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Case Study – John Muir Medical Center

EDUCATION / HEALTH CARE / LODGING / MANUFACTURING / OFFICE BUILDING / RETAIL / SPECIAL



Variable Speed Drive Project Cuts Operating Costs

Project Objectives

The 322-bed John Muir Medical Center is located in Walnut Creek, California, where industrial electricity prices can exceed \$.12 cents per kilowatt hour and energy costs for the facility were consistently the largest budget line item. Prior to 2004, the health care facility was using chillers with compressor motors rated at an aggregated 1500 hp, and at times the lights in the building would dim when the chillers were activated. The Director of Facilities Management, Vince Scoccia, was looking for a way to save money on operating expenses, correct the electrical and mechanical problems associated with the chiller system, and show a significant return on investment with the project.

Solution

The Director of Facilities Management engaged Carrier Commercial Service to retrofit the chillers with variable speed drives (VSDs). VSD projects provide the biggest payback when they are focused on the largest motors and those with the longest run times. These can include compressor motors, air handler motors, cooling tower motors and pump motors. By matching the speed on these motors with cooling demand, Carrier Commercial Service expected to meet the Director’s project objectives with substantial reductions in energy consumption, better service for the health care center, an impressive ROI, and a payback of 3.6 years for the entire project.

While projected energy savings from Carrier’s upgrades were significant, the John Muir Medical Center also qualified for a \$63,173 utility rebate and will experience a 3.6 year payback on the project.

Carrier By The Numbers

VSD Project Cost	\$258,143
Calculated Energy Savings	\$54,150 yr
Utility Rebate	\$63,173
Project Payback	3.6 yrs.



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Case Study – John Muir Medical Center *continued*

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Carrier came through with the right answer for our problems. The VSD technology met our comfort needs, cut our energy expenses, and generated exceptional utility rebates. It was all we could ask!"

*Bob Foster
supervisor of operations
John Muir Medical Center*

Project Synopsis

John Muir Medical Center is the only designated trauma center for Contra Costa County and portions of Solano County, California. Built in 1963, this acute care facility is recognized as one of the region's premier healthcare providers. It's a busy place, and it takes a lot of electricity to meet the needs of its patients. With energy being the largest single line item in the yearly budget, management began looking for the most efficient way to cool the building.

Carrier Commercial Service, a nationwide HVAC solutions provider, made a proposal to retrofit the building's chillers with variable speed drives (VSDs). The project was expected to satisfy patient comfort needs and reduce energy costs associated with the operation of the chillers. With Carrier's expertise in VSD and chiller part load efficiencies, and John Muir's expertise in the facility's operational requirements and patient needs, the project was set in motion. By matching the speed of the VSDs to the cooling demand, energy savings were projected at \$54,150 per year. In addition, Carrier worked with John Muir and the Pacific Gas and Electric utility company to qualify the project for a utility rebate of \$63,173. With a payback estimated at 3.6 years, this project showed a very attractive return on investment.

According to John Muir's project leaders, Bob Foster, supervisor of operations, and Vince Scoccia, director of facilities management, the VSD project went well beyond the financial benefits. "The lights don't dim anymore when the chillers come on," Bob says, "and mechanical troubles seem to have gone away."

Vince reports the VSD project has gone a long way toward reducing operational expenses. He says, "Each dollar saved equates to twenty dollars of revenue, and what Finance Officer would not like that?!"

The VSD project provided energy savings and operational benefits that were immediate and are ongoing. The patients are enjoying the comfort of the improved cooling system, while the facility is enjoying the financial advantage of a much healthier bottom line.

Project Summary

Location: Walnut Creek, California

Project Type: Retrofit water chillers with Variable Speed Drives

Building Age: 42

Building Type/Size: Hospital with a building footprint of 368,000 sq. ft.

Building Usage: Housing 322 patients and providing acute health services

Objectives: Lower energy consumption for lower operational expenses, correct electrical and mechanical problems, provide a good return on investment

Project Cost Range: \$258,143

Major Design Drivers: Match the speed of motors to cooling demand while attaining significant reduction in energy usage

Design Considerations: Retrofit to existing chiller plant

HVAC Equipment: Carrier VSDs retrofit to two existing York 200-ton YTA chillers & two Carrier 550-ton 19XL chillers

Unique Features: High utility rates make energy costs the highest budgetary line item and a continual target for improving operational efficiency

Installation Date: July 2004

Supplier: Carrier Commercial Service

For more information, contact your nearest Carrier Representative, call 1.800.CARRIER or visit our web site at www.commercialhvacsolution.carrier.com