CASE STUDY

McKenney's impact on hospital energy savings is felt immediately

When it was installed in 1975, the air handler unit (AHU) at a major Atlanta, Georgia, medical center was a state-of-the-art technological breakthrough. It cycled fresh outside air and provided heating and cooling for nearly 60 percent of the hospital.

> *"Though the scope of the project was greater than imagined, it didn't interfere with operations at all. In fact, the hospital's chief engineer noted the hospital staff didn't even know McKenney's was there."*

A lot changes over 35-plus years. For the more than 400-bed facility, the massive piece of equipment had become more of a "dinosaur" than an innovator. There was no way to efficiently modulate the cooling capacity. As a result, heating and cooling was inefficient and expensive. Facing a significant cost to replace the AHU, hospital officials turned to McKenney's for recommendations on how to improve energy efficiency by modifying the existing equipment.

McKenney's was already familiar with many of the hospital's mechanical systems. It had conducted design/assist and contract work for the hospital's HVAC, plumbing, service and building controls since 1994.

Beginning in the summer of 2009, a team of McKenney's Energy Services engineers began to measure the HVAC system energy usage. For several months, McKenney's gathered nearly 250,000 energy usage data points from the main AHU and chiller plant as part of its comprehensive analysis. This extended measurement period gave an accurate picture of energy usage during a wide range of outside air temperatures.

According to the hospital's chief engineer, McKenney's worked around-the-clock to gather the necessary data. The goal was to identify some cost-saving options, so everything from the supply air temperature, coils and exhaust air temperature was analyzed.

Gathering from actual versus extrapolated data, McKenney's presented a current state energy usage report (along with backup data) and a proposed future state energy usage report to hospital officials. It also offered comprehensive recommendations to improve energy savings.

The findings revealed that the single plenum design of the AHU severely limited facility-wide temperature control. When one area of the hospital (e.g., operating rooms)

continued on reverse

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McKenney's Inc
Building A Higher Standard

Project Team

- Owner: Chief Engineer, major Atlanta, Georgia medical center
- Engineer/Contractor: McKenney's Healthcare Group McKenney's Energy Services

The Challenge

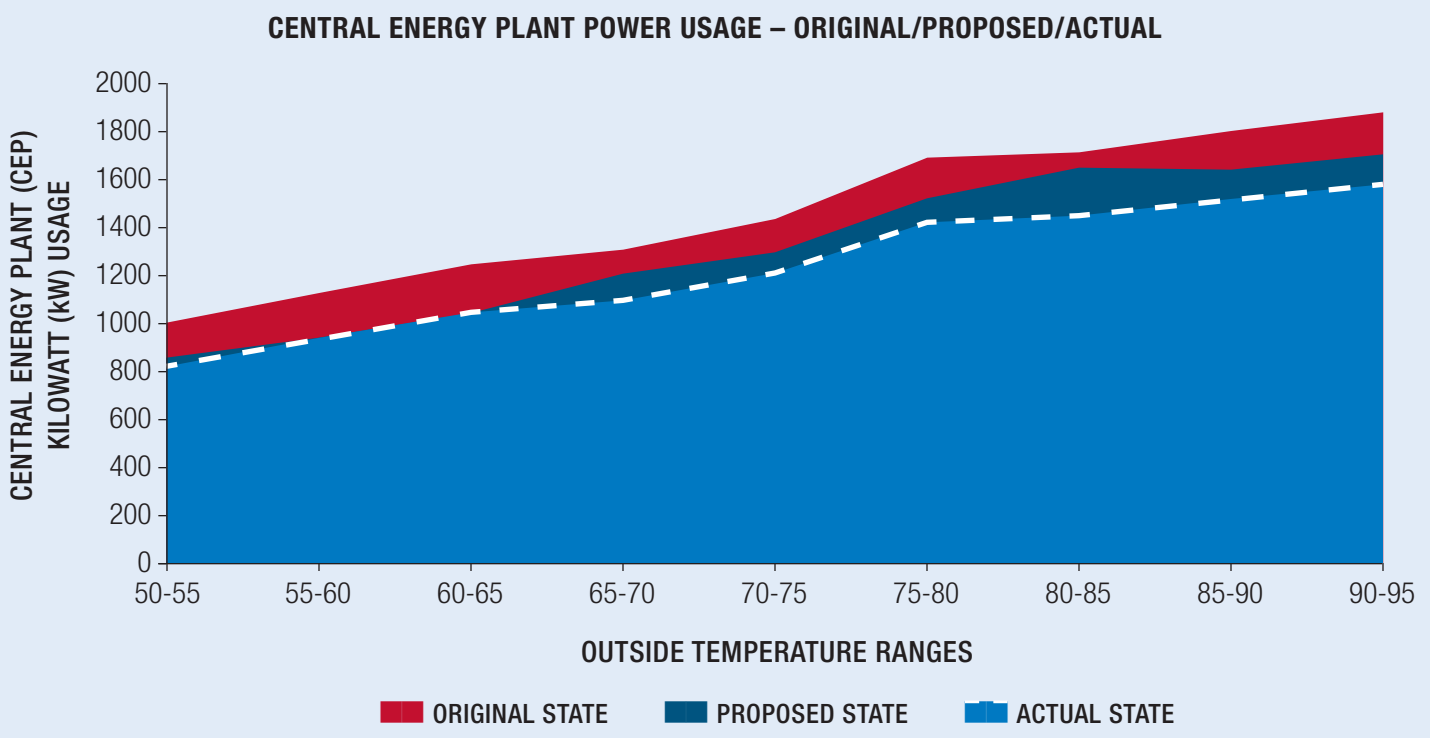
- Enhance energy efficiency of vintage air handler unit (AHU)
- Measure energy usage data and benchmark against proposed energy savings

The Solution

- Conducted an energy audit using McKenney's comprehensive processes and cutting-edge equipment
- Compiled data and developed clear, concise energy usage reports
- Upgraded AHU chilled water coil control and reset condenser water supply temp
- Reduced the number of chillers and pumps required to meet chilled water flow requirements

The Results

- Positioned hospital to reduce central plant energy costs by 16% for investment pay back in fewer than 18 months
- Potential $98,000 annual net savings (1.4 million kWh at $0.07/kWh)
- Reduced chilled water flow, reheat flow and condensed water supply temperature requirements



A follow-up energy usage report compiled by McKenney's Energy Services team indicated even greater savings than the proposed future state savings.

wanted cooler temperatures, the antiquated system lowered the temperature in other parts of the building as well. As a result, all of this air had to be reheated, causing a massive waste of energy.

To alleviate this, McKenney's recommended that the hospital decrease chilled water flow requirements by adding new chilled water control valves. McKenney's also recommended the addition of a variable-speed drive pump for the chilled water.

The hospital's chief engineer noted that once the recommendations were implemented they had an immediate impact. Previously, the hospital was running two or three chillers at once to handle the workload. Now, the facility could run a single chiller at higher water temperatures and run the variable-speed pumps slower when necessary for big energy and cost savings.

With the variable controls, the pumps can be run more efficiently using as little as 40 percent of the energy previously needed. In addition, the control valves enabled the hospital to customize temperature settings for specific areas throughout the facility.

The facility can now see how the sweeping changes are improving efficiency via an energy management reporting system from McKenney's. The chief engineer monitors usage and savings in real-time and meets with the McKenney's team regularly to review findings and implement on-going HVAC system modifications to improve efficiency. The improvements are also enabling the hospital to meet certain parameters for healthcare facility guidelines. Now, the onsite engineering team is working with hospital staff to establish "set points" throughout the facility, an initiative that should save the hospital even more in cost and energy usage.

According to the chief engineer, McKenney's exceeded expectations. Though the scope of the project was greater than imagined, it didn't interfere with operations at all. In fact, the chief engineer noted the hospital staff didn't even know McKenney's was there.