

# GREEN FUTURE ROADMAP

## Energy Audit Tool

*Where to Go, What to Do and How to Get There*

The Energy Audit tool provides step-by-step directions and links to information on conducting energy audits for municipal and school buildings, and facilities. Click on the hyperlinks to download documents and resources. This tool will be updated as new resources and programs become available.

### What is an Energy Audit?

An energy audit establishes where and how energy is being used in your buildings and facilities. It identifies opportunities and provides recommendations for energy and cost savings. Recommendations can range from improved energy data management to appropriate energy-saving technologies, structural improvements, and system retrofits to energy conservation behavior changes among building occupants.

There are three types of audits:

- A Walk-through audit includes a visual inspection of a building's energy systems, and a review of energy usage data. Findings are compared to industry averages. This audit can identify simple operation and maintenance improvements and also helps determine if a more comprehensive audit is needed.
- A Standard Audit assesses all equipment and operational systems, and creates a more detailed calculation of energy use. This audit identifies potential technical improvements, and makes recommendations based on their projected energy and cost savings.
- A Computer Simulation predicts system performance and takes external factors (such as weather) into account. This audit is recommended for more complicated systems and facilities, and new construction design.

### Why Conduct an Energy Audit?

Calculating your municipality's energy footprint is a fundamental and necessary first step in identifying opportunities to reduce energy use and energy costs. Without this baseline data, you will not have the information necessary to make cost-effective decisions now and in the future about what energy saving strategies to implement. This process is also an important first step for reducing municipal greenhouse gas emissions. Over 75 mayors in New Jersey have signed the U.S. Conference of Mayor's Climate Protection Agreement, pledging to meet or beat the Kyoto Protocol's greenhouse gas reduction targets. Conducting an energy audit provides important data about a municipality's carbon footprint and establishes a baseline upon which progress towards greenhouse gas reduction targets can be evaluated.

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### DID YOU KNOW?

- Buildings consume nearly one-third of the energy used in the United States.
- Energy represents as much as 30 percent of a building's operating costs.

Benefits of Energy Audits:

- Reduce greenhouse gas emissions, and air pollution.
- Significantly lower electrical, natural gas, steam, water and sewer costs.
- Address indoor air quality, lighting quality and building-occupant satisfaction.

### How to Conduct an Energy Audit

Click on the link above for more information.

1. Create an Energy Audit Team made up of the municipal business administrator, facilities, and environmental and maintenance staff.
2. Collect, Organize, and Analyze Two Years of Energy Data (usage, demand, and rate schedules) for electricity, heating fuel, and water/ sewer accounts.
3. Assess Efficiency of Building Systems (electrical and mechanical) and identify issues to address during the site visit.
4. Conduct Onsite Inspection
5. Analyze Findings and Issue an Action Report

### Tools and Templates

Click on the link above for information on obtaining expert assistance on conducting an energy audit.

- Sample Request for Proposals (RFPs) to hire professional energy auditing services in New Jersey
- List of Energy Services Companies (ESCOs) in New Jersey
- Further Reading Materials Describing This Process

Note: Many municipalities choose to hire an ESCO to conduct every step of the process, from analyzing energy data to assisting in securing funding and implementing energy savings measures.

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### Funding Sources

Click on the link above for information on available funding.

- Listings of Grants Available for New Jersey Municipalities
- Listings of Databases to Find More Resources
- Further Reading Materials to Describe the Financing Process



The **NJ Board of Public Utilities (BPU) Office of Clean Energy** will introduce the **Municipal Energy Audit Program** in 2008. This program will offer qualifying municipalities and other government agencies significant incentives to subsidize the cost of performing an energy audit of their facilities. The municipalities will request proposals from a NJ Treasury list of pre-approved contractors operating on a fixed fee basis. The program will provide partial reimbursement for the cost of the audit and full reimbursement upon installation of recommended upgrades.

### Additional Resources

Click on the link above for additional resources that provide more detailed analyses of the concepts discussed above.

- Online and Print Training Guides
- Communications Networks for Municipalities Implementing Energy Efficiency Programs
- Reading Materials Further Analyzing This Process

### Energy Audits in Practice

Once your municipality's energy footprint is calculated, the next step is to implement energy and cost saving measures. Following is a list of common energy saving best practices.

- Improve Building Lighting Systems
- Purchase "Green Power" for municipal buildings and facilities.
- Upgrade office equipment to "Energy Star" certified equipment
- Better monitor air conditioning and heating usage during the summer and winter months

- Retrofit inefficient, aging structures.
- Provide information and incentives for residents and businesses to conduct their own energy audits, and energy saving measures.



### SPOTLIGHT

#### Bernards Township

- **Motion Detectors** placed in areas of low activity or in areas that do not need constant lighting.
- **All exit signs** replaced with LED signs which use less than 1 watt lamp vs. 15-25 watts.
- **Somerset County** converted all Twp. lights to LED, which use 90% less energy than incandescent lights.

For more information, see Bernards Township Green Report 2007.

This tool was created for the Mayors' Committee for a Green Future, a committee of the N.J. State League of Municipalities, by the New Jersey Sustainable State Institute (NJSSI) and the Municipal Land Use Center at the College of New Jersey.



### FOR MORE INFORMATION

- **The New Jersey Sustainable State Institute (NJSSI)** [www.njssi.org](http://www.njssi.org)
- **Municipal Land Use Center at the College of New Jersey** [www.tcnj.edu/~mluc/](http://www.tcnj.edu/~mluc/)



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