

Introduction

Municipalities across Canada are taking leadership roles in reducing the impact of their activities on air, water, and soil, as well as encouraging environmental action throughout their communities. In doing so, they are helping to create healthier, more liveable environments for their citizens and ensure a sustainable future for future generations.

Reducing energy consumption in buildings reduces emissions of harmful air pollutants and greenhouse gases, contributes to fewer smog alerts, and uses limited fossil fuel resources more effectively. In doing this, municipal governments renew aging buildings and equipment while achieving significant savings in utility costs.

The Federation of Canadian Municipalities has created the Sustainable Communities: Municipal Building Retrofit Guide (the MBR Guide) as a one stop resource for the municipal sector. Its purpose is to consolidate into one working document the templates, guides, and reference materials required to build a business case for a comprehensive retrofit program for your municipality.

FCM encourages you to consider innovative technologies in your project planning, such as the development of community energy systems or use of renewable energy sources. Retrofit projects that include such ideas may qualify for grants or loans through FCM's Green Municipal Funds.

For further information on this Guide and how FCM's Green Municipal Funds can assist your municipality in project development and implementation, contact:

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What is FCM?

The Federation of Canadian Municipalities, which developed this guide, has been recognized since 1901 as the national voice of municipal governments. FCM is dedicated to improving the quality of life in all communities by promoting strong, effective and accountable municipal government. It represents the interests of all municipalities on policy and program matters within federal jurisdiction. Its 1,000 members include Canada's largest cities, small urban and rural communities and the 18 major provincial and territorial municipal associations.

How to Use this Guide

The MBR Guide is intended to help Canadian municipal governments to evaluate and establish a comprehensive building retrofit program. It describes a clear process for retrofitting municipal buildings and provides the templates, guides and reference material needed to build a business case for a comprehensive, retrofit program within your municipality.

Organization of Guide

The guide is organized into eight sections, along with an Introduction, Resource Manual and Appendix, and accompanying guides to training, communications and community-wide retrofit programs. Each section corresponds to one step in FCM's recommended eight-step process. This process is outlined in Section 1, Overview and Enrolment.

Each section is organized into three parts:

Introduction: describes the purpose of that step in the process as well as partners, information requirements, action items, templates, and next steps

Guide: describes the information required for each template, outlines alternatives, and makes suggestions based on other municipal examples

Template: provides an adaptable sample report or plan: the output that will be required to move the retrofit program forward to the next step

This section introduces FCM's Municipal Building Retrofit process and this guide.

Section 1 – Overview and Enrolment

This provides an overview of FCM's eight-step process.

Section 2 – Green Leaf™ Assessment

Green Leaf™ is a unique management tool, provided in partnership with TerraChoice Environmental Services, to help assess how prepared your municipality is to implement an energy management strategy across its building portfolio. A sample survey and guide for Green Leaf™ Phase I is included.

Section 3 – Post Assessment Review

The post assessment review is a meeting between municipal facilities management staff, senior management, and councillors. The purpose of this meeting is to review the assessment, seek commitment to create an action plan and identify needs for support and training.

Section 4 – Action Plan

Based on results of the Green Leaf™ Assessment and Post Assessment Review, your staff will create an Action Plan that makes the broad financial and organizational business case for a retrofit program. Ultimately, the goal is to obtain commitment for the resources required to prepare a project proposal.

Section 5 – Project Proposal

The Project Proposal defines retrofit priorities and recommends financing and implementation options. It provides more detail than the action plan on the scope and objectives of the specific retrofit proposed. At this stage, the goal is to seek approval to conduct feasibility studies on target buildings.

Section 6 – Feasibility Study

Most municipal governments will require both preliminary and detailed feasibility studies. Their purpose is to confirm detailed requirements for specific retrofit measures, building by building.

Section 7 – Project Implementation

This section describes implementation and construction measures and issues that can arise during the construction phase.

Section 8 – Monitoring and Verification

Construction workers have left, but the job of saving money has only begun. This section describes the needs, challenges and options for ongoing monitoring, verification and maintenance of good operating practices.

Each section in this Guide contains specific information to assist you with the tasks required for that step of the process. You will see these icons throughout the guide, indicating the different types of action items required.



1. Team/Partnership

Throughout the retrofit process, you will need information, expertise and support from a variety of sources. This icon highlights the types of partners needed at each step. Internal partnerships are referred to as Teams throughout this document.



2. Information Requirements

The information icon highlights the type of information required at each step of the process. Information will range from basic utility bill costs to detailed spot metering.



3. Action Items

This icon highlights the key actions during each phase and the important decisions, typically taken at the end of the phase.



4. Template Material

This icon highlights FCM model documents – templates – that have been prepared specifically for municipal retrofits. Using these templates helps you build a solid business case for retrofits and ensures that contracts and requests for proposals cover all the bases.



5. Next Steps

This icon provides a preview of the tasks that will follow the current section.



6. Additional FCM Support

This icon highlights additional support available from FCM. Additional support ranges from specific workshops and the TerraChoice Green Leaf™ program, to a unique municipal exchange program and important contact information.



Additional Materials

Additional materials are contained on the accompanying CD ROM or at <http://kn.fcm.ca>

Resource Manual

This reference section provides detailed information to support the decisions that are required throughout the building retrofit process. The Resource Manual contains information on topics ranging from financing alternatives and data collection to renewable energy, measurement and verification, and community-wide retrofits. In addition to this, several model documents have been prepared specifically for municipalities. Material in the Resource Manual is referenced throughout each of the Guide's sections.

Training Manual

The training guide provides information on FCM workshops designed specifically for municipalities, as well as other energy-related training opportunities available for municipal staff.

Communications Manual

The Communications Manual provides the rationale and tips for implementing an effective communications strategy. A Manager's Guide to Creating Awareness on Energy Efficiency (the French version, *Trousse D'Efficacite Energetique Pour Le Milieu Municipal*, can be obtained from the Quebec Agence de L'Efficacite Energetique) outlines various methods for communicating the success of your own building retrofit program to municipal staff and members of your community. Techniques such as explanatory signage, feedback about results, recognition for achievements, and promoting financial incentives are provided, with accompanying templates, logos, and model documents. This manual can be obtained from FCM or Natural Resources Canada's Efficiency and Alternative Energy Program.

Case Studies

The Case Studies section presents a series of municipal building retrofit case studies, as referenced throughout the MBR Guide. The case studies highlight some of the issues and barriers municipal governments need to address when retrofitting facilities.

Overview

This section provides an overview of FCM's Municipal Building Retrofit process (the MBR process) and details options for commitment, the role of the Federation of Canadian Municipalities (FCM), and why FCM recommends a strategic, eight-step process for undertaking building retrofits. It also details the work and information that will be required from municipal staff at each stage.

A template for a letter of commitment is included. Although this letter is not required for you to proceed with a retrofit program, it can be an excellent tool for a municipal champion to gain support from senior management, and as a reference document later in the process.

Background

The MBR process supports municipal governments that seek to improve the energy efficiency of their buildings, helping them to create a compelling business case for an energy and water conservation program. The MBR Guide, and accompanying Resource Manual, is offered at no charge to municipalities in Canada.

FCM's eight-step process takes three strategic directions:

- Securing senior management and council support
- Influencing institutional decision making through strategic level planning
- Supporting champions

Communities following the process benefit from the following materials:

- Support in developing a building energy use inventory and rating
- Templates for strategic energy planning
- Model requests for proposals, contracts and procurement guidelines
- Assistance in exploring financing options (through FCM's Green Municipal Funds)
- Capacity building through workshops, case studies and toolkits

The Strategic Path to Investment

Perhaps the most important principle behind FCM's strategic approach is the commitment to putting all opportunities together into a comprehensive retrofit program. Municipal governments are often tempted to skim off only the most obviously cost-effective energy-efficiency projects, such as lighting changes that pay off their cost within a year or two. On paper, they secure an excellent rate of return – but miss the majority of the opportunities for long-term savings. Taking the time to identify all opportunities that provide an acceptable return on investment will dramatically increase dollar savings and related benefits.

This strategic approach aggregates all retrofit measures so that the faster payback items subsidize the longer-term opportunities. It analyzes their feasibility, taking into account each facility's operating costs, age and overall efficiency. It highlights the potential for improving indoor air quality and occupant comfort. It provides a rationale for ongoing cost control. Its comprehensive package of measures becomes a significant engine for direct and indirect local job creation, as well as increased staff expertise. In effect, this approach takes energy efficiency from the project level to the program level – an investment that can be justified and managed as a single entity.

Collecting complete information on each piece of equipment in every building is expensive. The other key principle at work in this process is to gather only the information required to focus the next stage of decision-making.

FCM's Municipal Building Retrofit (MBR) Process

FCM recommends a systematic, eight-step process, outlined in the accompanying Process Flow Chart. This process takes into account the kinds of information usually available and the normal decision-making processes in Canadian municipal government. It creates a sound business case for moving forward with a building retrofit program. Each step is designed to begin work with strategic-level information that is currently available, and to build on that information with increasing levels of detail to verify assumptions. With more detailed information, decision-makers can confirm their commitment to progressive steps that require resources of time and money.

The information already available and the business case requirements will differ for each municipal government. Municipal governments tailor the process to their needs, combining or eliminating steps as appropriate.

Data Collection

Each step of the MBR process collects more detail about your buildings, equipment and utility costs. The information needed at each step builds on the previous step: where data are already available, you can move more quickly through the process.

1. Strategic level: The Action Plan (Step 4) uses basic building characteristics and utility records to demonstrate potential energy savings.
2. Portfolio level: The Project Proposal (Step 5) requires detailed energy costs and building data.
3. Building level: Through facility audits, the Preliminary Feasibility Study (Step 6) quantifies baseline data on energy use and potential energy and financial savings.
4. Equipment level: The Detailed Feasibility Study (Step 6) identifies the actual energy consumption of each piece of equipment to be replaced.

Milestones

The MBR process identifies clear project milestones and reporting requirements. Each step carries a deliverable that will serve as a measure of progress toward a comprehensive retrofit program.

FCM supports your progress through telephone support, technical information and access to regional workshops and training sessions. While membership in MBR does not guarantee grants from FCM's Green Municipal Funds, the Green Municipal Enabling Fund is designed to support feasibility studies for extensive, innovative building retrofits, particularly those involving renewable energy. A portion of the Green Municipal Investment Fund is reserved for capital investment in energy and water efficiency in municipal buildings. Its loan rates will be particularly attractive to private sector or public sector partners in a municipal retrofit.

Other valuable FCM resources that assist in moving your retrofit program forward include workshops on strategic energy planning, on uncovering energy savings opportunities, and on monitoring and verification. Contact FCM staff for current schedules and fees.