

5 Times Square



Retro-commissioning

A systematic process for improving an existing building's performance by identifying and implementing relatively low-cost operational and maintenance improvements.

PROJECT QUICK FACTS

Owner: Boston Properties
Primary Tenant: Ernst & Young LLP
Year Built: 2000-2001
Facility Type: 38-Story Office Tower
Size: 1,200,000 square feet
Potential Energy Savings: \$280,000 annually
Estimated Implementation Cost: \$3,000
Payback: Immediate
Greenhouse Gas Reduction: 5,000,000 lbs.

REDUCTIONS OF POLLUTION

Greenhouse Gases (CO₂):
4,955,147 Pounds
Volatile Organic Compounds (VOC): 180 Pounds
Mercury (Hg): 18,394 Milligrams

5 Times Square Realizes Substantial Energy Savings Through Retro-commissioning

New York City

Background

Ernst & Young, a major global consulting and accounting firm serving businesses worldwide, sought ways to reduce electric consumption and minimize the environmental impacts of electricity usage at its 5 Times Square headquarters in New York City. Ernst & Young staff attended a New York State Energy Research and Development Authority (NYSERDA) sponsored retro-commissioning training session, which further motivated them to identify low-cost/no-cost operations and maintenance savings opportunities. A retro-commissioning study was performed in 2004, and significant energy-saving opportunities were uncovered, qualifying Ernst & Young for Consolidated Edison Company of New York's (Con Ed) Business Incentive Rate, available through the New York City Economic Development Corporation.

The retro-commissioning energy survey was conducted by Robert Meier, PE – a Senior Manager in the company's Energy Advisory Practice. It included a field survey of the HVAC and lighting system; review of design and construction drawings; comparison of operational methods vs. design intent; interviews with the building owner/operator; and collection and analysis of utility bill data. Most of the savings documented in the study were the result of operational changes to HVAC and lighting scheduling.

Findings and Results

The survey uncovered annual electric savings of more than 2,960,064 kWh, approximately 5% of the company's annual electric use. It is estimated that a financial savings of more than \$280,000 is realized, and this was achieved with a first cost of approximately \$3,000. The savings resulted from modifying operational strategies and demand management, and required no new equipment or upgrades. The changes did not impact occupant comfort, but reduced the over-scheduling of equipment.

The primary energy conservation measure (ECM) identified related to scheduling, or reducing the number of hours that certain systems run during the day (i.e. HVAC units, fans, and some lighting). For example, HVAC units were scheduled to run from 6 am -12:00 am on most floors during the week, and shutdown at 4 pm on weekends. The ECM recommended resetting a majority of the units to shutdown at 8 pm when most spaces in the building are vacant.

A second significant ECM utilized the building's energy management system (EMS) to monitor and adjust unnecessarily high periods of demand. Since the building is on a rate schedule that includes a demand charge, this measure leads to substantial savings. In 6 of the 12 months that were studied, peak demand was set by simultaneous starting of HVAC units on Sunday mornings when the building was generally empty. By utilizing the EMS, building staff scheduled HVAC equipment to start in stages, eliminating 'avoidable' demand, and saving more than \$52,000 annually.

This is a success story of finding 'easy' operations and maintenance savings in a relatively new and efficient building, and, as a result, Ernst & Young is developing retro-commissioning as a service to its clients.



For more information about these and other commercial energy efficiency services, contact NYSEDA toll free 1-866-NYSERDA, locally (518) 862-1090, e-mail: info@nyserda.org, or visit www.nyserda.org

