

APPENDIX A to Report EICS-07-21

Stakeholder Findings Report: Home Energy Retrofit (HERO) Program

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Executive Summary

The City of Burlington's Climate Action Plan (CAP) identifies reducing greenhouse gas (GHG) emissions from residential buildings as a key opportunity for Burlington to achieve its goal of becoming net zero by 2050. In recognition of this opportunity, in September 2020 Council approved undertaking a feasibility study to explore the development and delivery of a home energy retrofit (HERO) program. This study is being undertaken by the Centre for Climate Change Management at Mohawk College (CCCM), in partnership with City staff. Recommendations on program design and delivery, including a pilot program, are anticipated to be presented to Council prior to year end 2021.

To date, the CCCM's research progress has focused heavily on stakeholder engagement to understand:

1. **Barriers and drivers** – learning from best practices in HERO program delivery and challenges identified by experts in the field
2. **Market development** – supporting contractors to grow their businesses to meet the demand for retrofits
3. **Program administration** – designing a sustainable, feasible program that best meets homeowners' needs while reducing the administrative burden on the City, contractors and homeowners.

Stakeholder outreach to over 40 groups, businesses, program delivery centres, utilities, other municipalities and experts identified two main audiences that must be considered for a successful retrofit program, **homeowners and contractors**. To engage in the program, homeowners must understand the value of the retrofit and have a convenient experience using the program. Contractors must be engaged in selling retrofit products to their clients and also experience little friction in buying equipment, installation, and administration. If both groups experience friction in the program – such as delays, equipment backlogs, or outsized administrative burdens – this will likely result in poor program uptake.

Additionally, a wide range of key considerations for program design were recognised to optimize success. This report discusses 5 key findings that will inform the program design recommendations, including that of a pilot project.

In general, stakeholders identified that the technology or retrofit options on offer are only one component of a successfully implemented program. A program which does not consider the implementation process, co-benefits, and stakeholders beyond the homeowner will see limited uptake. Other success factors include:

- Effectively communicating program benefits beyond financial and GHG savings, such as improved home comfort and aesthetics

- Providing clear, simple information to homeowners on program offerings, price points, and payment methods
- Setting up a Retrofit Delivery Centre that acts as a “one-stop shop” for homeowner and contractor questions, helps both groups navigate the administration of the program, and provides general education to reduce confusion and improve convenience
- Initiating local small-scale pilots on a select group of homes; this tangibly demonstrates the impact of retrofits on homes
- Promoting relationships with contractors as the on-the-ground advocates for home retrofits
- Enabling quality assurance mechanisms that build trust between homeowners and contractors (e.g. recommended certifications)
- Harmonizing HERO programs with adjacent cities (e.g. Hamilton and Oakville) to minimize confusion for homeowners, maximize business opportunities for contractors, and drive the scaling of a regional market
- Using effective marketing programs to drive awareness amongst homeowners and local contractors
- Ensuring the best positive experience for homeowners.

Moving forward, a Burlington homeowner survey will be delivered to gather information regarding homeowner priorities. This will help the CCCM and City verify the relevance of program offerings and understand how best to market the program. Furthermore, the CCCM is working alongside the Bay Area Climate Change Council (BACCC) to work on a long-term plan for regional offering with complementary programs.

Introduction

In recent years, municipal home energy retrofit (HERO) programs have been recognized as a key opportunity for cities and towns to fight climate change. Approximately 11 Ontario municipalities have either identified the need for a HERO program to meet municipal climate goals, completed a business case, or plan on completing one. The City of Toronto’s Home Energy Loan Program (HELP) is Ontario’s only home retrofit program with the primary goal of reduced GHGs.

Within Burlington, 98% of pre-2017 homes need to be retrofitted for Burlington to meet its net zero-carbon by 2050 goal. If successful, Burlington will reduce its greenhouse gases by as much as 1,413ktCO_e, or 7.8% of its total emissions. In recognition of this significant opportunity for emissions mitigation, in September 2020, the City of Burlington Council approved the development of a feasibility study for of a HERO program, with the direction

to also recommend the development of a pilot program. Financial support from the City has recently been complemented by additional funding from the Federation of Canadian Municipalities (FCM).

HERO programs are typically built on the premise of “the home as a system”, as renovating one area of the home (ex. improving insulation) can alter the energy requirements of other areas of the house (ex. furnace size, the need for increased air exchange from the outside environment, etc.). To incentivize these renovations, financing is offered through local improvement charges (LICs). LICs allow homeowners to access low-interest loans, typically offered through municipalities. Loan payments are tied to the property, not the homeowner and are repaid alongside property tax payments; if homeowners sell their home, the loan stays with the home. The rationale is that the benefits of the renovation rest with the current owner and are financed by energy savings from the retrofit.

This report focuses on stakeholder outreach completed by the CCCM, in partnership with the BACCC, to help understand the concerns, priorities, and lessons learned from other home-upgrade retrofit programs. This holistic approach investigates how the construction and retrofit sector works as a system, how key players act within the sector, and it helps to identify barriers and constraints while focusing on the opportunities to optimize the process to increase participation and satisfaction.

Methodology

To understand Burlington and the surrounding area’s retrofit supply chain and ecosystem, the CCCM completed 40+ stakeholder outreach interviews. Prior to this, an initial literature review of available national programs, progress reports, and primary literature was completed. This was followed by stakeholder outreach, with the goals of:

- Understanding current supply chain process of available programs and retrofit work
- Identifying the motivators and barriers on solutions relating to the development of an effective, streamlined residential home retrofit program that would significantly reduce greenhouse gas emissions from the greatest number of homes in Burlington.

To date, approximately 40 stakeholders falling within the following categories have provided feedback:

- Architects
- Bylaw and Permitting offices
- Colleges and trainers
- Contractors
- Developer/Renovator
- Development Consultants
- Educational institutions
- Energy advisors
- Energy auditors
- Environmental organizations and non-profits
- Equipment specialists
- Manufacturers
- Municipal retrofit program staff
- Incentive providers
- Landlords
- Lawyers
- Local associations
- Low income homeowners
- Poverty advocacy groups
- Realtors
- Researchers
- Retailers
- Utilities
- Suppliers and wholesalers

Stakeholder engagement will be continuous throughout the project, including a homeowner survey for Burlington citizens; this survey will aim to gather information on:

- Homeowner interest in retrofits and associated motivators as well as perceived benefits of retrofits
- The priorities of homeowners related to their dwelling
- Knowledge on home retrofit options currently available
- Financial preferences for funding home retrofits
- General support and interest in climate action and the role of municipalities and individuals to contribute to GHG mitigation.

Survey delivery to Burlington citizens is anticipated for late spring/early summer 2021.

Additionally, the project team has been meeting with and reporting process back to City Staff and a key group of expert stakeholders:

- Monthly meetings with the City of Burlington Advisory Committee beginning December 2020. The advisory committee is a cross-section of City staff who advise on the project.
- Bi-monthly updates and discussions with the Burlington Climate Action Plan community Stakeholder Advisory Committee on the project.
- Monthly updates and discussions with the BACCC Implementation Team on Building Retrofits. This committee is a collection of local leading experts in home energy efficiency.

Taken together, stakeholder outreach and survey results will inform program design and implementation to ensure the design of a scalable program that drives homeowner uptake and benefits, and incentivizes a market shift to meet demand.

Stakeholder Findings

Stakeholder discussions led to feedback on a wide variety of retrofit and supply chain topics. The following table summarizes five key findings from the research.

Table 1: Summary of Findings from Stakeholder Engagement








<p>Finding #1: A local municipal HERO program is feasible and desirable.</p> <p>Research showed that potential positive impacts of home retrofits for GHG reduction are of interest to the majority of stakeholders.</p> <p>However, the current complexity of the retrofit market has made uptake and participation difficult. Solving for this complexity – by creating a scalable, customer-focused HERO program – will help residents invest in their homes’ value, protect against future impacts of climate change and help Burlington become a net zero community by 2050.</p>	
✓	<p>Technology for retrofitting residential homes to significantly reduce greenhouse gases is available and affordable.</p>
✓	<p>There are significant co-benefits for both homeowners and local businesses.</p> <p>Homeowners can realize greater home comfort, the potential for reduced energy bills, and increased home value.</p> <p>The demand for retrofit services drive more jobs and increased revenue for local home renovation businesses.</p>
✓	<p>A municipal program will drive participation.</p> <p>A municipal program can drive consistency, trust, and complement programs offered by local utility companies, as well as the federal and provincial governments. As the market grows, non-profits and private actors will also likely enter with their own offerings.</p> <p>For example, the federal government has announced that they will be providing a Greener Homes retrofit incentive program, providing grants and loans to homeowners across Canada. Unfortunately, these programs will only reach about 700,000 households across Canada (in the case of currently available grants, only 200,000). A local program and delivery centre can help Burlington residents navigate these programs and incentives, while also providing additional options for those who are unable to participate because of the program limitations.</p>
✗	<p>Inconsistent program offerings (i.e. programs only offered for 1-3 years) reduces interest and dissuades contractors from participating.</p> <p>Until now, a lack of consistent government financial incentives has reduced supply chain actors’ interest in retrofit technology and delivery.</p>






✓	A consistent municipal program would help create and then support the development of a stable market for retrofits and help homeowners and contractors plan for the long run.
<p>Finding #2: A municipal program should support a “phased” approach to retrofits.</p> <p>While desirable, a “whole home” solution – extensive retrofits that help homeowners achieve near net zero greenhouse gas emissions – are unfortunately cost and time-prohibitive for most residents. This solution would require a near-total renovation of the home, which would require a sizeable (often \$50,000 or more) loan and be disruptive to homeowners, taking months to complete.</p> <p>Instead, the CCCM will recommend a program that can provide a simple, foundational offering that will significantly improve energy efficiency and reduce greenhouse gas emissions. The homeowner can then add additional retrofit services over time to further reduce their impact and prepare their home for the challenges of climate change.</p>	
✗	Current whole house retrofit programs typically see lower than expected participation due to the cost and time-consuming nature of extensive home renovations.
✗	Homeowners have difficulty accessing necessary financing to complete a “whole home retrofit.”
✓	Programs that provide \$5,000-\$12,000 loans to upgrade are able to be accessed by a greater number of people of varying income levels and/or equity in their home.
✓	<p>With guidance, stacking eligible retrofit measures will maximize energy efficiency and reduce GHGs.</p> <p>Creating a simple, affordable program will enable homeowners to realize immediate energy efficiency savings and co-benefits. And then, over time, homeowners can continue to “stack” home energy projects to multiple the impact.</p> <p>The City can also include more programs, include offerings that help support climate adaptation or neighbourhood beautification over time.</p>
✓	<p>The “phased approach” also allows the City to offer additional programs to promote equity for low-income homeowners and tenants.</p> <p>Separate or complementary programs that work directly to support low income homeowners will be needed in the future to support total equity and access to retrofits.</p>

Finding #3: Education and outreach to homeowners *and* contractors is needed.

Outreach identified two stakeholder groups critical to program success, homeowners and contractors. Considerations to be addressed for both groups include education on program availability and inclusions, communication of retrofit benefits, and a simplified process. By addressing these program components, a more appealing program for these key stakeholders will work to improve participation and a positive experience.

✓	<p>Homeowners need to clearly understand the financial return on investment (ROI) and energy savings to help reinforce their decision to retrofit.</p> <p>Marketing efforts should focus on clear, simple communications on benefits to homeowners.</p>
✗	<p>The decentralized nature of the construction industry and inconsistency of programs makes it difficult for homeowners to understand and navigate incentive programs.</p>
✗	<p>A lack of supporting regulations in the home renovation sector creates challenges for guaranteeing quality of work and the advertisement of low carbon technologies.</p>
✓	<p>A local HERO program, administered with quality assurance checks in place, can help drive the market for green renovations.</p>
✗	<p>There is a limited number of trained individuals to complete retrofits using low carbon technologies (e.g. air source heat pumps, air sealing).</p>
✓	<p>The City can work with local business associations and training partners to ensure that trained and certified contractors can participate in the program.</p>
✓	<p>Informed contractors can provide a wealth of knowledge regarding homeowner feedback and interest in programs, as well as advocate and educate homeowners on the programs.</p> <p>Marketing efforts targeted at contractors may have a greater impact than direct marketing to consumers.</p>
✓	<p>The market will need to scale to meet demand.</p> <p>Before starting this program, the City should work to give suppliers and manufacturers 6 months lead time to stock equipment and work to educate their customers (e.g. contractors).</p>

Finding #4: A HERO program can help homeowners “future proof” their homes.	
A HERO program can help homeowners realize value over time.	
	<p>The current low cost of natural gas reduces financial incentives for homeowners.</p>
	<p>However, with the increasing carbon tax, there is an opportunity to help homeowners “future proof their homes” by reducing energy needs now to significantly save money over time.</p>
	<p>Homeowners using fuel oil (which is more common in rural areas) are already paying higher prices to heat their homes. This premium will only increase with the carbon tax increase.</p>
<p>A retrofit can help these homeowners reduce costs now, and in the future.</p>	
	<p>Retrofits that use heat pumps can be used for heating <i>and</i> cooling.</p>
<p>This will help homeowners be able to install air conditioning – which is becoming more important as the region sees high summer temperatures due to climate change.</p>	
Finding #5: A “retrofit delivery centre” will drive participation and positive outcomes for homeowners and contractors.	
<p>A local retrofit delivery centre can be one of the most effective tools to drive uptake in deep energy retrofits. A retrofit delivery centre acts can act as a “one stop shop” for information about retrofits. Expert “energy coaches” at the centre can work with local homeowners and contractors to navigate incentives, streamline the application process, and provide trustworthy, clear advice.</p>	
	<p>A retrofit delivery centre can improve convenience for homeowners and contractors.</p>
<p>The centre can streamline information and application processes.</p>	
<p>Developing homeowner trust is critical to a positive experience and encouraging program participation through word of mouth marketing.</p>	
	<p>Acting as the delivery arm for the municipality, it can also reduce the burden on City staff.</p>
<p>“Energy coaches” help homeowners and contractors navigate the application and verification processes. It can also liaise with the City to streamline the application process.</p>	
	<p>A retrofit delivery centre can help homeowners and contractors navigate multiple but complementary programs.</p>
<p>The centre will support homeowners looking to access programs offered through the municipality, federal and provincial governments, and local utilities to maximize incentives and greenhouse gas emission reductions.</p>	

 	<p>Diversity of housing stock means scaling programs can be difficult.</p> <p>Homeowners will have individualized needs and need a trusted, helpful expert to speak to about what retrofit best fits their needs.</p>
 	<p>Accurate methods to measure GHGs pre- and post- retrofit are difficult to implement.</p> <p>Measuring impact is difficult. A delivery centre can help with centralizing and assessing program evaluation.</p>
	<p>A local retrofit delivery centre can be regional – shared amongst several municipalities to reduce costs for operating the centre.</p> <p>This can also be helpful for contractors who work across the region to be able to speak to one point of contact about incentives.</p>

Overall, the research emphasized that the success of a program is not entirely dependent on the technology and financial support offered to homeowners. Instead, additional considerations including involvement and convenience for contractors, homeowners, and allowing a smooth transition for the supply chain are critical. Additionally, ensuring adequate resources for marketing and communications of the program itself is a key lesson learned from other programs.

Pilot Program

Stakeholders identified that ideally, programs would build towards a whole-home retrofit solution with the primary goal of nearly eliminating GHG emissions. Conversely, this option was noted as currently not realistic for homeowners due to steep upfront financing, lack of clear financial return on investment, and perceived inconvenience during retrofit completion.

Instead, this study found overwhelming evidence to support offering a simple, foundational program that would provide small scale (\$5,000- \$12,000) loans to local homeowners to undertake specific kinds of renovations. This program could also complement already existing programs (offered through governments and local utilities) and scale over time. This approach would prioritize smaller retrofit projects that reduce GHGs while also being less burdensome on upfront financing and reducing stress on the supply chain.

The CCCM is currently investigating the development of a pilot program that would target homes using heating oil, propane, or electricity for heating and cooling. These energy sources are either high GHG emitting sources of energy, or are costlier than the typical electricity/natural gas home heating combination, or both. This approach would focus on

piloting a program with homeowners who would realize a significant ROI while also targeting those most at risk of energy poverty (which is defined as a minimum 10% of take-home income dedicated to utilities).

This program would inform future programs, testing solutions to ensure broader applicability for Burlington residents. The CCCM will provide more details on this proposed pilot project in its report to Council prior to year end 2021.

Next Steps

Stakeholder outreach will continue to inform all aspects of the work going forward.

Immediate next steps planned for summer 2021 include:

- The completion of a Burlington homeowner survey will be delivered to understand customer priorities and interest, pending final approval and signing of the FCM funding agreement
- Further stakeholder outreach to key groups in the home financing sector to help build out recommended program offerings, including additional work with the BACCC
- Research, design and discussion with City staff on the best possible financing options for the HERO program, to ensure sustainability and scalability
- Continued discussions with local advocacy groups, such as BACCC, to provide ongoing feedback
- Discussions with the City of Hamilton on regional, resource-sharing approaches to harmonize programs across the region
- Recommendations on a marketing plan to drive uptake and participation from homeowners and contractors.

By fall 2021, the CCCM will be prepared to report back to Council on the pilot project and next steps to develop and offer the HERO program.

The Centre for Climate Change Management is an applied research centre at Mohawk College.

The Centre is a regional hub for collaboration on climate action. The Centre brings together partners to collaborate and design climate change and sustainability solutions that improve our neighbourhoods, businesses, and public institutions.