

HAWAII ENERGY SYSTEMS

Delivered by
Hawaii Energy Systems
using Optergy Software

Background

Hawaii Energy Systems (HES), a provider of smart energy management and control were asked to review the operation of an existing central plant located in a tropical climate in the South Pacific.

Tropical climates have some unique challenges and the customer was looking to improve comfort while reducing energy consumption. Due to the constant warm, humid weather in the region, cooling requirements are quite high. South Pacific Islands have some of the highest energy expense and safeguarding their occupants' comfort is key to business productivity.

Opportunity

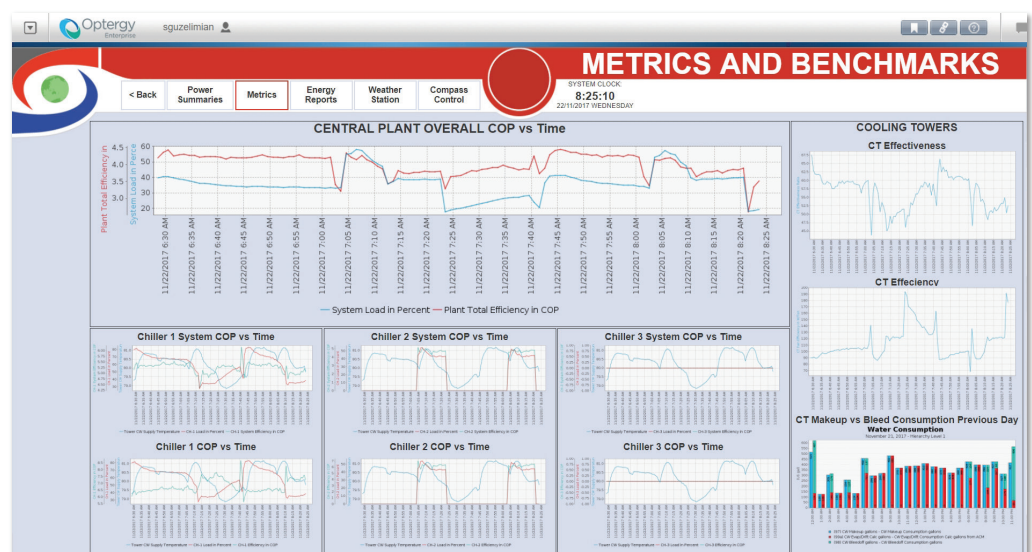
The client began a capital improvement program to replace their aging, inefficient chillers with three new high efficiency chillers. Working with their engineering consultant, they developed a detailed specification for a central plant optimization system to be installed that would operate the system at its optimal efficiency.

HES and Optergy teamed up to provide the custom control, optimization and reporting capabilities that the client demanded. Concerns about efficiency were hampered by lack of visibility and contextual reporting and alarms. Increasing visibility and improved performance were the desired outcomes.

Solution

The existing chilled water system (3 chillers, 3 cooling towers, primary/secondary pumping) was operating at an average 1.53 kW/ton. New premium high-efficiency chillers, pumps and VFD's were installed and controlled by the chiller's "smart controls".

HES implemented a central plant optimization system which uses Optergy Enterprise, a smart energy monitoring and control system.



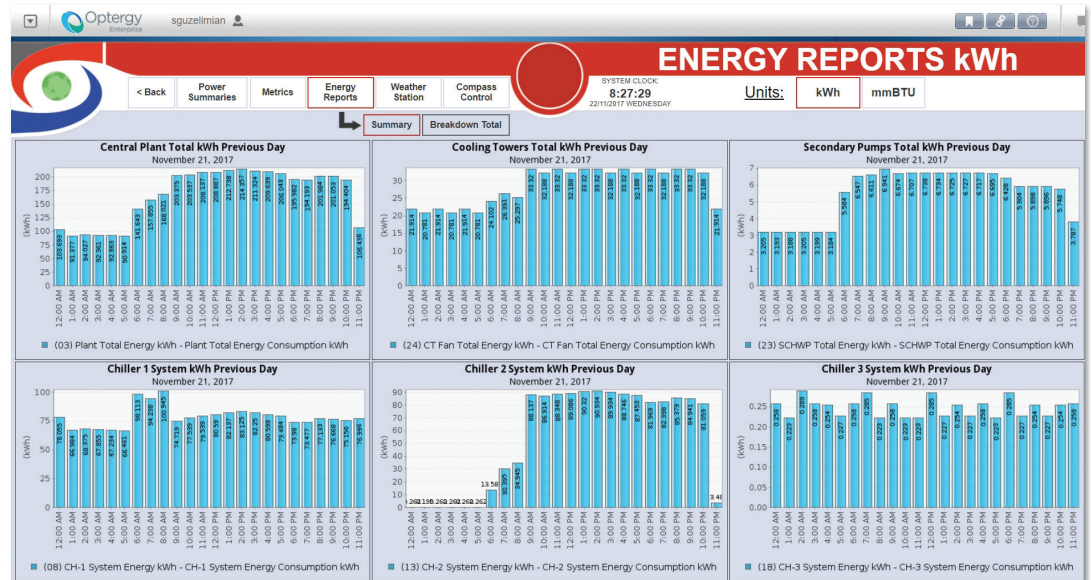
Example dashboard & report displays

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Solution

The Optergy system provided the web-based user interface that allows users to quickly control and adjust chiller settings while viewing the active and dynamic conditions of the chiller plant.

The Optergy system also generated reports and dashboard views for a quick and easy way for users to interact with the system.



Example dashboard & report displays

Results

The existing chilled water system (3 chillers, 3 cooling towers, primary/secondary pumping) was operating at an average 1.53 kW/ton. New premium high-efficiency chillers, pumps and VFD's were installed and controlled by the chiller's "smart controls". Energy demand was reduced by **21.6% to 1.20kW/ton**.

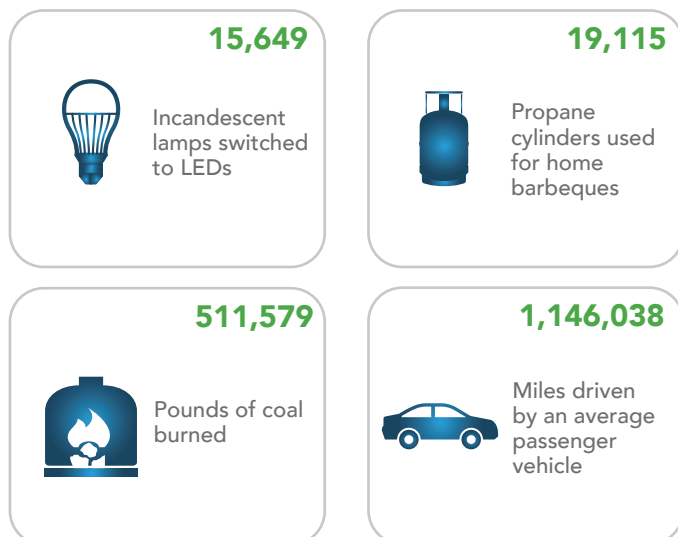
HES implemented a central plant optimization system for this new equipment and over the course of the first year of operation that slashed the measured energy usage to **0.86kW/ton – a 28.3% reduction** over the chiller's control system. This equates to a **total reduction in energy consumption of 628,289 kWh** (or 628.3MWh) over the first 12 months.

Cost Analysis:

First year financial savings
Simple payback

\$171,002
1.46 years

Energy Savings Equivalent



“Using the Optergy Smart Energy Monitoring & Control, Hawaii Energy Systems was able to quickly deploy a system and strategy that met the project goals. The system provided better than expected energy savings all with favorable economics for the client.”

Erik Ahrens
General Manager, Hawaii Energy Systems

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