

Global Pharmaceutical Manufacturer saves \$152,173 in annual energy costs in a single R&D building while improving comfort, sustainability, reliability and compliance.

Overview



This Global Pharmaceutical Manufacturer (GPM)* is one of the largest pharmaceutical companies in the world.

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

The Challenge

GPM had a global objective of reducing greenhouse gas emissions and energy consumption by 20% from 2012 levels, by 2020.

To this end, GPM was interested in implementing energy conservation measures and technologies, which help achieve these goals while improving the overall reliability of their operations.

Results Achieved

- Financial Summary
 - Total energysavings:\$152,173 (annual)
 - Simple payback: 0.19 years
 - Net present value: \$177,856
- Other operational benefits
 - Improved sustainability and environmental stewardship. Achieved 800+ tons in annual CO2 emissions reduction, which is the equivalent of taking 170 cars off the road.
 - Increased staff and contractor productivity. Quantification of savings for each opportunity allowed for prioritization of workload. Root cause analysis provided by Analytika allowed maintenance staff and contract automation personnel to target their efforts and work more efficiently. Productivity as measured by savings achieved per hour improved by over 30%.
 - Improved central plant load capacity by more than 10%. Reduction in building side energy consumption allowed central plant capacity to be utilized elsewhere.

Cimetrics' Solution

Cimetrics was selected to provide its Analytika Pro solution for a 100,000 square foot, laboratory and office building, which is part of a one million square foot manufacturing, R&D and office campus. Cimetrics collaborated with GPM and their building automation system providers, Johnson Controls and Schneider Electric, to connect to and collect sensor and actuator data from almost 5,000 physical points. Data was collected every 15 minutes, 24 hours a day, 365 days a year – averaging approximately 480,000 data samples per day. The following systems were monitored: 3 Air Handling Units, 2 Hot Water

Pumps, 2 Chilled Water Pumps, 10 Fan Coil Units, 29 Fume Hoods, over 400 Terminal Units, and other miscellaneous equipment.

Over 1,000 Fault Detection and Diagnostic algorithms then analyzed the data to identify opportunities to reduce energy, improve environmental conditions and reduce maintenance, operations and regulatory costs. Analytika also uncovered potential equipment problems and identified opportunities for operational uptime improvements and profitable retrofit projects.

Experienced Cimetrics engineers leveraged Analytika software to identify opportunities, determine root cause, and calculate annual savings impact for each identified opportunity. Actionable recommendations were documented and provided to the client both online through the Analytika web based portal and offline through periodic reports. Cimetrics' role didn't end at recommendations. Cimetrics engineers met with the client team on a regular basis to help answer technical questions, coordinate implementation, and provide regular feedback on progress.

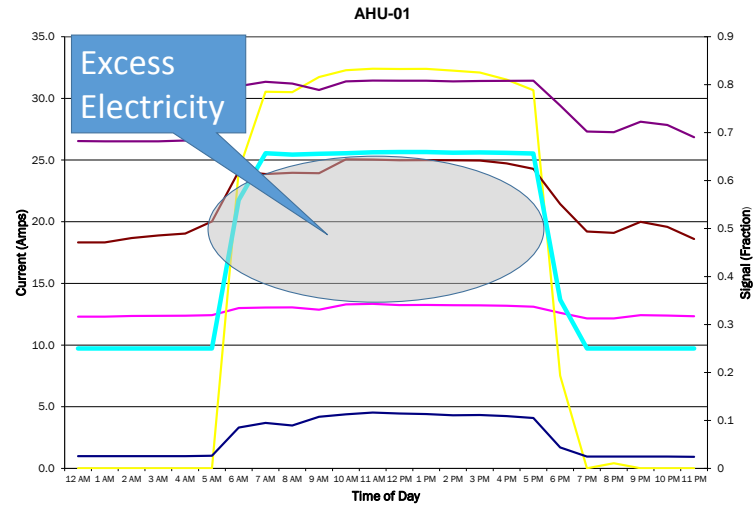
Example Opportunity

Inlet guide vanes not operating correctly

Two large air handlers (AHUs) in the building with inlet guide vanes (IGVs) were operating at higher flows than required. This issue was not detected at the site as adequate temperature and humidity conditions were maintained in the

zones. However, Analytika determined that zone conditions were not being achieved in the most efficient way possible.

Figure 1. AHU analysis showing higher than necessary fan power consumption due to inlet guide vanes operating in the closed position.



Solution

Cimetrics recommended replacing the IGVs with VFDs to achieve savings and provide better airflow control. Cimetrics provided technical guidance and helped coordinate the activities of the GPM staff and the controls vendor. Furthermore, the ongoing monitoring provided by Analytika allowed GPM to qualify for utility incentives to help pay for the upgrade and Cimetrics helped GPM secure the incentive. This opportunity reduced energy costs as well as annual maintenance costs going forward.

Annual energy savings achieved: **\$27,503**

Utility incentives secured: \$6,300

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