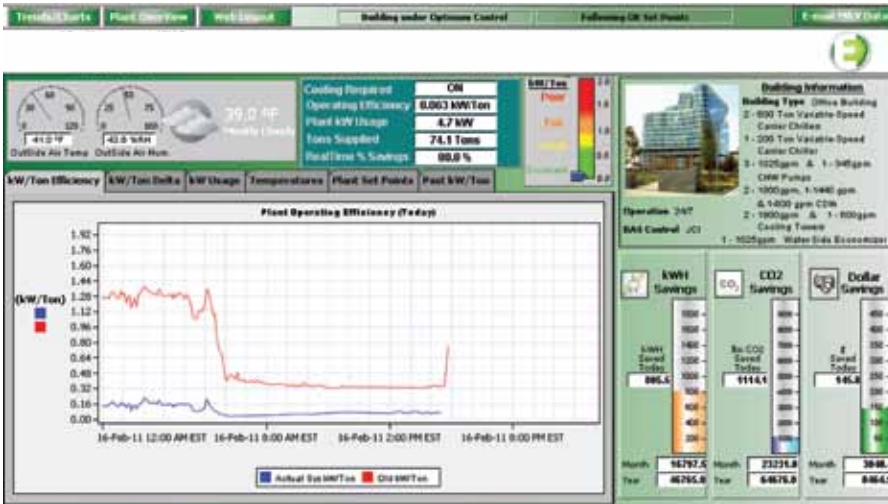
To meet this goal, variable speed drives were added to the chilled water and condenser water pumps. To maximize savings of the new all-variable speed system, Optimum Energy’s OptimumHVAC[™] software applications also were installed. OptimumHVAC’s advanced system-level control technologies make it possible to reliably optimize system performance for energy efficiency and reliability.

THE STATS

With OptimumHVAC, this facility is expected to:

- /// Save more than 375,000 kWh of electricity annually
- /// Cut annual operating expenses by more than \$69,000
- /// Improve average annual kW/ton by 41%, reducing kW/ton from 0.87 to 0.51
- /// Reduce average annual kW/ton when operated in free cooling/night mode by 76%
- /// Decrease carbon emissions by more than 520,000 lbs per year
- /// Qualify for utility incentives of more than \$30,000
- /// Payback for the project expected to be less than 3 years





As shown on the OptimumMVM dashboard, energy use is reduced by up to 80% in free cooling mode.

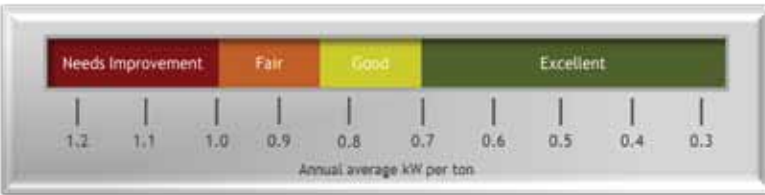
Free-Cooling Savings up to 80%

OptimumHVAC optimizes the facility’s HVAC system operation in all operating modes: mechanical cooling, free cooling or overnight operation. With OptimumHVAC, the building has reduced kW/ton when operating in free cooling mode by as much as 80%, with average operation in the 0.07 kW/ton range. And overall operational efficiency of the chiller plant increase by 41% as illustrated in the OE efficiency scale below. The OptimumHVAC application integrates with the Metasys building management system to switch automatically between cooling modes without interrupting flow and meeting reliability requirements.

OE Chiller Plant Efficiency Scale

Pre-installation
Annual operating
average was
0.87 kW/ton

Post-installation
Annual operating
average is
0.51 kW/ton



Pre- and post-installation performance comparison.

Award Winning Energy Savings

In January 2011, the New England Chapter of the Association of Energy Engineers awarded the South Boston energy optimization project its Continuous Commissioning Award as a result of the energy savings the facility realized. The award recognized the ability of the OptimumHVAC solution’s demand-based optimization and real-time OptimumMVM™ measurement, verification and management services to reduce operator intervention and deliver the sustained energy reductions that lower operating expenses year after year. This South Boston facility is now meeting its goal of further increasing its energy efficiency and can expect to for years to come.

ABOUT OE

Simply put, Optimum Energy is the energy optimization expert. We use integrated software and cloud computing to optimize HVAC systems to deliver sustained energy reductions. Organizations like Mineta San Jose International Airport, the University of Texas at Austin and a variety of Fortune 100 corporations rely on the Optimum Energy OptimumHVAC solution for the continuous commissioning that maintains energy optimization year after year. Contact your local OE sales representative for more information about HVAC system optimization from Optimum Energy.

