

BUILDING ENERGY ANALYSIS

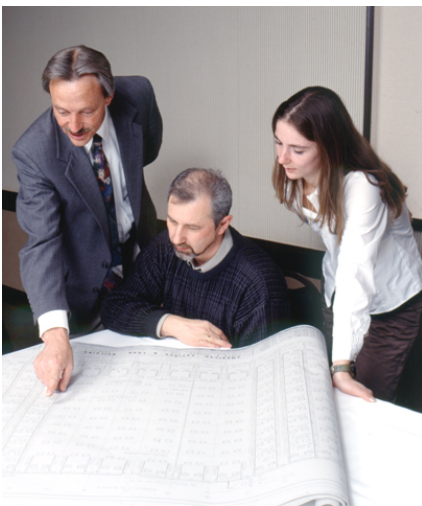
Chelsea Group's building energy analysis provides managers with a baseline report that identifies energy conservation measures (ECMs) and evaluates the potential investment, energy cost savings, and resulting cost/benefit of implementing each of those ECMs. The report includes preliminary estimates of utility rebates for each measure or group of measures.

With recommendations developed from this careful study of the facility, building managers can make informed choices about prioritizing projects for design and implementation.

Chelsea Group's Approach

The Chelsea team evaluates each facility based on its own unique needs and circumstances. For many buildings, the analysis begins with the following goals:

- Provide a written analysis of baseline energy consumption of the building and a description of existing energy-consuming systems at the property
- Conduct a walk-through of the building to identify potential energy conservation measures
- Conduct an analysis of the costs and savings associated with each of the recommended energy conservation measures



The scope of Chelsea Group's building energy analysis varies for each building, but a typical process includes the following steps:

1. Observations and data collection

- Interviews with the property manager and other building maintenance staff
- Review of building plans and specifications
- Utility data analysis using monthly consumption and cost data from utility bills for at least the last twelve months

2. Site assessment walk-through

- Visual observation of different types of building space
- Observation and documentation of HVAC equipment and condition
- Observation and documentation of lighting and electrical systems



3. Operational review and analysis

- Review and analysis of existing operation and maintenance procedures
- Review and analysis of service contracts to verify their appropriateness

4. Analysis and presentation of opportunities and related costs and savings

- Identification of potential low/no-cost operational changes and repairs that will produce energy savings
- Definition of capital investment opportunities in major energy saving measures
- Evaluation of the estimated savings and rebate potential of these measures
- Documentation in a written report of the findings and recommendations of the assessment, together with potential utility incentives, including a prioritized list of potential projects



Application of Energy Analysis

In a 23-story commercial office building, the building management wanted to implement an energy conservation program in order to reduce annual operating expenditures. The availability of utility rebates made this an especially attractive project for them.

Chelsea Group conducted a site visit to observe the existing systems, obtained price quotations for identified projects, collected utility bills, interviewed the building engineer, and reviewed a copy of the building mechanical plans.

In this building, the Chelsea team identified six ECMs for evaluation. These measures included the following:

- Replace inlet vanes with variable frequency drives on 15 air handling unit supply systems
- Convert the existing chilled water pumping system from constant speed to variable speed
- Retrofit indoor lighting to incorporate reflectors and fewer lamps
- Retrofit the existing parking garage lighting to replace the existing high pressure sodium fixtures with new T8 or compact fluorescent lamp fixtures, and incandescent exit signs with LED
- Install a computer room air conditioning system with air-cooled condensing unit in order to enable shutdown of the chiller, cooling tower, condenser water and chilled water pumps during unoccupied periods
- Install variable frequency drives on cooling tower fan motors for improved part load control



All six ECMs that were evaluated were recommended for implementation. The final report summarized the ECMs with their corresponding energy savings, cost estimates, payback periods, and utility company rebates. The total savings in kWh represents 30.1% of 2004 consumption, with a payback period of 2.26 years.

The Value of Energy Analysis

When you are concerned with efficient energy use in your building, Chelsea Group can provide you with a customized energy analysis:

- Establish baseline energy consumption for your facility
- Identify baseline mechanical and electrical equipment conditions, including typical operating characteristics, conditions, controls and opportunities to improve these systems
- Describe and evaluate Energy Conservation Measures (ECMs) that appear to be cost effective for your building
- Prioritize these projects for design and implementation

When you are ready to move forward toward the energy conservation measures identified in your building energy analysis, Chelsea Group can work with you and your property managers to design an effective plan and manage the implementation of the ECMs you choose.