

SITUATION:

An existing multi-story, 85,000 ft² laboratory and office facility with one major tenant (approximately 90% of the building) and two smaller tenants (remaining 10%) is at risk of losing the major tenant in part because of the high energy costs. The building includes a central water cooled chiller plant and natural gas fired air furnaces as well as natural gas fired steam boiler system for humidification and process steam.

ACTION:

The building owner engages JennErik Engineering to perform an energy audit of the facility. The audit quickly reveals that a 3 year average energy billing is in the \$11/ft² range. JEI investigates the current operation of the facility via interviews of the facility tenants and facility engineers. The building operation reveals several energy savings opportunities. A report is developed and functions as an energy saving master plan for the property. The first items are immediately acted on which include modifications to automatic temperature control programming. These first changes are done without first cost as they are implemented by the building engineering staff.

First Cost = \$ 500 (engineering staff costs)
Payback Calculated = \$ 48,800
Actual Energy Reduction Realized = \$ 80,000
Actual Simple Payback = 1 DAY

The remaining items which have first cost requirements in order to achieve savings are prioritized based on simple payback calculations. Some of the items are in fact pursued via subsequent design and construction programs. A water side economizer is installed and is being tracked for actual performance. In the first month of operation, a 140 ton air cooled critical function chiller is able to be de-energized and two cooling tower fans totaling 30 HP run its place. Chilled water operation is proven viable via the tower operation.

First Cost = \$ 190,000 total cost
Payback Calculated = \$ 94,800
Actual Energy Reduction Realized = TBD
Actual Simple Payback = 1.9 years