Real Results.

Case Study

Partner

Chinook Systems

Real Data Transforms Retrocommissioning into Proactive Optimization

Overview

Company: Chinook Systems

Website: www.chinooksystems.com

Headquarters: Arlington, VA

Industry: Commissioning consulting firm focused on the federal sector

Company Profile:
Wanda Lenkewich founded Chinook Systems in 2002 to focus on improving industry processes and raising the bar on project delivery.

Business Situation:
Chinook was tasked with a retrocommissioning project for a major metropolitan hospital which had gradually drifted away from optimal settings since its building management system was installed back in 2002.

Solution:
- GridPoint granular submetering and cloud-based analytics platform
- Chinook's predictive energy models validated by real data

Results:
- Baselined equipment performance
- Assessed and validated the effectiveness of recommended operational changes
- Identified opportunities for more informed capital utilization
- Equipped the hospital with the real data they need to continuously manage consumption and minimize future operational drift
- Created a new incremental, recurring, and high margin revenue stream for Chinook
- Developed a natural extension to Chinook's core business with professional services to manage operational drift

Chinook Systems, an established commissioning consulting firm, has partnered with GridPoint, an energy, facility, and sustainability solutions company to improve customer energy savings, operational efficiency, and capital utilization by leveraging asset-level sub-metering and cloud-based analytics.

As part of its robust portfolio of services, Chinook offers retrocommissioning to enterprises that want to optimize the efficiency of energy consuming equipment, including HVAC and lighting systems. Retrocommissioning is different from retrofitting in that it focuses on improving the efficiency of existing equipment rather than costly replacements or construction projects.

Retrocommissioning is especially important in reversing operational drift, which is a gradual loss of savings that occurs after buildings are configured with initial setpoints and schedules, lack the ability to adapt to changing site conditions, and allow unmanaged, costly human control overrides. In order to increase the value of their retrocommissioning efforts, Chinook employed GridPoint's submetering devices to collect granular data on energy consumption, create baselines for equipment performance, and validate their predictive energy models. They also leveraged GridPoint's cloud-based Software-as-a-Service (SaaS) analytics platform to help visualize data trends, identify savings opportunities, and assess building adjustments in real time.

With GridPoint's energy management tools in place, Chinook not only gained the ability to combat operational drift but also transformed the way they retrocommission sites from a manual process with no data-validated recommendations into a continuous and dynamic optimization of building operations with sustainable improvements that continue to deliver value over time.

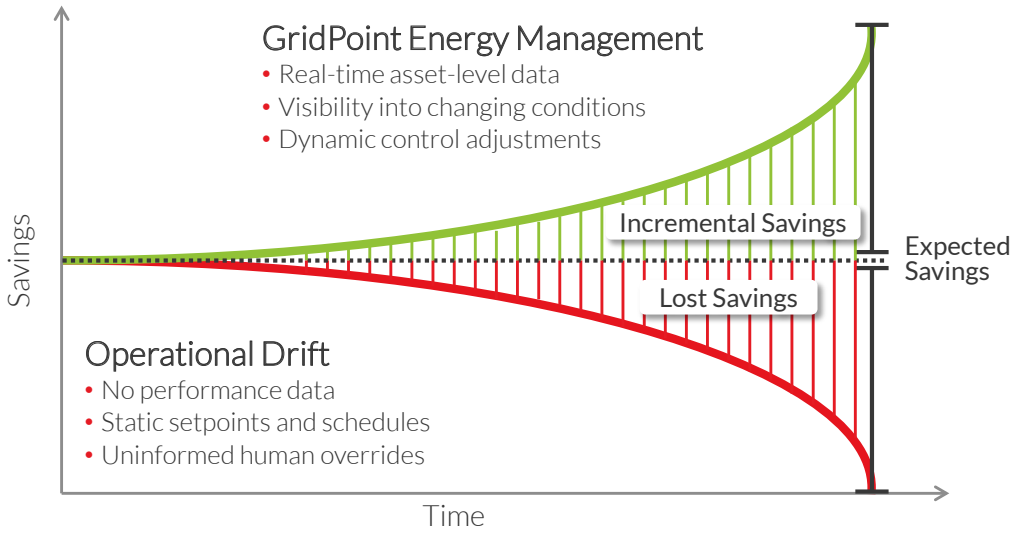

Figure 1. Operational drift causes buildings to gradually stray from expected savings over time but GridPoint's energy management system provides the data to recoup and exceed those savings.

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> *Unlike site-level utility metering that only records main load consumption and produces data weeks after the energy has been used, GridPoint's asset-level submetering data gives users real-time visibility into consumption, allowing them to actively manage site operations and make adjustments before savings are lost.*

Business Situation

In their first joint project, Chinook leveraged GridPoint's submetering and cloud-based analytics to retrocommission a 450,000 square foot major urban hospital that had succumbed to a gradual loss of savings through operational drift since the installation of its building management system (BMS) back in 2002. As the highest energy user per square foot in its portfolio, the hospital needed to reduce its energy usage but without interfering with emergency power systems or sacrificing patient comfort.

Solution

To gain granular visibility into the hospital's energy consumption, GridPoint installed submetering devices for 66 separate points, including boilers, chillers, kitchen equipment, electrical panels, air handling units, transformers, on-site generators, and uninterruptible power supplies. Each device collects data in 15-minute intervals, 24 hours per day for a massive 44,000 data points each week.

Asset-level submetering is critical for understanding how individual pieces of equipment use energy and gives customers insight into where exactly they can reduce consumption and shift loads to mitigate peak demand charges. Unlike site-level utility metering that only records main load consumption and produces data weeks after energy has been consumed, GridPoint's asset-level submetering data gives customers real-time visibility into energy usage, allowing them to actively manage site operations and make adjustments before savings are lost.

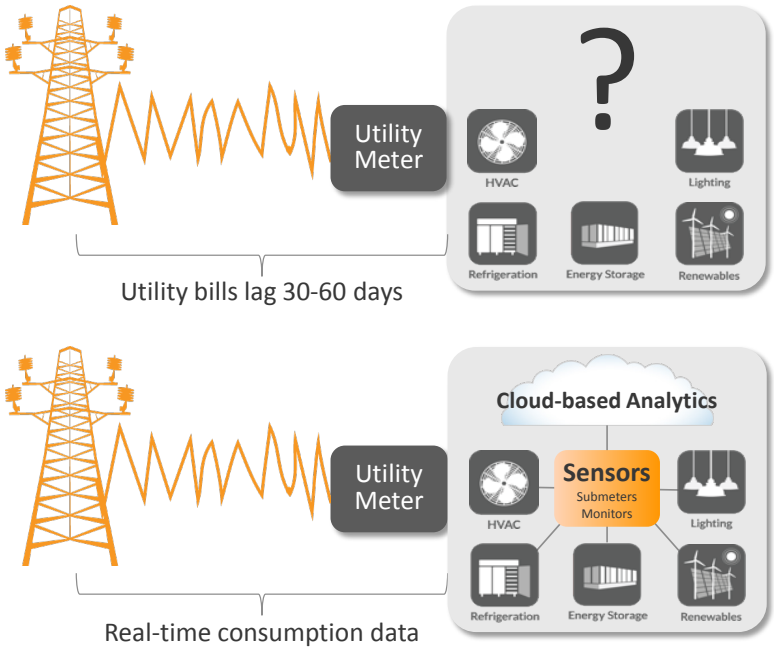

Figure 2. Asset-level submetering enables granular visibility in real time

Once collected, aggregated, and analyzed Chinook was able to use the submetering data to baseline equipment performance and create daily power profiles. This information was then used to make numerous system adjustments which saved the hospital energy, increased operational efficiency, and optimized capital utilization.

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> *"Hypothetical models are great, but possessing real data to prove our theories to customers reinforces our recommendations and has the potential to bring additional savings because of the continuous submetering. GridPoint's granular, undeniable data is the critical link we were missing to accurately provide performance optimization, capacity planning and regulatory compliance in a variety of industries."*

Wanda Lenkewich,
Founder and President of
Chinook Systems

Results

By leveraging GridPoint's granular submetering data, Chinook was able to gain insight into facility operational tempo to reveal inefficiencies associated with the hospital's BMS controls. In addition, Chinook utilized GridPoint's cloud-based analytics platform to baseline equipment performance, assess and validate the effectiveness of recommended changes, and continuously manage consumption to minimize operational drift.

For example, the hospital experienced issues with negative air pressure in the lobby and other common areas and when patrons opened the doors, a strong rush of outside, unfiltered air would push inside the building. This not only created uncomfortable conditions, but also forced the hospital's HVAC system to work harder to bring the zone back to the correct temperature. With new asset-level visibility into how the air handling units (AHUs) were operating, Chinook was able to rebalance the units, correct the air pressure, and ultimately saved the hospital about 70kW in energy usage, which at average industrial electricity rates translates to over $30,000 per year in savings.

Chinook also leveraged GridPoint's data-driven energy management system to help the hospital make more informed capital purchase decisions. For example, Chinook compared consumption data from cooling towers with variable frequency drives (VFDs) that regulate the speed of electric motors against baseline data from units without VFDs to determine how much energy they were actually saving. By replacing the six cooling tower fans with VFDs and control upgrades, the hospital could save $21,000 in annual energy costs.

In addition, with asset-level insight into the hospital's overall energy consumption, Chinook confirmed that the hospital had enough reserve energy capacity between its two existing generators to meet accreditation standards for emergency power and therefore did not need to purchase a third generator solely for that purpose, a capital expense of nearly $2 million plus fuel and maintenance.

With GridPoint's submetering and cloud-based analytics now in place, the hospital can proactively manage and dynamically change system controls as needed to sustain savings over time.

Finally, beyond greatly increasing their customer's savings potential, Chinook gained several benefits, including key advantages over competing commissioning firms. First, they were able to offer sustainable retrocommissioning solutions, validated through real data findings and calculations that will continue to deliver value, unlike typical retrocommissioning projects where savings slip as the building and environment changes over time. Next, they gained a new, high margin, recurring revenue stream through GridPoint's Software-as-a-Service (SaaS) analytics platform which they can also use to re-engage existing customers. Lastly, this partnership enabled Chinook to develop a natural extension to their core offerings with professional services to manage operational drift for a greater customer base in new verticals and industries.

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About GridPoint

GridPoint is an innovator in comprehensive, data-driven energy management solutions (EMS) that leverage the power of real-time data collection, big data analytics and cloud computing to maximize energy savings, operational efficiency, capital utilization and sustainability benefits. GridPoint's integrated energy management portfolio of asset-level submetering and monitoring, intelligent control, energy management software and professional services can generate up to 30% in energy savings with pricing targeted to deliver a 24 month payback or less.

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