

Multinational Pharmaceutical Company saves over \$1.2 million annually across three campuses and improves vendor management.

Overview



This Multinational Pharmaceutical Company (MPC) * has over 4 million square feet across three regional campuses in the U.S.

** Due to confidentiality agreements, we are not able to provide the client name. We will refer to the client as MPC throughout this case study.*

The Challenge

MPC has a long-term goal to be carbon neutral. As a result, MPC joined the UN Global Compacts Caring for Climate Initiative. MPC adopted a sustainability policy aimed at reducing energy consumption by 25% by 2020 and water consumption across its supply chain by 20% by 2020. As part of this policy, MPC continuously evaluates opportunities including the use of renewable energy and energy efficiency to achieve its goals.

Cimetrics' Solution

Cimetrics was selected to provide its Analytika Pro solution for MPC. Cimetrics collaborated with Johnson Controls, MPC's building automation system provider, to connect to and collect sensor and actuator data from 56,000 JCI, Bailey, and Honeywell physical HVAC and process points. Data was collected continuously, 24 hours a day, and 365 days a year, totaling over 5 million data samples per day.

The following systems were monitored: 351 air handling units, 180 chilled water and hot water pumps, 68 chillers, 40 cooling towers, and more than 2,500 terminal units.

Over 1,000 Analytika software algorithms continuously analyzed the data to identify opportunities to reduce energy consumption, improve reliability, and reduce operations and maintenance costs.

Experienced Cimetrics engineers leveraged Analytika software to identify opportunities, determine root cause, and calculate annual savings impact. Actionable recommendations were documented and provided to the client both through online and offline channels. Cimetrics' role did not end with providing recommendations; Cimetrics engineers engaged with the client team on a regular basis to help answer questions, coordinate implementation, and provide regular feedback on progress.

Results Achieved

- Financial summary
 - Total energy savings: \$1.27 million/year (5% of total annual utility cost)
 - Simple payback: < 7 months
 - Net present value: \$1.29 million
- Operational benefits
 - Sustainability and environmental stewardship: Achieved 10,325 metric tons in annual CO₂ emissions reduction, which is the equivalent of taking 2,174 cars off the road.
 - Vendor management: Verified that optimum economizer sequence of operations were programmed into the building automation system (BAS).
 - Vendor filter management: Filter replacement to lower air differential pressure (ADP) and reduce alarms.
 - Metering: Verified utility meter accuracy and consumption pattern through metering management.

Example of Fault Detection and Diagnostics: Pneumatic actuator leak

The building HVAC systems are controlled via a DDC front end connected to pneumatic actuators out in the field. The heating and cooling valves for a large 100% outdoor air-handling unit (AHU) were operating off of a common pneumatic air feed to the valve actuators. The pneumatic line developed an air leak that caused the actuators to not open and close correctly.

This fault was not detected on-site. However, this problem was detected by Analytika algorithms, reported to the site, and corrected in a timely fashion.

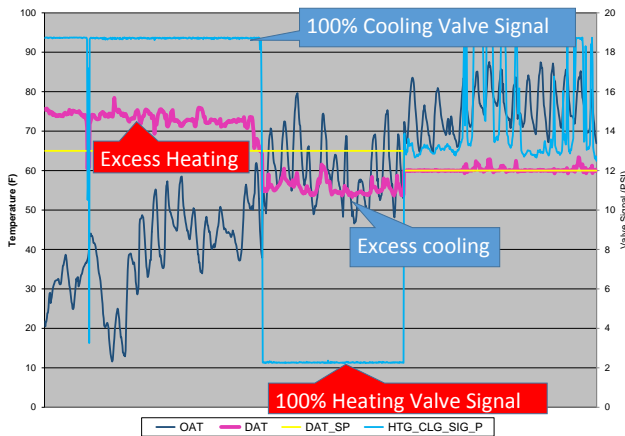


Figure 1: Pneumatic actuator leak

Solution

Cimetrics worked with MPC facilities personnel to fix the pneumatic leak and optimize the discharge air temperature setpoint.

Annual energy savings achieved: **\$46,731**

Annual carbon emissions reduction: **404 metric tons**

Example of Fault Detection and Diagnostics: Filters in Alarm

As part of the ongoing fault detection and diagnostic service, MPC looks to Cimetrics for Vendor Management. Several filters were identified in alarm 100% of the time, as seen in Figure 2.

Air Filters	In Alarm
AHU-01 Supply Air Filter	✘
AHU-03 Supply Pre Filter	✘
AHU-03 HEPA Filter	✘
AHU-022 HEPA Filter	✘
AHU-014 Outside Air and Supply Air Filters	✘

Figure 2: Air Filter alarms

Solution

Cimetrics worked with MPC staff and their controls vendor to replace filters, investigate other equipment in alarm by priority, with safety, and code related alarms being addressed in a more efficient manner throughout all three campuses.

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