

CASE STUDY: CENTRAL PLANT IMPROVEMENT

SYSTEM TYPE: Cooling Towers

PROJECT FINANCIALS

- Total Turnkey Installed Cost: \$ 200,465
- Annual Energy Cost Savings: \$ 80,072
- Simple Energy Funded Capital Payback: 2.5 years
- Average Project IRR: 38%
- CO2 Equivalent Reduction : 1,035 tCO2e (Natl. Avg. Emission Rate)

RESEARCH & DEVELOPMENT Facility Optimizes Central Plant and Air-Handling Equipment—Saves \$80,000/yr in Energy Costs

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

- Optimization of the central plant operation
- Installation of more efficient equipment and technology
- Optimization of air handler operation and use of modified control strategy

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 VFDs 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

Plant Profile

- 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.

Key Benefits

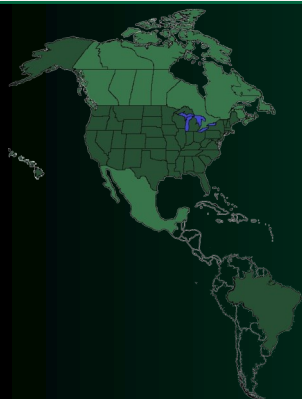
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|--------------------------|---|
| Cost Savings | \$ 80,072 |
| Carbon Reductions | 1,035 tCO ₂ e (Natl. Avg. Emission Rate) |
| Fuel Type | Electricity |
| Payback | 2.5 Years |
| Project IRR | 38% |
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Financial Data

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|---------------------------|--|
| Investment | \$200,465 |
| System | Cooling Towers, Chillers, Air-Ducts, Pumps |
| Life Expectancy | N/A |
| Incentives/Rebates | N/A |
| Payback Period | 2.5 Years |



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