



## ecoENERGY Efficiency for Buildings

The Canadian buildings sector can make a significant contribution to the reduction of our greenhouse gases. Nearly half a million commercial and institutional establishments provide spaces for our education, health care, government and business and account for 14 percent of energy consumption and 13 percent of emissions.

Energy efficiency is a proven strategy to lower emissions and reduce energy use and costs. Despite this, many Canadian building owners and managers have not taken advantage of the benefits of becoming more efficient. Technologies, know-how and processes available today can reduce costs, improve performance, increase occupant comfort and contribute to a cleaner environment.

### Building opportunities

Natural Resources Canada's (NRCan's) **ecoENERGY Efficiency for Buildings** provides information and resources to transform your energy bill into a business opportunity. We encourage a comprehensive approach that considers energy use over a building's lifespan. Whether you own, manage or operate a new, existing or federal building, you can integrate energy efficiency into your operations, regardless of what phase you are at in the building life cycle. Our roster of tools and services includes options for energy-efficient design and retrofits, benchmarking and training, and building optimization through commissioning and recommissioning.

### Energy-efficient new buildings

Investing in energy efficiency at the design and construction phases yields substantial benefits that continue over the life of the building – typically 30 years or more.

#### Canada's new national energy code for buildings

Improved energy codes generate energy savings in a consistent and long-lasting manner. The new *National Energy Code of Canada for Buildings 2011* provides minimum requirements for the design and construction of energy-efficient buildings, as well as an objective-based format with multiple compliance path options. When adopted, the new code will provide an overall 25 percent improvement in energy efficiency over the 1997 code. An update to the 2011 code (planned for late 2015 or early 2016) will include new efficiency guidelines and energy performance targets for specific building types. For more information, visit [nationalcodes.ca](http://nationalcodes.ca).

### Building commissioning

Commissioning is a proven way to optimize energy performance: an uncommissioned building can cost from 8 percent to 20 percent more to operate than a commissioned one.<sup>1</sup> Often overlooked, commissioning is an intensive quality assurance process applied during design, construction, occupation and ongoing operation. Through testing, verification and training, commissioning ensures that a building's systems and equipment are installed and functioning as intended.

With support from NRCan, the Canadian Standards Association (CSA) produced Canada's first national standard on the commissioning of buildings: CSA Z320, Building Commissioning. For more information, visit [shop.csa.ca](http://shop.csa.ca). NRCan also offers guides, software and other resources to support your new building commissioning projects.

### Energy-efficient existing buildings

Energy retrofits to existing buildings can contribute to significant long-term savings. However, other low-cost opportunities are also available from NRCan to improve the energy efficiency of these buildings.

## COMING SOON!

### A national benchmarking tool is coming to Canada

*Measure to manage.* What gets measured can be improved. The new **ecoENERGY Efficiency for Buildings benchmarking tools** will help you make decisions to maximize your efficiency by providing you with a variety of tools that track and compare your energy performance against that of similar buildings across Canada.

Based on the U.S. Environmental Protection Agency's (EPA's) online energy management and tracking tool, Portfolio Manager™ will be available on a progressive basis starting in 2013. This free tool will include Canadian weather data, a bilingual interface and metric units.

Supported by many stakeholders in the Canadian buildings sector, **ecoENERGY Efficiency for Buildings benchmarking tools** will assist accreditation by top building rating systems, including the Canada Green Building Council's Leadership in Energy and



Environmental Design (LEED) program and the Building Owners and Managers Association (BOMA) of Canada's Building Environmental Standards (BEST) program.

Start using *Portfolio Manager* now! Data will be automatically transferred to the Canadian system in 2013. Visit the EPA's Web site at [energystar.gov](http://energystar.gov) to learn more and start entering your data now.

### Building recommissioning

Recommissioning is one of the most cost-effective ways to improve an existing building's energy performance. It improves how building equipment and systems function together and resolves problems that can develop during design, construction and daily operations. Recommissioning leads to lower energy costs, increased performance, improved indoor air quality and enhanced property values and can yield energy savings of up to 16 percent with a typical payback of just over a year.<sup>2</sup>

Technical advice and information – including workshops, courses, software, guides, case studies and other offerings – are available from NRCan to get your existing building commissioning projects under way.

### Energy-efficient federal buildings

**Leading by example:** The Federal Buildings Initiative (FBI) is a key tool to enable federal departments and agencies to reach their emissions reduction targets under the Federal Sustainable Development Strategy.

Since 1991, the FBI has assisted with more than 85 retrofit projects, generating over \$43 million in annual savings. The FBI has been expanded recently to offer an even greater level of service, including a community of practice on energy efficiency best practices. Offering in-depth support and technical advice to navigate the government procurement process, the FBI facilitates energy performance contracts and provides advice on environmental assessments. The FBI also maintains an online list of energy service companies that can bid on federal projects.

<sup>1</sup> EnergyIdeas Clearinghouse, *Building Commissioning for New Buildings: Energy Efficiency Factsheet*, Washington State University, [www.energyideas.org/documents/factsheets/BuildingCommissioning.pdf](http://www.energyideas.org/documents/factsheets/BuildingCommissioning.pdf).

<sup>2</sup> Mills, Evan, *Building Commissioning: A Golden Opportunity for Reducing Energy Costs and Greenhouse Gas Emissions*. Lawrence Berkeley National Laboratory, July 21, 2009, p. 22, [cx.lbl.gov/2009-assessment.html](http://cx.lbl.gov/2009-assessment.html).

### Capacity building

**Training, information and awareness-building** are essential to a comprehensive approach to energy efficiency. An integrated approach includes not only the "hard" elements, such as capital upgrades, but also the "softer" elements, such as organizational and behavioural change. Ongoing capacity building ensures that technical and operating staff are qualified to operate equipment safely and is key to keeping your energy strategy on track. **ecoENERGY Efficiency for Buildings** offers tools, information and how-to guides to increase the capacity of your staff and address both the "hard" and "soft" sides of energy management.

**Dollars to Sense workshops:** Our renowned energy management workshops have already provided practical information and know-how to more than 23 000 people across Canada. We can train your employees to use the latest tools, incorporate best practices and build a culture of energy efficiency. Workshops can be customized to meet the specific needs of your organization. Register for the following workshops across Canada:

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

**RETScreen® International training:** When designing or retrofitting a building, use RETScreen® Clean Energy Project Analysis Software. This unique decision-support tool helps you evaluate savings for a wide range of renewable energy and energy-efficient technologies. NRCan's RETScreen® software is a proven enabler of clean energy projects worldwide. Visit [retscreen.net](http://retscreen.net) to find out more.

### For more information

**ecoENERGY Efficiency for Buildings** offers a wide range of tools and publications, including newsletters, online calculators, case studies, technical fact sheets, guides and financing information. For more information, visit NRCan's Office of Energy Efficiency at [oee.nrcan.gc.ca](http://oee.nrcan.gc.ca).

Natural Resources Canada's Office of Energy Efficiency  
*Leading Canadians to Energy Efficiency at Home, at Work and on the Road*

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