



# MONITORING & EVALUATION FRAMEWORK

*for Local Improvement Charge Pilot Programs*



# Clean Air Partnership

## ABOUT THE CLEAN AIR PARTNERSHIP:

Clean Air Partnership (CAP) is a registered charity that works in partnership to promote and coordinate actions to improve local air quality and reduce greenhouse gases for healthy communities. Our applied research on municipal policies strives to broaden and improve access to public policy debate on air pollution and climate change issues. Clean Air Partnership's mission is to transform cities into more sustainable, resilient, and vibrant communities where resources are used efficiently, the air is clean to breathe and greenhouse gas emissions are minimized.

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1.0 |

# OVERVIEW



## 1.1 | INTRODUCTION

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**Local Improvement Charge (LIC) financing**, also known as Property Assessed Clean Energy (PACE) financing is an effective mechanism that may be a key tool for municipalities wishing to promote GHG emission reductions from residential homes.

This Monitoring and Evaluation (M&E) Framework was created to support municipalities in understanding the success of their LIC pilot programs. This framework is intended to guide improvement of LIC pilot programs, to facilitate implementation and delivery of complete long-term offerings. This framework can be used in reporting to Council as well as program funders.

It is designed for use in single family home LIC programs, following the program design previously identified in the [Local Improvement Charge Financing Toolkit](#). While created for municipal use, other key stakeholders involved in the creation and delivery of LIC programs may also wish to use this framework.

This M&E Framework will help in the identification and circumvention of key LIC program barriers, including but not limited to;

- 📖 **Low program uptake**
- 📖 **Performance risk**
- 📖 **Financial risk**
- 📖 **Program cost overruns**
- 📖 **Participant dissatisfaction**
- 📖 **Contractor availability**

## 1.2 | MONITORING AND EVALUATION TYPES

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Monitoring focuses on the systematic collection of program indicators and is used at set intervals throughout program delivery. Evaluation is a more complete interim or final analysis of a program's impacts, identifying outcomes, successes and lessons learned. To ensure objectivity, evaluations are typically performed by third parties. LIC/PACE programs should plan and budget for monitoring and evaluations from the outset. A recommended evaluation budget for LIC/PACE programs is 10% of total administration fees.

This M&E Framework is to be implemented during the development, delivery and completion of LIC pilot programs. Three types of studies and reports are commonly used for monitoring and evaluation: **monitoring reports**, **process studies**, and **impact studies**.

### MONITORING REPORTS

Monitoring reports track performance indicators, often taken from the program database. They should be easy to compile, simple in their presentation, and released regularly. These reports allow program administrators to address problems and barriers to success in a timely manner.

Some performance indicators that could be used are presented here:

- ℒ ***Measures of program interest***
- ℒ ***Participation and dropout rates***
- ℒ ***Number and dollar value of projects underway or completed***
- ℒ ***Administration, marketing, and municipal loan costs***
- ℒ ***Status of property tax accounts with LIC loans***
- ℒ ***Participating property information, including building characteristics and energy performance***
- ℒ ***Retrofit measures, including cost, useful life, estimated energy and GHG savings***
- ℒ ***Community GHG inventory***

## **PROCESS STUDY**

Process studies assess program efficiency and effectiveness. They are used at the end of a pilot program, or at specific intervals through a pilot. They evaluate how well the processes involved in the program worked to achieve the program goals. When program budgets are tight, M&E should focus on this area as it has the greatest potential to improve program performance. Processes commonly evaluated are marketing and outreach, market evaluations, application process including reasons for participant dropout, financial competitiveness, and internal management plus application processing.



These evaluations typically use carefully constructed surveys or interviews with homeowners in all stages of the process, including dropouts plus people involved in delivering and promoting the program: administrators, contractors, energy auditors, etc. These results are analyzed in the context of the program design, marketing strategy, and economic conditions to identify process adjustments that can be used to improve program efficiency and effectiveness.

With LIC/PACE programs, a low participation rate is a common obstacle to success. A process study can help to identify barriers to participation, program awareness levels among targeted homeowners, reasons for participant dropouts, and other factors that limit participation. Recommended program adjustments to encourage homeowner participation are made in a process study.

## IMPACT STUDY

Impact studies are conducted at the end of a program. If a program runs for many years, an interim impact study may be used. The goal of the impact study is to quantify the multidimensional impacts of the program. These results are used to communicate results to stakeholders and funding partners and may be used to build a business case for program expansion, or to recommend design improvements. Some of the impacts that could be included are total participation rates, total capital investment, estimates of energy savings, estimates of GHGs reductions, effects on the local economy including job creation, and the total effect on the local building stock. These results will help to communicate the cost-effectiveness of the program.

## 1.3 | MONITORING AND EVALUATION PLANNING

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Plans and budgets for monitoring and evaluations (M&E) should be embedded in the LIC/PACE program design from the outset. In designing monitoring and evaluation processes, it is important to clearly define the program goals; identify the reporting requirements in the context of stakeholder interests; identify timeframes for reporting; and set an M&E budget.

While municipalities may collect certain metrics outside this framework, where possible, we will strive to ensure use of a harmonized set of metrics to allow for simple comparison of LIC programs across municipal boundaries. As such, this is a living document which can be maintained by Clean Air Partnership staff to respond to changing municipal needs. Similarly, Clean Air Partnership staff will coordinate quarterly data collection and maintain a database of program data for all municipalities who would like to participate. Collaborative data collection can also form a platform for future capital funding requests for participating municipalities.

There are four key stages in M&E planning. Stages 1 and 2 (developing evaluation plans and identification of data holdings) are iterative, where Stage 1 may require amendment based on the outcome of Stage 2. While not all municipalities will elect to go through all stages (or have adequate resources to do so), these stages are presented on page 7.

## 1) DEVELOP EVALUATION PLANS

- ☐ a. Determine the type(s) of evaluation.
  - ☐ b. Determine the scope of the evaluation(s).
  - ☐ c. Develop a timeline for evaluation activities.
  - ☐ d. Decide how to determine your program's cost-effectiveness.
  - ☐ e. Solicit proposals for evaluation services.
  - ☐ f. Evaluate proposals.
  - ☐ g. Negotiate and execute the contract.
  - ☐ h. Develop Resources.
- 

## 2) IDENTIFY THE TYPES OF DATA YOU NEED AND HOW YOU WILL COLLECT THE DATA

- ☐ a. Identify the processes and tools for collecting and assessing program data.
- ☐ b. Test your tools and processes before program launch.

## 3) CONDUCT EVALUATION

- ☐ a. Oversee evaluation activities.
  - ☐ b. Review evaluation deliverables.
  - ☐ c. Identify and mitigate potential risks.
  - ☐ d. Adjust scope and timeline to accommodate evaluation changes.
  - ☐ e. Communicate progress throughout the evaluation process.
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## 4) COMMUNICATE IMPACTS

- ☐ a. Understand and interpret evaluation results.
- ☐ b. Choose appropriate communications products and channels to reach your stakeholders.
- ☐ c. Determine how to present pertinent evaluation results in your communications products.
- ☐ d. Share evaluation results with program managers and other relevant parties.

## 1.4 | ADDITIONAL RESOURCES

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### DUNSKY ENERGY CONSULTING

In the report [Local improvement charge \(LIC\) financing pilot program design for residential buildings in Ontario](#), Dunskey Energy Consulting (2013) provides a range of useful resources and tips for conducting evaluations of LIC programs.

Some useful areas include:

- 📖 ***Linking M&E objectives to program goals***
- 📖 ***Identifying reporting requirements***
- 📖 ***M&E budgeting***

### U.S. DEPARTMENT OF ENERGY

The U.S. Department of Energy (2017) provides a comprehensive online [Evaluation and Data Collection Guide](#) for the development of monitoring and evaluation protocols for energy efficiency programs. While not specific to LIC/ PACE programming, the guide contains detailed resources for use at all stages of program evaluation, as well as tips for success, examples, a tool box of templates, forms and calculators, and additional resources.

2.0 |

**DATA SOURCES  
AND REPORTING  
FREQUENCY**



## 2.1 | DATA SOURCES

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While data custodians may vary based on LIC program design and evaluation design, there are essentially five data sources used (to various degrees) in the development of monitoring reports, process studies and impact studies:

- 1. **Delivery agent**
- 2. **Evaluator**
- 3. **Municipality**
- 4. **Energy and water utilities**
- 5. **EnerGuide Rating System**

### DELIVERY AGENT

The **delivery agent** refers to the agent responsible for the delivery of the LIC program. This can be either the municipality, or a designated third party. For pilot programs, this agent is generally the municipality. However, reflecting the differing program delivery models available, for the purposes of this monitoring and evaluation framework, it is not assumed that the delivery agent is the municipality, hence the term delivery agent is used throughout. Delivery agent data is used in all three stages in the monitoring and evaluation framework.

## EVALUATOR

The **evaluator** refers to the team responsible for evaluation of the LIC program. While again, this team will often be comprised of municipal staff only, some municipalities may choose to issue a Request for Proposals and use a third party evaluator. As such, in this monitoring and evaluation framework uses the term evaluator throughout, regardless of who manages the evaluation. Evaluator data is used in all three stages in the monitoring and evaluation framework.

## MUNICIPALITY

Throughout this framework, there are key points where the municipality must provide information. Whether third party delivery agents and evaluators are used or not, the municipality is a primary data custodian and primary information source. Municipal data is used in all three stages in the monitoring and evaluation framework.

## ENERGUIDE RATING SYSTEM

Energy advisors conduct pre- and post-retrofit energy audits using the Natural Resources Canada EnerGuide Rating System (ERS). This system provides a breakdown of home energy usage, before and after charts showing heat loss by building component, recommended upgrades and energy-saving results, and an EnerGuide home rating (pre- and post-retrofit). It is important to establish an agreement with NRCan before program roll-out to ensure access to the ERS database.

## ENERGUIDE RATING SYSTEM (CONTINUED)

While ERS results will be provided by homeowners as part of their program applications, the ERS database compiles these data in a single window, and applies quality assurance controls to the data. The ERS is a rich source of quantitative and qualitative data for use in both monitoring reports and impact studies.

## ENERGY AND WATER UTILITIES

Information from energy and water utilities provide a robust data set. These data reflect the actual performance of a building and its mechanical systems (reflecting **household** operating conditions vs **standard** operating conditions) and provide a definitive insight into the success of implemented retrofit measures. Data from energy and water utilities are used in impact studies.

**TABLE 1: MONITORING AND EVALUATION DATA SOURCES**

DATA SOURCE	MONITORING REPORTS	PROCESS STUDIES	IMPACT STUDIES
DELIVERY AGENT	✓	✓	✓
EVALUATOR	✓	✓	✓
MUNICIPALITY	✓	✓	✓
ENERGUIDE RATING SYSTEM	✓		✓
ENERGY AND WATER UTILITIES			✓



## 2.2 | REPORTING FREQUENCY

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### MONITORING REPORT FREQUENCY

During the pilot stage, monitoring should be conducted quarterly.

### PROCESS STUDY FREQUENCY

The process study is to be completed after each year of the pilot program.

### IMPACT STUDY FREQUENCY

The impact study is to be completed on pilot completion. If impact results are required for interim Council reporting, impacts may need to be quantified at an interim point in the pilot to align with Council reporting terms.



3.0 |

# MONITORING AND EVALUATION FRAMEWORK



## 3.1 | MONITORING REPORT

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Data captured in the Monitoring Report are grouped into the following six categories:

- 1. *Application data*
- 2. *Program uptake*
- 3. *Building data*
- 4. *Mechanical data*
- 5. *Audit data*
- 6. *General information*

Data sources used in the monitoring report include delivery agents, program evaluators, municipalities and ERS. Many municipalities will choose not to gather or collect certain data. For example, obtaining credit scores may be viewed as a barrier to uptake and thus not collected. This framework includes all possible data sources — the decision regarding whether to gather them remains with the municipality or program delivery agent.



**TABLE 2: APPLICATION DATA**

NAME	DESCRIPTION	SOURCE
<b>BUILDING ADDRESS</b>	Locational information on homes in program both as raw data and combined by post code FSA	Homeowner applications received by the Program Delivery Agent
<b>PROPERTY VALUE</b>	Average participant home value, collected individually, averaged by post code FSA and total program average	Homeowner applications received by the Program Delivery Agent
<b>CREDIT SCORE</b>	Credit score of LIC program applicant, generally provided by third party credit rating agency such as Equifax or TransUnion	Homeowner applications received by the Program Delivery Agent
<b>HOUSEHOLD INCOME</b>	Total household income of participating home	Homeowner applications received by the Program Delivery Agent
<b>PROPERTY TAX STATUS</b>	Property tax standing of applicant, including any history of defaults or arrears	Municipality — Revenue Services or similar department
<b>HOMEOWNER AGE</b>	Average age of participating homeowner	Homeowner applications received by the Program Delivery Agent
<b>TOTAL RENOVATION VALUE</b>	Total cost of home renovation under consideration	Homeowner applications received by the Program Delivery Agent
<b>LIC RENO %</b>	Portion of the total renovation requested to be financed through the LIC	Homeowner applications received by the Program Delivery Agent
<b>LIC HOME %</b>	LIC value relative to the total value of the home	Homeowner applications received by the Program Delivery Agent, MPAC assessments held by the municipality (can be > 3 years out of date)

**TABLE 3: PROGRAM UPTAKE DATA**

NAME	DESCRIPTION	SOURCE
<b>APPLICATION CONVERSION RATE</b>	Conversion rate from pre-applications or expressions of interest received to signed agreements	Enquiries received by Program Delivery Agent / municipality
<b>ENGAGEMENT RATE</b>	Number of signed agreements as a % of attendees at webinars and public information sessions, website hits and telephone enquiries received	Enquiries received by Program Delivery Agent / municipality
<b>WEB TRAFFIC GROWTH</b>	Rate of traffic growth to program website	Program Delivery Agent / municipality
<b>CONTRACTOR REFERRAL RATE</b>	Number of referrals received from contractors engaged in the program	Program Delivery Agent (intake form will ask how they heard of the program)
<b>OTHER REFERRALS</b>	Number of referrals received from others engaged in the program (utilities, local delivery partners, NGOs etc.)	Program Delivery Agent (intake form will ask how they heard of the program)
<b>PARTNERSHIPS ESTABLISHED</b>	Number of MOUs signed by program delivery agent with other groups such as utilities, contractors, delivery partners, NGOs, other orders of government etc.)	Program Delivery Agent
<b>REJECTED APPLICATIONS</b>	Number of rejected applications with reason for rejection	Program Delivery Agent
<b>PARTICIPATION WITHOUT FINANCING</b>	% of homeowners who conduct energy audits and use program resources, but do not use the LIC mechanism	Program Delivery Agent, ERS
<b>COMPLETED PROJECTS (\$)</b>	Value of LIC projects where both retrofit and post-retrofit energy audit have been completed	Program Delivery Agent

NAME	DESCRIPTION	SOURCE
<b>COMPLETED PROJECTS (#)</b>	Number of LIC projects where both retrofit and post-retrofit energy audit have been completed	Program Delivery Agent
<b>CURRENT ENROLLMENT</b>	Number of homeowners currently enrolled in the project with a signed agreement	Program Delivery Agent
<b>LIC TOTAL VALUE</b>	Value of all LICs associated with signed agreements (total value at point of signature)	Program Delivery Agent
<b>LIC CURRENT VALUE</b>	Value of all LICs associated with signed agreements (total outstanding value reflecting payments received)	Program Delivery Agent
<b>POST-RETROFIT AUDIT STATUS</b>	Number (and %) of participants who did not completed a post-retrofit audit and did not receive final disbursements	Program Delivery Agent

**TABLE 4: BUILDING DATA**

NAME	DESCRIPTION	SOURCE
<b>CONSTRUCTION YEAR</b>	Year in which the building was constructed	Homeowner applications received by Program Delivery Agent OR municipal database OR MPAC assessment
<b>BUILDING TYPE</b>	Detached, semi-detached, row, duplex, triplex (bungalow, two storey, three storey)	Homeowner applications received by the Program Delivery Agent
<b>FLOOR AREA</b>	Total floor area, and building footprint area (ground floor area)	ERS OR Homeowner applications received by the Program Delivery Agent OR MPAC assessment
<b>NUMBER OF OCCUPANTS</b>	Raw and mean number of residents per participating home	Homeowner applications received by the Program Delivery Agent
<b>WINDOWS</b>	Type, number and condition of all windows	ERS data
<b>INSULATION</b>	Insulation Effective RSI-values (R-values) for all walls, attic and basement	ERS data
<b>AIR SEALING</b>	Detail of any air sealing applied to prevent uncontrolled movement of outdoor air into the building through unintentional openings	ERS data
<b>BUILDING UPGRADE IMPEDIMENTS</b>	Detail of any impediments to building upgrades such as shared walls in a row house, etc.	Program Evaluator

**TABLE 5: MECHANICAL DATA**

NAME	DESCRIPTION	SOURCE
<b>AIR CONDITIONING</b>	Air conditioner type, age and condition	ERS data
<b>SPACE HEATING</b>	Space heating type, age and condition	ERS data
<b>WATER HEATING</b>	Water heating type, age and condition	ERS data
<b>WATER EFFICIENCY</b>	Detail of any water efficiency measures installed pre-retrofit	ERS data
<b>RENEWABLE ENERGY</b>	Detail of any renewable energy measures installed pre-retrofit	ERS data
<b>ENERGY STORAGE</b>	Detail of any energy storage measures installed pre-retrofit	ERS data
<b>MECHANICAL UPGRADE IMPEDIMENTS</b>	Detail of any impediments to mechanical upgrades such as presence of older electrical panels or shade impeding solar installation	Program Evaluator



**TABLE 6: AUDIT DATA**

NAME	DESCRIPTION	SOURCE
<b>PRE-RETROFIT ERS SCORE</b>	Pre-retrofit ERS rating of home's energy consumption in gigajoules	ERS data
<b>POST-RETROFIT ERS SCORE</b>	Post-retrofit ERS rating of home's energy consumption in gigajoules	ERS data
<b>PRE-RETROFIT AIR TIGHTNESS</b>	Pre-retrofit estimate of how well the building envelope resists air leakage measured in air changes per hour at 50 pascals of internal pressure	ERS data
<b>POST-RETROFIT AIR TIGHTNESS</b>	Post-retrofit estimate of how well the building envelope resists air leakage measured in air changes per hour at 50 pascals of internal pressure	ERS data
<b>BASELINE ENERGY CONSUMPTION</b>	Estimated pre-retrofit annual energy consumption in gigajoules from all energy sources including natural gas, electricity, propane and home heating oil	ERS data
<b>MODELLED POST-RETROFIT ENERGY CONSUMPTION</b>	Estimated post-retrofit annual energy consumption in gigajoules from all energy sources including natural gas, electricity, propane and home heating oil	ERS data
<b>ACTUAL POST-RETROFIT ENERGY CONSUMPTION</b>	Actual post-retrofit energy consumption in gigajoules from all energy sources including natural gas, electricity, propane and home heating oil. Annual totals are best but may not be attainable	Participant survey created by Program Evaluator
<b>BASELINE WATER CONSUMPTION</b>	Pre-retrofit water consumption in m <sup>3</sup> (cubic meters) per year	Municipality
<b>ACTUAL POST-RETROFIT WATER CONSUMPTION</b>	Post-retrofit water consumption in m <sup>3</sup> (cubic meters) per year	Municipality
<b>RENEWABLE ENERGY CONTRIBUTIONS</b>	On-site renewable energy contributions from wind, solar PV and solar hot water, to be removed from the annual energy consumption to calculate the EnerGuide rating	ERS data

**TABLE 7: GENERAL INFORMATION**

NAME	DESCRIPTION	SOURCE
<b>REPORTING PERIOD</b>	The period covered by this report	Program Evaluator
<b>REPORT DATE</b>	The report completion date	Program Evaluator
<b>COMPLETED BY</b>	Name and contact information for evaluator	Program Evaluator

## 3.2 | PROCESS STUDY

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Data captured in the Process Study are grouped into the following five categories:

- 1. *Program operation*
- 2. *Program costs*
- 3. *Capital costs*
- 4. *Participant costs*
- 5. *General information*

Data sources used in the process study include delivery agents, program evaluators and municipalities.



**TABLE 8: PROGRAM OPERATION**

NAME	DESCRIPTION	SOURCE
<b>APPLICATION PROCESSING TIME</b>	Time required to process application, measured from application intake date to signing of agreement	Participant survey created by Program Evaluator OR Program Delivery Agent
<b>PARTICIPATION RATIONALE</b>	Reason for homeowner participation (financing rate, term, availability, etc.)	Participant survey created by Program Evaluator
<b>PARTICIPANT SATISFACTION</b>	Participant satisfaction with various program elements including ease of access, financing rate and term, process, communication, etc.	Participant survey created by Program Evaluator
<b>COMPLAINTS RECEIVED</b>	Number and detail of complaints received about any element of the program	Program Delivery Agent, Municipality
<b>FINAL DISBURSEMENT PROCESSING TIME</b>	Time required to process final disbursement after completion of post-retrofit audit and delivery of all required documentation	Program Delivery Agent
<b>DISPUTE INITIATION</b>	Number of disputes initiated by homeowners, contractors or other key parties	Program Delivery Agent, Municipality
<b>DISPUTE RESOLUTION</b>	Number of disputes resolved with homeowners, contractors or other key parties	Program Delivery Agent, Municipality
<b>RETROFIT COMPLETION TIME</b>	Average time for a complete retrofit (specific to the completion of work, not the disbursement of LIC or participation in LIC program)	Participant survey created by Program Evaluator
<b>PROGRAM DESIGN DEVIATIONS</b>	Detail of any deviations from initial program design and rationale for them	Program Delivery Agent

NAME	DESCRIPTION	SOURCE
<b>LIC TERM</b>	Mean, min, max term for all LICs agreed	Program Delivery Agent, Municipality
<b>PRIORITY COORDINATION</b>	Detail of how program is coordinating with other municipal priorities such as equity, social housing, senior support, etc.	Program Delivery Agent, Municipality
<b>MEASURE PERFORMANCE</b>	Detail of quality assurance and quality control concerns with any installed program measures	Program Delivery Agent
<b>DATA BREACHES</b>	Detail of any customer data breaches at any point in the delivery of the program	Program Delivery Agent, Municipality
<b>HOMEOWNER CONNECTION METHOD</b>	Measure of how participants discovered the program (website, google, word of mouth, etc.)	Program Evaluator
<b>CONTRACTOR CONNECTION METHOD</b>	Measure of how contractors discovered the program (website, google, word of mouth, etc.)	Program Evaluator

**TABLE 9: PROGRAM COSTS**

NAME	DESCRIPTION	SOURCE
<b>STAFFING</b>	Staffing budget and number of full-time equivalent staff dedicated to program	Program Delivery Agent, Municipality
<b>FIXED COST</b>	Annual fixed program costs	Program Delivery Agent, Municipality
<b>VARIABLE COST</b>	Annual variable program costs	Program Delivery Agent, Municipality
<b>SET-UP COST</b>	Initial one-time program costs incurred (e.g. acquisition of CRM or property tax software upgrade)	Program Delivery Agent, Municipality
<b>MARKETING COSTS</b>	Annual program marketing cost	Program Delivery Agent, Municipality
<b>EVALUATION COSTS</b>	Annual program evaluation cost	Program Delivery Agent, Municipality
<b>OTHER COSTS</b>	Any other direct program costs not captured above	Program Delivery Agent, Municipality
<b>RECOVERED DEFAULTS</b>	Number and value of defaults where the defaulted payments were subsequently received without major action	Program Delivery Agent, Municipality
<b>UNRECOVERED DEFAULTS</b>	Number and value of defaults where the defaulted payments are outstanding	Program Delivery Agent, Municipality

NAME	DESCRIPTION	SOURCE
<b>ARREAR LENGTH</b>	Average length of arrears for those LIC payments not received on schedule	Program Delivery Agent, Municipality
<b>FORCED HOME SALES</b>	Number of forced home sales to recoup property tax and LIC arrears	Program Delivery Agent, Municipality
<b>COST OF FORCED HOME SALES</b>	Administrative cost associated with recovering property tax and LIC arrears through forced tax sales	Program Delivery Agent, Municipality

**TABLE 10: CAPITAL COSTS**

NAME	DESCRIPTION	SOURCE
<b>CAPITAL BUDGET</b>	Total program capital budget	Municipality
<b>CAPITAL ACQUISITION COST</b>	Total administrative cost of acquiring capital (through proposal writing, financial institution/Infrastructure Ontario applications, etc.)	Municipality
<b>CAPITAL INTEREST (EXPENSE)</b>	Interest expense incurred on borrowed capital	Municipality
<b>CAPITAL INTEREST (REVENUE)</b>	Interest revenue received on capital balance that has not been disbursed	Municipality
<b>LLR SIZE</b>	Total value of loan loss reserve	Municipality
<b>LLR DISBURSEMENTS</b>	Total value of any monies disbursed through the loan loss reserve	Municipality
<b>LLR INTEREST (EXPENSE)</b>	Interest costs incurred on loan loss reserve (if LLR was borrowed)	Municipality
<b>LLR INTEREST (REVENUE)</b>	Interest revenue received on loan loss reserve balance	Municipality
<b>LIC RATE COMPETITIVENESS</b>	LIC interest rate as compared to average borrowing rate (+/-)	Program Evaluator



**TABLE 11: PARTICIPANT COSTS**

NAME	DESCRIPTION	SOURCE
<b>AUDIT COST</b>	Average cost to homeowner of audit	Participant survey created by Program Evaluator
<b>LIC INTEREST RATE</b>	Average LIC interest rate	Municipality, Program Delivery Agent
<b>ADMIN RATE</b>	Administration charge/rate paid by homeowner for program participation	Municipality, Program Delivery Agent
<b>MEASURE COST</b>	Cost of individual measures (technology only)	Participant survey created by Program Evaluator
<b>INSTALLATION COST</b>	Cost of individual measures (installation only)	Participant survey created by Program Evaluator
<b>FINAL RETROFIT COST</b>	Cost of final retrofit relative to what was expressed in the Program Application	Participant survey created by Program Evaluator

**TABLE 12: GENERAL INFORMATION**

NAME	DESCRIPTION	SOURCE
REPORTING PERIOD	The period covered by this process study	Program Evaluator
REPORT DATE	The report completion date	Program Evaluator
COMPLETED BY	Name and contact information for evaluator	Program Evaluator

## 3.3 | IMPACT STUDY

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Data captured in the Impact Study are grouped into the following five categories:

- 1. *Environmental impact*
- 2. *Economic impact*
- 3. *Social impact*
- 4. *General information*

Data sources used in the Impact Study include delivery agents, program evaluators, municipalities, ERS and energy and water utilities.



**TABLE 13: ENVIRONMENTAL IMPACT**

NAME	DESCRIPTION	SOURCE
<b>GHG REDUCTION PER HOME</b>	Average GHG reduction per participating home	Program Delivery Agent, ERS data
<b>TOTAL GHG REDUCTION</b>	Combined GHG reduction from all participating homes	Program Delivery Agent, ERS data
<b>GHG CHANGE BY FUEL TYPE</b>	+/- change in GHGs per home for all fuel types (electricity, natural gas, heating oil, propane)	Program Delivery Agent, ERS data
<b>\$/TCO<sub>2</sub>E REDUCED</b>	Cost per tonne of carbon dioxide equivalent reduced	Program Delivery Agent, ERS data
<b>AVERAGE ENERGY SAVING</b>	Average energy saving (kWh electricity, m <sup>3</sup> natural gas/propane, L heating oil) per participating home	Program Delivery Agent, ERS data, energy utilities
<b>TOTAL ENERGY SAVING</b>	Total energy saving (kWh electricity, m <sup>3</sup> natural gas/propane, L heating oil) per participating home	Program Delivery Agent, ERS data, energy utilities
<b>AVERAGE WATER SAVING</b>	Average water saving (m <sup>3</sup> ) per participating home	Program Delivery Agent, water utilities
<b>TOTAL WATER SAVING</b>	Total water saving (m <sup>3</sup> ) per participating home	Program Delivery Agent, water utilities
<b>MEASURE EFFICIENCY</b>	Efficiency of specific measures (water and energy saving) in achieving energy, GHG and water savings	Program Delivery Agent, water and energy utilities, Program Evaluator
<b>AUDIT DELIVERY</b>	Total # of audits delivered	Program Delivery Agent, ERS data

**TABLE 14: ECONOMIC IMPACT**

NAME	DESCRIPTION	SOURCE
<b>JOB CREATION</b>	Total number of jobs created or supported, directly and indirectly, thorough the Program	Program evaluator, municipality
<b>SKILLED JOBS TRAINING</b>	Number of contractors and auditors trained to deliver program elements	Program evaluator, municipality
<b>HOME VALUE INCREASE</b>	Average increase in participating home value	Program evaluator, municipality, MPAC
<b>HOME OPERATION SAVINGS</b>	Average and total operating cost savings per year per home	Program Delivery Agent, water and energy utilities, Program Evaluator
<b>RETROFIT PROJECTS COMPLETED</b>	Number of retrofit projects completed	Program Delivery Agent, municipality
<b>RETROFIT PROJECTS COMMITTED</b>	Number of retrofit projects agreed but not yet completed	Program Delivery Agent, municipality

**TABLE 15: SOCIAL IMPACT**

NAME	DESCRIPTION	SOURCE
<b>PARTICIPATING MUNICIPALITIES</b>	Number and geographic spread of municipalities involved	Program Delivery Agent, Program Evaluator
<b>DIVERSITY</b>	Ability for the program to reach diverse populations (low income, indigenous, marginalized seniors and others)	Program Delivery Agent, Program Evaluator
<b>COMMUNITY HEALTH</b>	Improved health outcomes in retrofitted homes	Program Delivery Agent, Program Evaluator

**TABLE 16: GENERAL INFORMATION**

NAME	DESCRIPTION	SOURCE
<b>REPORTING PERIOD</b>	The period covered by this Impact Report	Program Evaluator
<b>REPORT DATE</b>	The report completion date	Program Evaluator
<b>COMPLETED BY</b>	Name and contact information for evaluator	Program Evaluator

