

What is sustainability?

In order for a society to be sustainable, resources must be used in a way that they will continue to be available for current and future generations. People need and use many types of energy for transportation, communication, heating and cooling, lighting, cooking, and industrial processes. This energy can come from many sources, some of which are considered non-renewable, like fossil fuels and others that are considered renewable, such as solar and wind energy.

Why is it important to conserve energy?

When businesses and homeowners use energy efficiently, the energy conserved or saved is available for other users. During periods of peak power usage, decreasing energy consumption can reduce the need for more power plants to be online that emit pollution and greenhouse gases. Buildings in the United States represent 40% of U.S. energy use and 10% of global energy use. The higher the energy use of a building, the more pollution and greenhouse gases produced. Energy also represents 30% of a building's operating costs.

How does a business or homeowner determine how to use energy resources in the most efficient way possible?

Businesses and homeowners have many resources available that provide information on how to reduce energy use and costs. A good place to start is an **online calculator**. These calculators are usually based on building type, size and location. Based on information provided by the customer, specific strategies are recommended for energy and cost savings, occupancy comfort, and available financial incentives and rebates.

In order to compile an accurate and detailed analysis of current building performance to be able to implement the most effective changes, an **energy audit** needs to be completed.

What is the role of an energy auditor?

The **energy auditor** collects data and information to determine where and how energy is being used. This data is then used to make recommendations for reducing energy usage and improving the quality of the buildings environment.

What does an energy auditor do when they are hired?

The initial responsibility of an energy auditor is to inspect the building and document its energy characteristics, such as construction techniques, insulation levels, window efficiency, wall-to-window ratios, heating and cooling system efficiencies, water heating system efficiency, and solar orientation. This information can be found by reviewing building documentation such as blueprints, equipment inventories, controls schedules, maintenance logs, plus test and balance reports. Information can also be collected by visual inspection during a walk-through of the facility and with interviews of maintenance staff and occupants. Auditors will also review billing data to determine how weather, occupancy and building operation affects energy use and cost.

Specific goals of an energy audit are to:

- Identify the type, size, condition, and rate of energy consumption for each major energy-using device.
- Recommend appropriate energy conservation, operation, and maintenance procedures.
- Estimate labor and materials costs for energy retrofits.
- Project savings expected from energy retrofits.
- Note current and potential health and safety problems and how they may be affected by proposed changes.
- Explain behavioral changes that will reduce energy waste.
- Provide a written report of all findings and recommendations.

The data gathered by the energy auditor is input into a computer program that will generate a model of the building's energy consumption. Using this model and local utility rates, estimates of the building's current energy costs can then be calculated. This information is used to prepare a final report that includes the following: 1) **Recommended Energy Conservation Measures (ECMs)**, 2) **Cost Saving Analysis** and 3) suggested equipment and facility upgrades.

1. ECMs fall into three basic categories:

- **Improved energy efficiency**
 - Replace old inefficient equipment with high-efficiency equipment
- **Load management**
 - Implement strategies for reducing peak load
- **Operations and maintenance**
 - Optimize hours of equipment operation
 - Verify implementation of standard maintenance

What is a cost-saving analysis?

A cost-saving analysis compares the amount of money needed to implement the ECMs to the money saved after the changes are made.

Why consider a career as an energy auditor?

A career as an energy auditor is becoming an increasingly important one as more and more people are looking to make their homes and businesses more energy-efficient. Not only does this allow people to save money, but it's also important for the environment because more efficient buildings mean less energy wasted and fewer carbon emissions from burning fossil fuels. The career outlook for energy auditors is very good as businesses understand that sustainable use of resources is the foundation for growing a healthy and profitable company. Government incentives have persuaded more businesses to evaluate their energy usage by hiring energy auditors. Careers in energy auditing are a great opportunity for those who want to work in a field that is beneficial to society and the environment but also offers the opportunity to earn a good living.

Why is energy auditing considered a "green" career?

Because energy auditors help people be more efficient in their energy usage, they can impact the environment positively because less energy waste means that fewer fossil fuels are burned. Using natural resources in a sustainable way improves the overall environment and helps people live comfortable, healthier and more productive lives.

What type of education do you need to have in order to be energy auditor?

Experience, training and education requirements vary depending on the type of energy audit requested. A preliminary or Level 1 Audit requires some experience with construction and/or courses in engineering, plus training in specific energy auditing techniques. Higher level audits, such as building commissioning, require an engineering degree and knowledge of building codes and government regulations. All auditors need to know how to determine energy savings opportunities and perform energy calculations. Other important skills include:

- Computer literacy, including proficiency in Word and Excel
- Excellent verbal and written communication skills
- Excellent report writing and problem-solving skills