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Energy Management Training Primer





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Aussi disponible en français sous le titre : Guide sur la formation en gestion de l'énergie

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Cat. No. M144-262/2015E-PDF (Online)
ISBN 978-0-660-02554-4

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Minister of Natural Resources, 2016

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1 Introduction

In an increasingly global market, investment decisions must be prioritized strategically to ensure your organization can stay competitive. Energy efficiency can position businesses more competitively in global markets and can have a significant impact on your bottom line by lowering your energy bills, reducing equipment maintenance and replacement costs, and increasing the asset value of your buildings. Plus, the money you save can be reinvested, helping you grow your business, create new jobs and strengthen Canada's economy.

Taking a big-picture view, energy efficiency can be thought of as the “first fuel” – in addition to coal, petroleum, nuclear and renewable energy sources – simply because energy saved is as valuable as energy made. As well, organizations such as the International Energy Agency have repeatedly emphasized that energy efficiency is the most important measure in reducing greenhouse gas emissions – and that the buildings sector has the most untapped potential in this regard.¹

One of the best ways to improve your energy efficiency is through energy management training – that is, by making sure your staff are equipped to take full advantage of the energy-saving opportunities available to your organization. If your energy efficiency efforts have focused mainly on equipment and building technologies, it is time to take the next step and address the human side of the equation by setting up an energy management training program.

The Buildings Division of Natural Resources Canada has produced this guide to help Canadian businesses integrate energy management best practices, particularly energy management training, into their daily operations. Specifically, this guide will help get you off to a good start by:

- Explaining the benefits of energy management training.
- Showing you how to overcome the most common perceived barriers to training.
- Showing you how to present a solid business case that will help you convince decision makers in your organization of the importance and the feasibility of energy management training.
- Offering step-by-step guidance on developing a successful training program.
- Introducing you to Dollars to \$ense, Natural Resources Canada's series of energy management workshops.
- Arming you with key messages to respond to the most common concerns about energy management training.

After reading this guide, you will understand why energy management training is important, be prepared to pitch energy management training to senior decision makers and know how to implement a successful training program in your organization.

About the Buildings Division

Working under the mandate of Natural Resources Canada's Office of Energy Efficiency, the Buildings Division offers energy management leadership, best practices and capacity-building resources for Canada's commercial and institutional buildings. We work with stakeholders across the country to offer tools, resources and information to help further Canada's sustainability mandate.

Our mission

To improve the energy performance of commercial and institutional buildings in Canada by providing tools, information, policies and programs that build awareness and lead to action.

Our vision

To help Canada's buildings sector become a world leader in energy performance.

¹ International Energy Agency. (2013). *Redrawing the Energy-climate Map*. Retrieved from www.worldenergyoutlook.org/media/weowebsite/2013/energyclimatemap/RedrawingEnergyClimateMap.pdf

2 What is energy management training?

Energy management training is the process of improving the performance and increasing the awareness of the individuals responsible for energy use in buildings. It is an integral component of any effective energy management strategy – and is a key energy management best practice recommended by Natural Resources Canada.

2.1 Energy management best practices

Researchers and organizations around the world have described the practice of energy management in a number of ways. According to Kennedy and colleagues, it is “the judicious and effective use of energy to maximize profits (minimize costs) and enhance competitive positions.”² ASHRAE defines it as “an orderly process in which managers use resources at their disposal to accomplish clear, energy-saving objectives” and further points out that “sustained energy management is the quickest, cheapest, cleanest way to expand our world’s energy supplies and reduce greenhouse gas emissions.”³

Put simply, energy management is using the least amount of energy possible to provide goods and services without affecting production, quality or comfort.

Looking at the buildings sector specifically, typical energy management objectives include:

- Minimizing energy costs while maximizing the efficiency of building systems.
- Achieving a more comfortable working environment for building occupants.
- Minimizing the environmental impact of a building’s energy consumption.

Energy management can be applied to any kind of building where energy is used, including new and existing office buildings, community centres, factories, and homes. It encompasses all the policies and plans that govern how an organization uses energy, the systems and technologies that use energy in buildings, and the ways building occupants and operators use these systems. In commercial or institutional settings, everyone participates in energy management – from the building’s owners, managers and operators all the way down to its occupants.

Energy management best practices can provide the framework needed to turn the concept of energy management into concrete actions that produce real results.

Energy management best practices include:

- **Commitment:** An official energy policy endorsed by senior management sends a clear message to the whole organization about the importance of energy management.
- **Planning:** Having clear goals – and outlining the steps required to achieve them – will help make them a reality.
- **Organization:** Energy management should be made an integral part of your organization’s operations.

What is an energy management best practice?

Energy management best practices refer to proven, non-technical techniques or methodologies related to “softer” issues that deliver energy savings. These issues include behavioural change arising from increased awareness, training, accountability and information systems.

Put simply, energy management is using the least amount of energy possible to provide goods and services without affecting production, quality or comfort.

² Kennedy, W., Turner, W., & Capehart, B. (2003). *Guide to energy management* (4th ed.). Lilburn, GA: Fairmont Press.

³ ASHRAE. Course description: Professional Development Seminar: Effective Energy Management. Retrieved from www.ashrae.org/education--certification/instructor-led-courses/effective-energy-management-in-new-existing-buildings

- **Financing:** Including energy management in your organization's budget, schedules and other resource-allocation mechanisms ensures it will remain a priority.
- **Tracking:** You cannot manage your energy use if you do not track it by using energy benchmarking (see page 12 for more information on energy benchmarking).
- **Projects:** Conduct systematic assessments of building operations and maintenance, occupant comfort and behaviour, equipment scheduling, and other areas to watch for opportunities for improvement.
- **Communication:** Make sure all building occupants and staff are aware of your goals, understand how they can contribute and are recognized for their contributions.
- **Training:** Arm your staff with the knowledge they need to take advantage of the best technologies and the latest data.

For more information, visit our website at www.nrcan.gc.ca/energy/efficiency/eefb/buildings/13556 and read our [Energy Management Best Practices Guide for Commercial and Institutional Buildings](#).

2.2 Energy management training

The ultimate goal of any training program is to improve the performance of both the individuals (by increasing their professional skills and preparing them to respond to new challenges as they emerge) and the organization as a whole.

Energy management training is integral to any effective energy management strategy. It seeks to improve the performance of the individuals responsible for energy use in buildings while also raising their awareness of key energy-related issues.

Proper training is a critical energy management best practice that ensures any energy savings achieved are sustained and the benefits of the organization's energy management plan are maximized.

In general, energy management training involves three components:

- technical training (i.e. building systems)
- organizational training (i.e. management systems)
- behavioural training (i.e. people's actions)

Two groups can benefit from this training. The people most likely to participate in the training are those responsible for managing energy in an organization. These are facility and property managers, building operators and maintenance technicians (including electricians, steam engineers, and heating, ventilating and air conditioning [HVAC] and control technicians). But other people, such as contractors, service providers and energy consultants, can also benefit. General employees and managers may also take part in training, although this is less common.

Energy management training can be carried out in many venues and formats, including at conferences and industry events, in classroom settings as part of a college/university diploma or degree, or through continuing education courses. Workshops can be held in-house (during lunch-hour information sessions, for example), online, via webinars, or at a centralized location hosted by utility providers, government departments or other organizations with an interest in promoting energy efficiency. Equipment manufacturers and service providers will often provide a form of energy management training to operations staff when installing new equipment in a building. Energy management training can also happen less formally through staff meetings, peer-to-peer training or publications.

Proper training is a critical energy management best practice that ensures any energy savings achieved are sustained and the benefits of the organization's energy management plan are maximized.



3 Benefits of energy management training

3.1 Why training matters to the Canadian buildings sector

The Canadian commercial and institutional buildings sector comprises about 766 million square metres of floor space⁴ – and accounts for about 12% of Canada’s secondary energy consumption (i.e. energy delivered to end users) and 11% of the country’s greenhouse gas emissions.⁵ As the sector continues to grow, the number of existing buildings being retrofitted will also increase; in 2012 alone, \$17 billion were spent on repairs and construction.⁶ Natural Resources Canada has found that improving operational practices and implementing energy-efficient retrofits can reduce energy consumption in commercial and institutional buildings by up to 20%.⁷

Natural Resources Canada has found that improving operational practices and implementing energy-efficient retrofits can reduce energy consumption in commercial and institutional buildings by up to 20%.

Specifically, energy management training plays a key role in achieving those results by:

- Enhancing skills and raising awareness.
- Facilitating energy and cost savings.
- Promoting employee engagement and a culture of energy efficiency.

3.2 Enhancing skills and raising awareness

Even when an organization invests in energy-efficient building systems, cost savings are not guaranteed. Energy-saving technology does not run itself. To effect energy savings over time, a trained and skilled workforce is required to ensure that the technology operates as intended.⁸

Energy management training provides participants with the broad base of knowledge and skills they need to effectively manage and monitor the organization’s energy use, identify opportunities to implement additional energy-saving actions, and select and operate appropriate new energy-efficient equipment and technologies.

Operations staff need to know more than just how to repair broken equipment or react to complaints from building occupants. Energy management training provides participants with the broad base of knowledge and skills they need to effectively manage and monitor the organization’s energy use, identify opportunities to implement additional energy-saving actions, and select and operate appropriate new energy-efficient equipment and technologies.

Because energy management training helps raise the profile of energy management programs, participants come out with a much better understanding of the importance of such programs and the business case for good energy management. Therefore, training helps get staff on board with the program and helps managers implement the organization’s energy management processes.

⁴ Natural Resources Canada. (2012). *Survey of commercial and institutional energy use: Buildings 2009*. Retrieved from oee.nrcan.gc.ca/publications/statistics/scieu09/scieu_e.pdf.

⁵ Natural Resources Canada. (2013). *Energy efficiency trends in Canada: 1990 to 2010*. Retrieved from publications.gc.ca/collections/collection_2014/rncan-nrcan/M141-1-2010-eng.pdf.

⁶ Statistics Canada. (2014). CANSIM (database). Table 029-0005: Capital and repair expenditures by sector and province.

⁷ Gilson, J. (2010). BOMA introduces e-Energy training course. Retrieved from energy-manager.ca/news/boma-introduces-e-energy-training-course-826.

⁸ Price, S. (2006). “Efficiency through education.” *HPAC Engineering*, October 2006, 15–17.

3.3 Facilitating energy and cost savings

Training can help organizations manage their bottom line and remain competitive in the face of rising energy costs. Better building technologies, better heating and cooling controls, and better and more efficient lighting all help reduce an organization's energy consumption. When staff have the know-how to effectively deliver those energy savings, organizations benefit from even greater utility and maintenance cost reductions.

Employee salaries are likely one of your organization's greatest expenses – but if you view them as an investment, the benefits of energy management training are clear. Greater access to energy management training programs increases the staff's ability to save the organization money, which, in turn, increases the return on investment of salaries. As a result, with properly educated and skilled professionals, an organization is better positioned to improve its bottom line.

Several studies have demonstrated the potential for energy savings through training:

- The *Impact Attribution for Dollars to \$ense Workshops* study completed by Habart and Associates in 2003 for Natural Resources Canada found that the "total (achieved) energy savings for the commercial, institutional and government sector (from the program) is estimated at 666 terajoules per year."⁹
- Three studies on the U.S. Building Operator Certification Program indicated that program participants each saved at least 33,000 kilowatt hours (kWh), or approximately 120 gigajoules (GJ), per year, with one study indicating individual savings of more than 130,000 kWh (470 GJ) per year. Most participants and supervisors reported increased occupant comfort in their buildings as well as energy and cost savings. A large majority (69%) of participants in one study also reported they had taken energy-saving actions based directly on what they learned in training.¹⁰

3.4 Promoting employee engagement and a culture of energy efficiency

Energy management training does more than save organizations money and ensure that their facilities operate more efficiently. The benefits to your organization's culture, while less tangible than financial benefits, are no less valuable. These include:

- Making staff feel valued because you invested in their training.
- Creating a culture where staff can share ideas.
- Promoting good resource stewardship within the organization.
- Building the organization's relationship with the greater community by providing a concrete example of how the organization is working to reduce its environmental impact.
- Offering staff opportunities to network and share ideas with like-minded individuals.

⁹ Habart and Associates Consulting Ltd. (2003). *Impact Attribution for Dollars to \$ense Workshops*.

¹⁰ RLW Analytics. (2005). *Impact and process evaluation: Building Operator Training and Certification (BOC) Program*. Retrieved from www.theboc.info/pdf/Eval-BOC_NEEP_2005.pdf.

Opinion Dynamics Corporation. (2009). *Evaluation of Kansas City Power and Light's Building Operator Certification Program*. Retrieved from www.theboc.info/pdf/Eval-KCPL_BOC_Eval_Report_2010.pdf.

Navigant Consulting. (2011). *Evaluation of MN BOC training*. Retrieved from www.theboc.info/pdf/Eval-MEEA-MN-BOC-Training-Evaluation_%20FINAL.pdf.

Case study: Blue Cross Centre

The Blue Cross Centre in Fredericton, New Brunswick, used to average about \$70,000 in electricity costs each month. However, since the operations manager and maintenance supervisor started attending annual energy management training, the energy consumption has been reduced by 20%. The training led directly to the implementation of energy-saving scheduling changes and other easy-to-achieve opportunities, as well as a major HVAC retrofit that has accounted for more than half of the savings.

Find out more at nrcan.gc.ca/energy/efficiency/buildings/emt/cases/4185.

3.5 Other benefits

Energy management training also offers several additional benefits. For example, it is an opportunity for employees to participate in professional development activities, and it can even contribute to their professional certification requirements. And by reducing the amount of energy used, organizations see a reduction in the environmental impact of their operations, particularly in terms of greenhouse gas emissions. If an organization has committed to reducing its greenhouse gas emissions – either by law or voluntarily – energy management training can help to identify opportunities to use less energy, thereby reducing the cost of purchasing carbon offsets. Finally, an efficient, well-run building also improves the built environment and results in a more comfortable working environment for the building’s occupants.

4 Barriers to implementing energy management training

4.1 Six key barriers to investing in training

Despite the obvious benefits of energy management training, it can sometimes be difficult to get a training program off the ground. Six key barriers we have identified are:

- Securing funding for training.
- Getting buy-in from senior management and other key personnel.
- Monitoring and verifying training-related savings.
- Getting buy-in from staff.
- Finding the time required for staff to attend and organize training.
- Finding qualified trainers and courses.

4.1.1 Securing funding for training

Budget concerns are often cited as the primary barrier to energy management training, particularly because there are often competing values within an organization. A common misconception among senior managers is that energy management costs money rather than saves money. As a result, other issues are prioritized over energy management training.

The costs associated with having staff attend a workshop, particularly if those staff members need to be replaced while they are in training, adds to the misconception that energy management training is a costly investment. Small profit margins and high turnover rates act as disincentives for companies to invest in training, especially if there is uncertainty regarding certain staff members' long-term future with the organization.

Response

Savings that result from training can offset the investment several times over. If a participant learns about a new technology or is motivated to optimize building systems, the energy (and cost) savings can be significant. Successfully implemented energy management training can deliver energy savings between 4% and 20%. (For examples, see the case studies listed in Appendix A.)

In addition, external funding and subsidies may be available to help offset the initial costs. Look into Natural Resources Canada's Dollars to \$ense workshops (see Chapter 7 for more information), utility providers and other government bodies to see what options are available to you.

Case study: Ontario Power Authority

The Ontario Power Authority partnered with Natural Resources Canada to develop a series of customized Dollars to \$ense workshops to ensure its staff could meet the energy management planning requirements set out in Ontario's 2009 *Green Energy Act*. Over the first half of 2012, 27 jointly developed, delivered and funded workshops were presented. Their success led to an even greater commitment from both parties: by the end of 2015, nearly 150 more workshops had been given to 2,500 Ontario Power Authority employees across the province.

Savings that result from training can offset the investment several times over.

4.1.2 Getting buy-in from senior management and other key personnel

Energy management training requires buy-in from senior management and key personnel, but if they view training as a *cost* rather than an *investment*, it becomes much more difficult to secure funding or get approval for staff to take time off to attend training. In every organization, there are competing demands for money; without buy-in from the right people, it is easy for energy management to slip down the priority hierarchy.

The same buy-in is needed at all levels of the organization, including facility managers and managers of building occupants. If facility managers are not interested in the training, they will not support their staff attending the training sessions. If these individuals do not see the value in training or have other priorities, it becomes much more difficult to implement the training.

Response

There are several reasons to make energy management training a priority and a variety of ways to link it to existing corporate priorities to make it even more attractive. For example:

- With energy costs constantly on the rise, the energy savings that result from training play an ever greater role in managing an organization's bottom line.
- As governments move toward prioritizing environmental sustainability, investing early in energy management training can help future-proof an organization against reporting requirements, taxes related to energy consumption, and more stringent building and operating regulations.
- Investment in training creates a more knowledgeable, aware and skilled staff, which results in energy and cost savings for an organization.

4.1.3 Monitoring and verifying training-related savings

Part of the challenge of gaining support from all levels of management is that the measurement and verification of energy savings from training is difficult to assess. Compared to the installation of a new boiler or lighting system, it can be challenging to quantify the energy savings resulting from a day-long (or multi-day) training session. Furthermore, training can produce different outcomes, and there is no guarantee that the ideas and opportunities originating from training will actually be implemented once the training is complete.

Response

If you are not already benchmarking your energy use, this is the time to start. By having a clear picture of your energy use before training begins, you will be better able to assess the results of training. Follow-up mechanisms to capture and track opportunities implemented will also help to quantify your results.

See page 12 for an overview of energy benchmarking and why it is important. For more details on how to start benchmarking your organization's energy performance, visit our [energy benchmarking web pages](#) or read our *Improve Your Building's Energy Performance: Energy Benchmarking Primer*, www.nrcan.gc.ca/sites/www.nrcan.gc.ca/files/oeefiles/pdf/publications/commercial/BenchmarkPrimer_eng.pdf.

“Training is a win-win situation for employers and trainees. Once put into effect, practices taught in training programs ultimately save employers money in operating costs and enhance the skill levels of personnel.”

– Stan Price, Principal,
Putnam Price Group Inc.

Case study: Thompson Rivers University

The energy manager at Thompson Rivers University has implemented several energy-saving projects directly based on what he learned at several energy management workshops. In 2011, he arranged energy management training for all facilities staff, which led to improved communications and greater input from staff members on new ideas for saving energy. In all, his efforts have helped save the university \$200,000 per year in electricity and natural gas costs and have reduced the time spent on maintenance by 10 hours per week.

Find out more at nrcan.gc.ca/energy/efficiency/buildings/emt/cases/4191.

4.1.4 Getting buy-in from staff

Managers and leaders are not the only ones who need to support training. Staff may not see the value of energy management training and may resist making changes to their work routines. Some operators, particularly those who have been in the industry for a while, may feel that they do not need any training and that having to attend training means management does not respect their skills and expertise. Staff in more specialized industries may also be concerned that the training will be too general to apply to their work.

Response

Present the training as a professional development opportunity rather than as a criticism. Explain that it will make staff better at their jobs and more employable. You can also point out that training is meant to be a collaborative experience that offers the opportunity to share their knowledge and experience with others. Assure staff that the training will be tailored to their existing level of skills and knowledge, and invest in customized training for specialized industries to ensure the lessons will be relevant to their work.

4.1.5 Finding the time for staff to attend and organize training

Some organizations have found it difficult to get the right people to attend their training sessions. People in key positions are often busy, with their tasks so critical that they cannot be left unattended for the duration of the training. Energy management training also takes time to organize – something energy managers and facilities managers may not have because of their busy schedules.

Response

Operations staff play an essential role in achieving energy savings, so it is critical that arrangements be made for them to attend training. Point out that, unlike most other training, energy management training offers a quantifiable financial benefit because of the opportunities for savings it unlocks. Staff will return from training with knowledge that they can share with others to promote a culture of energy awareness that will increase the savings potential exponentially.

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4.1.6 Finding qualified trainers and courses

Some organizations may have difficulty finding qualified trainers or high-quality courses in their regions. This challenge can be exacerbated if an organization cannot afford to send its staff to training or bring in a training provider from a different region. The lack of qualified trainers and courses across the country can make it particularly challenging to establish an ongoing training plan over the long term.

Response

Natural Resources Canada's Dollars to \$ense workshops are highly regarded across Canada and are available in all regions of the country. Contact [dollarsto\\$enseworkshops@nrcan-rncan.gc.ca](mailto:dollarsto$enseworkshops@nrcan-rncan.gc.ca) for more information or to set up a workshop. For other options, contact your local utility providers for a list of qualified trainers and courses or to find out if subsidies are available for staff or trainer travel costs. You might also consider partnering with other organizations to share the costs.

Natural Resources Canada's Dollars to \$ense workshops are highly regarded across Canada and are available in all regions of the country.

4.2 Short-term investment barriers

In addition to the six barriers mentioned previously, energy management training that happens on a one-time or sporadic basis creates particular challenges. Because it is not a regular part of the organization's procedures, one-time energy management training may be seen as a "flash in the pan" initiative, heightening the difficulty in generating buy-in and interest. Because it is not a part of the organization's normal processes, there may also be concerns from management about the long-term benefits and employees' retention of what they have learned.

Response

Even a one-time training session can have a significant impact. If the subject matter is tailored to the participants' specific situation and tasks, it will be easy for them to apply their new knowledge as soon as they get back to their jobs. Even if ongoing training is not a feasible option for you at this time, let your employees know that you are committed to energy management by establishing follow-up mechanisms after the training to track opportunities implemented as a result of the training. If only some of your staff were able to attend the training, encourage them to share what they have learned with their colleagues and make energy management a regular topic of discussion at staff meetings to keep the communication going long after the training is over.

4.3 Long-term investment barriers

Long-term training programs – that is, energy management training programs that are integrated into an organization's day-to-day operations – also bring about a unique set of challenges. Changes over time to the management team may bring on new members who have not yet embraced energy management as a priority, meaning securing funding and staff time may become more difficult. In addition, both staff and management may question the need to continue or repeat training, feeling that the benefits have already been gained.

Response

The best way to secure support for long-term training – and ensure funding and use of staff time are approved on an ongoing basis – is to demonstrate the long-term energy savings that result from training. Benchmark your energy consumption to ensure you have the data to demonstrate these savings.

As larger-scale opportunities with reasonable payback periods are implemented through ideas generated in training, your benchmarking data will show the positive impact training is having on ongoing building optimization, maintenance and energy costs.

In addition, long-term training programs need to keep the momentum going and keep staff interested by constantly offering new (or newly applicable) types of training. Include competency assessments as part of your regular training program to determine the kind of training that will be most useful. Ask employees what topics they would like to cover in training, and offer refresher or more advanced courses for employees who have already attended training. Continue to offer the basic training every so often to account for staff turnover or employees who may not have been able to attend a previous session.

Case study: Canlan Ice Sports

In 2010, Canlan Ice Sports provided the Natural Resources Canada [Spot the Energy Savings Opportunities workshop](#) for its facility operators. Since the workshop, the organization has saved \$13,000 in annual energy costs in its 22 multipurpose recreation and entertainment facilities across North America. By 2015, the savings had reached 15 times the cost of the training.

Find out more at nrcan.gc.ca/energy/efficiency/buildings/emt/cases/4183.

As larger-scale opportunities with reasonable payback periods are implemented through ideas generated in training, your benchmarking data will show the positive impact training is having on ongoing building optimization, maintenance and energy costs.

5 Business case for energy management training

5.1 Pitching training to multiple stakeholders

Securing buy-in from multiple stakeholders can be challenging because each individual will have a different way of thinking about the value of energy management training and the benefits it can bring to the organization. These different perspectives are informed partially by the role each individual plays in the organization (senior management will have different priorities from HVAC engineers, for example) as well as his or her own personal value system.

Consequently, when you pitch energy management training to different stakeholders, it is best to talk about its benefits from *their* point of view and according to their unique needs and priorities. It is also beneficial to link energy management training to other corporate initiatives (such as quality improvements, continuous improvement and environmental sustainability) by identifying how the training aligns with those priorities.

The following table outlines some of the benefits of energy management training that could be presented to various stakeholders. It is important to remember that this is only a guide; better success will come from talking with the various stakeholders in the organization to better understand what will motivate them to support and participate in energy management training.

“If you’re serious about energy conservation in our industry, training is critical.”

– Paul LaBranche, Executive Vice President, BOMA BC

Success will come from talking with the various stakeholders in the organization to better understand what will motivate them to support and participate in energy management training.

Primary benefits of energy management training				
Benefit	Senior management	Energy manager	Facility operators/ managers	Building occupants
Gain new knowledge and skills		✓	✓	
Increase energy savings and cost savings	✓	✓		✓
Reduce downtime and maintenance costs		✓	✓	
Increase staff engagement	✓	✓		✓
Enhance corporate culture	✓	✓		
Contribute to professional development or certification		✓	✓	
Reduce environmental impact	✓	✓	✓	✓
Enable a better built environment	✓	✓	✓	✓

What is energy benchmarking?

Energy benchmarking is the ongoing review of your building's energy consumption to see how its performance compares to its own past performance, other buildings in your portfolio, or its peers nationwide.

Conducting regular energy benchmarking as part of your routine practices enables you to:

- Identify poorly performing buildings.
- Establish a baseline for measuring improvement in energy consumption.
- Enhance and create competition through comparison with like buildings.
- Participate in green building certification programs and other environmental initiatives.

Why is it important?

Energy benchmarking provides a quantifiable means of determining the potential for improvement and how a building compares with its peers. It is a best practice that provides the road map for setting goals and improving the bottom line as well as increasing asset value.

The benefits of energy benchmarking include:

- Providing objective, reliable information on energy use.
- Highlighting poorly performing facilities so your improvement efforts can be prioritized appropriately.
- Identifying best practices so they can be replicated throughout your portfolio.
- Supporting the business case for a comprehensive energy management plan, including training and retrofits.

ENERGY STAR Portfolio Manager

There are many ways to benchmark your building's energy performance and many tools to help you do so. Natural Resources Canada recommends using the only free, national standardized tool: ENERGY STAR Portfolio Manager. Through the Canada-U.S. Clean Energy Dialogue, Natural Resources Canada partnered with the U.S. Environmental Protection Agency to adapt this acclaimed energy benchmarking tool to meet Canadian needs.

At the time of ENERGY STAR Portfolio Manager's Canadian launch in summer 2013, thousands of Canadian buildings were already registered and benchmarking their energy use. This number continues to grow as more and more organizations join the energy benchmarking movement.

Why ENERGY STAR Portfolio Manager?

- It is the only national standardized tool in Canada.
- It is easy to use, has an intuitive interface available in English and French, and does not require specialized knowledge.
- It is a free, web-based application that requires no installation and is accessible from anywhere with Internet access.
- It includes data for more than 80 building types, which means almost any kind of building can find peers to benchmark against.
- Its building energy models are based on real Canadian data collected by Statistics Canada.

For more information, visit our [energy benchmarking web pages](#) or read our [Energy Benchmarking Primer](#).

5.2 Business case model

The following section provides a model of a business case to support energy management training. In this model, ABC Inc. is a property management company that owns and operates 10 office buildings. Each building has an operations staff of nine, overseen by a facilities manager who reports to the company's director of facilities management. The facilities manager at Alpha Building would like the director of facilities management to approve energy management training for the Alpha Building operations staff.

This business case is meant as a guide only; each subsection should be customized to reflect the particular needs, culture and financial situation of your organization. Your business case should include relevant statistics and research supporting the business case as well as a cost/benefit analysis to help assess the value and return on investment of energy management training.

A template for a basic business case that you can adapt for your organization is in Appendix B.

5.2.1 Executive summary

The executive summary:

- Provides clear reasons for investing in training and its outcome by explaining the “why, what, when, who and how” of the project.
- Includes only information that is in the body of the business case.
- Should be written as a stand-alone document.

Investment in energy management training is an integral component of any effective energy management strategy. Technology alone does not guarantee energy savings; ABC Inc.'s operations staff and occupants who use and manage energy are also key factors in each building's energy performance.

For these reasons, it is recommended that ABC Inc. initiate a pilot project, providing a one-day energy management workshop to Alpha Building's facilities manager and operations staff, with the intention of ultimately providing this training to all ABC Inc. operations staff annually, with online training available between sessions. NRG Training Solutions would provide the training.

Assuming a conservative estimate of 2% energy savings, a cost/benefit analysis finds that an annual investment of \$7,800 in training for Alpha Building staff would result in \$20,000 in energy savings each year. Multiplied by all ABC Inc.'s buildings, training offers significant savings potential.

In addition to increasing the awareness, knowledge and skill level of the workforce – which will ultimately lead to energy and cost savings for ABC Inc. – training is an opportunity to engage staff and promote a culture of energy savings throughout the entire organization.

5.2.2 Background and current state

Describe the current energy management situation at the organization. Provide results from a training needs assessment as well as one or more of the following:

- Energy performance benchmarked against other organizations in the same sector.
- Historical annual energy consumption and cost data.

Problem/opportunity

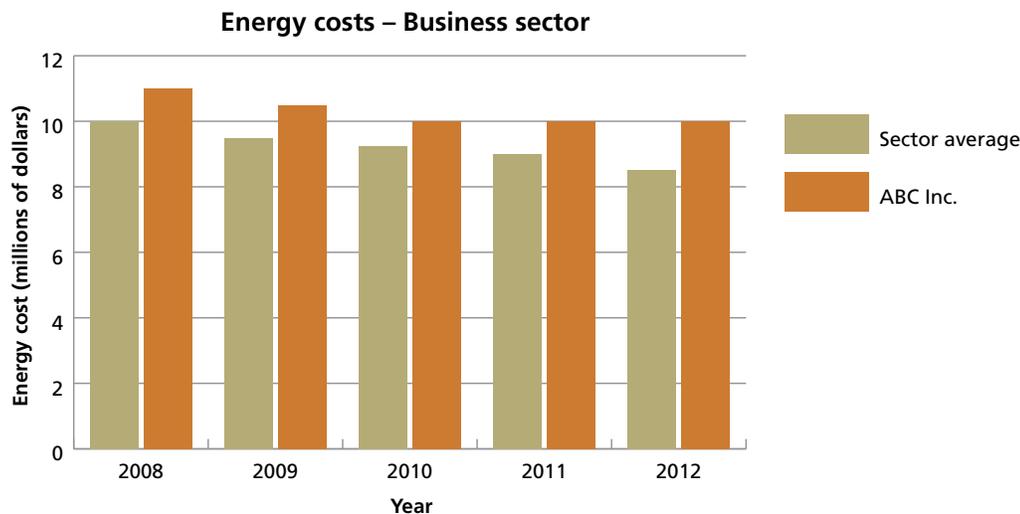
Technology alone does not guarantee energy savings; ABC Inc.'s operations staff and occupants who use and manage energy are also key factors in the energy performance of its buildings.

Facility operations staff face constant pressure to reduce both utility costs and environmental impacts – all while having to balance the needs of tenants, management, utility providers, governments and the greater community. These competing priorities make it difficult to determine how best to institute energy management processes and procedures, especially in the absence of proper training.

A well-trained workforce, however, increases efficiencies and reduces energy and maintenance costs, which will provide ABC Inc. with a higher return on investment in both personnel and equipment.

Analysis of the current situation

As seen in the following figure, ABC Inc.'s energy costs are higher than average compared to other organizations in our sector. One reason for this is the operations staff have not had energy management training.



A recent competency and training needs assessment of the operations staff shows a discrepancy between actual and desired job performance. The conclusion is that training is required to achieve greater building energy efficiency. That conclusion is based on an evaluation of the skills, knowledge, attitudes and competency level that each operations position requires.

The results of the competency and training needs assessment are listed in the following table.

Needs assessment results			
Competency	Desired knowledge level	Actual knowledge level	Training required
Energy management program planning	Expert	Average	Yes
Energy monitoring and targeting	Expert	Proficient	Yes
Retrofit opportunities	Proficient	Average	Yes
Building control optimization	Proficient	Average	Yes
New building design issues	Average	None	Yes
Behavioural programs	Average	Basic	Yes
Financial evaluation of energy projects	Basic	None	Yes

5.2.3 Training outcomes

Vision statement

ABC Inc. is committed to investing in energy management training, which will provide the following outcomes:

- Operations staff are knowledgeable and motivated to save energy and manage our high-performance building.
- Operations staff run building systems optimally by using metering information and advanced controls.
- Managers approve capital budgets for energy efficiency investments.
- All staff modify their behaviours to consider energy use in their day-to-day activities.

Training program objectives

Energy management training will support energy management activities that will help reduce energy use to the lowest quartile in our peer group (i.e. lowest energy use per unit area adjusted for weather).

Measures for gauging improvements

We are already using ENERGY STAR Portfolio Manager to benchmark our building's performance, and we will continue to do so. This will enable us to compare our current performance with our post-training performance and track our improvements. We will also make use of the goal tools in Portfolio Manager to set specific performance goals and track our progress toward them.

In addition, we will administer surveys of participants' knowledge and actions before and after training to measure the efficacy of the training.

Benefits of training

Investing in energy management training will provide a variety of benefits to our organization: increased staff awareness in energy management principles, a more knowledgeable and skilled workforce, and energy and cost savings.

To illustrate, the Blue Cross Centre in Fredericton, New Brunswick, has experienced an annual 20% reduction in energy consumption since 2007. The operations manager, Richard Krick, attributes this to the Natural Resources Canada workshops and other energy management training that he and his maintenance supervisor have attended. Also, several impact studies on the U.S. Building Operator Training Program found that its participants have saved between 33,000 and 130,000 kWh (120 to 470 GJ) in electrical energy.

In addition to energy and cost savings, training provides an opportunity to engage staff and promote a culture of energy savings throughout the organization. For example, Canlan Ice Sports was able to save \$13,000 in energy costs just one year after taking Natural Resources Canada's Spot the Energy Savings Opportunities workshop – and that was just the beginning. Today, the operations managers of its 22 multipurpose recreation and entertainment facilities across North America consider themselves energy champions and are constantly devising and sharing new ways of saving energy at their facilities.

Risk management

Investing in energy management training does include potential risks, such as a lack of interest from staff, poor quality training, and lessons not being retained or implemented following the training.

However, these risks can be mitigated by following best practices such as:

- Providing relevant training based on needs assessments of staff competencies.
- Developing solid learning objectives for each training opportunity.
- Hiring qualified, engaging instructors to deliver the training.
- Providing a training setting that is conducive to learning.
- Developing mechanisms to incorporate knowledge and skills learned into new organizational policies and procedures.

Costs of not investing in training

Not investing in energy management training has cost implications for ABC Inc. If staff do not take training, our energy use and costs will be higher, our product selection decisions for energy retrofit projects will be less informed, and we will be less prepared for regulatory changes.

In addition, staff will not have the knowledge and experience to select the appropriate tools and products for monitoring and tracking energy consumption and cost savings. They will also not have the opportunity to learn from peers and experts about the problems others have experienced in this area – meaning they will likely continue to repeat existing mistakes, resulting in continued lost efficiencies in building systems.

Case study: Association of Municipalities of Ontario

For nearly a decade, the Association of Municipalities of Ontario has worked closely with Natural Resources Canada to deliver energy management training to the province's municipal sector and build the capacity of its members to implement energy-saving initiatives. Since 2007, 800 municipal staff have attended about 40 Dollars to \$ense workshops across the province. Each year, the content is customized to address the latest and most pressing energy management issues facing Ontario's towns and cities.

5.2.4 Implementation strategy

Preferred training approach

This section provides a description and a rationale for the preferred training approach based on:

- Needs assessment of the target audience (determining the skills/ knowledge required by staff).
- Type of training needed (technical, organizational, behavioural).
- Choice of training provider (internal or external provider).
- Expected level of support (management buy-in, commitments for staff time and a budget).

Live workshops, seminars, post-secondary courses, online courses and webinars are all potential methods for delivering energy management training. ABC Inc. should offer a combination of approaches to meet the needs of its diverse workforce.

ABC Inc. should begin by providing a one-day workshop to Alpha Building operations staff as a pilot project. Once the success of the training has been demonstrated, the initiative should be expanded to all buildings, and annual workshops should be provided for all operations staff. Annual workshops would ensure that all operations staff have the chance to attend training and allow additional topics to be covered. Online courses should also be provided between workshop sessions to keep the momentum going and to accommodate staff members who may be more comfortable learning at their own pace.

An external training firm, NRG Training Solutions, will provide the workshops. This firm has the necessary expertise in energy management training to ensure the best results for ABC Inc.'s staff. The initial workshop and subsequent annual training will require a full day for each operations staff member. In addition, separate online training would require about one hour per week for each staff member.

Alternative approaches for training

This section lists alternative approaches to training and how they would or would not work for the organization. Include reasons for recommendation and potential objections to each option.

The following table lists alternative approaches to training and reasons for and against these options.

Alternative approaches	Recommend	Reasons for recommendation	Potential objections
Webinars	No	Staff can attend training without travel (which will potentially lower costs) and can still benefit from a high level of interaction.	Webinars present a high possibility for distraction as staff may attempt to multitask or be called away by other pressing matters.
Certification programs	Yes	Some staff members may benefit from officially recognized programs of energy management certification.	For many staff members, this level of specialization may be unnecessary.

Project management and timeline

As the facilities manager at Alpha Building, I will liaise with NRG Training Solutions to organize and implement the pilot workshop. In the future, I will continue to spearhead the project, ideally with the support of the other facilities managers. You and the other facilities managers can also support the initiative by including expectations for training in individual performance reviews and goal setting and by providing budgets and time at work for staff to take the training.

The first live workshop will be held at Alpha Building on Thursday, October 15, 2015, to allow the greatest number of staff members to attend.

5.2.5 Cost/benefit analysis

Based on the following cost/benefit analysis, providing one-day training to 10 operations staff members will cost \$7,800 – but will save approximately \$60,000 in energy costs over the next three years. This analysis shows a payback period of fewer than five months and a return on investment of more than 150%.

Cost/benefit analysis for energy management training – Alpha Building pilot project

Costs

Attendance costs per person	\$300
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Time costs per person (\$60/hour)	\$480
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Subtotal	\$780
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Number of attendees	× 10
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Total one-time cost	\$7,800
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Benefits

Current annual energy costs	\$10,000,000
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Percentage of facilities affected by workshop attendees	× 10%
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Energy costs affected by workshop attendees	\$1,000,000
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Savings identified through workshop attendance	× 2%
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Total annual savings	\$20,000
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Payback period (years)	0.39
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(total cost of training divided by total savings)

Return on investment	more than 150%
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To calculate the return on investment, the benefit (return) of an investment is divided by the cost of the investment; the result is expressed as a percentage or a ratio. The return on investment formula is:

$$\text{ROI} = \frac{\text{(gain from investment – cost of investment)}}{\text{cost of investment}}$$

6 Developing and implementing a successful training program

Like any successful training program, energy management training programs benefit from a systematic approach to assessing training needs, developing content, implementing training and evaluating outcomes. The following section outlines how using the systematic approach to training (SAT) model provides a valuable structure for ensuring training programs and materials are continually developed in an efficient and effective manner.

Using a systematic approach to training ensures the program that is developed reflects the particular needs and culture of the organization. Every organization is different in terms of size, structure, ownership model, processes and policies. Consequently, developing a program based on the competencies of the actual personnel and on customized goals helps ensure that the training will be relevant, effective and organization-specific.

6.1 Systematic approach to training

The SAT model is a performance-based system that provides a sequential approach to training while incorporating tracking and evaluation measures. It employs the following steps to develop training programs: assessing training needs, setting training objectives, designing the training strategy, implementing the training and evaluating the results.¹¹



Assessing training needs

- Identify target groups for training.
- Assess the differences between actual and desired job performance. Then evaluate the skills, knowledge and attitudes each position needs, and analyze the competence level of staff to meet those requirements. (For more details, see the individual staff competency evaluation matrix on page 24.)
- Determine the types of training required (technical, organizational, behavioural).
- Identify any barriers that prevent desired performance, then work to address them.

Setting training objectives

- Specify what trainees are expected to learn.

¹¹ United Nations Office on Drugs and Crime. (n.d.). "Systematic approach to training." In *Guide for trainers: A manual on techniques of training in precursor control* (pp. 3–11). Retrieved from [unodc.org/pdf/india/publications/guide_for_Trainers/03_systematicapproachtotraining.pdf](https://www.unodc.org/pdf/india/publications/guide_for_Trainers/03_systematicapproachtotraining.pdf).

Designing the training strategy

- Decide on a strategy to meet the training needs and goals (e.g. internal or external training provider, course length, course content).
- Determine who should deliver the training. Training personnel should have extensive knowledge in the training topics and be qualified training facilitators.
- Include the following minimum elements:
 - Content that was determined by assessed needs.
 - Clearly communicated training objectives.
 - Good representation of target staff group present at training.
 - Knowledgeable and engaging trainers that encourage active participation of the personnel at varying levels.
 - Mechanisms for sustaining the knowledge and skills from the training.
- Factors that affect program design include the ability to secure the time for staff to participate, geography (for larger organizations), and organizational budgets and objectives.

Implementing the training

- Put the training into practice.

Evaluating the program

- Assess the quality and effectiveness of the training based on established objectives and performance assessments.
- Have trainees complete training feedback forms and use the individual staff competency matrix to reassess staff skills and knowledge.
- Use the feedback to improve future training.

6.2 Determining training needs

Most organizations interviewed during the preparation of this document indicated that they could simply “see” that energy management training was needed for their staff. A prime example of this was provided by Jim Nostedt of the Air Force Sustainability Office. Nostedt talked about seeing operations personnel across the country using the same equipment in different ways or in ways that were not energy efficient.

Survey respondents reported the following indicators as potential signs that energy management training may be needed:

- Energy management training has never been provided.
- Staff are generally unaware about the organization’s energy management program and/or opportunities related to energy efficiency.
- Inconsistencies exist between staff members in how procedures and operations are performed.
- Equipment is frequently out of service or requires more than normal maintenance.
- New equipment does not deliver the expected savings.
- Building occupants complain frequently about the working environment.
- The building has high energy costs compared to similar organizations or buildings.
- The existing energy management program has not delivered the expected results.

Case study: Royal Canadian Air Force

The Air Force Sustainability Office was formed by the Royal Canadian Air Force under the Environmental Sustainability Implementation Plan. Training is one of the five key areas of focus for the Sustainability Office, and consequently, several staff members have attended energy management training. The Sustainability Office manager feels that, with energy bills totalling around \$300 million, even a small reduction makes training a worthwhile investment. Energy management training also helps to ensure consistency in operations and provide staff with the knowledge to make educated energy decisions for their particular situations. This is especially valuable for an organization spread out across the country.

Find out more at

nrcan.gc.ca/energy/efficiency/buildings/emt/cases/4187.

6.3 Deciding the frequency of training

The consensus from survey respondents was that training should be annual, but some said that twice a year would be optimal.

Reasons to hold regular training sessions include:

- Staff are unlikely to learn everything the first time.
- Not all staff can participate in every session.
- Many topics need to be addressed.
- Recurrent training helps organizations continue to promote and encourage a culture of energy conservation.

You need to keep energy management “on the radar” throughout the year. This could be done formally by creating a process to identify energy-saving opportunities or including energy training in key performance indicators (KPIs) or done informally by making energy management a regular topic at monthly staff meetings.

6.4 Evaluating results

It is a good practice to assess the effectiveness of the program after each training session. Doing so will help reassure senior management that training remains a worthwhile investment. It will also give you an idea of what topics to focus on for future training and help you improve the training experience based on staff feedback. Ways to evaluate the results of your training program include participant surveys, staff competency evaluations and energy benchmarking.

Participant surveys

Ask your staff how they felt about the training. Was it interesting? Did they learn valuable new information? Was the information relevant to their day-to-day tasks? Are they interested in future training? Would they recommend the training to others?

Individual staff competency evaluation matrix

Complete the matrix after the training and compare it to the pre-training matrix.

Energy benchmarking

Make sure you have a baseline to work from *before* the training starts, and benchmark your building’s energy use regularly after the training is complete. Keep records of any measures recommended and implemented as a result of the training so you can determine how much of the energy savings observed can be attributed to the training.

Review your training objectives

When you evaluate the results of your training, be sure to review the objectives you set before the training to see if you have achieved them.

“I’ve never seen too much training.”

– Scott Gordon, Energy Manager,
Molson Coors Canada

“We’re big believers in [energy management training]. We’ve seen the success. We’ve got more and more people from different backgrounds signing up every year – and we think it’s working.”

– Scott Vokey, Energy Services
Coordinator, Local Authority
Services

Keep records of any measures recommended and implemented as a result of the training so you can determine how much of the energy savings observed can be attributed to the training.

6.5 Training as an energy management best practice

Training is most effective when it is integrated into a comprehensive, organization-wide energy management plan and program. By conducting needs assessments and providing conclusive results through evaluation, you can demonstrate how training supports overall energy management goals.

The process of developing and implementing training by using the SAT approach outlined in Section 6.1 provides clear objectives, needs and outcomes – all of which can be used to make the business case to senior management for investing in energy management training.

6.6 Energy management training matrices

You can use the following two matrices to assess staff training needs and track training progress based on seven key success factors.

The first matrix is the *individual staff competency evaluation matrix*, which assesses and tracks skill levels to help establish staff training objectives. This matrix may be completed by the employees, their supervisors or both.

The second matrix is the *training program key success factors matrix*, which can be used to assess an organization's capacity to provide appropriate, effective training to its staff. Each column is scored from 0 to 4; the sum of the scores provides a value that represents the organization's overall progress toward building a successful training program. This information can be used to formulate an action plan for energy management training that reflects the needs and situation of a particular organization.

6.6.1 Individual staff competency evaluation matrix

This matrix should be customized for energy managers (A), property or facility managers (B) and building operators (C).

Individual staff competency evaluation matrix						
Skill or topic	Applicable to	No knowledge	Basic knowledge	Average knowledge	Extensive knowledge	Expert knowledge
Energy management program planning	A, B					
Energy monitoring and targeting abilities	A, B, C					
Retrofit opportunities for lighting and electrical systems	A, B, C					
Retrofit opportunities for motors, fans and pumps	A, B, C					
Retrofit opportunities for heating and cooling plants	A, B, C					
Building control optimization	A, B, C					
New building design issues	A, B					
Behavioural program or awareness campaign	A, B					
Financial evaluation of energy projects	A, B					

6.6.2 Training program key success factors matrix

Training program key success factors							
Score	Energy management context	Training program planning	Management and organizational support	Training budget	Training frequency and saturation	Follow-up mechanism	Reporting
4	A comprehensive energy management policy is actively supported by all aspects of the organization. An energy manager position is fully integrated into the management structure.	A comprehensive policy on training practices has clear objectives and is part of a formal energy management plan. The systematic design process is based on deliberate assessment of training needs.	A training policy is actively supported by senior management and key organizational functions: human resources, financial and technical.	An annual training budget exists.	Training is provided on a scheduled basis (e.g. every 6 to 12 months) to targeted staff. Sections of the training are geared toward having all staff and managers in attendance.	Participation in training is part of Key Performance Indicators. Mechanisms for following up on new skills and knowledge are incorporated into operational procedures and policies.	Regular quantitative and qualitative assessment of training is conducted. Participant surveys and energy use indicators are collected, and a mechanism exists to report to management and refine the program design.
3	A basic energy management policy is supported by the organization. An energy manager is accountable to an energy committee that represents all users.	Deliberate needs analysis is applied to the design of a customized training program for clearly articulated outcomes, but no training policy exists.	Training policy objectives are adopted and supported by key organizational functions.	Capital budget funds are available for training.	Training is provided every 6 to 12 months to all operations staff.	Mechanisms for following up on new skills and knowledge are incorporated into operational procedures and policies.	Feedback of monitoring or verification information as well as participant feedback is applied to the program design process.
2	A basic energy management policy has been adopted. An energy manager has been designated, who reports to an ad hoc committee.	Ongoing training is adapted to organizational needs and circumstances on the basis of subjective, anecdotal evidence.	The energy manager is formally required to take training and ensure that relevant staff do as well.	Funding is allocated for training on a case-by-case basis.	Training is provided every year or two to all operations staff.	Only informal and sporadic mechanisms exist for the use of new skills and knowledge.	Some monitoring or verification of data and participant feedback is applied, but it is not keyed specifically to outcomes.
1	Informal guidelines on energy management exist, but energy management is only a part-time responsibility of someone with limited authority and influence.	Ongoing training that uses "off-the-shelf" training material occurs in parallel with other energy management initiatives.	Taking training is informally incorporated into the energy manager's job description.	Funding is available for training only infrequently, depending on the budget situation.	Only infrequent training is offered to small groups of operations staff.	A one-time follow-up mechanism for training exists.	Only an intuitive sense of training impact on energy management exists, and it is based on anecdotal evidence.
0	No energy management exists, and there is no formal delegation of responsibility for energy consumption.	There is sporadic use of "off-the-shelf" training material without a clear plan to address needs.	The organization does not recognize training as an organizational priority.	Funding is only rarely available for training.	Training is not available for staff.	No specific activities to incorporate new skills and knowledge into policies and procedures exist.	No effort is made to assess specific outcomes of training initiatives.

7 Dollars to \$ense energy management workshops

7.1 Background

Although the commercial, institutional and industrial sectors recognized that energy efficiency could simultaneously reduce environmental impacts and improve bottom lines, little progress was made during the 1990s because most organizations did not know how to approach the topic.

To address this knowledge gap, Natural Resources Canada provided its first workshop, Energy Master Planning, in September 1997. Since then, many additional workshops on a wide range of topics have been created, leading to the development of the six workshops available today. In 2002, the first customized workshop was held, allowing training to be tailored specifically to a client's unique situation and needs.

From its humble beginnings of one workshop delivered to 24 attendees, the Dollars to \$ense program has grown into a successful series that has trained more than 23,000 people and helped save more than \$1 billion in energy costs.

7.2 Standard workshops

The Dollars to \$ense program offers six standard workshops:

- Energy Management Information Systems
- Recommissioning for Buildings
- Energy Management Planning
- Spot the Energy Savings Opportunities
- Energy Monitoring
- Energy Efficiency Financing

7.2.1 Energy Management Information Systems

An energy management information system (EMIS) is a performance management system that enables organizations to plan, make decisions and take effective action related to energy use and costs.

This workshop will help you incorporate an EMIS into your organization's energy management strategy by showing you how to:

- Conduct an EMIS audit.
- Prepare and present a business case for EMIS.
- Develop an EMIS implementation plan.
- Identify energy savings and make continuous energy efficiency improvements.
- Establish the groundwork to comply with the ISO 50001 Energy Management Systems standard.

For more information about this workshop, visit nrcan.gc.ca/energy/efficiency/industry/training-awareness/5463.

7.2.2 Recommissioning for Buildings

Recommissioning is an optimization process for existing buildings. It ensures that a building continues to perform well by making sure its energy-efficient design features are being used correctly, assessing equipment performance and system integration, and making any necessary adjustments.

Based on the *Recommissioning Guide for Building Owners and Managers*, this workshop will help you implement successful recommissioning in your building by showing you how to:

- Understand the costs and benefits of recommissioning.
- Plan, develop and implement a recommissioning project.
- Quantify and allocate a budget for your recommissioning project.
- Generate a business case for recommissioning.
- Choose a building to recommission.
- Select a recommissioning provider.
- Track and analyze project results.

For more information about this workshop, visit nrcan.gc.ca/energy/efficiency/industry/training-awareness/5467.

7.2.3 Energy Management Planning

There are so many options for managing and saving energy that it is hard to know where to start. A good plan can help you identify opportunities, prioritize your projects and successfully implement energy-saving actions.

This workshop will help you get your energy management planning off to a good start by showing you how to:

- Assemble an energy management team.
- Build a strategic framework for energy management.
- Identify and capitalize on immediate savings opportunities.
- Develop cost-saving energy management solutions.
- Make your organization a leader in energy efficiency.
- Enhance your organization's reputation in your industry and the community.

For more information about this workshop, visit nrcan.gc.ca/energy/efficiency/industry/training-awareness/5471.

A good plan can help you identify opportunities, prioritize your projects and successfully implement energy-saving actions.

7.2.4 Spot the Energy Savings Opportunities

Energy efficiency does not have to come at a high cost. Many significant efficiency improvements can be made at no cost at all, while others can easily pay for themselves through the savings they generate.

Many significant efficiency improvements can be made at no cost at all.

This workshop will help you identify and capitalize on energy-saving opportunities by showing you how to:

- Understand energy basics.
- Identify and prioritize your opportunities.
- Evaluate the advantages of energy efficiency.

For more information about this workshop, visit nrcan.gc.ca/energy/efficiency/industry/training-awareness/5475.

7.2.5 Energy Monitoring

Because you cannot manage what you do not measure, energy monitoring is the first step to successful energy management. Implementing an energy monitoring system can help your organization save up to 15% in energy costs. It is also a great place to start if you are new to energy management.

This workshop will help you get started with an energy monitoring system by showing you how to:

- Gather and analyze utility information.
- Find out how and where energy is being used in your buildings.
- Assess your operations and determine where they should be modified.
- Establish target goals for attainable energy savings.
- Implement a plan of improvements.
- Monitor energy data on a formal basis.

For more information about this workshop, visit nrcan.gc.ca/energy/efficiency/industry/training-awareness/5479.

7.2.6 Energy Efficiency Financing

Although most organizations see the significant potential of energy efficiency initiatives, a lack of funds often limits the number of projects that get carried out.

This workshop will help you find the funding to get your projects off the ground by showing you how to:

- Calculate the financial value of energy efficiency projects.
- Build and present an effective business case for your energy efficiency projects.
- Understand the basics of third-party financing mechanisms such as energy performance contracting.
- Analyze an energy project from both an internal and a third-party financing perspective.

For more information about this workshop, visit nrcan.gc.ca/energy/efficiency/industry/training-awareness/5483.

7.3 ENERGY STAR Portfolio Manager Workshop

Under the Dollars to \$ense program, Natural Resources Canada also offers a half-day segment that can be added to customized workshops for the commercial and institutional buildings sector to help participants get to know ENERGY STAR Portfolio Manager. The workshop includes an overview of energy benchmarking and its value, and hands-on exercises to get participants working directly in the tool to create an account and start benchmarking their first buildings.

This workshop will show you:

- What energy benchmarking is and why it's important.
- The difference between site and source energy and how they are used in Portfolio Manager.
- What the ENERGY STAR score means for your building.
- How to create a Portfolio Manager account.
- How to add buildings, meters and energy consumption data in Portfolio Manager.
- How to use Portfolio Manager data to run reports on your buildings.
- How to build the business case for energy benchmarking.

Contact info.services@nrcan-rncan.gc.ca to learn more.

7.4 Custom workshops

A custom workshop can help you get even more out of your training experience. For this, a workshop facilitator will consult with you at your facility to learn about your particular situation and challenges. The facilitator will use this information to tailor a workshop specifically to your needs to be given at your site. Tailoring the workshop will help ensure participants are fully engaged, with everything they learn being directly applicable to their own day-to-day experiences. In addition, holding the workshop at your site makes it easier for more of your staff to attend, which helps create the culture of energy efficiency that will keep energy management a top priority.

Any of the Dollars to \$ense standard workshops can be customized for your specific organization or facility. Contact [dollarsto\\$enseworkshops@nrcan-rncan.gc.ca](mailto:dollarsto$enseworkshops@nrcan-rncan.gc.ca) to learn more.

7.5 Federal workshops

The Dollars to \$ense program also offers training specifically for federal organizations. Through the Federal Buildings Initiative, an energy efficiency expert from Natural Resources Canada will consult with you to prepare an appropriate training package for your situation.

The personalized learning experience resulting from this process will help your staff:

- Surpass federal efficiency guidelines.
- Capitalize on energy efficiency opportunities.
- Manage and control operating and energy costs.
- Improve the useful life of your building's facilities.
- Understand the links between energy systems and productivity.
- Maintain the momentum of your energy-saving initiatives.

For more information, visit our [Energy efficiency for federal buildings](#) web pages or contact nrcan.fbi-ibf.nrcan@canada.ca.

Tailoring the workshop will help ensure participants are fully engaged, with everything they learn being directly applicable to their own day-to-day experiences.

Case study: Department of Fisheries and Oceans

In 2010, Fisheries and Oceans Canada held an energy management workshop customized for its Pacific Region hatchery managers. This session was particularly effective because instead of hearing generic advice (e.g. use more efficient light bulbs, turn down the thermostat), the hatchery managers received tailored recommendations relating to the pumps and aeration towers they work with every day. As a result, they are now engaged in energy management at their sites, working closely with the regional energy manager to find new ways to reduce energy consumption.

Find out more at nrcan.gc.ca/energy/efficiency/buildings/emt/cases/4189.

8 Communicating the value of energy management training

If your colleagues or managers are not sure about the value of energy management training, it may be up to you to convince them. In this chapter, you will find several key messages that offer quick facts and justifications to help you make the case for a training program.

The first section provides messaging that can be inserted into energy management campaigns, recommendations reports, program proposals or business cases to help you justify the value of energy management training. The second and third sections address some of the most common objections to and misconceptions about energy management training and offer responses to overcome the objections and clear up the misconceptions.

With this information, you will be well equipped to get your entire organization on board with energy management training – from the senior decision makers to the building operations staff.

8.1 Key messages

1. Successfully implemented energy management training has been proven to deliver annual energy savings between 4% and 20%.
2. Training is an integral part of any energy management plan.
3. Operations personnel play an essential role in realizing energy savings over time. While it is understood that organizations should invest in efficient building systems to reduce energy costs, it must also be understood that the payoff from those investments is not guaranteed. Technology does not run itself – so a trained and skilled workforce is needed to operate the energy-efficient building systems.
4. Investing in training creates a more knowledgeable, aware and skilled workforce, ultimately resulting in energy and cost savings for the organization.
5. With the variety of technologies and operating practices available today, training helps building managers and owners identify the technologies and products they should be investing in.
6. Training provides participants with the broad base of knowledge and skills needed to manage and monitor the organization's energy use, identify and implement key energy-reduction opportunities, and select and run appropriate new equipment and technologies.
7. Training is an opportunity to engage staff and promote a culture of energy savings throughout the entire organization.
8. Training is a good story to share with the greater community as an example of how the organization is taking real steps to reduce its environmental impact.

Not investing in energy management training has cost implications. If staff do not participate in training, our energy use and costs will be higher, our product selection decisions for energy retrofit projects will be less informed, and we will be less prepared for regulatory changes.

9. Not investing in energy management training has cost implications. If staff do not participate in training, our energy use and costs will be higher, our product selection decisions for energy retrofit projects will be less informed, and we will be less prepared for regulatory changes.
10. The potential risks of investing in energy management training can be mitigated by following training program best practices. These include providing relevant training based on needs assessments of staff competencies; developing learning objectives for each training opportunity; hiring qualified, engaging instructors; providing a training setting that is conducive to learning; and developing mechanisms to incorporate knowledge and skills learned into new policies and procedures.

8.2 Common objections and misconceptions

Objections from management

Common objections

Arguments to address objections

Energy management training does not save money, it costs money.

- Savings that result from the training can offset the investment several times over. If a participant learns about a new technology or is motivated to optimize building systems, the energy savings can be significant.
- Based on the case studies in this report, successfully implemented energy management training has been shown to deliver annual energy savings of between 4% and 20%.
- Show how training costs are insignificant compared to utility costs.
- Show the savings through graphs and comparisons to previous energy bills or other similar organizations on an ongoing basis.
- Ongoing building optimization and maintenance provides additional cost-saving opportunities.

Other programs or initiatives are more important.

- As costs continue to rise, energy management training – and the savings resulting from it – provide a hedge against utility costs and tax increases related to the consumption of energy.
- Training is an integral part of any energy management plan.
- Investing in training creates a more knowledgeable, aware and skilled workforce, which results in energy and cost savings for the organization.
- Link energy management training to other corporate initiatives (such as quality improvements, continuous improvement and environmental sustainability) by identifying how energy management training supports those goals and priorities.

Objections from management (continued)

Common objections	Arguments to address objections
It takes up valuable staff time.	<ul style="list-style-type: none">• Unlike other training opportunities, energy management training actually offers a financial benefit to the organization because the time spent and learning can be carried forward to identify savings.• Training is an opportunity to engage staff and promote a culture of energy savings throughout the entire organization.• Operations personnel play an essential role in realizing energy savings over time.
It does not result in measurable energy savings.	<ul style="list-style-type: none">• Based on the case studies mentioned in this report, successfully implemented energy management training has been shown to deliver annual energy savings of between 4% and 20%.• Tracking systems can be implemented to identify the energy-reduction projects that were initiated as a result of the training.
It does not have guaranteed outcomes.	<ul style="list-style-type: none">• Successful training programs integrate follow-up reviews on savings levels and incorporate follow-up mechanisms (such as a process for making opportunity suggestions or making energy management a regular agenda item at staff meetings).
Staff are not interested.	<ul style="list-style-type: none">• Inclusive and relevant training sessions can be carried out to engage staff. Various levels and topics can be provided to find the right technical level and topic area for attendees.• Frame the training as professional development to help enhance job opportunities and responsibilities.• Energy management training can be included as part of performance reviews and goal-setting with staff.

Objections from staff

Common objections

Arguments to address objections

Too much (or not enough) detail in the course.

- Training will be tailored for different audiences based on competency assessment of skills and knowledge.
- Hire facilitators skilled in assessing needs of participants and tailoring sessions to the skill level and interests of the group.

An “I already know everything” attitude.

- Present training as a professional development opportunity that makes staff more employable and better at their jobs.
- Describe the training as an opportunity for senior staff to share their knowledge/experience with the rest of the group.

If the training is held only once, it must not be a top priority for the company; therefore, staff do not want to participate.

- Even one-time training can have a significant impact. (To illustrate, see the Canlan Ice Sports case study on page 10).
- Successful training programs integrate follow-up reviews on savings levels and incorporate follow-up mechanisms (such as a process for making opportunity suggestions or making energy management a regular agenda item at staff meetings).

Saving energy is not a priority.

- Present training as a professional development opportunity that makes staff more employable and better at their jobs.
- Opportunities identified through training can reduce equipment downtime, increase occupants’ comfort and reduce time dedicated to equipment maintenance.

8.3 Key barriers to implementing energy management training

Barriers	Options to overcome barriers
Getting support/ buy-in from senior management	<ul style="list-style-type: none"> • Demonstrate need by benchmarking energy use against similar buildings or organizations and by showing the need for training through competency assessments. • Use the case studies mentioned in this report to demonstrate potential return on investment and other non-energy benefits. • Use all of the above to develop a solid business case for investing in energy management training. • Connect training to sustainability or energy policy goals.
Securing funding for training	<ul style="list-style-type: none"> • Secure senior management support for training. • Provide case studies illustrating the effectiveness of energy management training. • Incorporate a mechanism that demonstrates how quickly training pays for itself. (For an example, see the Canlan Ice Sports case study on page 10.) • Research potential external funding and subsidy options such as Natural Resources Canada workshops, utility providers and other government bodies.
Inability to monitor and verify results of training	<ul style="list-style-type: none"> • Use the case studies mentioned in this report to demonstrate the proven benefits of training. • Monitor, track and report on energy use before and after the training. • Incorporate follow-up mechanisms to capture and track opportunities implemented, thereby showing some of the savings.
Lack of qualified trainers and courses	<ul style="list-style-type: none"> • Contact utility companies for a list of qualified trainers and courses. • Determine whether subsidies are available to bring in external trainers or to send staff to external workshops. • Partner with other organizations to pay to bring in qualified trainers and courses.
Getting buy-in from managers and other key personnel	<ul style="list-style-type: none"> • Ask managers questions about their priorities and look for ways to align training with these priorities. • Use the case studies provided in this report to demonstrate the proven benefits of training. • Monitor, track and report on energy use before and after the training. • Highlight non-energy benefits of the training (e.g. more engaged staff, personal development opportunities, building better communication with staff).

9 Conclusion

Energy management training is an essential (but often overlooked) energy management best practice. Training enhances your staff's skills and raises their awareness of energy management issues, helps your organization save energy and reduce costs, and promotes staff engagement and a culture of energy efficiency. Reducing your energy consumption can also reduce your overall environmental impact and make your organization a "green" role model within your community.

The savings generated by energy management training can significantly benefit your bottom line, allowing you to contribute to a healthy Canadian economy. Your employees will benefit from new, marketable skills – and you will help put Canada on equal footing with world leaders in energy efficiency.

By reading this guide, you have taken the first step to realizing the benefits of energy management training. You now know how to respond to objections about training, make a compelling business case for investment in training, and develop a successful training program.

The case studies in this guide have shown you that tremendous savings are possible through comprehensive energy management training. Now it is your turn: make a commitment to energy management training in your organization and start seeing the benefits.

Natural Resources Canada has the tools and resources you need to succeed. For more information, contact us:

- Toll-free: 1-877-360-5500
- Email: info.services@nrcan-rncan.gc.ca
- Website: nrcan.gc.ca/energy/efficiency/buildings/13556

10 Resources

10.1 Training offered by Natural Resources Canada

Dollars to \$ense

Dollars to \$ense is Natural Resources Canada's energy management workshop series. For more information about the workshops, see Chapter 7 or visit nrcan.gc.ca/energy/efficiency/buildings/emt/dollars/4167.

RETScreen

RETScreen is a decision-support tool that can help you assess energy-efficient technologies. Natural Resources Canada offers training on this tool through the RETScreen Training Institute. For more information, visit retscreen.net/ang/home.php.

CAN-QUEST

CAN-QUEST is an energy simulation tool that can help you assess the energy performance of a new building design. To learn more about CAN-QUEST training opportunities, contact info.services@nrcan-rncan.gc.ca.

ENERGY STAR Portfolio Manager

ENERGY STAR Portfolio Manager is Canada's only free national energy benchmarking tool for buildings. Natural Resources Canada offers online demonstrations and other training tools to help you get started. For more information, visit nrcan.gc.ca/energy/efficiency/buildings/energy-benchmarking/3769.

10.2 Other training opportunities

Canada Green Building Council

The Canada Green Building Council (CaGBC) provides its members and other professionals in the buildings sector with a variety of courses and resources for designing and building sustainable spaces. Take your environmental expertise to the next level with in-class workshops, e-learning publications and exam-preparation resources. For more information about the training tools available through the CaGBC, visit www.cagbc.org/CAGBC/Education/CAGBC/Education/Education.aspx?hkey=29546284-2924-4966-8909-723c3a983293.

Building Owners and Managers Association of Canada

The Building Owners and Managers Association of Canada (BOMA) offers access to a wide range of educational programs and online assessment tools, including BOMA BESt (Building Environmental Standards) and e-Energy Training for Building Operations, to help you achieve your goals. Certification is available for five building types: offices, shopping centres, open-air retail plazas, light industrial buildings and multi-unit residential buildings. For more information, visit bomabest.com and bomacanada.ca/education/education_index.html.

Association québécoise pour la maîtrise de l'énergie

The Association québécoise pour la maîtrise de l'énergie offers several certification courses and workshops for individuals who are responsible for building energy efficiency. For more information, visit aqme.org/formations.html (available in French only).

Seneca College

Seneca College of Toronto, Ontario, offers the Building Environmental Systems program, which takes a comprehensive multi-skills training approach. The program serves the special learning needs of owners, companies and organizations interested in developing the optimum capacities of their staff. For more information, visit senecacollege.ca/ce.

Green Roofs for Healthy Cities

The Green Roofs for Healthy Cities initiative offers its Green Roof education program across North America. For more information, visit greenroofs.org/index.php/education/courseschedule.

Education Program Innovations Center

The Education Program Innovations Center (EPIC) offers a variety of practical courses to enhance the performance of engineers and other technical professionals across Canada. For more information, visit epictraining.ca/index.asp.

Industrial & Building Energy eXpertise

Industrial & Building Energy eXpertise (IBEX) is a self-paced, online training program in energy management. For more information, visit energymanagementtoronto.com/energy-training-course-ibex.html.

Canadian Institute for Energy Training

The Canadian Institute for Energy Training (CIET) offers a wide range of energy and water efficiency management training programs for industrial, commercial and institutional organizations. It also designs and delivers customized training to meet the specific needs of public and private organizations. For more information, visit cietcanada.com.

U.S. Environmental Protection Agency

The U.S. Environmental Protection Agency offers free online training to help you improve the energy performance of your organization. For more information, visit energystar.gov/buildings/training?c=business.bus_internet_presentations.

Canadian Standards Association

The Canadian Standards Association offers a two-day course on how to implement an energy management system by using ISO 50001. It will enable practitioners to build the necessary systems and processes to improve energy efficiency, reduce consumption and associated costs, and improve overall energy performance in their organization's operations. For more information, visit shop.csa.ca/en/canada/business-and-quality-management-training/implementing-iso-50001-energy-management-systems/invt/500600682012.

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10.4 Other resources

Natural Resources Canada's Buildings Division

Working under the mandate of Natural Resources Canada's Office of Energy Efficiency, the Buildings Division offers energy management leadership, best practices and capacity-building resources for Canada's commercial and institutional buildings. We work with stakeholders across the country to offer tools, resources and information that build awareness and lead to action – ultimately helping Canada's building sector become a world leader in energy performance.

For more information, visit nrcan.gc.ca/energy/efficiency/buildings/13556.

Case studies of energy management training programs

Building Operator Certification (theboc.info/why-boc/success-stories/#case-studies).

Evaluations of energy management training programs and conferences

Building Operator Certification (theboc.info/why-boc/energy-savings-evaluation-reports/).

Bensch, I., Pigg, S., & Anderson, M. (2006). "How much is that training program worth? Quantifying the value of training and other "fuzzy" education events." 2006 ACEEE Summer Study on Energy Efficiency in Buildings. Retrieved from ecee.org/library/conference_proceedings/ACEEE_buildings/2006/Panel_6/p6_3.

Directory of energy efficiency and alternative energy programs in Canada

A searchable database of energy efficiency programs in Canada, including training opportunities and financial incentives, is available through the website of Natural Resources Canada's Office of Energy Efficiency at oee.nrcan.gc.ca/corporate/statistics/neud/dpa/policy_e/programs.cfm.

Report from the annual Energy and Mines Ministers' Conference

Natural Resources Canada. (2013). *Energy Efficiency Update 2013 – Energy efficiency: Taking a balanced approach*. Retrieved from nrcan.gc.ca/sites/www.nrcan.gc.ca/files/www/pdf/publications/emmc/EE_update2013_e.pdf.

Appendix A:

List of case studies

The following case studies are summarized throughout this guide:

- Association of Municipalities of Ontario (page 10)
- Blue Cross Centre (page 5)
- Canlan Ice Sports (page 10)
- Department of Fisheries and Oceans (page 29)
- Ontario Power Authority (page 7)
- Royal Canadian Air Force (page 21)
- Thompson Rivers University (page 9)

To read the full case studies, visit nrcan.gc.ca/energy/efficiency/buildings/emt/cases/4181.

Appendix B:

Business case template

You can use this template to develop a business case for energy management training in your organization. Although the template provides some basic structure and example case studies, you should customize all the sections to reflect your organization's specific situation and needs. Your business case should include relevant statistics and research that support the business case as well as a cost/benefit analysis to help assess the value and return on investment of energy management training.

An example of a completed business case is presented in Section 5.2.

Executive summary

The executive summary:

- Provides clear reasons for investing in training and its outcome by outlining the "why, what, when, who and how" of the project.
- Includes only information that is in the body of the business case.
- Should be written as a stand-alone document.

Investment in energy management training is an integral component of any effective energy management strategy. Technology alone does not guarantee energy savings: the operations staff and occupants at [INSERT NAME OF ORGANIZATION] who use and manage energy are also key factors in a building's energy performance.

For these reasons, it is recommended that [INSERT NAME OF ORGANIZATION] provide one-day energy management training to key personnel (e.g. energy managers, facilities managers, building operators) annually. [INSERT NAME OF EXTERNAL TRAINING CONSULTING COMPANY] would provide the training.

Assuming a conservative estimate of 2% energy savings, a cost/benefit analysis finds that an annual investment of \$7,800 in training would result in \$20,000 in energy savings each year.

In addition to increasing the awareness, knowledge and skill level of the workforce – which will ultimately lead to energy and cost savings for [INSERT NAME OF ORGANIZATION] – training is an opportunity to engage staff and promote a culture of energy savings throughout the entire organization.

Background and current state

Describe the current energy management situation at the organization. Provide results from a training needs assessment as well as one or more of the following:

- Energy performance benchmarked against other organizations in the same sector.
- Historical annual energy consumption and cost data.

Problem/opportunity

Technology alone does not guarantee energy savings: the operations staff and occupants at [INSERT NAME OF ORGANIZATION] who use and manage energy are also key factors in the energy performance of its buildings.

The staff responsible for managing buildings face constant pressure to reduce both utility costs and environmental impacts – all while having to balance the needs of tenants, owners, utility providers, governments and the greater community. These competing priorities make it difficult to determine how best to institute energy management processes and procedures, especially in the absence of proper training.

A well-trained workforce, however, increases efficiencies and reduces energy and maintenance costs, which will provide [INSERT NAME OF ORGANIZATION] with a higher return on investment in both personnel and equipment.

Analysis of the current situation

[INSERT NAME OF ORGANIZATION]'s energy costs are higher than average compared to other organizations in our sector. One reason for this is the operations staff have not had energy management training.

A recent needs assessment of the operations staff shows a discrepancy between actual and desired job performance. The conclusion is that training is required to achieve greater building energy efficiency. That conclusion is based on an evaluation of the skills, knowledge, attitudes and competency level that each operations position requires.

Training outcomes

Vision statement

[INSERT NAME OF ORGANIZATION] is committed to investing in energy management training, which will provide the following outcomes:

- Operations staff are knowledgeable and motivated to save energy and manage our high-performance buildings;
- Operations staff run building systems optimally by using metering information and advanced controls.
- Managers approve capital budgets for energy efficiency investments.
- All staff modify their behaviours to consider energy use in their day-to-day operations.

Training program objectives

Energy management training will support energy management activities that will help reduce energy use to the lowest quartile in our peer group (i.e. lowest energy use per unit area adjusted for weather).

Measures for gauging improvements

We will use energy benchmarking to gauge performance or progress toward objectives. In addition, we will administer surveys of participants' knowledge and actions before and after training to measure the efficacy of the training.

Benefits of training

Investing in energy management training will provide a variety of benefits to our organization: increased staff awareness in energy management principles, a more knowledgeable and skilled workforce, and energy and cost savings.

To illustrate, the Blue Cross Centre in Fredericton, New Brunswick, has experienced an annual 20% reduction in energy consumption since 2007. The operations manager, Richard Krick, attributes this to the Natural Resources Canada workshops and other energy management training that he and his maintenance supervisor have attended. Also, several impact studies on the U.S. Building Operator Training Program found that its participants have saved between 33,000 and 130,000 kWh (120 to 470 GJ) in electrical energy.

In addition to energy and cost savings, training provides an opportunity to engage staff and promote a culture of energy savings throughout the organization. For example, Canlan Ice Sports was able to save \$13,000 in energy costs just one year after taking Natural Resources Canada's Spot the Energy Savings Opportunities workshop – and that was just the beginning. Today, the operations managers of its 22 multipurpose recreation and entertainment facilities across North America consider themselves energy champions and are constantly devising and sharing new ways of saving energy at their facilities.

Risk management

Investing in energy management training does include potential risks, such as a lack of interest from staff, poor quality training, and lessons not being retained or implemented following the training.

However, these risks can be mitigated by following best practices such as:

- Providing relevant training based on needs assessments of staff competencies.
- Developing solid learning objectives for each training opportunity.
- Hiring qualified, engaging instructors to deliver the training.
- Providing a training setting that is conducive to learning.
- Developing mechanisms to incorporate knowledge and skills learned into new organizational policies and procedures.

Costs of not investing in training

Not investing in energy management training has cost implications for [INSERT NAME OF ORGANIZATION]. If staff do not take training, our energy use and costs will be higher, our product selection decisions for energy retrofit projects will be less informed, and we will be less prepared for regulatory changes.

In addition, staff will not have the knowledge and experience to select the appropriate tools and products for monitoring and tracking energy consumption and cost savings. They will also not have the opportunity to learn from peers and experts about the problems others have experienced in this area – meaning they will likely continue to repeat existing mistakes, resulting in continued lost efficiencies in building systems.

Implementation strategy

Preferred training approach

This section provides a description and rationale for the preferred training approach based on:

- Needs assessment of the target audience (determining the skills/ knowledge required by staff).
- Type of training needed (technical, organizational, behavioural).
- Who will provide the training (internal or external provider).
- Expected level of support (management buy-in, commitments for staff time and a budget).

Live workshops, seminars, post-secondary courses, online courses and webinars are all potential methods for delivering energy management training. [INSERT NAME OF ORGANIZATION] should offer a combination of approaches to meet the needs of its diverse workforce.

Alternative approaches for training

This section lists alternative approaches for training that have been considered and how they would or would not work for the organization. Include reasons for recommendation and potential objections to each option.

The following table lists alternative approaches to training and includes reasons for and against these options.

Alternative approaches	Recommend	Reasons for recommendation	Potential objections

Project management and timeline

The [INSERT JOB TITLE (e.g. ENERGY MANAGER)] will work with the facility managers to organize and implement the training sessions. Facilities managers can support the initiative by including expectations for training in performance reviews and goal setting and by providing budgets and time at work for staff to take the training.

Training will be held at [INSERT LOCATION] on [INSERT DATE AND TIME] to allow the greatest number of staff members to attend.

Cost/benefit analysis

Based on the following cost/benefit analysis, providing one-day training to 10 operations staff will cost \$7,800 – but will save approximately \$60,000 in energy costs over the next three years. This analysis shows a payback period of fewer than five months and a return on investment of more than 150%.

Cost/benefit analysis for energy management training	
Costs	
Attendance costs per person	\$300
Time costs per person (at \$60/hour)	\$480
Subtotal	\$780
Number of attendees	× 10
Total one-time cost	\$7,800
Benefits	
Current annual energy costs	\$10,000,000
Percentage of facilities affected by workshop attendees	× 10%
Energy costs affected by workshop attendees	\$1,000,000
Savings identified through workshop attendance	× 2%
Total annual savings	\$20,000
Payback period (years) <i>(total cost of training divided by total savings)</i>	0.39
Return on investment	more than 150%

To calculate the return on investment, the benefit (return) of an investment is divided by the cost of the investment; the result is expressed as a percentage or a ratio. The return on investment formula is:

$$ROI = \frac{\text{gain from investment} - \text{cost of investment}}{\text{cost of investment}}$$