

ENERGY PROJECT CASE STUDY

CENTRAL PLANT IMPROVEMENT

Financials

- ◆ Total Turnkey Installed Cost: \$200,465
- ◆ Annual Energy Cost Savings: \$80,072
- ◆ Simple Energy Funded Capital Payback: 2.5 year
- ◆ Average Project IRR: 38%

Description of Facility

- ◆ Research and Development & Office Facility
- ◆ Offices, laboratories, product testing
- ◆ Facility utilizes a central plant to provide chilled water to the various air handlers for space conditioning.



System Description

- ◆ Two chillers, one 500 ton and one 340 ton centrifugal chiller
- ◆ Primary/Secondary pumping configuration
- ◆ Two cooling towers with a common header
- ◆ Some automated control utilized
- ◆ Dual duct air distribution system

System Opportunities/Issues

- ◆ Optimization of the central plant operation
- ◆ Installation of more efficient equipment and technology

Project Description

- ◆ Installed a Variable Frequency Drive on the 500 ton chiller
- ◆ Installed a Variable Frequency Drive on the primary chilled water pumps
- ◆ Converted office area air handler from constant volume dual duct system to a variable air volume operation
- ◆ Implemented new control strategies for central plant operation
- ◆ Implemented new control strategies for space conditioning and heating operation.

Project Benefits

- ◆ New VFD's on 500 ton chiller and chilled water pumps
- ◆ Optimized and more efficient operation of the central plant equipment and air handling equipment
- ◆ New building controls equipment and strategies
- ◆ Reduction in energy usage
- ◆ Reduction in O&M costs and better overall operation of the HVAC system