



# Energy Audits for Small Businesses

Whether you are thinking about upgrades for equipment that obviously needs replacing or don't know what equipment may need replacing, you may wonder, "Where should I start?" and "Do I replace one piece of equipment or system at a time or should I do a comprehensive upgrade of my entire facility?" The answers to these questions will vary depending on your facility—these may include the age of your current equipment and facility systems, your local utility rates, your hours of operation, your level of contentedness with your current equipment and systems, and your access to capital are all key factors in what level of upgrade is warranted. An audit may help you determine what additional projects make sense.



## WHAT IS AN ENERGY AUDIT?

Energy audits are comprehensive reviews conducted by energy professionals and/or engineers that evaluate the actual performance of your property's energy systems and equipment against their designed performance level or against the best available technologies. Audits alone don't save energy; you need to implement the recommended improvements to reap benefits.

Money saved due to implementing auditor-recommended improvements may justify the up-front cost of the audit. However, your budget may limit the types of audits that would make financial sense, because recommended improvements that are not performed shortly after the audit can become outdated. If your business has limited property improvement funds, an audit targeting specific types of projects may be the most cost effective as it will recommend projects you can implement in a short time frame with allotted project funds. This document will help you understand the types of audits and auditors and determine if an audit would benefit your business.

## TYPES OF ENERGY AUDITS

If your business owns its own buildings, you may consider a professional audit. There are several types of energy audits that survey your property at different levels of detail. The [types of audits](#) are:

- **Level I - Walk-Through Analysis:** Focuses on low- and no-cost energy conservation measures and provides a list of higher cost energy conservation measures. Typically, these audits will result in a report about how much energy and money can be saved from specific efficiency opportunities.
- **Level II – Energy Survey and Analysis:** Includes more detailed energy calculations and financial analysis of proposed energy efficiency measures. The financial analysis used is typically a life cycle analysis, which allows you to better understand the financial benefits of installing energy efficiency measures. You are typically provided with a list of energy conservation/efficiency measures, an estimate of the amount of money and energy that will be saved, and a cost estimate for each. These reports should also include any changes needed to operations and maintenance procedures.
- **Level III – Detailed Analysis of Capital-Intensive Modifications:** Expands on the previous levels of effort and is based on a specific subset of energy conservation/efficiency measures to analyze further. This may include further refinement of an energy model or more extensive data collection. These are often used to provide detailed information to lenders for larger projects.

## FINDING AN ENERGY AUDITOR

You can choose from three main types of energy audit providers: 1) utility companies, 2) private sector companies, and 3) state energy offices.

- **Your utility company** may offer free or inexpensive energy audits and/or have an energy conservation department.
- **Private-sector companies** include consultants, energy service companies (ESCOs), and [ENERGY STAR service and product providers \(SPPs\)](#). These companies can conduct audits, evaluate and recommend projects to improve building energy efficiency, and can estimate energy use, savings, and project cost. Some ESCOs will rebate the cost of the audit if you agree for them to install their recommended upgrades.
- **Your state energy office** may offer free or inexpensive energy audits. The [National Association of State Energy Officials \(NASEO\) State and Territory Energy Offices](#) has an interactive map to highlight state energy offices.

## CONTRACTING A PRIVATE COMPANY TO PERFORM YOUR ENERGY AUDIT

Once your business has reviewed the types of audits and auditors available, you may choose to hire an auditor (before you contact a private sector company for an audit, be sure to see what no cost options may be available such as services through your utility or a participating non-profit organization). Once you decide to hire an auditor, you can either select the company by sole source or competitive bid. In a sole source selection, you negotiate with a single consultant/or ESCO. In a competitive bid, you advertise your team's need for a consultant/ESCO and receive bids from firms interested in doing business with you.

## YOUR ENERGY TEAM'S ROLE

If you hire an outside auditor, you and your Energy Team will be responsible for monitoring the auditor's activities. This will include:

- If your business plans to solicit competitive bids for your audit, the Energy Team can prepare a Request for Proposals (RFP) to hire an auditor. [ENERGY STAR has a sample RFP](#) to assist you in preparing this document. When negotiating with a sole source or stating your team's project requirements in a competitive bid RFP, be sure to specifically indicate the requirements of the audit.
- Your team should familiarize themselves with the property in terms of equipment, energy use, and design (mechanical and electrical). The [ENERGY STAR Treasure Maps](#) can provide your team with a step-by-step checklist on energy use and management within your business (note, there are Treasure Maps for common small business types such as retail, offices, restaurants, hotels/motels/inns, convenience stores, and vehicle dealerships). If you determine that you don't have the funds for an audit, the Treasure Map serves as an interim step to better understand energy use at your property.
- You will need to manage the energy auditor through maintaining communication with decision-making staff and overseeing the auditing work.
- Review the energy audit and determine next steps.

## PRE-AUDIT CHECKLIST

Once your Energy Team has chosen an energy auditor, you will need to prepare for their visit. You can help your auditor determine appropriate project recommendations by answering questions about your property's energy use and construction. If your business owns its own building(s), providing the consultant with electrical and mechanical drawings of the property will help the auditor perform the job, and will also help control costs; if electrical and mechanical drawings are unavailable for your property, the consultant will need to reconstruct a schematic for equipment operations. You will need to provide the energy auditor with at least 12 months of utility data. [EPA's ENERGY STAR Portfolio Manager](#) is a free on-line resource for tracking your property's energy use. When you use it to [benchmark](#), it will generate a 1-100 ENERGY STAR score rating your property to the national median energy use for similar properties. This will be a useful perspective for you and your auditor.

## WHAT TO EXPECT

Depending on the type of energy audit your team chooses (levels I – III), the auditor will provide you specific information. Review the audit types listed below.

- **Targeted Lighting:** Targeted lighting audits typically include, at a minimum, a count of the number and types of fixtures in each room and spot checks of light levels.
- **Targeted HVAC:** Targeted HVAC audits include computerized simulations to extrapolate annual operating energy use based on equipment set points and regional weather factors.
- **Comprehensive:** Comprehensive audits evaluate the building envelope, lighting, domestic hot water, HVAC, kitchen equipment, and property controls. Computer models are used to simulate building and equipment operations, considering weather, equipment set points, hours of operation, etc.

You will receive a full audit report that lays out proposed next steps – again, the level of detail in this audit report will depend on what you agreed to with the auditor.

## PROJECT IMPLEMENTATION

Having the auditor who performed the energy audit prepare a performance specification will help to ensure that your property selects appropriate project types and specifies adequate project quality. Performance specifications will inform equipment contractors and installers about the type of project your team is undertaking. Performance specifications may add up to a few cents per square foot to the cost of a single-purpose or comprehensive energy audit.

In summary, an energy audit can provide your business with a roadmap for energy efficiency improvements. Remember to continue tracking your energy use after you implement improvements to determine how your energy efficiency improved based on your actions. Setting up an account in [Portfolio Manager](#), and keeping your data updated, will allow you to see actual impacts of your work.

## WHILE YOU'RE AT IT, CONSIDER A UTILITY BILL AUDIT

Your business is paying utility bills that may include electricity, natural gas, water/wastewater, telecommunications, and trash/recycling pickup. Mistakes can be made, resulting in your business paying more than you should. There are companies that audit utility bills for math errors, improper rate classification, unexplained surges in costs, etc. and if their analysis finds you are due a refund, they will file for the refund in your behalf. There should be no cost up-front for this audit, and you only pay the audit company's stated percentage of the refund after you receive the full refund. You may be able to recover refunds for multiple years. If no overcharges are found, it has cost you nothing to learn that your utility bills are correct.