Energy Auditor

Snapshot

Career Cluster: Architecture & Construction; Engineering; Environment & Conservation; Science& Technology
Interests: Science, mathematics, environmental and conservation issues
Earnings (Yearly Average): $46,110
Employment & Outlook: Faster Than Average Growth Expected

OVERVIEW

Sphere of Work

Energy auditors inspect energy usage in residential and commercial properties. They determine the amount of electricity, heating, and cooling a property uses and chart the related costs. Based on the information gleaned in the audit, energy auditors run tests of each system to assess whether it is operating in the most efficient manner. They then work with property owners to isolate areas where energy is wasted and to avoid future wastes in energy costs.

Work Environment

Energy auditors are based in office environments, where they meet with clients, analyze data, and write reports. Their offices are located in consulting firms, government agencies, utility companies, and environmental organizations. Outside the office, energy auditors work on-site at private residences, commercial offices, and larger buildings. There they inspect ventilation systems, wiring, furnaces, and other systems, which are typically located in basements, physical plants, or exterior locations. Energy auditors typically work structured schedules, conducting prescheduled audit appointments during standard business hours.

Profile

Working Conditions: Work both Indoors and Outdoors
Physical Strength: Light Work
Education Needs: Junior/Technical/Community College, Bachelor's Degree
Licensure/Certification: Recommended
Physical Abilities Not Required: No Heavy Labor
Opportunities For Experience: Internship
Holland Interest Score*: RIE

* See Appendix A

Occupation Interest

Energy auditors are part of a growing field of "green jobs" that focus on seeking ways to reduce energy expenditure without negatively impacting production or function. Their expertise not only helps individuals and businesses save money but also helps conserve natural resources. Those drawn to energy auditing usually have a science background and are passionate about the environment. There are a wide range of employment options available, and prospective energy auditors can easily transition to the field from related industries. Furthermore, the demand for energy auditors is high and salaries are competitive.

A Day in the Life—Duties and Responsibilities

Energy auditors meet with clients to review their energy and utility costs, learn the building's history, understand the types of utilities that are involved, and record any additional information useful to conducting a comprehensive audit. They then inspect the building's mechanical, electric, and heating, ventilation, and air conditioning (HVAC) systems to determine the current and optimal levels of energy consumption. Such inspections may include analyzing insulation, air vents, fans and blowers, and windows and doors.

Once energy auditors have reviewed all of the systems in question, they collate the information and prepare their audit reports for the client. These reports include a comparison between the way systems should function and how they are actually performing. Audits also identify faulty systems, potentials health hazards such as mold or asbestos, and other elements that can contribute to poor system performance. Once the information is compiled, energy auditors meet with clients to identify areas in which energy use is inefficient or unnecessarily expensive and offer advice on cost-cutting practices regarding energy usage. They recommend alternative technologies, such as new insulation, window retrofits, and new HVAC system installations. Energy auditors also use this information to project the cost savings involved with making such repairs.

Energy auditors may also maintain long-term relationships with clients. In this arena, they frequently communicate with clients, answering any questions about new energy systems and energy-efficient appliances and machines.

Duties and Responsibilities

- **Auditing the energy use of buildings and heating-and-cooling systems**
- **Performing tests and measurements on system performance**
- **Developing techniques for preventing energy loss**
- **Recommending energy efficiency and alternative energy solutions**

WORK ENVIRONMENT

Immediate Physical Environment

Energy auditors work in office settings found in government agencies, environmental consultancies, corporations, and other industries. At a client's building or home, auditors operate in boiler rooms, power plants, and similar areas. Some physical activity may be required,

Relevant Skills and Abilities

Communication Skills

- Speaking effectively
- Reporting information

Interpersonal/Social Skills

- Being able to work independently and as a member of a team
- Being honest and helpful

Organization & Management Skills

- Initiating new ideas
- Paying attention to and handling details Managing Time
- Promoting change
- Making decisions
- Organizing information or materials
- Meeting goals and deadlines

Research & Planning Skills

- Creating ideas
- Identifying problems
- Determining alternatives
- Identifying resources
- Gathering information
- Solving problems
- Analyzing information
- Developing evaluation strategies
- Using logical reasoning

Technical Skills

- Performing scientific, mathematical or technical work
- Working with machines, tools or other objects
- Working with data or numbers

Unclassified Skills

- Using set methods and standards in your work

such as bending down for extended periods and performing heavy lifting. They are also at some risk for electrical shock from aging wires and for exposure to mold, asbestos, or other dangerous substances.

Human Environment

Energy auditors interact with a wide range of individuals, including business executives, government officials, engineers, environmental technicians, construction personnel, and manufacturing employees. Although they may call upon others to assist in editing audit reports, experienced energy auditors typically work alone. Depending on the organization, beginning energy auditors may assist their more experienced colleagues.

Technological Environment

Energy auditors work with many HVAC, electrical, and other technologies. These systems include circuit boards, furnaces, fans and blowers, and automated equipment such as hand dryers and motion-sensing lights. During audits, they use gas monitors, air current testers, draft gauges, leak-testing equipment, and pressure-measuring manometers, among other tools. Furthermore, they use databases, the Internet, and photo-imaging, word processing, and analytical and scientific software.

EDUCATION, TRAINING, AND ADVANCEMENT

High School/Secondary

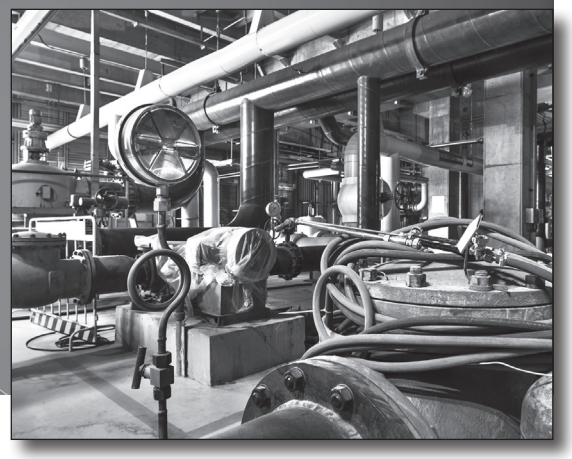
High school students interested in energy auditing should study industrial arts, including electronic and mechanical systems. Trigonometry, geometry, algebra, basic accounting, physics, and computer science are also essential courses for the aspiring energy auditor. Finally, high school students should hone their communication skills through English classes.

Suggested High School Subjects

- Accounting
- Algebra
- Applied Communication
- Applied Math
- Applied Physics
- Blueprint Reading
- Bookkeeping
- Business
- Calculus
- Chemistry
- College Preparatory
- Computer Science
- English
- Geometry
- Mathematics
- Physics
- Science
- Statistics
- Trigonometry

Famous First

The first heating system to heat buildings from a central heating station was installed by Birdsall Holly, Jr., in Lockport, New York, in 1877. Holly was an engineer and inventor who sought to heat a nearby structure by using the steam heating system in his own house. He ran an insulated steam line to the structure and discovered that there was no major loss of heat. Holly went on to found a company based on his successful application.



College/Postsecondary

Energy auditor positions are relatively new and therefore do not have standardized postsecondary education requirements. Energy auditors typically have an associate's degree in energy management or applied science or a bachelor's degree in engineering, architecture, environmental science, or a related field. As the market for energy auditors is growing and becoming more competitive, a master's degree in engineering or a related field is recommended.

Related College Majors

- Architectural Engineering
- Architecture
- Civil Engineering
- Electrical, Electronics & Communications Engineering
- Engineering
- Environmental/Environmental Health Engineering
- Mechanical Engineering

Adult Job Seekers

Energy auditors come from a wide range of backgrounds, including construction, HVAC service and repair, consulting, and manufacturing. Aspiring energy auditors should check the education, experience, and certification requirements of their prospective employers. Qualified

individuals may apply directly to any government agency, corporation, or consulting firm that posts energy auditor openings. Many job websites are dedicated solely to green jobs and feature up-to-date postings.

Professional Certification and Licensure

Although there are no established requirements for certification or licensure in the field of energy auditing, energy management and engineering certifications are widely available and may help improve a job candidate's credentials in an increasingly competitive job market. The Association of Energy Engineers (AEE) and the Residential Energy Services Network (RESNET) are among the several professional organizations that offer voluntary energy management certifications. Education or training, work experience, and satisfactorily completion of an examination are typically required for certification. Ongoing certification requires continuing education.

Energy auditors may also specialize in a particular type of building or system. The Building Performance Institute (BPI) offers specialty certification in building analysis, envelope improvement, residential buildings, manufactured housing, heating, air conditioning and heat pump systems, and multifamily buildings. As with any voluntary certification process, it is beneficial to consult credible professional associations within the field and follow professional debate as to the relevancy and value of any certification program.

Additional Requirements

Energy auditors must be detail oriented and analytical, able to carefully review expenses and costs as well as read energy consumption data. They must also have strong communication skills, as working with customers is central to the position. Furthermore, energy auditors should be careful students of the business world, taking into account the costs borne by different types of business organizations. To that end, formal training in business management may be helpful.

Advancement opportunities and greater earnings come with additional education and experience. Those with a doctoral degree will advance to the highest levels of research and faculty positions. According to a salary survey by the National Association of Colleges and Employers,

average annual starting salaries for graduates with a bachelor's degree in biology were $36,338 in 2012.

Fun Facts

Compact fluorescent light bulbs use about 80 percent less electricty than conventional bulbs and last up to 12 times as long.

Source: Royston, Angela. 2009. Sustainable Energy. Mankato, MN: Arcturus Publishing Limited.

Also, cooling and heating comprise about half of an average home's total energy bill in the U.S.

Source: Sherwin, Elton B. 2010. Addiction to Energy: A Venture Capitalist's Perspective on How to Save Our Economy and Our Climate. Knoxville, TN: Energy House Publishing. Both facts via http://facts.randomhistory.com/energy-facts.html

EARNINGS AND ADVANCEMENT

Earnings of energy auditors depend on formal training and experience. Mean annual earnings of energy auditors were $46,110 in 2013. The lowest ten percent earned less than $28,000, and the highest ten percent earned more than $69,000. Energy auditors may receive paid vacations, holidays and sick days; life and health insurance; and retirement benefits. These are usually paid by the employer.

Metropolitan Areas with the Highest Employment Level in This Occupation

Metropolitan area	Employment[1]	Employment per thousand jobs	Hourly mean wage
New York-White Plains-Wayne, NY-NJ	7,330	1.40	$27.35
Chicago-Joliet-Naperville, IL	5,460	1.48	$28.40
Houston-Sugar Land-Baytown, TX	5,380	1.95	$20.91
Dallas-Plano-Irving, TX	4,690	2.18	$22.49
Atlanta-Sandy Springs-Marietta, GA	4,660	2.02	$20.68
Washington-Arlington-Alexandria, DC-VA-MD-WV	4,520	1.91	$25.67
Phoenix-Mesa-Glendale, AZ	4,130	2.32	$23.12
Philadelphia, PA	4,050	2.20	$23.33
Los Angeles-Long Beach-Glendale, CA	4,040	1.02	$26.29
Boston-Cambridge-Quincy, MA	3,440	1.97	$28.49

[1] Includes heating and cooling technicians and energy auditors; does not include self-employed.
Source: Bureau of Labor Statistics

EMPLOYMENT AND OUTLOOK

Heating and cooling technicians, of which energy auditors are a part, held about 268,000 jobs in 2012. Employment of energy auditors is expected to grow faster than the average for all occupations through the year 2022, which means employment is projected to increase 20 percent or more. Increasing concern for energy conservation will continue the development of energy-saving heating and air-conditioning systems. An emphasis on better energy management should lead to the replacement of older systems and the installation of newer, more efficient systems in existing homes and buildings.

Employment Trend, Projected 2012–22

Energy Auditors and Other Heating and Cooling Technicians: 21%

Total, All Occupations: 11%

Installation, Maintenance, and Repair Occupations (All): 10%

Note: "All Occupations" includes all occupations in the U.S. Economy. Source: U.S. Bureau of Labor Statistics, Employment Projections Program.

Related Occupations

- Energy Engineer
- Heating & Cooling Technician
- Renewable Energy Technician
- Solar Energy System Installer
- Wind Energy Engineer

Conversation With . . .
ZACHARY MAULE

Energy Auditor, 3 years
Conservation Services Group,Westborough, MA

1. What was your individual career path in terms of education/training, entry-level job, or other significant opportunity?

At the University of Massachusetts in Amherst, I got an undergraduate degree in hospitality, tourism and management. I moved to Hawaii and managed a restaurant on Oahu. I realized how the island had to be self-sufficient; being out there I became more interested in energy conservation. It's a great climate, for example, for solar energy. I started thinking about what I ultimately wanted to do — I knew I didn't want to manage a restaurant forever — and gravitated towards energy efficiency. In researching jobs, I quickly learned that CSG is supposed to have a great training program. I had a friend who was working there and he said I should apply. So I came back home to Massachusetts and interviewed for a job. While I was in the training program, I liked it so much that I convinced my brother to move back from Portland, Oregon to join the company. I found the classroom experience was really fascinating and really enjoyed learning how a house works and how it's constructed. I was sold on the fact that my values were in line with what the company wants to do. This company offers incentives and rebates from utilities for energy efficient work or improvements. So, for example, when I go into a home I may be offering no-cost lighting, low-flow shower heads and sink heads, air sealing in attics and basement, or other energy-efficiency incentives offered through the Massachusetts Green Communities Act and other energy-conservation programs. .

2. What are the most important skills and/or qualities for someone in your profession?

I don't think this is a job for somebody who is not truly interested in the goals of a company like this. Being proud of what you do is a powerful motivator. Also, I think you have to be comfortable talking to people — strangers — in their own home. I like to think I'm introducing people to their homes in a completely new way. To do that, you have to be extroverted to some degree.

3. What do you wish you had known going into this profession?

I wish I had known about it sooner, because I would have gotten into it sooner.

4. Are there many job opportunities in your profession? In what specific areas?

In energy auditing/advising, there are a lot of different companies that are popping up now. It's a really fast-growing profession. Solar's on the rise, geothermal, HVAC, plumbing, energy-efficient lighting and appliances...the web of energy efficiency is expanding and becoming more exciting. I see the need for energy efficiency programs growing.

5. How do you see your profession changing in the next five years, what role will technology play in those changes, and what skills will be required?

People are going to be more connected to their environment from their smart phones. Recently, smart thermostat apps have come out; you can turn on the heat and air conditioning on your way home from your smart phone. Over the next five years,

I see the need for energy efficiency growing as our natural resources deplete.

6. What do you enjoy most about your job? What do you enjoy least about your job?

I really like educating people about their homes. I leave knowing the person has the ability to decrease his bills, the environment is less polluted, and fewer natural resources are being used. Also, the economy is being stimulated; our program has 80 licensed contractors for insulation alone that are affiliated with it who can come out and do the work we recommend. Others contractors install HVAC or companies produce energy efficient lights we install...the list goes on and on.

This is a really good problem to have, but staying current in this fast-growing industry is a challenge. There are new programs all the time.

7. Can you suggest a valuable "try this" for students considering a career in your profession?

Get a no-cost energy assessment. You can have somebody come out to your house and see the process yourself.

SELECTED SCHOOLS

Many agricultural, technical, and community colleges offer programs in constructions systems and technologies, including heating and cooling systems. Interested students are advised to consult with their school guidance counselor or to research area postsecondary schools and training programs. For those interested in pursuing a bachelor's degree, a state land-grant college or technical institute is probably the best place to start.

MORE INFORMATION

American Council for an Energy-Efficient Economy
529 14th Street NW, Suite 600
Washington, DC 20045-1000
202.507.4000
www.aceee.org

Association of Energy Engineers
4025 Pleasantdale Road
Suite 420
Atlanta, GA 30340
770.447.5083
www.aeecenter.org

Building Owners and Managers Association International
1101 15th Street NW, Suite 800
Washington, DC 20005
202.408.2662
www.boma.org

Building Performance Institute
107 Hermes Road, Suite 110
Malta, NY 12020
877.274.1274
www.bpi.org

Green Mechanical Council
1701 Pennsylvania Avenue NW
Suite 300
Washington, DC 20006
877.347.3360
www.greenmech.org

Office of Energy Efficiency & Renewable Energy
Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585
800.342.5363
www.eere.energy.gov

Residential Energy Services Network
760.806.3448
www.resnet.us/professional

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