

Watt Works Level 1 Energy Analysis

A Level 1 Energy Analysis is intended to report energy savings activities that would result in a reasonably short recovery of the implementation costs from the energy savings.

Watt Works proposes to provide a Level 1 Energy Analysis of your facilities which includes examination and analysis of past electricity, natural gas and other energy utility bills over one or two years, a walk-through examination of the property including occupied indoor spaces, outside spaces, mechanical and electrical service areas, and in attic or crawl spaces adjoining occupied spaces, and interviews with management, maintenance personnel and occupants. After the evaluations, Watt Works will produce a comprehensive list of energy conservation measures that could be taken, and for the most promising or predictable the installed costs, savings and paybacks will be described in detail.

Understanding how the facility is used, where comfort or usability issues have been noted, and details of any ongoing maintenance and operations issues are of key importance to both finding energy savings opportunities and avoiding proposing unadoptable energy improvements that could make any existing marginal conditions worse. Building blueprints and other technical details are important in order to provide a complete analysis. Details of past major upgrades and prior energy studies are very useful sources of information that will enhance the content of the report. Energy-related ideas, concerns or questions from building users, maintenance personnel or other constituents can be addressed in the report if we know of them.

Watt Works compares utility consumption patterns reflected in the utility billings to determine how your buildings react to seasonal conditions, and looks at practical opportunities to consume less energy that is used in the facility, or to allow less energy to be lost or wasted after it is used, or to use less costly sources of energy when available.

A Level 1 Energy Analysis report will provide a list of energy saving measures that represent “Low Hanging Fruit” that can provide significant energy reductions with reasonable investment. Other issues of energy use or waste may be briefly covered as needing further study, as providing savings but requiring long paybacks, or as issues that are most effectively dealt with in conjunction with future construction or renovation work. Energy savings opportunities may be included that require changes in occupant or operating behaviors, maintenance choices or usage patterns, sometimes at very low or no cost.

A Level 1 analysis and report does not examine every conceivable energy improvement, does not model all energy input and outputs, and does not produce cost and benefit certainty for every conservation measure. Watt Works does not provide blower-door or ductwork pressurization testing nor infrared camera examinations within a Level 1 analysis, but will likely find and propose remedies for most of the same specific items these kinds of tests are designed to fully measure and demonstrate.

The ultimate goal of a Watt Works Level 1 Energy Analysis and Report is to describe multiple, feasible energy improvements that will save at least 15% of energy costs with a less than 5 year simple payback, and that will be implemented. Not every situation will allow this goal to be met, but many have produced higher savings and faster paybacks.

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Typical Areas of Evaluation

1. Utility Billings - *Copies of bills from the past 24 months*
 - Electricity - (Distribution Source and Energy Provider)
 - Natural Gas - (Distribution Source and Energy Provider)
 - Community Steam or Chilled Water

2. Lighting and Lighting Controls
 - Interior Spaces
 - Storage and Back Spaces
 - Outdoor Lighting
 - Opportunities for Daylighting, LED lighting
 - Signage, way-finding, decorative

3. HVAC - Heating, Ventilating and Air Conditioning
 - Boilers, Chillers, Air Handlers, Furnaces, Condensers, Fans, Heat Exchangers
 - Distribution systems - Pumps, piping, ducts, stacks, exhausts
 - Opportunities for Heat recovery, Economizer controls, solar thermal, geothermal
 - Opportunities for Variable speed drives
 - Enhanced control sequences/building automation and integration, web interfaces

4. Building Envelope
 - Air leakage, duct leakage, pressurization, flue gases management
 - Insulation presence and amount, thermal breaks
 - Windows, films, doors, edge seals, vestibules
 - Humidity control, reflective measures
 - Roof type and energy implications
 - Connections to other structures

5. Use of Facility
 - Occupancy schedules, interactions of occupants and systems
 - Uses of space, maintenance, cleaning process needs
 - Special processes, exceptional uses (snow melting, pool chemicals, cooking, parking)
 - Security and camera systems, access control, accessibility and safety
 - High-intensity spaces (servers, UPS rooms)

6. Outside Funding of Improvements and Incentives