# Guidelines for Energy Management

Canada


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This document is based on the original *ENERGY STAR Guidelines for Energy Management* issued by the U.S. Environmental Protection Agency.

*Aussi disponible en français sous le titre :* Lignes directrices pour la gestion de l'énergie

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# CONTENTS

# OVERVIEW

**Continuous improvement of energy performance requires establishing effective energy management practices and processes to guide the energy program. Any organization, regardless of size, function or mission can develop an effective energy program *if* they are willing to make the commitment.**

Natural Resources Canada's (NRCan) ENERGY STAR *Guidelines for Energy Management* provide a proven strategy for creating an energy management program focused on continuous improvement of energy performance. The process builds on the commitment organizations make when they become a Canadian Industry Partnership for Energy Conservation (CIPEC) Leader.

For more information about CIPEC, visit www.CIPEC.ca or email an inquiry to ENERGYSTAR-Industry@canada.ca.

These guidelines for energy management can help your organization improve its energy and financial performance while distinguishing your organization as an environmental leader. Thousands of organizations have used the guidelines to tailor their approach toward managing energy in a way that delivers results and demonstrates leadership.

The *Guidelines for Energy Management* follow seven main steps that are outlined here and illustrated in the graphic.

**STEP 1.** Make a Commitment

**STEP 2.** Assess Performance

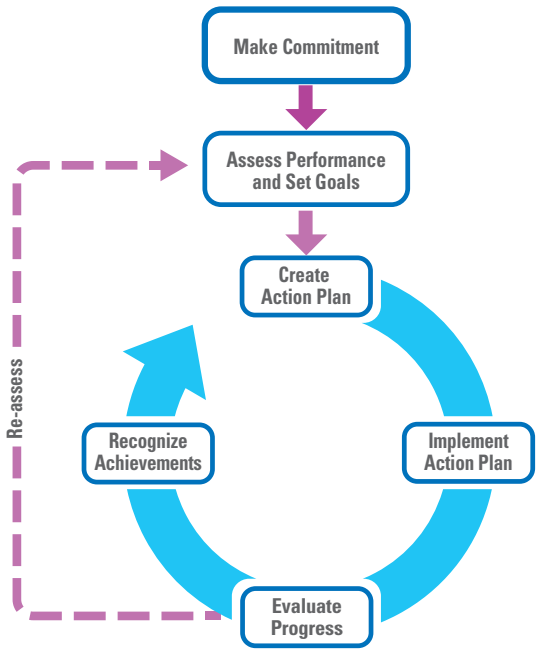
**STEP 3.** Set Goals

**STEP 4.** Create an Action Plan

**STEP 5.** Implement the Action Plan

**STEP 6.** Evaluate Progress

**STEP 7.** Recognize Achievements



# STEP 1. MAKE A COMMITMENT

**Organizations seeing the financial returns from superior energy management continuously strive to improve their energy performance. Their success is based on regularly assessing energy performance and implementing steps to increase energy efficiency.**

No matter the size or type of organization, the common element of successful energy management is commitment. Organizations make a commitment to allocate staff and funding to achieve continuous improvement.

To establish their energy program, leading organizations form a dedicated Energy Team and institute an energy policy.

### Form a Dedicated Energy Team

- **Appoint an Energy Director** — sets goals, tracks progress, and promotes the energy management program
- **Establish an Energy Team** — executes energy management activities across different parts of the organization and ensures integration of best practices
- **Institute an Energy Policy** — provides the foundation for setting performance goals and integrating energy management

## 1.1 APPOINT AN ENERGY DIRECTOR

Appointing an Energy Director is a critical component of successful energy programs. An Energy Director helps an organization achieve its goals by establishing energy performance as a core value.

The Energy Director is not always an expert in energy and technical systems. Successful Energy Directors understand how energy management helps the organization achieve its financial and environmental goals and objectives. Depending on the size of the organization, the Energy Director role can be a full-time position or an addition to other responsibilities.

The Energy Director's key duties often include:

- Coordinating and directing the overall energy program
- Acting as the point of contact for senior management
- Increasing the visibility of energy management within the organization
- Drafting an Energy Policy
- Assessing the potential value of improved energy management
- Creating and leading the Energy Team
- Securing sufficient resources to implement strategic energy management
- Assuring accountability and commitment from core parts of the organization
- Identifying opportunities for improvement and ensuring implementation (including staff training)
- Measuring, tracking, evaluating and communicating results
- Obtaining recognition for achievements

## SUGGESTION

If the Energy Director does not report directly to a senior manager, it is often helpful for a member of senior management to serve as an "executive ally." Upper management involvement is a key component of successful programs. Having an ally provides a direct link to upper management and helps to formalize the commitment to continuous improvement.

## 1.2 ESTABLISH AN ENERGY TEAM

Decisions affecting energy use are made every day by people. Creating an Energy Team helps to integrate energy management.

In addition to planning and implementing specific improvements, the Energy Team measures and tracks energy performance and communicates with management, employees and other stakeholders.

The size of the Energy Team will vary depending on the size of your organization. In addition to the Energy Director who leads the Energy Team and possible dedicated energy staff, consider including a representative from each operational area that significantly affects energy use, such as:

- Engineering
- Purchasing
- Operations and Maintenance
- Building/Facilities Management
- Environmental Health and Safety
- Corporate Real Estate and Leasing
- Construction Management
- Contractors and Suppliers
- Utilities

## 1.3 INSTITUTE AN ENERGY POLICY

An Energy Policy provides the foundation for successful energy management. It formalizes senior management's support and articulates the organization's commitment to energy efficiency for employees, shareholders, the community and other stakeholders.

Based on the experience of ENERGY STAR partners, successful organizations have energy policies that:

- **State an objective** — Have a clear, measurable objective that reflects the organization's commitment, culture and priorities.
- **Establish accountability** — Institute a chain-of-command, define roles in the organization, and provide the authority for personnel to implement the energy management plan.
- **Ensure continuous improvement** — Include provisions for evaluating and updating the policy to reflect changing needs and priorities.
- **Promote goals** — Provide a context for setting performance goals by linking energy goals to overall financial and environmental goals of the organization.

**See Appendix 1 for energy policy examples.**

## SUGGESTIONS

- Have the CEO or head of the organization officially issue the policy.
- Involve key people in policy development to ensure buy in.
- Tailor the policy to the organization's culture.
- Make it understandable to employees and the public alike.
- Consider the skills and abilities of management and employees.
- Include detail that covers day-to-day operations.
- Communicate the policy to all staff and employees and encourage them to get involved.
- Consider partnering with ENERGY STAR as a basis for your energy policy.

# STEP 2. ASSESS PERFORMANCE

**Understanding current and past energy use is how many organizations identify opportunities to improve energy performance and gain financial benefits.**

Assessing performance is the process of periodically evaluating energy use for all major facilities and functions in the organization and establishing a baseline for measuring future results of efficiency efforts.

Key aspects are listed here.

### Data Collection and Management

- **Gather and Track Data** — Collect energy use information and document data over time.

### Baselining and Benchmarking

- **Establish Baselines** — Determine the starting point from which to measure progress.
- **Benchmark** — Compare the energy performance of your facilities to each other, peers and competitors. Use the data to prioritize which facilities to focus on for improvements.

### Analysis and Evaluation

- **Analyze Data** — Understand your energy use patterns and trends.
- **Conduct Technical Assessments and Audits** — Evaluate the operating performance of facility systems and equipment to determine improvement potential.

Assessing your energy performance helps you to:

- ✓ Categorize current energy use by fuel type, operating division, facility, product line, etc.
- ✓ Identify high performing facilities for recognition and replicable practices.
- ✓ Prioritize poorly performing facilities for immediate improvement.
- ✓ Understand the contribution of energy expenditures to operating costs.
- ✓ Develop an historical perspective and context for future actions and decisions.
- ✓ Establish reference points for measuring and rewarding good performance.

## 2.1 GATHER AND TRACK DATA

Evaluating energy performance requires good information on how, when and where energy is being used. Collecting and tracking this information is necessary for establishing baselines and managing energy use.

Organizations of all sizes have established systems for gathering and tracking energy use data. In the case of industrial facilities, the ENERGY STAR industry-specific Energy Performance Indicator (EPI) can be used to track

**See Appendix 2 for more details on these tools.**

yearly energy use patterns. All or part of data collection and management can also be outsourced. Regardless of what method you use to gather and track data, consider the following steps.

### Collect data

The data must be complete and accurate because it will be used for analysis and goal setting. Consider the following when collecting energy use data:

- **Determine the appropriate level of detail** — The level and scope of data collection will vary from organization to organization. Some may choose to collect data from submeters on individual processes while others may look only at a utility bill.
- **Account for all energy sources** — Inventory all energy purchased and generated on-site (electricity, gas, steam, waste fuels) in physical units (kWh, GJ, etc.) and on a cost basis.
- **Document all energy uses** — For the sources already identified, assemble energy bills, meter readings and other use data.
  - Energy data may reside in the accounting department, be held centrally or at each facility, or can be acquired by contacting the appropriate utilities or energy service providers.
  - Gather at least two years of monthly data or a more frequent interval if available. Use the most recent data available.
- **Collect facility and operational data** — To normalize and benchmark, it may be necessary to collect non-energy related data for all facilities and operations, such as building size, operating hours, etc.

**See Appendix 3 for more details on normalizing data.**

### Establish a Tracking System

A system for tracking performance can range from a simple spreadsheet to detailed databases and IT systems. In developing an appropriate tracking system for your organization, consider the following aspects:

- **Scope** — The design of your tracking system will be shaped, in large part, by the level and scope of information that will be tracked and the frequency of data collection.
- **Maintenance** — Tracking systems must be easy to use, update and maintain.
- **Reporting and communicating** — Use tracking systems to communicate energy performance to other parts of the organization and motivate change. Consider developing formats that express energy performance information in ways that are easily understandable across the organization. A good tracking system should make such reporting easy!

## SUGGESTIONS

- At a minimum, collect data by fuel type at an individual building or facility level.
- Collect data from submeters, if possible.
- Use actual use data, not estimated, if possible.
- Use data that is current and timely.
- Use tracking systems to develop quarterly and annual reports that profile energy performance.
- Use tracking systems to allow facilities to compare their performance to their peers.
- Use a tracking system offered by ENERGY STAR, such as EPIs, to organize data and benchmark against the industry.

## 2.2 ESTABLISH BASELINES

Measuring energy performance at a specific time establishes a baseline and provides the starting point for setting goals and evaluating future efforts and overall performance. Baselines should be established for all levels appropriate to your organization.

The main steps involve using the data you've collected to:

**See Appendix 3 for more details on normalizing data.**

- **Establish a base year** — Establish a base year or an average of several historical years. Use the most complete and relevant sets of data available. Depending on the type of facility, you may want to normalize for weather or other factors.
- **Identify metrics** — Select units of measurements that effectively and appropriately express energy performance for your organization. (e.g. ENERGY STAR benchmark score, GJ/square metre, GJ/product).
- **Publish results** — Announce performance baselines to facilities, managers and other key stakeholders in your organization.

### SUGGESTIONS

Some voluntary environmental initiatives have specific baseline years. If your organization is participating in such an initiative, check to see if a specific base year has been established.

If price is not used as a normalizing factor, be sure to use a source energy accounting method. Otherwise, if your facilities use a combination of fuels, your baseline data may contain errors.

## 2.3 BENCHMARK

NRCan has made this step easier by providing a national energy performance rating system, currently available for selected industrial facilities. The rating system found in EPIs allows you to compare your performance against similar facilities.

Benchmarking can be done in a variety of ways. Facility or organizational performance may be benchmarked to:

- **Past performance** — a comparison of current versus historical performance established by a baseline
- **Industry average** — based on an established performance metric, such as the recognized average performance of a peer group
- **Best in class** — benchmarking against the best in the industry and not the average
- **Best practices** — usually a qualitative comparison against certain, established practices considered to be the best in the industry

The key steps in benchmarking include the following:

- Determine the level of benchmarking (e.g. equipment, process line, facility or organizational).
- Develop metrics.
- Conduct comparisons.
- Track performance over time.

### SUGGESTION

ENERGY STAR offers energy performance benchmarks for industrial facilities. ENERGY STAR benchmarks allow you to rate your facility's energy performance against similar facilities nationwide. ENERGY STAR ratings normalize for important physical and operational characteristics as well as for weather, to allow for comparisons to be made on a level playing field. All ENERGY STAR benchmarks provide a score on a scale of 1 to 100. Facilities with a score of 75 or over are eligible for the ENERGY STAR label.

For industrial facilities, ENERGY STAR benchmarks are available through sector-specific EPIs available from NRCan.

On average, facilities that earn the ENERGY STAR use about 40% less energy than average facilities, without compromising comfort, services or quality.

More information on ENERGY STAR benchmarking tools can be found in Appendix 2.

## 2.4 ANALYZE THE DATA

Analyzing data to determine energy use trends can help an organization gain a better understanding of the factors that affect energy performance and identify steps for reducing energy consumption. There are a variety of ways data can be analyzed depending upon the needs of the organization. The following analyses provide a starting point.

### Quantitative Reviews

- **Develop use profiles** — Identify energy consumption peaks and valleys and determine how they relate to operations or key events.
- **Compare performance** — Compare the use and performance data of similar facilities in your industry.
- **Assess the financial impacts** — Identify areas of high-cost energy use.
- **Identify data gaps** — Determine areas that require more information.

### Qualitative Reviews

- **Conduct interviews** — Seek informed opinions, specific anecdotes and lessons learned, system-specific information (e.g. HVAC, lighting, refrigeration), and in-house audits or surveys.
- **Review policies and procedures** — Review organizational policies and operating procedures to determine their impact on energy use.

## 2.5 CONDUCT TECHNICAL ASSESSMENTS AND AUDITS

Your organization's baseline energy use and the relative performance of your entire portfolio are only parts of the information needed. Periodic assessment of the performance of equipment, processes and systems will help you identify opportunities for improvement.

Energy audits are comprehensive reviews conducted by energy professionals and/or engineers. The audits evaluate the actual performance of a facility's systems and equipment against their designed performance level or against the best available technology. The difference between actual and designed performance is the potential for energy savings.

The main steps for conducting technical assessments and audits are:

- **Assemble an expert team** — Expertise should cover all energy-using systems, processes and equipment. Include facility engineers, system specialists and other support. Outside support may be helpful and provide an objective perspective or specific expertise.
- **Plan and develop a strategy** — Identify and prioritize systems for evaluation, assign team members to tasks, and schedule completion dates for the activities. Use benchmarking results to identify poorly performing facilities whose equipment and systems should be evaluated.
- **Create a final report** — Based on the audit results, produce a detailed summary of steps that can be taken to reduce energy use. The report should recommend actions from simple adjustments in operation to equipment replacement. Estimates of resource requirements for completing actions should be included.

# STEP 3. SET GOALS

**Performance goals drive energy management activities and promote continuous improvement. Setting clear and measurable goals is critical for understanding intended results, developing effective strategies, and reaping financial gains.**

Well-stated goals guide daily decision making and are the basis for tracking and measuring progress. Communicating and posting goals can motivate staff to support energy management efforts throughout the organization.

The Energy Director typically develops goals in conjunction with the energy team.

### Develop effective performance goals

- **Determine the Scope** — Identify organizational and time parameters for goals.
- **Estimate the Potential for Improvement** — Review baselines, benchmark to determine the potential and order of upgrades, and conduct technical assessments and audits.
- **Establish Goals** — Create and express clear, measurable goals, with target dates, for the entire organization, facilities and other units.

### Setting goals helps the Energy Director:

- ✓ Set the tone for improvement throughout the organization
- ✓ Measure the success of the energy management program
- ✓ Help the energy team identify progress and setbacks at a facility level
- ✓ Foster ownership of energy management, create a sense of purpose, and motivate staff
- ✓ Demonstrate commitment to reducing environmental impacts
- ✓ Create schedules for upgrade activities and identify milestones

## SUGGESTION

When setting goals, be sure to use the energy team's wide range of knowledge to help set aggressive, yet realistic goals. Have management review your goals to enlist their feedback and support.

## 3.1 DETERMINE THE SCOPE

The scope of performance goals can include multiple levels of the organization as well as various periods for completion of specific goals.

### Organizational Level

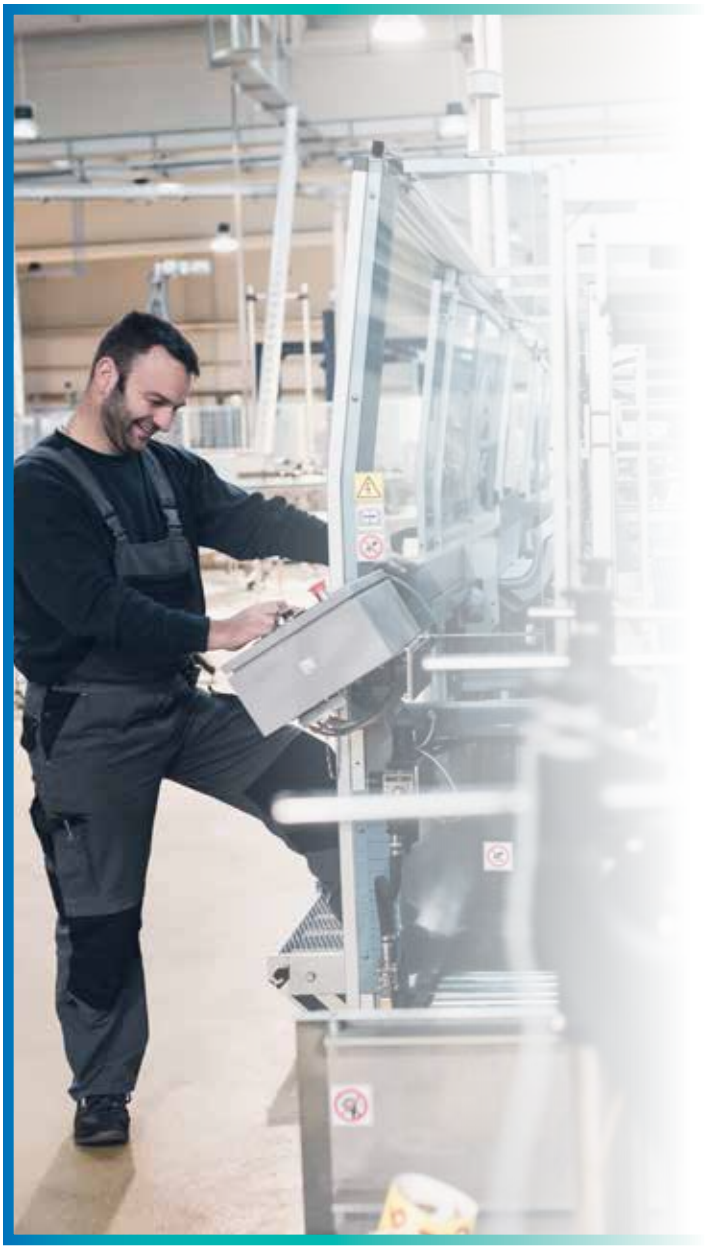
The level at which performance goals will be set depends on the nature of the organization and how it uses energy. Common organizational levels for setting goals include:

- **Organization-wide** — Setting goals at this level provides a big picture of how the entire organization wants to improve. Organization-wide goals provide a framework for communicating the success of energy management to both internal and external audiences.
- **Facility** — At this level, goals may vary to take into account the performance of specific facilities based on benchmarking results or an energy audit. Facility-level goals are designed to help the broader organization meet its goals.
- **Process or equipment** — Some organizations may find it useful to establish goals for specific process lines and equipment when energy use is concentrated in specific areas.

### Target Dates

Establishing appropriate and realistic target dates for goals ensures that they are meaningful and promote change. A combination of short- and long-term goals can be effective.

- **Short-term goals** — Annual goals provide the necessary markers for tracking and reporting progress on a regular and ongoing basis.
- **Long-term goals** — Long-term goals are usually organization-specific and may be shaped by
  - internal rates of return
  - internal planning horizons and guidelines
  - organizational strategic plans
  - commitments to voluntary environmental initiatives



## 3.2 ESTIMATE THE POTENTIAL FOR IMPROVEMENT

To set goals, it is important to have an informed idea of what level of performance is achievable and the amount of resources needed.

There are a variety of ways to determine potential. The method you choose will depend on several factors, such as available resources, time, the nature of energy use at your facilities, and how the energy program is organized.

Methods used by leading energy programs include:

- **Reviewing performance data** — Assessing performance and setting baselines should help to identify differences in energy use between similar facilities, giving a limited, point-in-time view of your potential improvement. Performance data spanning a longer period will be more useful for understanding improvement potential.
- **Benchmarking** — Benchmarking provides a baseline for evaluating opportunity when enough data is available to show trends in energy use. Consider using an ENERGY STAR EPI to rate the current energy performance of your facility against similar facilities.
- **Evaluating past projects and best practices** — Evaluate past projects and best practices at better-performing facilities to determine the feasibility of transferring these practices to other parts of the organization.
- **Reviewing technical assessments and audits** — Identify opportunities to reduce energy use identified during technical assessments and audits of poorer-performing facilities to serve as a strong basis for quantifying the potential for improvement.
- **Comparing goals of similar organizations** — Reviewing performance goals of other organizations can help to guide and inform you of the potential for your own organization.
- **Linking to organization-wide strategic goals** — Strategic as well as operational goals, such as cost reductions, can also help inform the goal setting process.

## 3.3 ESTABLISH GOALS

Once the potential for improvement has been estimated, goals can be established at the appropriate organizational levels. Energy performance goals should be formally established and recognized by senior management as a mission for the whole organization.

Estimating potential for improvement should provide you with a starting point for what is possible. However, some organizations set their final energy performance goals based on organizational factors other than what is technically feasible. Such factors will affect how energy performance goals are expressed.

Common ways for expressing goals include:

- **Defined reduction** — Goals are presented in terms of a specific quantity or percentage decrease in energy use, such as a 10% reduction or a decrease of 300 GJ.
- **Best-in-class** — This goal aims for a certain level of performance compared to an established benchmark.
- **Efficiency improvement** — Goals are expressed as a function of reducing the energy intensity of a specific performance indicator, such as 2 kJ per unit of product.
- **Environmental improvement** — This goal translates energy savings into pollution prevention or reduction goals.

Additionally, some organizations may find it useful to establish:

- **Threshold goals** — the minimum acceptable level of performance
- **Stretch goals** — levels beyond the minimum or targets that are used to create an incentive for greater achievement

# STEP 4. CREATE AN ACTION PLAN

**With goals in place, your organization is now poised to develop a road map to improve energy performance.**

Successful organizations use a detailed action plan to ensure a systematic process to implement energy performance measures. Unlike the energy policy, the action plan is regularly updated, most often on an annual basis, to reflect recent achievements, changes in performance and shifting priorities.

While the scope and scale of the action plan is often dependent on the organization, the following steps outline a basic starting point for creating a plan:

- **Define Technical Steps and Targets**
- **Determine Roles and Resources**

Get buy in from management and all organizational areas affected by the action plan before finalizing it. Work with the Energy Team to communicate the action plan to all areas of the organization.

## SUGGESTIONS

Creating an inclusive strategy that establishes roles and actions throughout the organization can help to integrate good energy management practices. When developing an action plan, consider:

- Brainstorming with various departments to identify ways they can contribute
- Holding a competition to seek ideas for energy efficiency from across the organization
- Gathering recommendations from the Energy Team and other key personnel

## 4.1 DEFINE TECHNICAL STEPS AND TARGETS

### Define Technical Steps

- **Evaluate technical assessments and audit results** — Identify gaps between current performance and goals by reviewing the results of the technical assessments and audits or progress evaluations.
- **Determine technical steps** — Identify the steps necessary for upgrading and moving facilities from current performance to the desired level of performance as defined by the goals.

### Define Targets

- **Create performance targets** — for each facility, department and operation of the organization to track progress toward achieving goals
- **Set timelines** — for actions, including regular meetings among key personnel to evaluate progress, completion dates, milestones and expected outcomes
- **Establish a tracking system** — for tracking and monitoring the progress of action items, which should include the measurement of energy use and project/program activities

## 4.2 DETERMINE ROLES AND RESOURCES

### Identify internal roles

Determine who should be involved and what their responsibilities will be. Depending on your organization and action plan, this might include departments such as:

- Facility and operations management
- Financial management — capital investments and budget planning
- Human resources — staffing, training and performance standards
- Maintenance
- Supply management — procurement procedures, energy purchasing, and equipment and materials
- Building and facility design
- Engineering
- New product/process development teams
- Communications and marketing
- Environmental, health, and safety

### Identify external roles

Determine the degree to which consultants, service providers, vendors and other product providers will be used. Some organizations may choose to outsource entire aspects of their action plan while others may want to contract only with specific vendors for limited projects.

### Establish performance metrics for contractors

If contractors will be used, determine what standards will be used to evaluate bids and incorporate these metrics into agreements with contractors.

### Define resources needs

For each project or program in the action plan, estimate the cost of each item in terms of both human resources and capital/expense outlay.

### Secure resources

Develop the business case for justifying and gaining funding approval for action plan projects and resource needs.

### SUGGESTION

Using outside help to implement part or all of an action plan does not mean outsourcing the responsibility for aspects of an energy management strategy. The other steps in the energy management strategy still need to be managed internally to ensure success and realize sustained energy performance.

# STEP 5. IMPLEMENT THE ACTION PLAN

**People can make or break an energy program. Gaining the support and cooperation of key people at different levels within the organization is an important factor for successful implementation of an action plan in many organizations. In addition, reaching your goals frequently depends on the awareness, commitment and capability of the people who will implement the projects.**

To implement your action plan, consider taking the following steps:

- **Create a Communication Plan** — Develop targeted information for key audiences about your energy management program.
- **Raise Awareness** — Build support at all levels of your organization for energy management initiatives and goals.
- **Build Capacity** — Expand the capacity of your staff by providing training and access to information and by sharing successful practices, procedures, technologies and lessons learned.
- **Motivate** — Create incentives that encourage staff to improve energy performance to achieve goals.
- **Track and Monitor** — Use the tracking system developed as part of the action plan to track and monitor progress regularly.

## 5.1 CREATE A COMMUNICATION PLAN

Good communication does not just happen. It requires careful planning and implementation.

To communicate strategically, you will need to identify key audiences, determine the information that they need and adapt your messages appropriately for each one.

## 5.2 RAISE AWARENESS

Everyone has a role in energy management. Effective programs make employees, managers and other key stakeholders aware of energy performance goals and initiatives, as well as their responsibility in carrying out the program.

Communication strategies and materials for raising awareness of energy use, goals and impacts should be tailored to the needs of the intended audience. To raise awareness, consider doing the following actions:

- Increase general energy awareness
- Improve facility energy awareness
- Gain management support

## Increase general energy awareness

Most people are unaware of how their everyday actions and activities at home and work affect energy use and impact the environment. Increasing overall awareness can be an effective way to gain greater support for energy initiatives.

Increasing general awareness of energy use can be accomplished through:

- **New employee orientation programs** — Provide basic information on organizational and individual energy use to new employees.
- **Poster campaigns** — Develop attractive and informative posters for break rooms, bulletin boards, etc., that discuss energy use.
- **Earth Day events** — Use Earth Day (April 22) as an appropriate context for increasing awareness of the environmental impacts of energy use and ways to reduce these impacts through everyday actions at work and home.
- **Intranet and Internet sites** — Publish information on energy use, environmental impacts and energy-saving options geared toward a general audience on your organization's website or intranet site.
- **Fairs and summits** — Conduct an energy fair or summit oriented toward employees with information on energy-saving activities and products.

## Improve facility energy awareness

Individuals working in or even managing a facility may have little understanding of the energy performance of the facility or its impact on the organization and environment. Targeted efforts to increase awareness of facility energy use can help build support for energy management programs.

Like general awareness efforts, facility-oriented energy awareness can take many forms. In developing energy awareness programs for a facility, consider using the following types of information:

- **Summary statistics** — Use general energy facts and figures about a facility, such as overall energy costs, costs to operate equipment and environmental information related to energy use.
- **Sources of energy** — Provide information on the sources of energy used at your facility and the pollution that results from its use to increase awareness of the environmental aspects of energy use.
- **Energy use of equipment** — Provide information on the energy performance of equipment or processes that employees regularly use as part of their jobs. For example, most employees probably do not know how much energy their computer uses during the day and how much that costs the organization when it is on but not in use.
- **Scorecards** — Develop charts and graphics that illustrate energy performance across your organization or compare it to a national standard, such as the ENERGY STAR industrial facility rating system available through industry-specific EPIs.

## Gain management support

Frequently, managers who are not directly involved in energy management are not aware of how energy use affects the organization. Increasing the awareness of managers can help to build support for energy management initiatives.

Keys steps include:

- **Identify key audiences,** such as:
  - ✓ Executive management
  - ✓ Facilities managers
  - ✓ Operations managers
  - ✓ Purchasing officers and procurement staff
  - ✓ Communications and marketing staff
- **Tailor the information** to address the chief concerns of each audience, such as cost of energy per pound of product or cost per square foot of building space.
- **Determine the most effective way to communicate** with each audience. This could range from a presentation to a memo to an informal meeting.
- **Maintain regular contact** to keep managers up-to-date on progress or changes in performance.

## 5.3 BUILD CAPACITY

Investing in training and systems to share successful practices helps ensure the success of the action plan by building the overall organizational capacity. Many organizations have found that informed employees are more likely to contribute ideas, operate equipment properly and follow procedures, helping to guarantee that capital investments in energy improvements will realize their potential.

### Training

Using training to help staff understand the importance of energy performance provides the information necessary to make informed decisions. Training also provides an excellent opportunity for gathering employee feedback and evaluations.

The type and nature of training will vary by organization and your specific action plan. Common training programs include:

- **Operational and procedural training** — provides instruction on new operating methods or procedures to reduce energy use and is typically targeted toward specific audiences, such as facility managers and operations and maintenance staff
- **Administrative training** — includes reporting, monitoring, data collection and other administrative efforts that support energy management
- **Specialized training** — gives specific instructions on using and maintaining equipment or tools to ensure more efficient operation

### Knowledge and Management Information Systems

Computer-based information systems provide a robust means for sharing information on best practices, technologies and operational guidance. Although these systems can range from complex databases to a simple intranet site, they are a centralized and accessible place to store and transfer energy management information within an organization.

Knowledge and management information systems are usually organization-specific. They typically include information on:

- **Best practices** — catalogs successful and effective practices for energy management within an organization
- **Technologies** — contains information on known or recommended technologies, such as equipment, lighting and HVAC
- **Procedures** — houses up-to-date information on specific procedures and operating practices

**SUGGESTION**

Support certification of energy management credentials and other continuing education opportunities.

## 5.4 MOTIVATE

Offering incentives for energy management is one way many organizations create interest in energy initiatives and foster a sense of ownership among employees.

Examples of how organizations motivate staff and employees include:

- **Internal competition** — Use tracking sheets, scorecards, etc., to compare performance of similar facilities and foster a sense of competition.
- **Recognition** — Highlight and reward accomplishments of individuals, departments and facilities.
- **Financial bonus and prizes** — Offer cash bonuses and other rewards for meeting goals.
- **Environmental responsibility** — Use environmental messages to promote a sense of environmental and social responsibility.
- **Financial responsibility** — Use financial messages to promote a sense of fiduciary responsibility.
- **Performance standards** — Tie employee performance standards to energy goals.

## 5.5 TRACK AND MONITOR

A tracking system is used to monitor an energy program's activities. The system should be centralized and available for all to use in gauging progress toward established targets, milestones and deadlines.

Maintaining a tracking system enables you to assess necessary steps and corrective actions and identify successes. Periodic review of the activities outlined in the action plan is critical to meet energy performance goals.

The following steps focus on using your tracking system to advance the goals of the energy management program:

- **Perform regular updates** — A system is only effective if the information it contains is current and comprehensive. Data needs to be collected and incorporated into the system at intervals effective to the program. Many organizations perform weekly and monthly updates to their tracking systems.
- **Conduct periodic reviews** — Periodic reviews of your progress in meeting interim goals and milestones should be conducted with the management team, the Energy Team and selected groups of employees. The frequency of these reviews will vary depending upon the audience. Such reviews should focus on progress made, problems encountered and potential rewards.
- **Identify necessary corrective actions** — Using a tracking system is a good way to determine whether a program is performing well. It will help identify when a specific activity is not meeting its expected performance and is in need of review.

# STEP 6. EVALUATE PROGRESS

**Evaluating progress includes formal review of both energy use data and the activities carried out as part of the action plan as compared to your performance goals. Evaluation results and information gathered during the formal review process are used by many organizations to create new action plans, identify best practices and set new performance goals.**

Key steps involved include:

- **Measure Results** — Compare current performance to established goals.
- **Review the Action Plan** — Understand what worked well and what did not to identify best practices.

Regular evaluation of energy performance and the effectiveness of energy management initiatives also allows energy managers to:

- ✓ Measure the effectiveness of projects and programs implemented
- ✓ Make informed decisions about future energy projects
- ✓ Reward individuals and teams for accomplishments
- ✓ Document additional savings opportunities as well as non-quantifiable benefits that can be leveraged for future initiatives


## 6.1 MEASURE RESULTS

Gather energy use data and compare results to goals to determine accomplishments.

Key steps in measuring results include:

### Gather tracking data

- Review energy use and cost data (capital and operating expenses).
- Organize reports and data from tracking and monitoring efforts.
- Analyze energy efficiency achievements based on your established performance metrics. (See sections Assess Performance and Set Goals.)

### Benchmark

- Compare energy performance to baselines.
- Compare performance against established goals for:
  - environmental performance
  - financial savings
- Compare energy performance to peers and competitors to establish a relative understanding of where your performance ranks.
- Use the ENERGY STAR EPI to rate the current energy performance of your facility against similar facilities.

## 6.2 REVIEW THE ACTION PLAN

After reviewing the performance data, the next step is to understand the factors affecting the results as well as the additional benefits of the improved energy performance.

This review should look at the effectiveness of your action plan. For successful activities and projects, document best practices to share throughout the organization. When goals are not met, many organizations determine the cause and decide what corrective or preventive actions should be taken.

Key steps in reviewing the action plan include:

- **Get feedback** — Solicit feedback and ideas on the plan from the Energy Team, implementation staff and other departments.
- **Gauge awareness** — Assess changes in employee and organizational awareness of energy issues.
- **Identify critical factors** — Identify factors that contributed to surpassing or missing targets.
- **Quantify side benefits** — Identify and quantify, if possible, side benefits arising from energy management activities such as employee comfort, productivity improvement, impact on sales, reduced operation and maintenance expenses and better public/community relations.

Reviewing the action plan involves committing resources, but also has many advantages:

- ✓ Creates insight for new actions (technologies/ practices/programs)
- ✓ Avoids repeating failures by identifying activities that were not as effective as expected
- ✓ Assesses the usefulness of the tracking system and other administrative tools to ensure better management and evaluation
- ✓ Provides staff the opportunity to contribute to and understand the process of energy management
- ✓ Provides specific success stories and financial results to communicate to stakeholders inside and outside the organization

# STEP 7. RECOGNIZE ACHIEVEMENTS

**Providing and seeking recognition for energy management achievements is a proven step for sustaining momentum for and support of your program.**

Providing recognition to those who helped the organization achieve these results motivates staff and employees and brings positive exposure to the energy management program.

Receiving recognition from outside sources validates the importance of the energy management program to both internal and external stakeholders and provides positive exposure for the organization as a whole.

Key steps in providing and gaining recognition include:

- **Providing Internal Recognition** — to individuals, teams and facilities within your organization
- **Receiving External Recognition** — from government agencies, the media and other third-party organizations that reward achievement

## 7.1 PROVIDING INTERNAL RECOGNITION

Recognizing the accomplishments of individuals and teams is key to sustaining support and momentum for energy management initiatives. Rewarding particular efforts sets the example for what constitutes success and helps motivate employees through increased job satisfaction. Recognition can strengthen the morale of everyone involved in energy management.

### Determine recognition levels

The decision about who should receive recognition in your organization will likely be shaped by the purpose for providing recognition and your organizational culture. Common recognition levels include:

- **Individual** — Acknowledge the contributions and accomplishments of specific people.
- **Teams** — Recognize the achievements of teams, departments and other distinct groups within the organization.
- **Facility** — Reward the accomplishments or performance of an entire facility.

### Establish recognition criteria

Create criteria for recognition and communicate these criteria and any process eligibility requirements. Recognition criteria might include thresholds of achievement, such as:

- Offered the best energy savings ideas
- Achieved the greatest energy use reduction
- Increased savings by X amount

### Determine recognition type

There are a variety of ways to provide recognition and rewards. Depending on the purpose of the recognition program and your organizational culture, forms of recognition can range from formal acknowledgements and certificates to salary increases and cash bonuses to simple forms of appreciation, such as coffee mugs or energy program shirts.

#### SUGGESTIONS

- Ask senior management to provide the recognition.
- Use a formal means for providing recognition, such as an award ceremony.
- Use progress evaluations to inform the recognition process.

## 7.2 RECEIVING EXTERNAL RECOGNITION

Good work deserves to be acknowledged. Recognition from a third party can provide validation for an organization's energy management program. Not only does it provide satisfaction to those involved in earning the recognition, but it can also enhance an organization's public image. A solid reputation contributes to your competitive advantage by making your organization more attractive to customers, students, current and potential employees, lenders, business partners and other stakeholders.

Before seeking recognition from external groups, you may want to determine the most appropriate avenues to pursue. Ways to gain recognition for your organization's energy management efforts may include:

- **Partnership programs** — Participate in established groups, such as government agencies, trade associations or regional energy conservation groups to demonstrate commitment to achieve results.
- **Performance standards** — Meet widely recognized standards of performance, such as those established by ENERGY STAR, that reflect superior performance.
- **Achievement awards** — Surpass a variety of predetermined criteria, often both qualitative and quantitative, that identify superior energy management programs or achieve a specific objective.

**Appendix 4 discusses ENERGY STAR recognition.**

NRCan recognizes organizations in specific industrial sectors that have achieved high levels of energy efficiency with the ENERGY STAR for Industry Certification program. The ENERGY STAR Challenge for Industry offers recognition for achieving reductions in energy intensity for any facility that establishes a baseline of energy use.

### Public reporting

Reporting progress publicly and to targeted stakeholders that monitor and critique energy performance can help you gain their support or goodwill.

There is a variety of government programs, industry associations and other organizations that recognize environmental achievements through energy management, including:

- Professional associations
- Trade associations
- Federal and provincial/territorial government agencies
- Non-profit organizations
- Regional energy programs
- Other federal agencies
- Socially responsible investment funds

# APPENDIX 1. SAMPLE ENERGY POLICIES

## ABC INC. CORPORATE ENERGY POLICY

### Objective

ABC Inc. is committed to using and purchasing energy in the most efficient, cost-effective and environmentally responsible manner possible. Toward this end, ABC shall:

- Improve energy efficiency continuously by establishing and implementing effective energy management programs worldwide that support all operations and customer satisfaction while providing a safe and comfortable work environment

### Applicability

This policy shall apply to all ABC Inc. facilities, business units and employees.

### Approval

M. G. Watt, CEO and Chairman of the Board

## FOOD LION'S ENERGY POLICY

### Mission

Food Lion has a reputation for providing convenient grocery store locations with products at extra low prices. As part of our commitment to excellence, Food Lion will identify and implement improved financial and operational efficiencies in how we purchase and consume energy, striving to become a world-class leader in energy management within the supermarket industry.

### Commitment to Energy Management

Energy management will play an increasingly important role in achieving our strategic objectives. Specifically, Food Lion's Energy Management Strategy is to:

- Support the organization's strategic plan to sharpen our pricing and promotion position, improve convenience of the shopping experience, enhance our fresh product perception and achieve executional excellence.
- Support our commitment to our employees, the environment and the community in which we conduct business by improving the environment through active efforts to reduce energy consumption and pollution.
- Become one of the most efficient grocery stores in the world on a BTU per square foot basis.

# 3M ENERGY POLICY

## Applicability

This policy applies to all 3M operations.

## Introduction

The objectives of this policy are to improve energy consumption efficiency, reduce cost, optimize capital investment for energy efficiency, reduce environmental and greenhouse gas emissions, and conserve natural resources.

## Policy Statement

3M will promote the efficient use of energy to produce and deliver products and services to its customers.

## Policy Guidelines

- Improve energy efficiency continuously by establishing and implementing effective energy management programs worldwide that support manufacturing capabilities while providing a safe and comfortable work environment.
- Emphasize energy efficiency as a factor in product development and in process and facility design.
- Secure adequate and reliable energy supplies at the most advantageous rates and implement contingency plans to protect operations from energy supply interruptions.
- Encourage continuous energy conservation by employees in their work and personal activities.
- Drive further development of internal and external energy-efficient and innovative technologies.
- Cooperate with governmental agencies and utility companies on energy programs.
- Support national energy efficiency policies.

## Policy Approval

Corporate EHS Committee, revised Nov. 2004

# APPENDIX 2. ENERGY STAR ENERGY TRACKING AND BENCHMARKING TOOLS

## PORTFOLIO MANAGER®

If you are participating in the ENERGY STAR Challenge for Industry, you may want to use Portfolio Manager. It is a web-based energy tracking and benchmarking tool primarily designed for measuring energy intensity using building area. Portfolio Manager helps you track and assess energy consumption within individual facilities.

After creating an account in Portfolio Manager, enter energy consumption and cost data to benchmark facility energy performance, assess energy management goals over time, and identify strategic opportunities for savings and recognition opportunities. For benchmarking performance against an internal baseline, Portfolio Manager allows you to view percentage improvement in weather-normalized source energy. It provides visualisation and analysis tools to help your energy management efforts pay you back in a short time.

For more information, go to http://www.nrcan.gc.ca/energy/efficiency/buildings/energy-benchmarking/3693.

## INDUSTRIAL FACILITY EPIs

ENERGY STAR Facility EPIs are sector-specific energy performance benchmarking tools that provide an ENERGY STAR score. Users enter annual energy and facility operating data to receive an energy efficiency score for a facility on a scale of 1 to 100, offered in a spreadsheet format. A rating of 50 indicates that the facility performs better than 50% of all similar facilities across Canada and the United States. Facilities that rate a 75 or higher many be eligible for ENERGY STAR certification.

For more information, go to www.energystar.gc.ca.

# APPENDIX 3. NORMALIZING DATA

The energy use of facilities varies greatly, partly because of factors beyond the energy efficiency of the equipment and operations. These factors may include weather or certain operating characteristics. Normalizing is the process of removing the impact of these factors on energy use to fairly compare the energy performance of facilities and operations. NRCan's EPIs benchmark energy performance and normalize variables for industrial facilities.

For other facilities that want to normalize, here are a few things to consider.

## DETERMINE NORMALIZATION FACTORS

Determine key factors that need to be addressed to effectively compare facilities. Relevant factors are frequently organization-specific.

For commercial and institutional buildings, common normalization factors include:

- Climate zone
- Facility size
- Fuel choice
- Price/cost of energy
- Weather history
- Hours of operation
- Occupancy levels
- Special features

For industrial facilities, common normalization factors include:

- Production inputs or raw materials
- Product types or mix
- Other production outputs
- Operating hours
- Line speed
- Facility size or design
- Maximum utilization rates
- Weather (if HVAC systems are major loads)

## FIND A CORRECTIVE VARIABLE

Determine a suitable metric that can be used to correct for key normalization factors. Corrective variables, depending on the building type, may include floor space, amount of product, operating hours or number of beds.

### Weigh factors

Create a multiplier that reflects the importance of each variable in relation to its impact on energy use.

# APPENDIX 4. RECOGNITION OPPORTUNITIES FROM ENERGY STAR

## ENERGY STAR FOR INDUSTRY CERTIFICATION

ENERGY STAR certification distinguishes the best performing industrial facilities within their sector with the highly recognized ENERGY STAR. Certification is only available to industrial facilities for which NRCan has created an ENERGY STAR EPI. To earn certification, a facility must achieve an Energy Performance Score of 75 or higher on an ENERGY STAR scale offered through an EPI.

## ENERGY STAR CHALLENGE FOR INDUSTRY

Industrial facilities that take the ENERGY STAR Challenge pledge to reduce their energy intensity by 10% within 5 years. Facilities participate by registering their baselines with ENERGY STAR and verifying their savings when they achieve the 10% reduction.