

Energy and Water Audits: Frequently Asked Questions

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WHAT IS AN ENERGY AND WATER AUDIT?

An audit is a detailed assessment of how a building could improve its performance through upgrading its equipment and systems. Audits provide building owners with actionable information on the financial impacts of a range of potential improvements they could make to their buildings. This information enables them to make good business decisions about improving their buildings' energy and water performance.

The audit studies systems that use energy and water, such as lighting, boilers, AC units, and water heaters, and any installed measures working to conserve them (such as insulation, air sealing, and windows).

Upon completion, the audit determines where the building is wasting energy, and the audit report recommends capital improvements that will make the building more efficient, such as replacing lighting or HVAC systems. The report also gives an estimate of project costs, calculated energy and water savings, and payback period (the amount of time it would take for a building owner to recuperate the cost of the improvement based on the energy and water saved).

The analysis is typically performed by an engineering firm, energy consultant, or energy service company (ESCO).

HOW DOES AN AUDIT DIFFER FROM RETRO-COMMISSIONING?

These two processes provide two different lenses on how building energy performance could be improved. An audit looks at new equipment that could be installed to improve performance, while retro-commissioning looks at how the existing equipment could be tuned to run more efficiently. Both are useful processes, and it is good practice to perform both types of analysis at the same time.

On average, half of the potential savings in a building come from better equipment (identified by an audit) and half from better performance of existing systems (tuned up in retro-commissioning).

HOW DO AUDITS AND BENCHMARKING WORK TOGETHER?

Benchmarking a building provides owners, managers, and operators with information about how their building's performance compares to that of peer buildings, and how it has changed over time. However, the process does not take a deeper look into exactly what actions can be taken to improve a building's performance. An audit provides the specific information necessary for building owners and managers to make informed decisions about capital improvements.

Without an audit, a building owner may not know how much energy and water she or he could be saving. The only way to unlock those savings is to have an expert perform an analysis. Unless they go through this process, owners and managers won't know what measures to take. Something can be done to improve performance in almost all existing buildings.

IS THERE A STANDARD AUDIT?

ASHRAE has created the industry standards for audits. ASHRAE defines three different levels of audits—ASHRAE Levels 1, 2, and 3—which increase in detail and accuracy. An ASHRAE Level 1 is a walk-through, while Level 2 is a “commercial grade” audit, and Level 3 is an “investment grade” audit. Typically, the audits being pursued by cities are ASHRAE Level 2 audits.

HOW MUCH DOES AN AUDIT COST?

An ASHRAE Level 2 audit will cost about \$0.15 per square foot for a building of more than 25,000 square feet. Audits for smaller buildings tend to cost somewhat more per square foot than larger buildings. The cost of an audit is about 1 percent of annual operating costs for most buildings, so if an audit were done every 10 years, it would amount to an increase in the range of 0.1 percent in operating costs.

IS AN AUDIT DISRUPTIVE TO TENANTS?

No. Typically, audits look at base building systems only, and don't affect tenant spaces.

WHAT ARE THE BENEFITS?

For building owners:

Cost savings. Audits provide building owners with information that is needed to analyze the business case for a set of optional upgrades. This information opens up the potential to improve balance sheets by operating a building more efficiently.

The capital improvements identified through the audit will bring better energy performance and increased equipment reliability. This means that building owners and managers are saving money not only through lower utility bills, but also by reducing maintenance and operating costs. Improvements can also lead to increased property value.

For occupants:

Better working environment. Living and working in an energy-efficient building is more comfortable—thermostats turn off and on at the appropriate times, the lighting is more conducive to a productive work environment, and indoor air quality is better for people’s health. All these factors make energy-efficient buildings more appealing for prospective buyers and tenants.

For the city:

Reducing carbon pollution. Large buildings are responsible for a disproportionate amount of the carbon pollution in major cities. When audits are conducted and capital improvements are made, these buildings use less energy, which means they are responsible for less carbon pollution and are doing their part to stave off the worst effects of climate change.

Economic benefits. Since energy audits help identify the most cost effective opportunities for saving energy costs, acting upon the recommendations will not only put money back into the pockets of building owners, but will also create jobs that help strengthen the local economy.

HOW WILL CITYWIDE AUDITS OF LARGE BUILDINGS BRING BENEFITS TO THE CITY?

Currently, only a fraction of building owners are conducting regular energy audits, which means most building owners don’t know how much they could be saving through cost-effective upgrades. Widespread audits will unlock the market-wide potential for savings and create a robust knowledge base in the local real estate industry.

While voluntary audits have been conducted for years, they capture only a fraction of the building stock. Lower-performing buildings often have not gone through an audit, but these buildings can save significant energy, water, and money from specific low-cost improvements that can only be identified through an audit. It’s similar to batteries in a smoke alarm: Unless you check, you don’t know if they’re working or not.

ABOUT CITY ENERGY PROJECT

The City Energy Project (CEP) is a groundbreaking national initiative to improve the energy efficiency of existing buildings in 10 major American cities. The partnership between CEP and the participating cities will support bold solutions that can be replicated by other municipalities nationwide and around the world to advance economic development and reduce pollution. CEP is a joint project of the Natural Resources Defense Council and the Institute for Market Transformation.

For more information about the City Energy Project, visit us at <http://www.cityenergyproject.org>.

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