



SEE Action
STATE & LOCAL ENERGY EFFICIENCY ACTION NETWORK

Strategic Energy Management for State and Local Governments

What is Strategic Energy Management?

The predominant approach to commercial energy efficiency is to focus on single-technology, one-time solutions—such as replacing lighting or cooling equipment with more efficient technologies. This transaction-based approach limits whole-building performance improvement and keeps building operators focused on short-term savings rather than continuous improvement. An organization-wide strategic energy management approach that sets long-term energy savings goals and uses rigorous tracking and reporting systems can drive greater savings, reach across entire building portfolios, and institutionalize such practices to sustain long-term savings.

State and local governments can leverage these energy management frameworks to lead by example and to encourage private organizations to adopt best practices. The U.S. Department of Energy (DOE) State Energy Program and Energy Efficiency and Conservation Block Grant recipients can use a strategic energy management approach to sustain and extend their grant-funded energy savings.

Why Encourage Strategic Energy Management?

Commercial buildings comprise nearly half of total building energy use and roughly 20% of total energy consumption and greenhouse gas emissions in the United States.^{1, 2} Government-owned buildings are nearly 25% more energy-intensive than nongovernment-owned buildings.¹ Energy expenditures average more than \$2 per square foot for commercial (including government) buildings,¹ making energy use a cost worth managing.

Strategic energy management can yield increased energy savings and greater savings persistence as compared to the conventional single-measure retrofit approach. Field experience in large organizations shows that—for little or no initial cost and with simple paybacks for specific projects typically less than 3 years—organization-wide strategic energy management programs can deliver cost-effective energy savings.³ Education and training can sustain and increase energy savings over time.

An organization-wide energy management program also can provide a foundation for energy-efficiency policies (e.g., benchmarking and disclosure or retro-commissioning laws) and program solutions (e.g., high-performance leasing, voluntary energy- or greenhouse-gas reduction challenges) by providing a long-term institutional basis for realizing and sustaining energy savings.

Who is Affected?

Typically, organizations with large, energy-intensive building portfolios, such as offices, hospitals, retailers, hotels, grocery stores, and public safety buildings, are well-suited to benefit financially from strategic energy management programs. These programs involve individuals at all levels of an organization—from facilities to executive management—and could include outside support. Strategic energy management also can be applied to an organization's suppliers by requiring that they conform with energy-performance certification programs.

Key Points

- Strategic energy management is a long-term approach to efficiency, and includes goals, tracking, and reporting.
- Successful strategic energy management programs build long-term relationships with energy users and can improve the persistence of energy savings and the property value of buildings.
- For public buildings, strategic energy management can reduce costs across many facilities, and can institutionalize practices to sustain long-term savings.

About SEE Action

The State and Local Energy Efficiency Action Network (SEE Action) is a state and local effort facilitated by the federal government that helps states, utilities, and other local stakeholders take energy efficiency to scale and achieve all cost-effective energy efficiency by 2020.

About the Working Group

The working group is comprised of representatives from a diverse set of stakeholders; its members are provided at www.seeaction.energy.gov.

How Does It Work?

Public agencies can start by developing and implementing strategic energy management programs for their own operations, and extending those expectations to suppliers. National and international efforts for the first time provide robust standards for organizational energy management programs. The International Standards Organization (ISO) has developed ISO 50001 for energy management systems⁴ as a framework for organizational energy management in day-to-day operations and long-term planning.

Compliance with ISO 50001 is a prerequisite for participating in the DOE-supported Superior Energy Performance program⁵, which certifies energy performance improvement in industrial facilities and commercial properties (on a pilot scale). The U.S. Environmental Protection Agency's (EPA) Building Performance with ENERGY STAR® program⁶ provides guidelines for energy efficiency program sponsors to encourage building- or portfolio-wide energy improvement, consistent with ISO 50001 practices or Superior Energy Performance certification. ISO 50001 provides a useful energy management framework, and ENERGY STAR and Superior Energy Performance offer additional guidelines using the general model depicted in Figure 1. Figure 1 outlines a 7-step model for engraining energy-conscious decision making in an organization's operations.

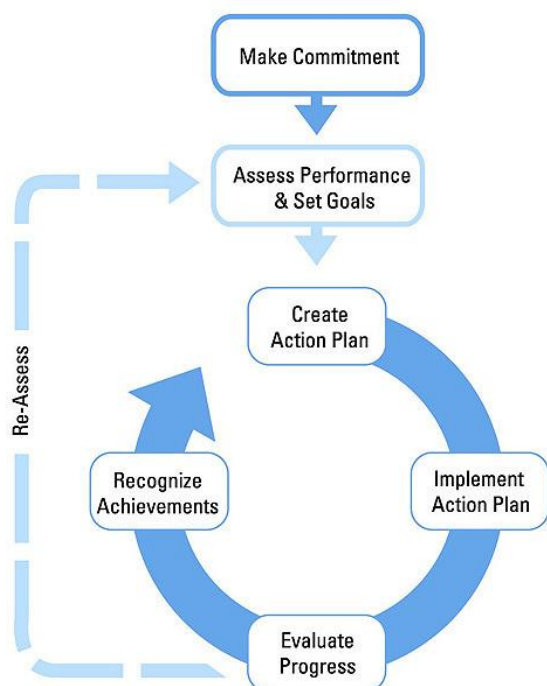


Figure 1. The EPA's ENERGY STAR Guidelines for Energy Management

Source: U.S Environmental Protection Agency

Governments also can reach private markets through public-private partnerships that promote organization-wide energy management (such as energy challenges), and by adopting policies that complement strategic energy management plans.

Implementing Strategic Energy Management Programs

Although some energy-intensive organizations practice strategic energy management as a risk (cost) management tool, other organizations might require education about the benefits of energy-conscious decision making and coordinated energy management. State and local governments can model effective energy management with their own building portfolio and encourage private organizations to follow their lead.

Public Buildings

State and local governments developing a strategic energy management program should consider the general steps outline below.

- 1. Start at the top.** Senior management should fully endorse and support the efficiency strategy.
- 2. Build the program.** An effective energy efficiency team must reach key functional and operating units at all levels of the organization. A lead energy manager should be assigned with support from executive decision makers and implementation staff at major facilities and across key functional disciplines, including procurement, finance, and engineering.
- 3. Develop key baseline data.** Determine what data to collect (e.g., total energy used, energy intensity, emissions, dollars, water use); how to measure baseline performance (e.g., using the EPA's energy measurement and tracking tool, Portfolio Manager); and what goals to set (e.g., absolute and/or intensity reduction, near-term and/or long-term). Then determine baseline energy use and other identified metrics for measuring future performance.
- 4. Design a data-collection and reporting system.** Build upon existing accounting and performance-measurement systems. The aim is to integrate the energy data system with existing information systems, not to create a separate specialized system. Assign responsibility for collecting data, filing and reviewing reports, and responding to data received (e.g., taking corrective action, setting new goals in light of previous achievements).

1. Set SMART (Specific, Measurable, Attainable, Relevant, Time-bound) goals that are:

- Specific, including solid numbers with target dates for each facility, department, or business unit that roll up to organization-wide goals and energy plans.
- Measurable using the data-collection and reporting system given in step 4, and be verifiable by a third party.
- Accounted for by assigning responsibility for implementation and reporting. Goals should be linked with facility, department, or business unit action plans that include specific equipment or process improvement projects and that coordinate with an organization-wide energy plan.
- Aggressive yet realistic given the time frame and any technology, financial, or other constraints. Interim milestones can help document progress and sustain motivation for future achievement.
- Time constrained, meaning that they are tied to specific implementation dates that can be updated as goals are achieved.

2. Launch the program. Communicate internally and externally the purpose of, goals for, and approach for implementing the energy management plan. Include roles and responsibilities and employee-specific actions that contribute to achieving energy efficiency goals.

3. Monitor performance. Use the data collection and reporting system to assess performance. Use lagging performance situations as learning opportunities versus compliance exercises. Identify and use potential efficiency improvements to correct poor performance.

4. Adjust and adapt. Seek and apply user feedback. Use building-operator experience with the data-collection system, technology, and best practices to refine, adjust, and adapt the program.

5. Publicize success information. Announce successes internally and externally. Reward individuals, departments, and business units.

6. Review and reset goals. Maintain the program for at least 2 to 3 years to enable performance trends to emerge. Reset and increase goals as performance and field experience indicate.

Private Buildings

Local governments could consider the approaches for influencing the private sector to adopt strategic energy management practices below.

- **Share successes of and lessons learned from internal energy management program.** Documented energy, cost, and emissions savings can be powerful motivators for other organizations to follow a government's lead.
- **Host or sponsor voluntary energy, green business, or greenhouse-gas reduction challenges.** Such challenges promote strategic energy management practices that build energy awareness and incite energy-saving commitments.
- **Host energy management working groups.** A government-initiated industry working group can provide a forum for learning about topics such as energy management approaches, certification and recognition options, and funding mechanisms.
- **Adopt policies that complement strategic energy management.** Energy performance benchmarking and retro-commissioning are building blocks of an effective energy management program. High-performance leasing and procurement policies also can be integrated into energy management programs to influence supply chains.
- **Tie development policies to energy management programs.** Offering conditional incentives, technical assistance, or streamlined regulatory approvals to businesses that wish to build, buy, or expand locally and that have adopted strategic energy management programs in line with ISO 50001 or the Superior Energy Performance program can promote economic growth with less energy and environmental impact. Some jurisdictions have proven the effectiveness of this approach by offering streamlined permitting or density bonuses to developers that agree to Leadership in Energy and Environmental Design® (LEED®) or ENERGY STAR certification.

Existing Policies and Programs

State of Hawaii: Hawaii Lead by Example Initiative⁷

Adopted: 2006.

Affected Building Types: State-owned buildings.

Key Requirements: Directs state agencies to improve energy, water, and resource efficiency in state facilities. Requires LEED certification for new construction and major renovations and ENERGY STAR certification for existing buildings. Follows a strategic energy management approach that includes a dedicated energy coordinator to oversee activities including:

- Benchmarking
- Whole-building energy audits
- Phased-in retro-commissioning.

State of North Carolina: North Carolina Utility Savings Initiative⁸

Adopted: 2001.

Affected Building Types: North Carolina public buildings, including state buildings, public higher-education facilities, K–12 public schools, and local government buildings.

Key Requirements: Requires state agencies and state higher-education institutions to create strategic energy plans to help achieve statewide near-term and intermediate energy intensity reduction goals. Designates the state energy office with the responsibility for overseeing implementation of and annual reporting on plan progress. Offers training, energy audits, and grant funding. Encourages and implements no-cost and low-cost operation and maintenance efficiency measures. Promotes energy savings performance contracts to fund comprehensive efficiency projects.

State of Rhode Island: “Rhode Island Asset Protection Plans for School Districts”⁹

Adopted: 2007.

Affected Building Types: Public school buildings.

Key Requirements: Requires the development and annual updating of asset plans that must include current building condition, cost of needed repairs, and a description of annual maintenance and cost. Requires asset plans to be certified by licensed professionals. Includes enforcement mechanisms that require annual and sustained investment in implementing asset plans. In the case of non-compliance, the oversight body can withhold approval of school construction plans and school housing aid.

Complementary Policies and Programs

Strategic energy management should be considered a cornerstone of a jurisdiction’s commercial energy efficiency portfolio that can integrate energy efficiency policies (e.g., benchmarking, disclosure, retro-commissioning laws) and practices (e.g., high-performance leasing and procurement, voluntary energy or greenhouse gas reduction challenges) under a common energy framework and energy savings goals. For access to related SEE Action resources, visit www.seeaction.energy.gov/existing_commercial.html.

Other Resources

Pew Center on Global Climate Change. *From Shop Floor to Top Floor: Best Business Practices in Energy Efficiency*. www.pewclimate.org/energy-efficiency/corporate-energy-efficiency-report.

U.S. Department of Energy. “ISO 50001 Energy Management Standard.” www1.eere.energy.gov/energymanagement.

For more information, contact:

Cody Taylor

U.S. Department of Energy
202-287-5842
cody.taylor@ee.doe.gov

Tracy Narel

U.S. Environmental Protection Agency
202-343-9145
narel.tracy@epa.gov

References

¹ U.S. Department of Energy. *Buildings Energy Data Book*. Chapter 3. March 2011.

<http://buildingsdatabook.eren.doe.gov/ChapterIntro3.aspx>.

² U.S. Environmental Protection Agency. *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2009*. Table ES-8. April 2011. www.epa.gov/climatechange/emissions/usinventoryreport.html.

³ Prindle, W. *From Shop Floor to Top Floor: Best Practices in Energy Efficiency*. Prepared by ICF International for the Pew Center on Global Climate Change. April 2010. www.pewclimate.org/energy-efficiency/corporate-energy-efficiency-report.

⁴ International Standards Organization. ISO 50001. www.iso.org/iso/hot_topics/hot_topics_energy/energy_management_system_standard.htm.

⁵ U.S. Council for Energy Efficient Manufacturing. Superior Energy Performance Certification. *Achieving Superior Energy Performance*.
<http://www.superiorenergyperformance.net>.

⁶ U.S. Environmental Protection Agency. "Building Performance with ENERGY STAR®" program.
www.energystar.gov/ia/news/downloads/Building_Performance_with_ES.pdf.

⁷ State of Hawaii. "Hawaii Lead by Example Initiative."
<http://hawaii.gov/dbedt/info/energy/efficiency/state/lbe>.

⁸ State of North Carolina. "North Carolina Utility Savings Initiative." www.nccommerce.com/energy/about-us/utility-savings-initiative.

⁹ State of Rhode Island. "Rhode Island Asset Protection Plans for School Districts." www.ride.ri.gov/Finance/Funding/construction/Documents/FY08%20Housing%20Aid/Prior%20to%20May%2031%20Updates/School_Constr_Regs_FINAL.pdf.

Disclaimer:

This information was developed as a product of the State and Local Energy Efficiency Action Network (SEE Action), facilitated by the U.S. Department of Energy/U.S. Environmental Protection Agency. Content does not imply an endorsement by individuals or organizations that are part of SEE Action working groups, or reflect the views, policies, or otherwise of the federal government.