

Market Analysis and Program Design for Municipal Retrofit Programs

Introduction

1. The heating and cooling of the space and water in buildings we live in and work account for a quarter of all Ontario emissions. Drastic reduction of building emissions is key to achieving our collective GHG reduction targets.
2. To do this, our buildings need to be properly insulated, and our heating, ventilation, and cooling equipment need to be efficient, and powered by clean electricity. Energy efficiency retrofit programs are critical to reducing emissions from the residential and commercial sectors.
3. Potential improvements in existing buildings include building envelope improvements such as insulation, draft proofing, the installation of high-efficiency furnaces/boilers/air conditioners, air/ground source heat pumps, high efficiency/tankless water heaters, waste heat recovery systems, solar/PV hot water systems, electric vehicle charging, and water conservation such as water efficient-toilets.
4. Reducing building emissions can be challenging - energy efficiency retrofit programs need to be designed and implemented in a manner that is attractive for homeowners. They should not be overly burdensome for municipalities and should generate significant emission reductions.
5. Federation of Canadian Municipality's [Community Energy Financing program \(FCM CEF\)](#) has two funding streams to address these challenges – one allows for feasibility and design studies into energy efficiency programs, and another provides capital and grants to fund these programs based on the research from the feasibility stage.

Program Benefits

6. The benefits of a municipal Community Energy Financing program are:
 - Creation of high-paying local green jobs
 - Keeping energy dollars local (most electricity and gas expenditure leaves the community)
 - Achieving municipal GHG reduction targets
 - Growth and innovation in the clean-tech sector
 - More resilient, better-built homes, lower utility bills for homeowners

Program Barriers

7. The barriers to advancing a municipal Community Energy Financing program include:
 - Temporary disruption for homeowners (like all renovations)
 - Program costs – start-up and running costs, potential rebates for homeowners
 - Lack of homeowner motivation to undertake retrofits
 - Mortgage lender concerns
 - Limited availability of qualified retrofit contractors
 - Lack of customer knowledge and/or value for energy efficiency

Cost and Energy Saving Potential

8. Clean Air Partnership and Lightspark Inc. conducted an analysis to determine the cost and energy saving potential of residential home retrofits and categorized all houses into archetypes with average annual energy costs varying from \$2000 to \$12,000. These homes release carbon emissions ranging from 1.5 to 20 TCO₂ eq/year. Capturing carbon savings by focusing on these homes is key to decarbonizing housing stock in a municipality.
9. Retrofit design reports (see point #19) were developed for a cohort of seven municipalities in Ontario. The cohort approach reduced the burden on municipal staff, increased departmental engagement across municipalities, gained efficiencies of scale and consistency in approach.

Retrofit Program Financing Options

10. Ontario municipalities have the following three financing options to consider as they advance their retrofit program:
 - **Local Improvement Charge (LIC) Financing** - Municipalities have the authority to use LICs by creating a program to provide homeowners with a loan to implement retrofits on their property. These loans are attached to the property, can have longer repayment terms, lower interest rates, lower risk of defaults, and are transferable between current and future homeowners.
 - **3rd Party Financing** - Municipalities can capitalize on programs through partnerships with banks or credit unions. Due to 3rd party lending terms, this option may only be available to residents with home equity or adequate income.

- **On Bill financing** - This mechanism allows the utilities to incur the cost of retrofits, which is then repaid by homeowners on their utility bills. This option requires agreements and partnerships with utilities.

Program Administration

11. The administration framework for a municipal retrofit program could include –
 - Market analysis and program design
 - Proposal writing
 - Developing and managing program web and client management infrastructure
 - Customer application supports
 - Reviewing applications
 - Developing and disseminating outreach materials
 - Approving customer applications and payments
 - Homeowner supports - audit support, audit interpretation, contractor selection assistance, knowledge translation
 - Incentive Management - accelerate program uptake, reduce energy poverty, drive deep energy retrofits and fuel switching
 - Contractor Engagement – participant verification, contractor awareness, energy efficiency knowledge building, contractor demand and availability, building diversity and capacity within contractor trades
 - Establishing a Capital Loan Loss Reserve – (typically 5-10%) to alleviate mortgage default concerns and financier concerns

Municipal Implications

12. By implementing a retrofit program, municipalities can create green jobs in the community, support local economic development, increase local energy efficiency expertise, reduce energy costs for homeowners, and reduce community emissions causing climate change.
13. Retrofit programs support municipalities in dramatically reducing the number of households experiencing energy poverty, improving the community's building stock and asset values, creating healthier homes and reducing a community's vulnerability to increasing energy costs
14. To advance a retrofit program through the FCM CEF project, municipalities need to consider the following key decision points:
 - **FCM CEF Application** – Approval from the Council for staff to advance an FCM CEF application
 - **Financing Mechanism** – Willingness of a municipality to use its LIC authorities or opt for other financing mechanisms
 - **Capital** – Willingness of a municipality to cover 20% of total program costs (the funding streams cover 80% of eligible costs).
 - **Program Delivery Model** – If the municipality wants to work with a 3rd party delivery agent or deliver the program internally
 - **Participant Verification** - Levels of financial verification requirements for the program
 - **Loan Loss Reserve** – Incorporating a loan loss reserve fund or not

Related Webinars and Further Reading

15. [FCM Community Energy Financing Program Guide](#)
16. [Clean Air Partnership Local Improvement Charges Briefing Note](#) and [toolkit](#)
17. [FCM Community Energy Financing Resources](#)
18. [PACE Programs \(United States\)](#)
19. [Final Dufferin County Design Report](#) (Jump to page 200)