



DMI Assists Manufacturing Facility in Retro-Commissioning

The Problem

A manufacturing facility in New Hampshire had recently completed a new section of their plant in 2009, which doubled the total area of the facility. The facility wanted to reduce the energy consumption of the new section, focusing on the space conditioning systems.

The Solution

DMI was contacted by the facility's utility company in 2010 to provide energy analysis services for the plant retrofit. We performed an initial building walk-through and reviewed trends of the building energy usage. A PowerMap energy analysis was created with trend data collected from the site. Fourteen energy conservation measures were recommended and their impacts on energy use were analyzed. The energy conservation measures with the greatest impact on building energy use were minimizing outside air intake at night and during unoccupied times, installing boiler combustion controls to regulate the oxygen to fuel ratio, and condenser water temperature reset to optimize chiller performance. Minimizing outside air involves allowing the air dampers to fully close during unoccupied hours to minimize ventilation heating, cooling, and humidification loads. This operation can save the plant 130,000 kWh and 10,000 therms annually. The installation of O₂ controls on the steam boilers increases boiler efficiency by maintaining ideal O₂ to fuel ratios, saving ~22,500 therms of gas per year. Resetting the condenser water temperature based on outside air temperature minimizes the chiller and cooling tower fan demand and reduces chiller compressor energy use, saving 87,000 kWh annually.

Project Background

The manufacturer's production facility is ~420,000 ft², which includes the 190,000 ft² expansion. The new section of the facility is composed of warehouse, technology development, and production area, and has its own dedicated chilled water system and air handling system.

The Result

The implementation of the energy conservation measures resulted in total annual energy savings of ~\$90,000 and a 1.6-year payback.

Facility Overview

- 420,000 ft²
- Production facility

Services Provided

- Trend review
- PowerMap analysis
- Energy conservation measures

Results

- ~\$90K annual energy savings
- 1.6-year payback

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