SOLUTION AT A GLANCE: HACKENSACK MERIDIAN HEALTH: REAL-TIME ENERGY MONITORING SAVES $400,000 ANNUALLY

SECTOR
Commercial

BARRIER
Metering/measuring energy use

TOOL TYPE
Energy Use Dashboard

BUILDING TYPE
Healthcare, Clinic or other outpatient health care, Hospital, Medical office

TECHNOLOGY
Energy Management Systems

OVERVIEW

Plant operations teams at Hackensack Meridian Health's Hackensack University Medical Center improved energy use in its district cooling and heating system in an effort to reduce energy consumption by at least 20 percent. The central district cooling system is made up of four central chilled water plants, which provide 8,400 tons of cooling to multiple critical facilities. The multi?fuel central utility plant consists of electric centrifugal chillers and a 1,600?ton steam turbine. The 3,000?hp central boiler plant generates a maximum of approximately 51,000 pounds per hour of steam for the medical center’s facilities.

With other efficiencies planned for the future, including equipment and optimization upgrades to the boiler plant, the Plant Operations Department still wanted to look into additional steps to reduce Hackensack University Medical Center’s central utility plant operating costs.

The Solution: Continuous Energy Oversight

With this goal in mind, the Hackensack University Medical Center’s infrastructure leader and Head of Plant Operations looked for an opportunity to work with an energy advisory firm with expertise in

analyzing utility rates and experience operating energy plant and metering systems. HUMC selected utiliVisor Energy Plant Services, which specializes in oversight of energy systems for healthcare and other mission?critical facilities. The company implemented a “Real Time” web?based metering and monitoring system in the plant and uses it to oversee, analyze, and report on the facility's HVAC systems and utility management.

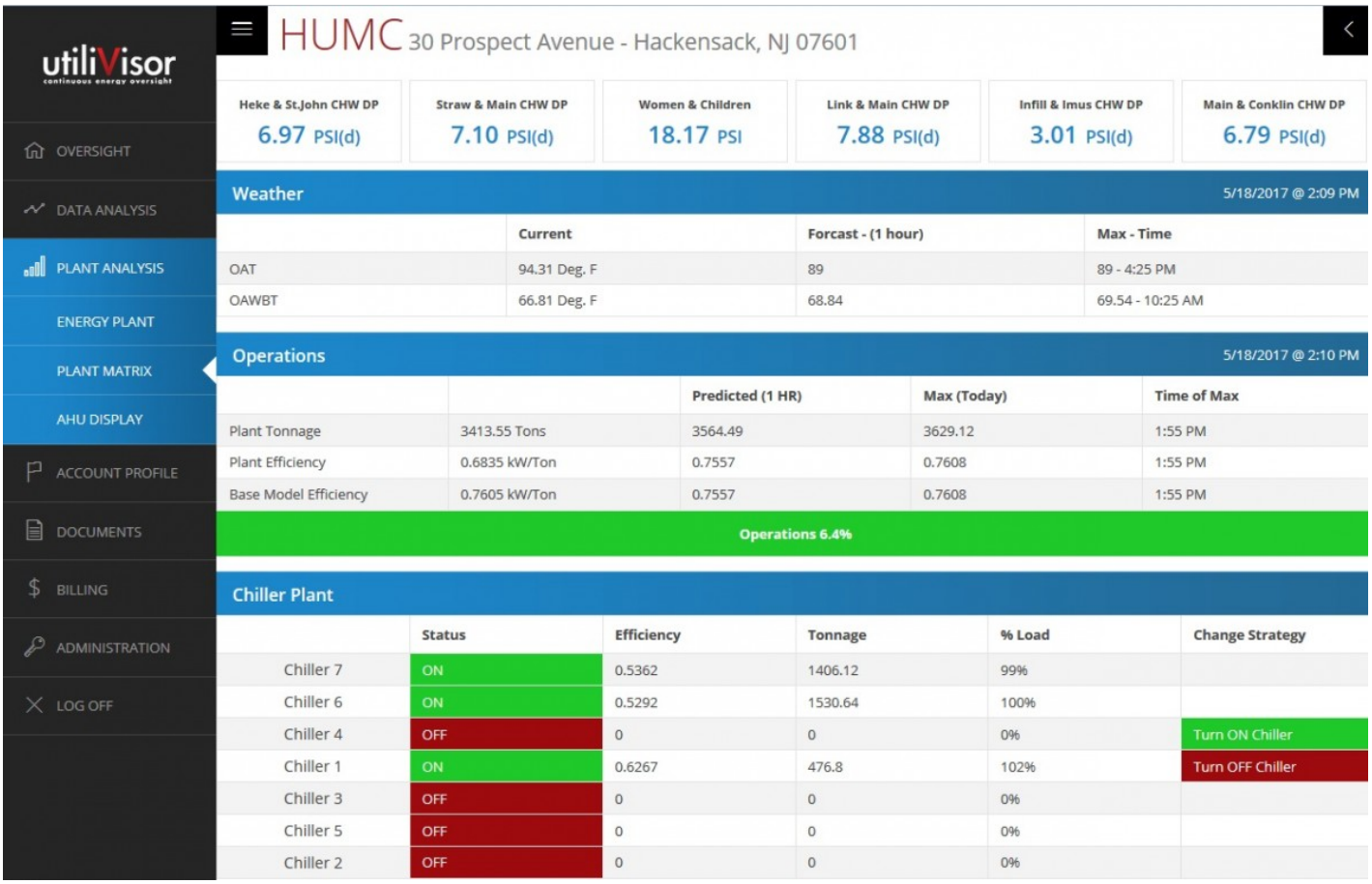
Some of the duties the utiliVisor team is responsible for include:

- full-time monitoring of chiller and boiler plant operations
- energy forecasting based on performance models of existing equipment operations.
- providing “real-time” energy use data
- tracking actual chiller performance vs. part load design performance
- training Hackensack University Medical Center’s engineering team
- analyzing electric vs. gas utility rates to determine which system is most cost?effective

Added Benefits: Predictive Analysis Plant Forecasting

Hackensack University Medical Center’s continuous energy monitoring provider also employs a predictive analytics tool, the added benefit of which is an even deeper understanding of plant operations and energy needs. Based on prior performance metrics, the predictive analysis models forecast the optimal sequence of equipment operation in conjunction with utility rates for chilled water plants and boiler plants. The tool is able to predict the building’s cooling and heating loads within 5 percent of actual loads; this helps operators sequence the right equipment while maintaining the lowest demand value month-to-month.

Hackensack University Medical Center central utility plant operators can view a graphic matrix of this information through a user portal, and receive alerts when plant efficiency drops below target. In central plant operations alone, HUMC has achieved savings of more than $2,800,000 since 2010 through continuous energy oversight.


utiliVisor
continuous energy oversight
OVERSIGHT
DATA ANALYSIS
PLANT ANALYSIS
ENERGY PLANT
PLANT MATRIX
AHU DISPLAY
ACCOUNT PROFILE
DOCUMENTS
BILLING
ADMINISTRATION
LOG OFF
HUMC 30 Prospect Avenue - Hackensack, NJ 07601
Heke & St.John CHW DP 6.97 PSI(d)
Straw & Main CHW DP 7.10 PSI(d)
Women & Children 18.17 PSI
Link & Main CHW DP 7.88 PSI(d)
Infill & Imus CHW DP 3.01 PSI(d)
Main & Conklin CHW DP 6.79 PSI(d)
Weather
5/18/2017 @ 2:09 PM
Current
Forcast - (1 hour)
Max - Time
OAT
94.31 Deg. F
89
89 - 4:25 PM
OAWBT
66.81 Deg. F
68.84
69.54 - 10:25 AM
Operations
5/18/2017 @ 2:10 PM
Predicted (1 HR)
Max (Today)
Time of Max
Plant Tonnage
3413.55 Tons
3564.49
3629.12
1:55 PM
Plant Efficiency
0.6835 kW/Ton
0.7557
0.7608
1:55 PM
Base Model Efficiency
0.7605 kW/Ton
0.7557
0.7608
1:55 PM
Operations 6.4%
Chiller Plant
Status
Efficiency
Tonnage
% Load
Change Strategy
Chiller 7
ON
0.5362
1406.12
99%
Chiller 6
ON
0.5292
1530.64
100%
Chiller 4
OFF
0
0
0%
Turn ON Chiller
Chiller 1
ON
0.6267
476.8
102%
Turn OFF Chiller
Chiller 3
OFF
0
0
0%
Chiller 5
OFF
0
0
0%
Chiller 2
OFF
0
0
0%