Thunder Bay's Community Efficiency Financing Program

Program Design Report

Prepared for:

CITY OF Thunder Bay
Superior by Nature

City of Thunder Bay

May 28, 2025

dunsky
Energy + Climate

Submitted to:

City of Thunder Bay

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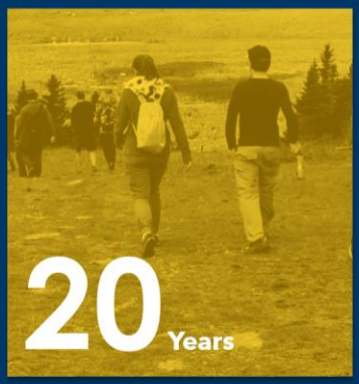

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Executive Summary

Overview

The City of Thunder Bay is proposing to secure partnerships and funding to launch the Home Energy Improvement Loan Program (HEILP). The goal of the program is to reduce greenhouse gas (GHG) emissions from residential buildings, enhance climate resilience, and alleviate energy poverty. The program will offer unsecured loans, incentives, and energy coaching to support homeowners in completing energy-efficient and climate-adaptive home improvements. It is designed to complement existing federal and provincial programs and is targeted for launch in late 2026, pending funding support from the Federation of Canadian Municipalities (FCM) through the Community Efficiency Financing (CEF) program.

Background

Thunder Bay declared a climate emergency in 2020 and adopted a Net-Zero Strategy in 2021. Residential buildings account for 20% of the city's GHG emissions, with most homes built before 1980 and reliant on natural gas heating. Many residents are at risk of energy poverty, especially seniors, Indigenous populations, and low-income households. The HEILP aims to address these challenges by providing accessible financing, support, and incentives for home retrofits, including insulation, air sealing, and heat pumps.

Financial Implications

The program's four-year budget is estimated at $5.9 million, funded through a mix of:

- FCM grants and loan loss reserve: $1.9 million
- Credit union loan capital: $3.7 million
- City in-kind contributions: $208,750

Loans are expected to range from $5,000 to $60,000 with up to 20-year amortization periods and competitive interest rates. Incentives from this program will cover up to 10% of loan values and are stackable with incentives from utilities and senior governments. A centralized web platform and third-party program administrator will streamline delivery and reduce the burden on municipal staff.

Risks and Mitigation Strategies

Key risks and mitigation strategies include:

- Low program uptake: Addressed through targeted outreach, attractive incentives, contractor engagement, and flexible financing terms.
- Loan defaults: Mitigated by an FCM-backed loan loss reserve and robust consumer protections.
- Limited workforce capacity: Supported through local contractor training and collaborations with local education institutions and industry associations.

- Funding gaps: Alternative funding sources and cost-sharing with regional partners are identified to ensure sustainability post-FCM funding.

Conclusion

HEILP is a strategic initiative that aligns with Thunder Bay's climate goals, supports vulnerable populations, and stimulates local economic development. By leveraging private capital and federal funding, the program offers a scalable and replicable model for residential decarbonization. Immediate next steps include securing Council approval, finalizing agreements with delivery partners, and submitting a funding application to FCM before the September 2025 deadline.

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1. Introduction

This report is a detailed program design of the Home Energy Improvement Loan Program being considered by the City of Thunder Bay. It builds on the previously completed Feasibility Study and incorporates input from homeowners and stakeholders.

The City of Thunder Bay ("City") declared a climate emergency in 2020. Shortly thereafter, the City developed the Climate-Forward City: Thunder Bay Net-Zero Strategy ("Net Zero Strategy") to map out a **pathway to achieve net zero greenhouse gas (GHG) emissions across the community by 2050**. Adopted in 2021, the Net Zero Strategy was designed to build on to the Climate-Ready City: City of Thunder Bay Climate Adaptation Strategy, adopted in 2015. The two strategies represent major priorities for the City and offer multiple synergies, bridging climate mitigation and adaptation to respond to climate change.

One of the major focal points of the Net Zero Strategy is **the need to reduce building emissions**, which contribute nearly 50% of the community's annual GHG emissions, 20% of which stem from the residential building stock alone. As part of the City's plan to target the existing building stock, the City engaged a consultant in 2022 to assess the feasibility of offering a municipal home energy improvement program in Thunder Bay. The study recommended moving forward with this report, a comprehensive program design study.

Most homes in Thunder Bay are single detached dwellings and built prior to 1980 when energy efficiency requirements were incorporated into Ontario's building code. In general, these homes tend to be less efficient than denser housing forms and those built to more recent building standards. In addition, the vast majority of homes in Thunder Bay use natural gas as their primary heating system—the largest source contributor to building emissions. These older homes are expected to benefit greatly from low-carbon energy upgrades such as insulation, air sealing, and heat pumps.

The City's home energy upgrade program—currently known as the Home Energy Improvement Loan Program (HEILP)—will support the complementary goals of climate mitigation and adaptation through a combination of energy coaching, easy-to-access financing, incentives, and resources to assist homeowners throughout the retrofit process. This will help to stimulate additional interest and demand for home energy upgrades by addressing major barriers and market gaps that preclude or discourage homeowners from undertaking this work. The HEILP program will be administered by a third-party, experienced delivery agent, with unsecured loans being offered by local credit union(s).

By helping homeowners reduce energy costs, enhance their home comfort, improve their property's climate adaptation, and access incentives and financing for low-carbon energy upgrades, this program aligns with Thunder Bay's committed climate action and sustainable growth goals. It also offers economic development potential through increased demand for local jobs in the home renovation industry. Moreover, it may be possible to align this program with other City initiatives such as the Additional Dwelling Unit Program and the Residential Drainage Rebate Program.

To ensure the program makes optimal use of resources and avoids contributing to market complexity, HEILP is intended to work in concert with existing initiatives. This includes the provincial Home Renovations Savings Program and the anticipates federal Canada Greener Homes Affordability Program for low to moderate income homeowners. HEILP can also serve to support homeowners respond to more stringent policies and regulations adopted in the coming years, as well as rising fossil fuel energy and home insurance prices, which are expected to further amplify demand for home retrofits. This includes:

- Building renovation codes, such as Canada's future Alternations to Existing Buildings, which, when implemented by the province, will impose increasingly stringent energy efficiency requirements on existing buildings;
- Mandatory home energy labelling and performance standards;
- Promotion of beneficial electrification province-wide; and
- Restrictions on fossil fuel use equipment replacement.

As pressures to undertake home energy and adaptation retrofits grow, homeowners will increasingly need innovative financing solutions to be able to undertake the home improvements needed to meet future regulations. By testing the HEILP program during its initial implementation period, the City will be better prepared to ramp up its operations to help residents prepare for the future.

Purpose of this report

The purpose of this report is to offer guidance to successfully set up and deliver the HEILP. It describes the program's overarching objectives, framework, and core features and services; details the program's eligibility criteria, incentives, and financing offer; outlines key program stages for participants and the associated delivery responsibilities; estimates the program's uptake, impacts and funding needs; exposes key risks and mitigation measures; and lists important next steps to prepare for the program's launch.

Many of the report's key design choices reflect best practices and incorporate input from the City, potential delivery partners, homeowners, and other key stakeholders. The result is a program design that is structured to leverage a private financing framework that advances the City's climate mitigation and adaptation efforts. This report is also designed to help the City secure partners and funding to implement the HEILP. While the target funder is the Green Municipal Fund's Community Efficiency Financing (CEF) initiative—which is planned to close its funding window for capital program applications starting on September 1, 2025—the report also helps prepare the City to secure other funding sources as needed.

2. Program Context

A highly tailored approach that reflects local realities is needed to support effective program design. To understand the local context, the following section describes the community's unique demographic, labour and housing profile. It also explores the broader residential retrofit landscape to identify available opportunities that can be leveraged and to develop effective strategies to address prominent barriers.

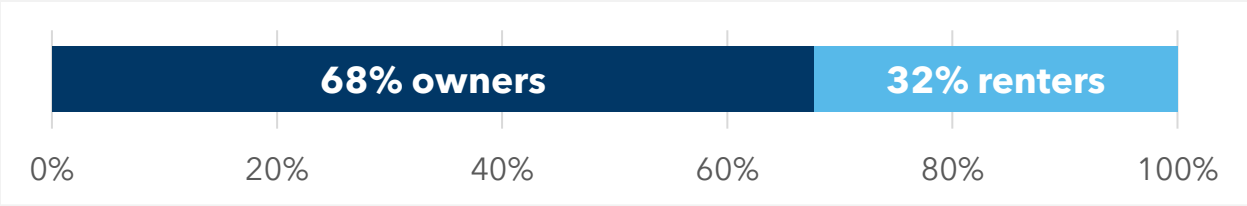
Understanding Thunder Bay's demographic composition is essential to appropriately size the market potential for this program and define its target audiences. The following draws primarily from 2021 census data.[1]

2.1 Demographic profile

Rate of homeownership

The City of Thunder Bay exhibits a high rate of homeownership. Most households (68%) own their homes (Figure 2-1) and of these households, roughly half (53%) still carry a mortgage, whereas the Ontario average sits at 60%.

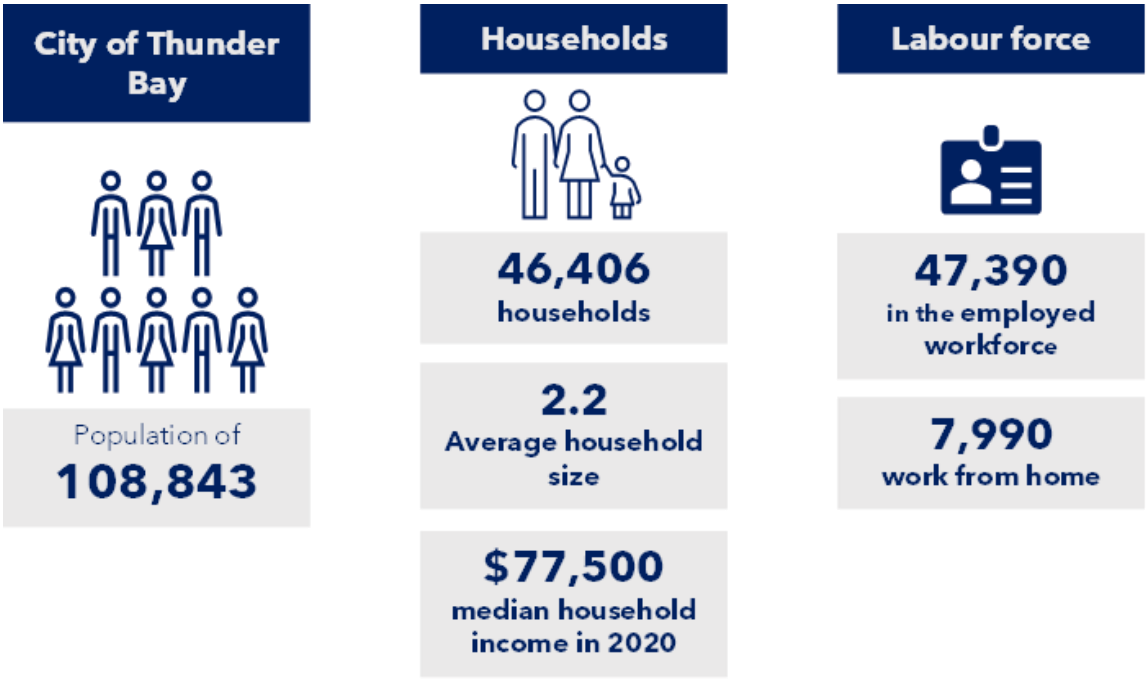
Figure 2-1: Proportion of owner-occupied dwellings



Demographic composition

With a population of over 100,000 residents, Thunder Bay is one of the major northern Ontario municipalities. Figure 2-2 below synthesizes key demographic findings.

Figure 2-2: Proportion of owner-occupied dwellings



[1] Statistics Canada. (2021). Census Profile, 2021 Census of Population: Ontario. Accessed Aug 2024.

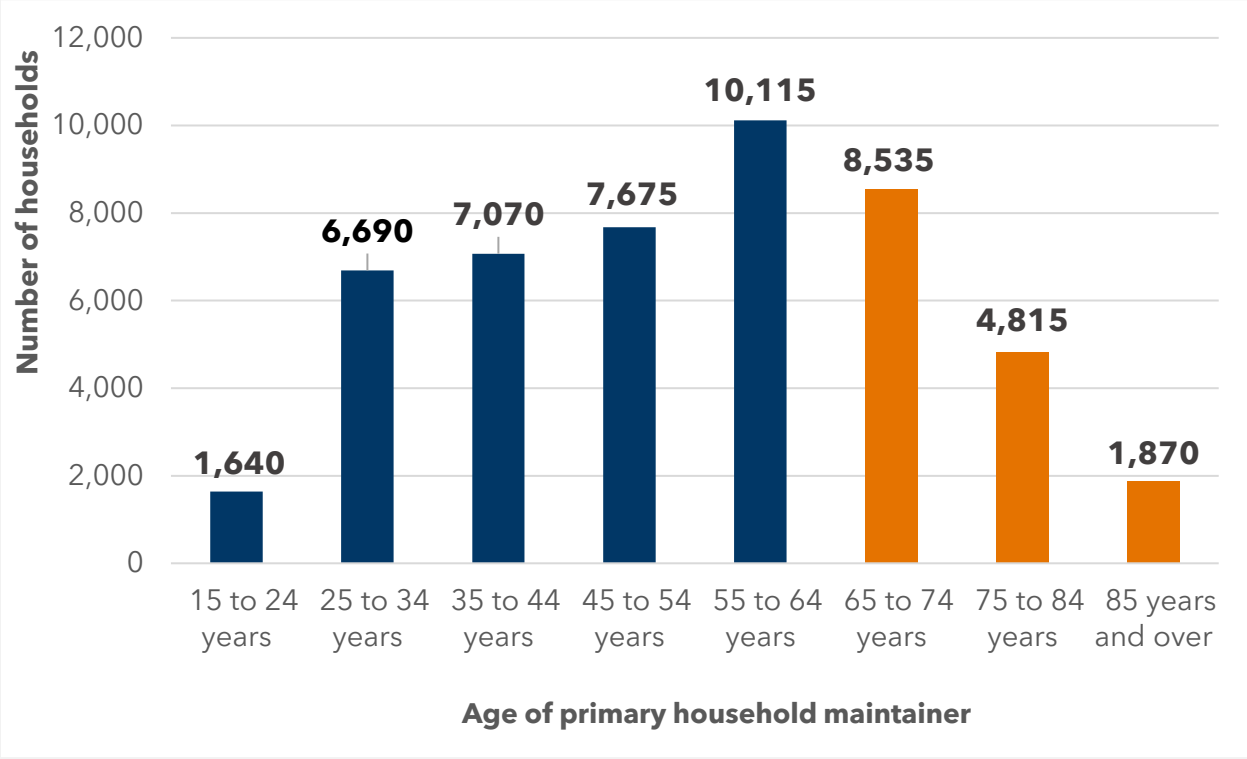
Approximately 17% of the employed labour force works from home on at least a part-time basis. These residents are more likely to spend longer periods of time at home than employees who commute to an office or other place of work and therefore greatly value home comfort.

Vulnerable populations

Notably, vulnerable populations in Thunder Bay—particularly lone-parent families and seniors—make up a meaningful portion of the population and face heightened barriers to resources and services:

- **Lone parent families represent 20% of all households in Thunder Bay**. The majority are female-led and experience disproportionately higher levels of poverty, entry into poverty, and deeper poverty.[2]
- **Approximately one in three households are headed[3] by a senior (aged 65+)**, many of whom live on fixed incomes (Figure 2-3). This impacts their ability to absorb any unplanned, additional expenses.

Figure 2-3 Age of primary household maintainer[4]



[2] Campaign 2000. (2024). 2024 Report Card on Child and Family Poverty in Canada.
[3] A "primary household maintainer" is generally defined as the individual responsible for paying the rent, mortgage, taxes and utilities.
[4] Statistics Canada. (2021). Census Profile, 2021 Census of Population: Ontario. Accessed Aug 2024.

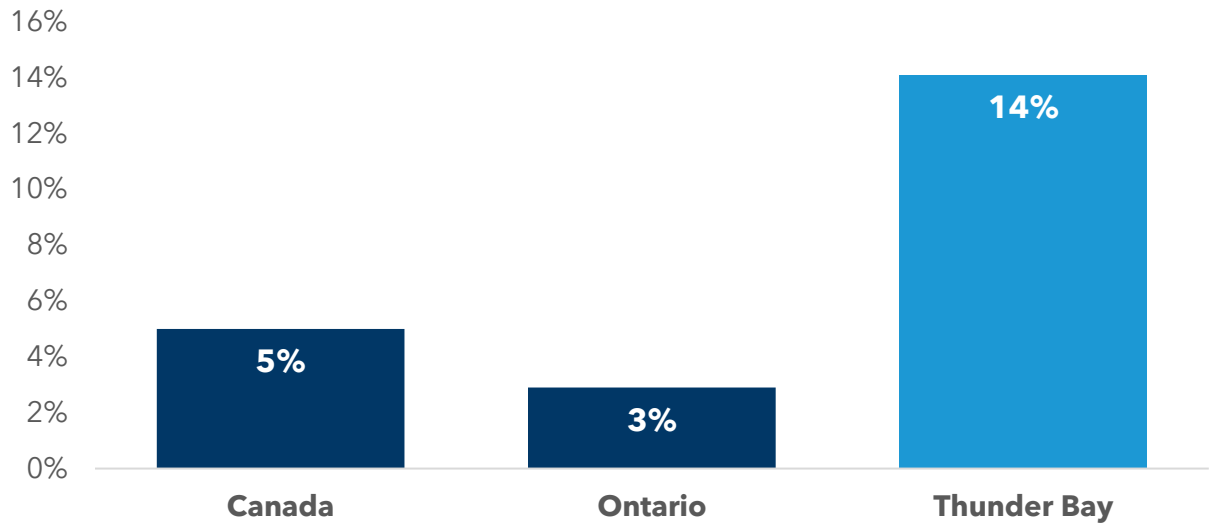
Urban Indigenous population

In addition, **Thunder Bay has the highest proportion of Indigenous residents of any major Canadian municipality**.[5] At five times the provincial average, 14% of Thunder Bay residents identify as Indigenous (Figure 2-4). Supporting the City's commitment to reconciliation, its Indigenous Relation and Inclusion Strategy has a mission to:

> *enhance the well-being of Thunder Bay's Indigenous communities through the creation of a new civic relationship and partnership that promotes the full participation of Indigenous citizens in the social, economic, political and cultural life of the community to improve the quality of life for all citizens in Thunder Bay.*[6]

Supporting this population group is one of the City's priorities.

Figure 2-4 Indigenous population as a proportion of the total population[17]



Energy poverty

Housing prices in Thunder Bay are substantially lower than elsewhere in Ontario. The median sale price for a single detached home in Thunder Bay was $324,000 in 2024,[7] while the median home sale price in Ontario was $954 666.[8] As a result of fairly affordable homeownership, households spend on average $1,146 per month on housing and related costs, and only 9% of Thunder Bay homeowners spend 30% or more of their income on shelter costs.

Meanwhile, 30% of tenant households in Thunder Bay are in core housing need despite somewhat lower monthly housing costs ($994) than homeowners. This finding suggests that lower-income households may be largely concentrated in the rental market.

[5] City of Thunder Bay. (2021). Indigenous Relations and Inclusion Strategy: 2021-2027.
[6] City of Thunder Bay. (2025). Indigenous Relation and Inclusion Strategy.
[7] The Canadian Real Estate Association. (2024). Thunder Bay: Median Price.
[8] The Canadian Real Estate Association. (2024). [MSL database, seasonally adjusted].

Despite the relatively affordable cost of homeownership, many Thunder Bay residents struggle to cover their housing costs. The median household income is $77,500, which falls below the provincial median of $91,000.[9] Critically, more than one in four households experience energy poverty, and 8% of households are in core housing need,[10] meaning that they do not have access to acceptable housing and do not have sufficient income to access acceptable housing in the community.[11]

What is Energy Poverty?

Households experiencing energy poverty are often defined as those that spend more than double the national average (6%) of their income on home energy costs.[12] While struggling to cover their utility expenses, many of these households experience other adverse impacts such as discomfort from living in cold and drafty homes, higher levels of stress and poor mental health outcomes, and the need to sacrifice other essentials like groceries to pay utility bills.[13]

Energy poverty tends to disproportionately affect vulnerable populations, including one-person, lone-parent, and senior households, as well as those with a long-term illness or disability. These groups tend to be more vulnerable to extreme heat, cold, and other extreme weather events. It is also important to note that energy poverty is significantly more prevalent in low-rise dwellings built before 1960, and housing in need of major repairs.[14]

Homeowner perception and preferences

The City of Thunder Bay conducted a homeowner survey during the winter of 2024-25 to learn more about the home energy upgrade perceptions and approaches followed by local residents. Over 100 residents responded to the survey, of which 96% are homeowners.

Most homeowner respondents (73%) expressed that they would consider borrowing money to make home energy upgrades, with half of them comfortable **borrowing up to $50,000.** Saving money, improving comfort, and environmental sustainability were the main motivations reported.

In particular, homeowners said they were most interested in replacing windows and doors, adding insulation, upgrading water heaters and appliances, and installing solar panels. Homeowners were least interested in installing EV chargers and additional dwelling units.

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[9] Statistics Canada. (2021). Census Profile, 2021 Census of Population: Ontario. Accessed Aug 2024.
[10] Canadian Urban Sustainability Practitioners. (2016). Energy Poverty and Equity Explorer: Housing & Demographics Theme.
[11] Canada Mortgage and Housing Corporation. (2019). Understanding Core Housing Need.
[12] The Canadian Poverty Hub. (2023). Energy Poverty.
[13] Canadian Urban Sustainability Practitioners. (2019). The Many Faces of Energy Poverty in Canada.
[14] Riva, M., Kingunza Makasi, S. Dufresne, P., O'Sullivan, K., & Toth, M. 2021. Energy Poverty in Canada: Prevalence, Social and Spatial Distribution, and Implications for Research and Policy. *Energy Research and Social Sciences, 81,* 102237.

Most homeowners reported that they would hire contractors to preform energy improvements, rather than lead DIY improvements.

Based on survey results, **the biggest barrier to home energy upgrades is the upfront cost** in relation to homeowner's other competing priorities, including existing consumer debts, fixed incomes, and other financial priorities. Homeowners were largely (83%) unaware of existing programs incentivizing home energy upgrades. As such, "waiting for an incentive program" was reported as a common barrier to low carbon energy upgrades. This suggests a need for an awareness campaign about the existing incentive programs available.

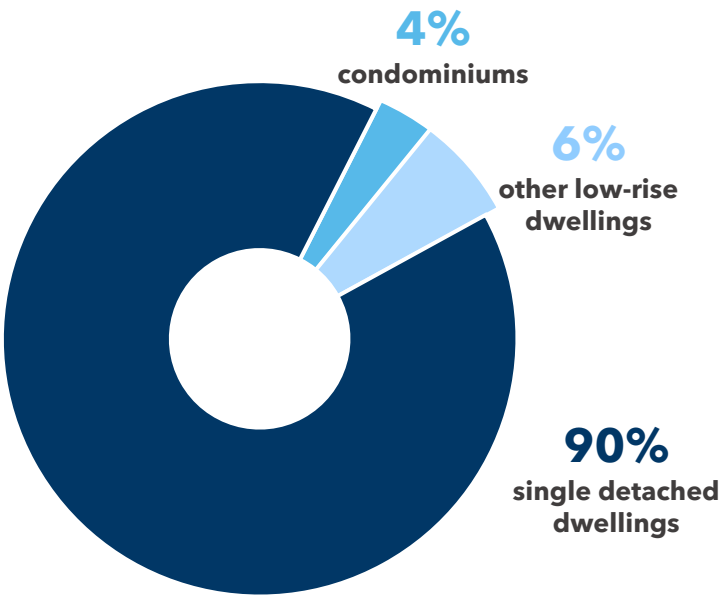
Additionally, 74% of homeowners stated they did not feel prepared for extreme weather events such as flooding, high winds, and extreme temperature swings. This highlights the importance of helping homeowners improve the climate adaptation of their properties.

Finally, homeowners expressed that they would seek the following features in a financing program for home energy upgrades: an easy approval process, low monthly payments (e.g. long amortization periods), and penalty-free pre-payments. They expressed the least concern about credit checks.

2.2 Housing profile

The majority of the homes in Thunder Bay are classified as low-rise dwellings. This housing type accounts for 97% of the housing stock, with single detached homes representing 90% of this total. Condominiums make up just 4% of the housing stock (Figure 2-5).

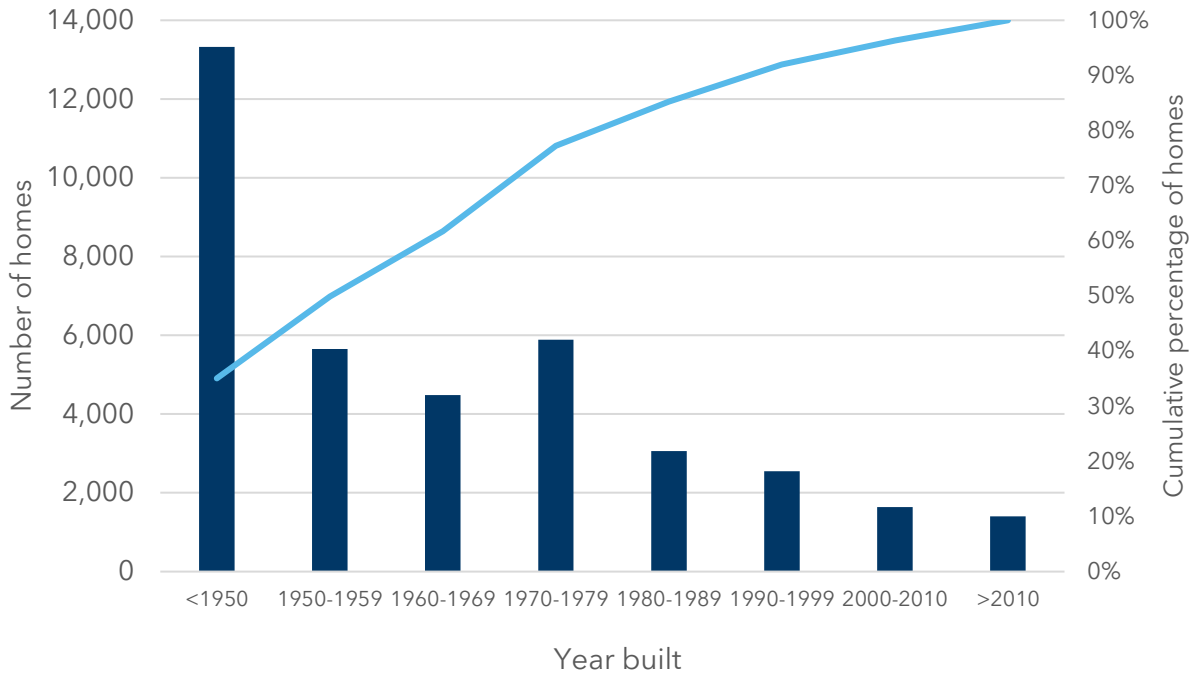
Figure 2-5 Dwelling types



Housing vintage

More than three quarters of homes were built more than 40 years ago.[15] Of the 38,011 occupied low-rise dwellings, 77% (29,349) were built prior to 1980 and 50% (18,975) were built prior to 1960 (see Figure 2-6). This suggests that many homes were built before the adoption of Ontario's first building code in 1975, and well before minimum energy efficiency requirements were introduced in 1990 (Figure 2-6).

Figure 2-6 Dwellings by year built



Older homes are often good high priority targets for deep, low-carbon energy upgrades as they tend to have less insulation and less efficient equipment, making them significant contributors to the existing housing stock's overall GHG emissions. Although newer homes are generally less emitting, they can also benefit from upgrades and contribute to the City's climate targets.

Housing condition

Most Thunder Bay homes are heated by natural gas.[16] With only 4% of homes heated primarily with electricity, the vast majority rely on fossil fuel heating systems. Heating electrification thus represents a significant opportunity to reduce the GHG emissions of low-rise dwellings in Thunder Bay. According to the homeowner survey results, 66% of households have air conditioning, but some of them do not use central units—making them excellent candidates for electric heat pump adoption.

[15] Municipal Property Assessment Corporation. 2024. *Housing dataset.*
[16] Municipal Property Assessment Corporation. (2024). [*Housing dataset*].

Nearly 1 in 10 homes need major repairs, with a meaningful portion (8%) of Thunder Bay homes are in very poor condition.[17] This is slightly higher than the Ontario average of 6%.[18] Home energy upgrades can be integrated into home renovation projects. However, significant repairs may stall the installation of certain measures. For instance, if a home needs roof repairs to prevent leaking, the homeowner(s) may face financial and capacity barriers to implementing energy measures.

Home retrofit trends

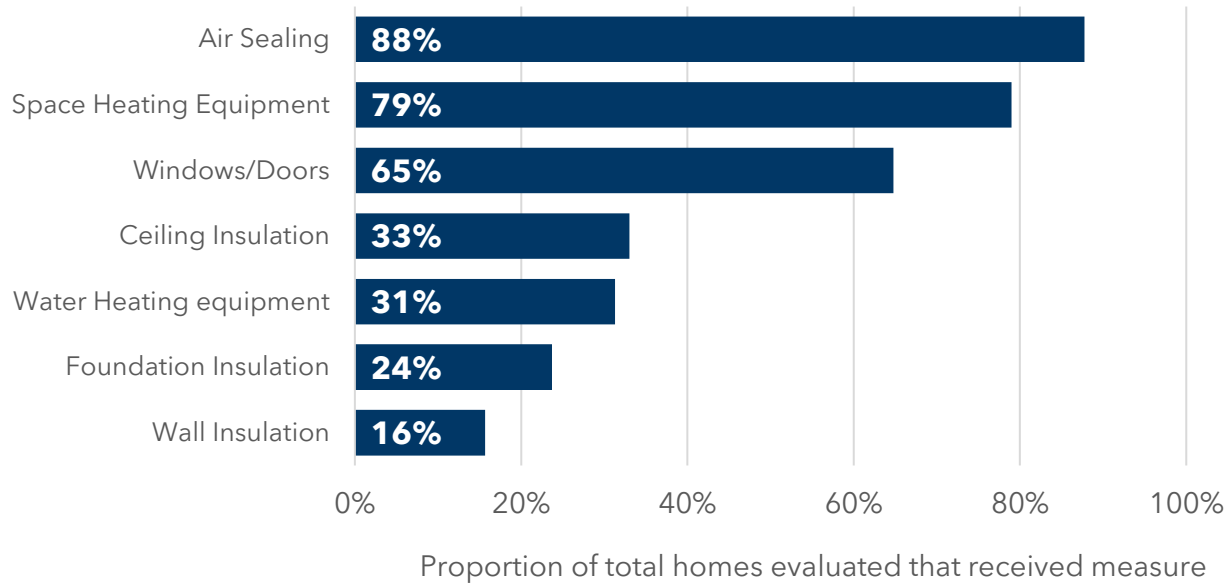
Home retrofit trends provide insight into homeowner preferences for certain energy measures. The following section draws on EnerGuide assessment data collected by Natural Resources Canada (NRCan), which compares pre- and post-retrofit home energy performance to the associated energy upgrades installed. The data assessed spans 2017 to 2021, which included a total of 469 data entries. While this represents the most recent dataset available, housing retrofit trends may have evolved since then as disruptions triggered by the COVID-19 pandemic continue to affect market dynamics.

Thunder Bay homeowners favour air sealing, space heating, and window and door replacement over other energy retrofits. Ceiling insulation and water heating equipment upgrades were also prioritized by residents, though to a lesser extent (see Figure 2-7). These trends are generally consistent with the results of the home survey (see "Homeowner perceptions and preferences" section above).

Upgrading space heating equipment can provide significant energy and emissions reductions; however, building science experts recommend that homeowners start with air sealing and other building envelope measures first. These measures are typically more cost-effective, as they help reduce heating loads and consequently decrease the required heating system size.[19] It is important to note that most of the space heating upgrades performed in Thunder Bay involved the installation of more efficient natural gas furnaces, which still burn fossil fuels to heat homes. Additional effort and incentives may be needed to shift retrofit activity to align with the City's emissions targets.

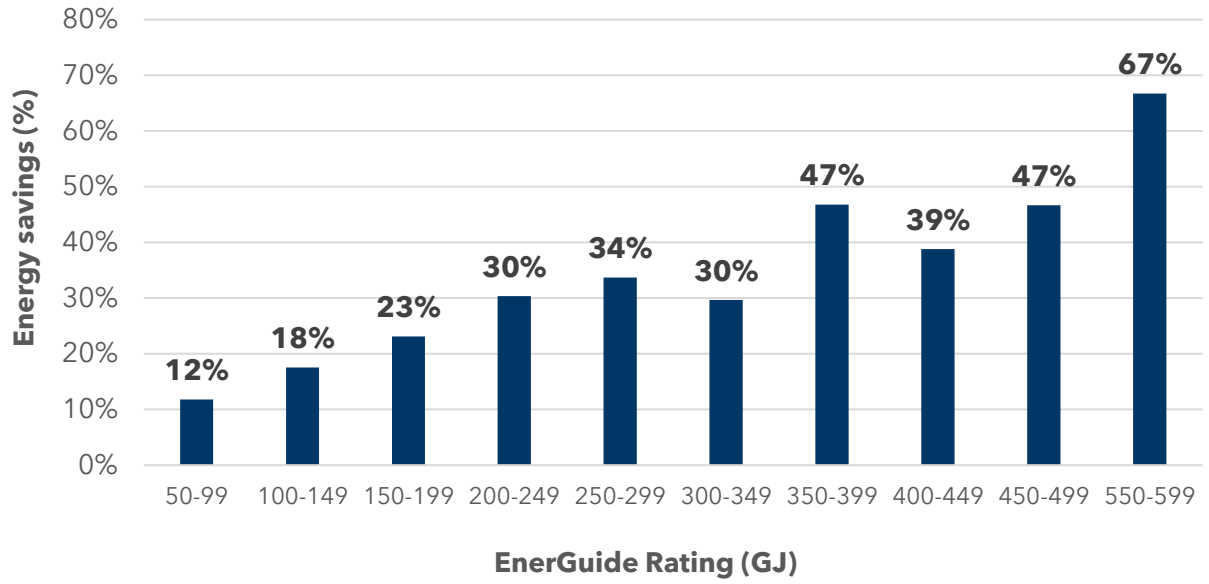
[17] Statistics Canada. Census Profile, 2021 Census of Population: Thunder Bay, City. Accessed Aug 2024.
[18] Statistics Canada. Census Profile, 2021 Census of Population: Ontario [Province]. Accessed Aug 2024.
[19] NRCan. Best practices in heat pump retrofits. Accessed Nov 2024.

Figure 2-7 Uptake rates of energy measures based on EnerGuide data



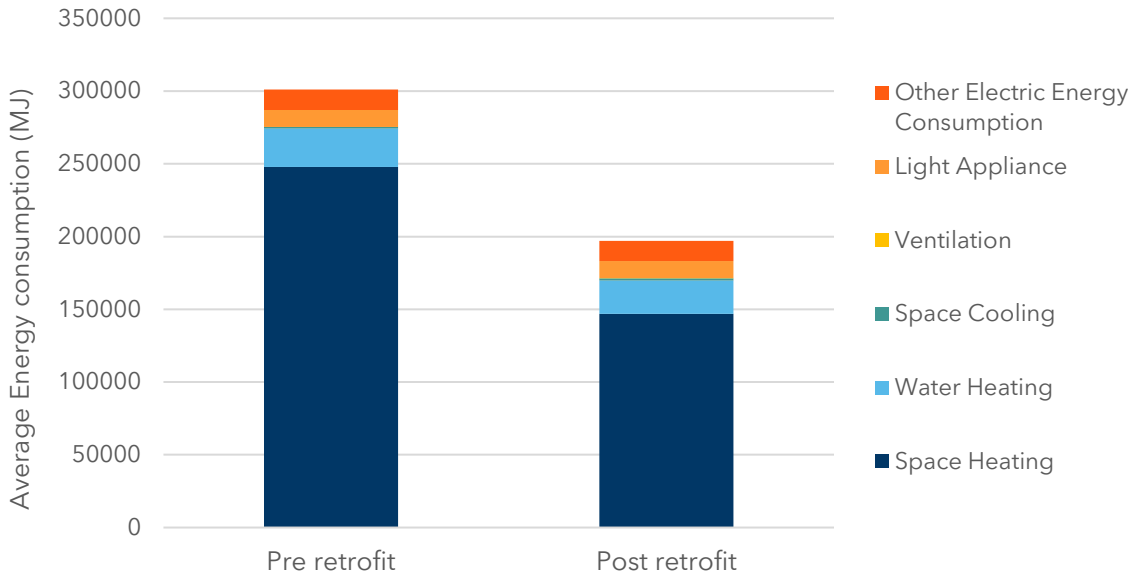
Homes with higher energy consumption experience greater energy savings from home energy upgrades. As depicted in Figure 2-8 shows a general trend where energy savings increase with higher EnerGuide ratings, which represent larger energy consumers. Homes rated between 50 to 99 GJ saved an average of only 12%, whereas those rated between 550 to 599 GJ achieved 67% savings.

Figure 2-8 Energy savings by EnerGuide rating



Space heating offers the greatest potential to cut energy consumption. Based on the EnerGuide data, 82% of home energy use has been, on average, dedicated to space heating before undertaking home energy upgrades; in the least efficient homes, space heating can represent up to 91% of total energy use. As shown in Figure 2-9, space heating represented a smaller proportion (74%) of total energy use after home retrofits.

Figure 2-9 Energy consumption pre- and post-retrofit



2.3 Barriers and potential solutions

While low-carbon energy efficient homes offer numerous benefits, the current level of retrofit activity is far too limited to meet the City's net zero emissions commitments. This shortfall stems, in part, from homeowner barriers.

Homeowners

Homeowners face a range of barriers to undertaking low-carbon energy upgrades including financial, behavioural and structural challenges. Table 2-1 provides an overview of these barriers and outlines strategies that the HEILP will use employ to address them.

Table 2-1: Homeowner barriers to home energy improvements

Homeowner barriers	Program design solutions
1. Upfront and unanticipated costs	
Homeowners may be unable to afford energy upgrades, or unwilling to do so, because of the level of investment needed. In some cases, home repairs or electrical and health and safety upgrades must be performed before certain energy efficiency measures can be installed; this has the effect of increasing overall project costs—often in an unexpected way.	HEILP will offer a tailored loan product amortized over a period of up to 15 years to lower payments. An advanced disbursement may be offered to cover the upfront costs and thus mitigate the need for bridge financing from other sources. Contractors may also be paid directly by the program administrator to streamline the payment process for homeowners. In addition, the program is designed to be flexible to meet related financing needs. The program will finance costs associated with energy efficiency upgrades, including repairs, mold remediation, and municipal permits, up to a cap.
2. Access to capital	
Households may lack access to sufficient capital due to low credit scores or high debt-to-income ratios.	The City's LLR will reduce lending risk to participating credit union(s). With this mechanism in place, the City will work to negotiate more permissive underwriting criteria, enabling credit challenged homeowners to access the loan product at a reasonable cost of borrowing.
3. Cashflow	
Certain households have little capacity to absorb increased expenses, including those living paycheck to paycheck or on fixed incomes. Moreover, short payback periods are often favoured by the private sector to the detriment of capital-intensive projects which stand to benefit from spreading payments over longer loan tenors.	Financing spread over longer loan terms with competitive interest rates will help lower payments for homeowners, while allowing them to plan and budget for other expenses. Prioritizing energy cost saving measures can also lower utility bills, reducing household expenses.
4. Information and education	
Many homeowners are unfamiliar with the benefits of home energy upgrades and unaware of energy retrofit support programs.	Municipalities can use different community channels such as libraries, recreation centres, and in-person events to reach residents. Simple, effective educational content will be distributed through these modes of communication to promote awareness both directly and through word-of-mouth. In addition, a one-stop-shop will be established to guide homeowners to the most impactful low-carbon energy upgrades and to reduce market confusion stemming from the diversity of available programs. HEILP will also develop online resources. The program website will feature objective information from certified experts on how to prioritize and implement energy improvements, among other key

Homeowner barriers	Program design solutions
	topics. The program may also offer an online platform that enables homeowners to run retrofit scenarios of their homes.
5. Competing priorities	
Homeowners may be faced with competing priorities (e.g., aesthetic renovations like kitchen remodels over energy upgrades, other major purchases).	There is an opportunity to integrate energy upgrades into other home renovations to improve overall comfort, aesthetics, health and safety, home value, and more. Awareness of these synergies and co-benefits can be proactively promoted through homeowner education in home renovation stores, alongside building permit information, and through other means. Awareness campaigns delivered through utilities and public facilities (e.g. libraries, recreational centres) can also convince homeowners of the value of energy improvements. Timely and effective messaging often emphasizes the improved comfort and modernization of homes through these upgrades and underscores the potential for utility cost savings, although the messaging that resonates best with the program's target audiences will need to be tested.[20]
6. Attitudes and perceptions	
Many homeowners are averse to taking on additional debt, instead favouring low-cost upgrades they can afford to pay for with their savings. Similarly, measures with short payback periods are often favoured over deep energy retrofit projects, as generating savings is generally a key motivator. Homeowners may also have concerns about project risks, including energy savings not materializing, potential budget and/or timeline overruns with longer than expected disruptions to the home, and uncertainty on the return on investment or property value gains from improvements. Many homeowners mistrust these kinds of programs due to fear of scams ("too good to be true") and a lack of transparency that can result in hidden fees and costs.	While light retrofits and cost-effective measures are supported by the program, energy advisors and coaches can help homeowners decide on which measures to prioritize based on the particularities of their home, communicate the merits of certain combinations of measures to encourage deeper retrofits, and estimate total savings and financing costs to support informed decision-making. With transparency at the heart of the program, homeowners will have access to reliable information that helps to manage homeowner expectations about projected benefits and identify trusted contractors. A municipally delivered program can also instill credibility because of the government's recognized role in serving the public interest. HEILP can also educate participants about the increasing frequency, intensity and impacts of extreme weather events in Thunder Bay, how it may affect homeowners, and how adaptation improvements can benefit them. Program rebates for adaptation measures could also reduce this barrier.

[20] See the following report for communication planning guidance to get started: ICLEI Canada. (2025). Climate Communications Playbook: Behavioural Strategies for Community Action.

Homeowner barriers	Program design solutions
For adaptation measures, the absence of a direct return on investment often results in a lack of motivation.	
7. Split incentives	
Split incentives are a commonly cited barrier to reaching renter households. Split incentives occur when those responsible for paying for energy upgrades (landlords) are not those benefiting from the resulting energy cost savings (tenants). Landlords who invest in energy improvements may find themselves with additional expenses but no increased revenue, unless rents are increased. However, rent increases risk contributing to housing affordability challenges if unregulated and unmonitored.	Tenants and landlords can agree to increase rents by a specific amount if they both see value in the work. Adding a heat pump that replaces window air conditioners is an example where both parties may see benefit.
8. Landscape complexity	
A homeowner's home energy upgrade journey can be time consuming and cumbersome due to lengthy and complex application forms and processes to access grants, rebates, and other supports and benefits. It can also feel daunting to find, select, hire, and coordinate with multiple contractors. This challenge may be heightened when faced with limited local options for services and equipment, requiring homeowners to turn to companies located further away.	Energy concierge services can provide some handholding services to participants to simplify and facilitate the retrofit process. This can include help in identifying relevant rebates and incentives, partially completing application forms, and other kinds of support in planning and executing retrofit projects. A pre-vetted list of qualified contractors, and NRCan-registered energy advisors, can simplify the hiring process and provide some level of quality assurance as well.
9. Industry fragmentation	
Energy efficiency technologies are often little understood among key market actors (e.g., contractors, equipment suppliers and retailers), which can result in poor coordination among them. This industry challenge is generally compounded by homeowner risk aversion, the absence of robust energy efficiency regulations, and the limited return on investment or lack thereof for certain of energy upgrades.	Close communication with the local workforce and relevant associations can help disseminate information on the program and promote relevant training. This often has the additional benefit of driving program uptake, as contractors can be key players in program promotion.

Homeowner barriers	Program design solutions
10. Access to contractors and equipment	
It can be hard to find qualified contractors to perform energy retrofits. The supply of contractors or equipment may be insufficient or the expertise of contractors in the specific energy upgrades may be limited.	The program may offer a list of qualified contractors, which can help homeowners find suitable contractors. The program may also include training for contractors on net zero techniques to increase the quality and quantity of the local green workforce. The City may also explore a bulk arrangement for specific high value equipment to bring down costs.

Local workforce capacity and training needs

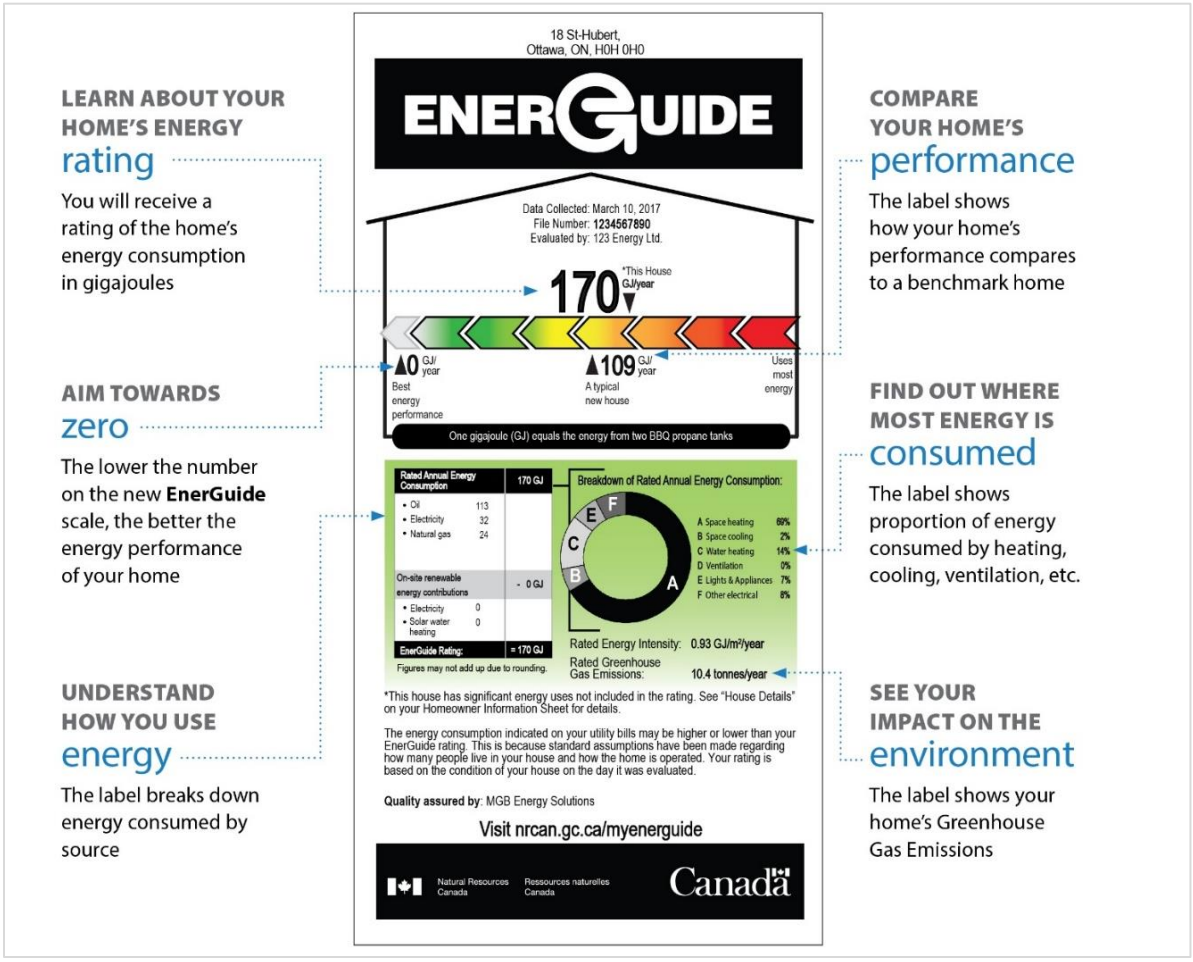
A local pool of trusted energy advisors and a skilled renovation workforce will greatly benefit the implementation of HEILP. Without these groups, homeowner project costs and delays will increase due to the logistical challenges of hiring contractors from further away.

Energy advisors

There are currently two energy advisor service organizations located in Thunder Bay: EcoSuperior and ABLE Energy Management. An average of 130 EnerGuide assessments are completed annually in the community.

It's worth noting that EcoSuperior already collaborates with the City on the Rain Garden Rebate Program. This program helps improve the climate adaptation of low-rise homes in line with the City's climate adaptation objectives. As such, there is an opportunity to leverage cross-program synergies by integrating certain flooding considerations into home energy assessments and cross-promoting the two offerings.

Figure 2-10 Sample EnerGuide rating[21]



[21] Natural Resources Canada. April 2021. After Your EnerGuide Home Evaluation.

The role of NRCan-registered energy advisors

NRCan-registered energy advisors are experts in home energy efficiency and building science. They use their expertise to conduct EnerGuide assessment, a nationally recognized rating tool used in many energy efficiency programs (Figure 2-10). These audits measure a home's energy performance, provide it with a rating, and offer recommendations on which measures to prioritize based on the unique characteristics of the home.

Currently, homeowners must complete EnerGuide assessment to participate in programs funded by FCM's CEF initiative, the (expected) Canada Greener Homes Affordability Program for low and moderate income homeowners, and the Ontario Home Renovation Savings Program. As such, the intent is to require EnerGuide assessment from HEILP participants.

Contractors, skilled trades, and DIY projects

The local green and renovation workforce is expected to grow alongside a sustained increase in demand for services. **The municipality can further support contractor training and upskilling** by implementing targeted strategies. This can include promoting currently available programs, including:

- The Canada Home Builders Association net zero courses and rebates.
- HRAI (the national HVAC industry association) heat pump sales training.
- EcoSuperior's DIY home improvement projects training for homeowners.

Collaboration with the local college and non-profit sector, as well as industry associations and training organizations, can help identify gaps in the workforce, create opportunities to fill those gaps, and support program promotion.

It is also important for the municipality to **avoid contributing to "boom and bust" cycles,** where programs contribute to a temporary increase in demand for services and are suddenly sunset. These types of market fluctuations make it challenging for the industry to adapt quickly and remain competitive. Companies often find it challenging to recruit employees with the right qualifications, especially on short notice, and recognize the investment needed to build their experience in the field. Signaling and respecting a multi-year program commitment to the industry can help build greater transparency and stability to drive deeper market transformation impacts.

2.4 Current program comparison and gaps analysis

A variety of incentive and financing programs are available to homeowners. However, many homeowners remain unaware of them. Table 2-2 below details currently available offerings, including what the programs will and will not cover.

Table 2-2: Funding programs and gaps across the three levels of government

	Local and provincial programs	Description	Funding gap
	Local Programs		
	Ontario Renovates Programme | District of Thunder Bay Social Services and Administration Board	• Offers a forgivable loan up to $35,000 or up to a $5,000 grant upfront to income-eligible households, generally considered low- to moderate-income (LMI) • Aims to help participants make urgently needed home repairs to address home health and safety problems, or to make modifications to their home to accommodate members with disabilities • Eligible repairs and rehabilitation measures include heating systems, plumbing, structure, roofs, electrical, as well as septic systems, well water, fire safety and improved accessibility and safety for seniors and persons with disabilities.	• Unavailable to many incomes • Focus is to help low to moderate income homeowners make urgently needed home repairs to address home health and safety problems, or to make modifications to their home to accommodate members with disabilities, not on reducing GHG emissions and energy consumption, though it may be a co-benefit
	Rain Garden Rebate Program | City of Thunder Bay	• Offers a rebate of up to $625 for plants and other landscaping supplies • Delivered by EcoSuperior	• Limited to landscaping initiatives
	Additional Dwelling Unit Grant and related Planning and Building Permit Fee Grant and Servicing Grant | City of Thunder Bay	• Encourages property owners of fully serviced lots to add additional legal units to their residential or mixed-use properties • Additional units must be self-contained; a private kitchen, bathroom, and sleeping area must be created • Offer covers 100% of eligible cost to a maximum of $20,000 per unit • Accessory grants are also available to reduce the cost of planning or building permits and servicing.	• Funding is only available for fully serviced lots. • Program expected to wrap up by end of 2026.

	Local and provincial programs	Description	Funding gap
	Ontario Programs		
	Home Renovation Savings Program | Save on Energy and Enbridge	• Eligible measures include space and water heat pumps, smart thermostats, solar PV and battery storage, insulation, air sealing, and energy efficient windows and doors • Energy assessment required for two or more measures	• Does not provide funding for climate adaptation measures • Certain rebates only offered for two or more upgrades
	Enbridge Sustain | Enbridge	• Offers an energy-as-a-service solution with the turnkey installation, service and maintenance of selected measures • Eligible measures include geothermal, dual fuel systems (air source heat pump and natural gas furnace), solar PV & EV chargers	• Limited list of eligible measures • Does not support full electrification
	Winterproofing Program | Enbridge	• Offers income eligible homeowners and renters' access to a home energy assessment and the installation of energy efficient measures at no cost • Eligible measures include wall, attic and basement insulation; draft proofing; and smart thermostats • Coordinates with the Energy Affordability Program (below) so selected measures across the two programs can installed at the same time	• Only available to Enbridge Gas customers who use natural gas for home space heating • Unavailable to many incomes • Limited list of eligible measures
	Energy Affordability Program | Save on Energy	• Offers energy-saving products and services at no or low cost, depending on a household's circumstances and income • Eligible costs the program covers may include the replacement of inefficient appliances and the installation of insulation and draft-proofing, smart thermostats, cold climate heat pump and free energy saving kits • Requires an EnerGuide assessment	• Some supports only for electrically heated homes (e.g. insulation, draft-proofing, smart thermostats, cold climate heat pumps) • Unavailable to many income groups

	Local and provincial programs	Description	Funding gap
	Peak Perks Program | Save on Energy	• Residents and small businesses can apply to have their smart thermostats adjusted by up to 2 degrees C during peak electricity events (no more than 10 between June and Sept). • Participants receive $75 to enroll, and $20 annually.	• Only for shaving electricity peaks, not for efficiency measures.
	Federal Programs		
	Oil to Heat Pump Affordability Program | Natural Resources Canada	• Offers a heat pump incentive of up to $10,000 to LMI homeowners with oil as their primary heating fuel • Recent changes have expanded the list of eligible heat pumps and increased income eligibility to account for inflation • Incentive is disbursed prior to installation • Requires proof of purchasing heating oil (500L)	• Narrow focus on oil-heated homes, which represent a very small percentage of Thunder Bay homes • Unavailable to many income groups
	Canada Secondary Suite Loan Program | CMHC	• Offers loans up to $80,000 to add secondary suites to existing homes, with low interest rates (2%) and 15-year loan terms •	• Program planned to launch in 2025 • Details to come in coming months
	Canada Greener Homes Affordability Program | Natural Resources Canada	• Not yet announced in Ontario • Expected to offers grants for specific home energy improvements and emissions reductions • May require a pre- and post-retrofit EnerGuide assessment	• Only eligible for low- and moderate-income families • Only funded with $800M, so is expected to run out quickly • Program planned to launch in 2026. Details to come in coming months

2.5 Program funding opportunities

To fund HEILP, the City will seek to apply to FCM's the Community Efficiency Financing (CEF) initiative offered through the Federation of Canadian Municipalities (FCM)'s Green Municipal Fund (GMF). This initiative is specifically designed to support municipalities and partner organizations implement this type of program, with a focus on stimulating innovation. Under CEF, FCM offers substantial grants to complete feasibility, program design studies, and to start up and operate a program for up to four years. FCM also offers learning resources and access to a community of practice that brings together municipalities who are developing or operating similar programs.

FCM offers two capitalization options paired with the grant, depending on the program model. For Property Assessed Clean Energy (PACE) programs, FCM offers loans intended for on-lending to homeowners. For programs featuring a private sector loan product, FCM offers a loan loss reserve (LLR) fund to backstop non-performing loans.

The CEF initiative is expected to sunset on September 1, 2025. As such, the City will aim to apply to CEF as soon as possible. Within its CEF application, the City will need to emphasize the innovative elements of HEILP to ensure it is competitive. HEILP's innovative features include its private sector partnership, a collaborative, regional approach across Northwestern Ontario, the promotion of DIY training for homeowners, the promotion of low-cost adaptation measures, its enabling features geared towards supporting vulnerable groups, among others.

The reason for the program's modest support to advance climate adaptation is a result of CEF's funding parameters, which limits "non-energy" measures—such as climate adaptation measures—to 30% of the total cost of projects undertaken by homeowners. However, going forward, the CEF initiative is expected to make an additional pool of funding available to better support climate adaptation measures. The details of this offering have not yet been announced. Therefore, the City will monitor FCM's announcements to learn of any relevant climate adaptation updates over the coming one to two years. For details on the HEILP program's approach to promote adaptation measures in the community while respecting the current CEF framework, see Section 4.2.

Beyond CEF funding, other potential sources of funding may be pursed. These are listed in Appendix F.

3. Program Overview

A home energy improvement loan program can be developed to suit the needs of homeowners while leveraging the respective capacities of the City and its partners. This section gives and overview of how the City can realize its objectives by working with a local credit union to deliver a loan product and hiring the services of an experienced program administrator.

3.1 Program objectives

The HEILP program's primary objective is to reduce GHG emissions by helping to decarbonize the City's existing housing stock.

In addition, the program will support several secondary objectives:

- Improve the energy performance of existing homes.
- Reduce the rate of energy poverty in the community.
- Enhance residential and community adaptation to climate change impacts such as heat waves and flooding.

3.2 Target audience

With HEILP, the City aims to reduce GHG emissions from the low-rise housing stock. Given that old homes tend to produce more emissions and can generate more significant savings from investing in low-carbon energy upgrades, targeting neighbourhoods that were built prior to 1980 is one of the program's primary focuses.

The Canada Greener Homes Affordability Program is expected to re-open for low to moderate income homeowners, though it is not known if it will offer loans and/or grants. To remain flexible, HEILP may wish to target homeowners who are not well served by that program. This includes:

- Homeowners who do not meet the income threshold to qualify for the federal program.
- Households who are looking to implement climate adaptation measures alongside low-carbon energy upgrades.
- Landlords, who are categorically excluded from the federal program, which only applies to primary residences.

Given that those at risk of energy poverty in Thunder Bay are often tenants, HEILP will encourage landlords to undertake home energy upgrades to their units without threatening affordability. To do so, the program may require affordability agreements for landlord participation. Additional incentives, such as grants or management support, may also be added to help landlords maintain unit affordability.

To effectively support equity objectives, HEILP will need to consider the unique circumstances, needs and preferences of seniors, single parent households, and the local Indigenous population. For homeowners on low or limited incomes, access to loans may not be enough. They may also need additional cash rebates and support managing the retrofits. More consultation is needed to determine how to best to reach these groups.

3.3 Key features & services

HEILP will help homeowners complete home improvements that achieve energy savings, emissions reductions, and improved climate resilience, as well as comfort and health and safety benefits. The will offers incentives and easy-to-access financing alongside supporting resources, guidance, and technical expertise. Together, these program features and services

are expected to address much of the process complexity and other barriers associated with home energy improvements, while helping homeowners take advantage of existing incentives, make informed decisions about their improvements, and commit to seeing their project through.

HEILP will also carry out a carefully designed strategy to expand demand for home energy upgrades across the community. This will necessitate close collaboration with program partners to increase public awareness, strengthen energy literacy, build capacity in the skilled labour force, and facilitate access to a tailored financing product.

The strategy will be executed with the ultimate aim of scaling the program across the region. To do so effectively, the City has committed to working with its municipal counterparts across Northern Ontario. The City will share key insights and lessons learned from the planning, design and implementation phases of HEILP. Moreover, program scalability is supported by the Northern Ontario regional scale across which the program administrator, financing institution(s), and college already operate.

The following sections describes the program's key elements: the consumer loan product, new incentives, energy coaching services, centralized web platform, retrofit roadmap, and contractor capacity building. A third-party program delivery agent ("program administrator") will be responsible for program administration, marketing, and energy coaching services. Alongside the City, the program administrator will help manage program incentives and a centralized web platform.

Financing & incentives

The HEILP program will offer financing and incentives to make eligible home improvements more affordable and accessible to homeowners. At the same time, the program design aims to limit the municipal administrative burden.

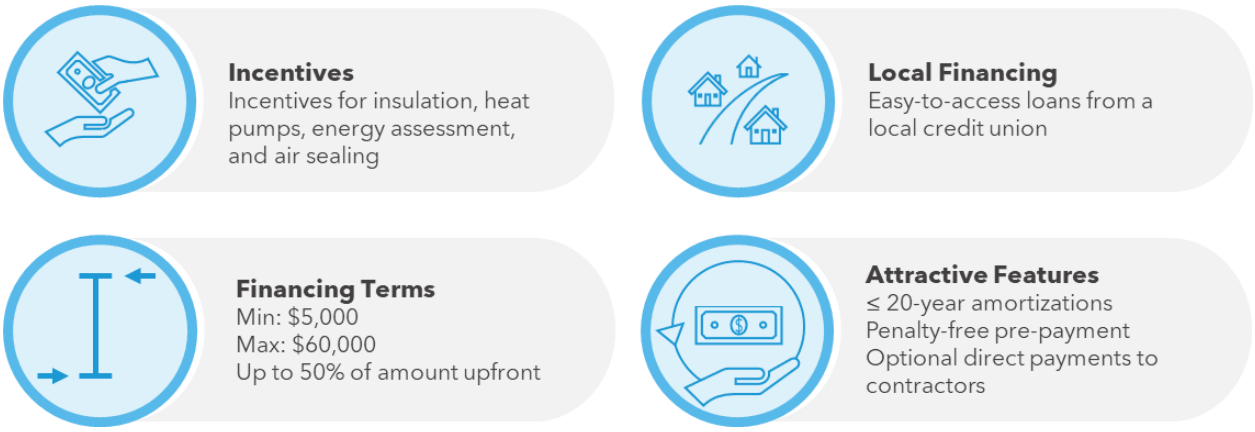
The primary attributes of the loan offering are described below (subject to further negotiation) and summarized in Figure 3-1.

- **Incentives.** HEILP will offer financial incentives that support carbon-reduction measures for homeowners who access the consumer loan product associated with the program. The incentives offered will include a free pre- and post-retrofit energy assessment coupled with air sealing; rebates for attic, wall, and basement insulation using low-carbon materials; and rebates on heat pumps for households currently heating with natural gas. The total incentive amount provided from the City will be no more than 10% of the loan value. Further details are provided in Table 4-1.
- **Consumer Loan Product:**
    - Local Financing. A local participating credit union will offer an unsecured consumer loan product designed to complement other program features and services.
    - Financing Terms. To accommodate a range of financing needs, HEILP will accept financing requests as low as $5,000. This is likely to appeal to homeowners that prefer to complete simple upgrades or take a staged upgrade approach over time (see the retrofit roadmap description in Section 3.2). An upper limit of $60,000 is anticipated for the unsecured consumer loan product.

- Attractive Repayment Terms. Backed by a LLR that reduces the institution's risk exposure, the credit union is expected to offer more permissive underwriting criteria to expand eligibility. The credit union may also offer longer amortization periods designed to better align with the average useful life of installed measures than other private loan products. This can lower debt service payments by amortizing costs over a longer period of time. The credit union is also expected to allow homeowners to repay their loans early—partially or in full—without penalties. This flexibility would enable homeowners to make lump-sum payments of a certain minimum size to pay down their debt more quickly. It would also allow homeowners to refinance their loan with a lower interest rate option should it become available later (e.g. the Canada Greener Homes Affordability Program for low to moderate income homeowners, for which bridge financing may be needed). A preliminary term sheet is included in Section 4.4.

- Direct Payments. HEILP will also be designed to streamline contractor payments for homeowners. Pending further discussion, the credit union may pay invoices directly to approved vendors. Up to 50% of the total estimated project cost may be provided upfront to cover deposits and essential fees. In addition, the program administrator will remit payment directly to energy advisors by leveraging the program incentive.

Figure 3-1: Summary of the program's tentative financing offering



Energy coaching services

The program administrator's energy coaching team ("Coach") will offer a variety of services to help homeowners move through the process. Specifically, the Coach will offer technical, financial, and practical expertise on energy/emissions reductions and some adaptation improvements, offering personalized recommendations, guidance, information, and other forms of support to participating homeowners. The Coach will also help identify measures that are cost effective, depending on homeowner priorities. This will be particularly valuable to low-to-moderate (LMI) homeowners to help prevent them from becoming overleveraged—barring potential prebound and rebound effects.[22] Through this hands-on approach, the

[22] See Kantamneni, A., Gaede, J., & Haley, B. (2025). Making Net-Zero Retrofits Work for Energy-Poor Households.

Coach will help overcome common homeowner barriers like knowledge gaps, low confidence in results, and process complexity, so that home upgrades feel simpler and more achievable.

In addition, participating homeowners will have access to small group learning sessions delivered online monthly, in addition to four hours of one-on-one coaching services. Recognizing the additional barriers faced by LMI homeowners, up to 20 hours of one-on-one coaching support will be made available to them.

Comprehensive support will only be made available to participants that access the loan product, although all interested homeowners will have access to basic forms of support. This approach is intended to align with the funding conditions of the CEF initiative, as it is expected that the grant amount the City will be able to access from this fund will be tied to the total capital deployed through the program.

Some basic coaching support will be provided to all residents to help them move through the process of planning and completing home energy improvements. Such services may include:

- Home energy ratings and tailored retrofit roadmaps using an online portal;
- Recorded webinars about the retrofit process, financing options, existing incentive programs, contractor management, and other topics;
- Access to an online community bulletin board for peer learning; and
- Local events such as home tours or trades shows.

In addition, homeowners who do not apply or qualify for the loan product may access the one-on-one coaching service on a fee-for-service basis.

Rationale for Low Embodied Carbon Insulation

Embodied carbon represents the GHG emissions associated with a product's lifecycle, from manufacturing, transportation, installation, maintenance, and demolition. A material's embodied emissions can total more than the GHGs saved during its operation. As such, it is important to encourage the use of low-embodied carbon products. For insulation, there is a wide range of products available, with some having very high embodied carbon and some very low. Incenting the low carbon options will increase general awareness of the importance of embodied carbon.

Benefits

The Coach will promote more comprehensive and high-value retrofits that achieve GHG emission reductions, energy reductions, and property adaptation improvements and support program retention. By using a third-party delivery agent to offer these services, the City will benefit from the expertise and experience of the selected firm, while diminishing pressures on municipal staff resourcing.

Key components

Depending on the final agreement in place with the selected program administrator, the Coach may offer a variety of services to participating homeowners. These can include:

- Providing information about the program, describing the customer journey, and sharing access to relevant resources.
- Providing expert guidance and recommendations on energy improvements, adaptation upgrades, and other eligible measures, while considering household objectives and circumstances.
- Helping to identify qualified energy advisors and contractors, plan the staging of retrofit work, and evaluate the reports and quotes obtained.
- Pointing to other initiatives (e.g. provincial rebate programs) that participating homeowners may qualify for, and helping participants navigate the application and qualification process.

Centralized web platform

A centralized web platform will be an online portal that will act as a "one-stop-shop". It will allow homeowners, as well as the program administrator, the City and the credit union, to easily access, share, and communicate project information in one place. Specifically, homeowners will generally use the platform to submit application documents and receive notifications on their file. On the backend, the platform will also allow the program administrator, City, and credit union to access and upload shared information, store files, and monitor program activity. This will greatly simplify the coordination needed across multiple stakeholders, while offering a streamlined process to participants.

The centralized web platform can serve other purposes as well. It can direct participants to relevant rebate and incentive programs, connect homeowners with the program's coaching services (e.g. booking a meeting, submitting enquiries), and provide access to local energy advisor and contractor directories. In addition, the platform can support program evaluation efforts by capturing and reporting on collected data, as well as by deploying surveys and supporting other data collection methods.

Alternatives to online communication

Not all homeowners will feel comfortable using an online platform. Alternative means of communications and advancing through the different program stages will therefore be supported. For instance, accessing and submitting print copies of forms and opting into phone communications will be possible. For some services, in-person discussions will also be an option.

Benefits

A centralized web platform will be a valuable tool that can help to address certain homeowner retrofit barriers including process complexity, fragmented information, and finding qualified professionals. Through a user-friendly interface, the platform will provide all information in one place so that homeowners can easily make sense of what they need to do next, complete forms, submit required documentation, and receive communications regarding their application status and any further requirements. At the same time, it can allow the credit union and third-party administrator to process their own portions of the applications and funding requests simultaneously.

Key components

The centralized web platform can make the following functionalities available to homeowners:

- **Information and education.** The platform can be used to share information on home energy and adaptation improvements, including the benefits of home energy upgrades, climate risks and adaptation, and available financing options, to improve homeowner knowledge and understanding. In addition, the platform will be used to promote relevant workshops, information sessions, and complementary learning platforms.
- **Process guidance.** As an information hub, the platform can walk homeowners through the program and process, providing relevant information and resources at each stage. For instance, the platform will be able to connect homeowners with applicable rebates, incentives, and other relevant initiatives, as well as registered energy advisors and qualified contractors to install the homeowner's selected measures.
- **Application forms and submissions:** Homeowners will be encouraged to complete and submit their applications using the online platform. This can help to simplify the application process.
- **Qualified contractors.** The platform may feature a list of local contractors with relevant training such as net zero techniques and/or heat pump certifications. The list will help homeowners find qualified professionals, without being exclusive. The platform will also share tips on selecting contractors, evaluating quotes, and ensuring quality workmanship.

Home energy ratings and retrofit roadmap

The home energy ratings and retrofit roadmaps will be provided to all interested homeowners, and accessible through the centralized web platform. The home energy ratings will give homeowners a quick snapshot of how their home compares to others across the city and province. The City may choose to make these ratings accessible to the public or just to the homeowner.

A retrofit roadmap will also be prepared for each participant and remain confidential to the respective homeowner. It is an individualized plan to help homeowners map out their home improvements over time, with a goal of achieving net zero emissions by 2050. It will also suggest resilience improvements to help the property better withstand climate change impacts. The roadmap will thus provide greater insight into the environmental business case for each potential upgrade measure, along with preliminary financial estimates.

To prepare the roadmap, the program administrator will use pre-retrofit EnerGuide assessment, available data, and a homeowner survey to consider the age of current heating and cooling equipment in the home, along with other factors such as roof or window replacement schedules, capital costs relative to expected savings, and climate change vulnerabilities. This will allow them to identify key opportunities for participating homeowners to install high-efficiency, low-carbon and climate resilient measures that spread costs over time.

National Standard for Home Energy Ratings and Simplified Energy Assessments

NRCan is working on a standard for home energy ratings, which will include simplified requirements for EnerGuide assessments. It is expected to be released later in 2025. The City should align their processes with the national standard.

Benefits

Home energy ratings are typically based on the physical attributes of a home (such as age, size, and orientation) and not the energy usage of occupants. As such, they protect homeowner privacy while being a valuable tool for public awareness.

When made public, they can contribute to market transformation by aligning stakeholders towards more efficient homes. Homeowners can easily understand their opportunities to save energy at home and buyers can incorporate considerations of energy efficiency when purchasing a home. Banks and utilities can also see which homes have opportunities to benefit from energy upgrades.

A retrofit roadmap offers homeowners a way to make sense of complex information to ease planning and decision-making. It allows homeowners to envision and budget for deep emissions reductions at home. It also provides valuable technical recommendations to facilitate conversations with contractors.

Home Energy Ratings and the Ontario Municipal Property Assessment Corporation (MPAC)

MPAC has completed home energy ratings for all Ontario homes and are currently selling these ratings to their clients. It is expected that municipalities will soon be able to purchase this information, which may be a more cost-effective way to generate home ratings for their residents.

Key components

To prepare home energy ratings and retrofit roadmaps, the City will procure a qualified program administrator. Alternatively, the City could coordinate with MPAC to purchase the home energy ratings they have already prepared for homes in Thunder Bay.

To develop home energy ratings and retrofit roadmaps, the program administration will use data such as the EnerGuide assessments, property assessment data, and historic building permit data. The home energy ratings and retrofit roadmaps typically include:

- A rating of a home's energy and a separate one for its emissions, and a comparison to others in the municipality and province;
- Recommended energy improvement packages and their respective payback periods; and
- A homeowner survey to improve the accuracy of the retrofit roadmaps.

To accurately communicate this information, the following principles should be employed:

1. **Align with national home energy rating standards**. As noted above, NRCan is expected to announce a national standard for home energy ratings. A selected program administrator should adhere to this standard for consistency across the country.
2. **Use a compelling format.** The roadmap should present information in a way that is easy to follow, succinct, and visually appealing.
3. **Tailor information to the target audience.** The roadmap should avoid technical jargon surrounding energy efficiency, GHG emissions, and climate adaptation projects where possible. Key terms, such as net zero emissions, should be defined. In addition, estimated bill savings and the co-benefits of improvements should be communicated.

Taken together, these elements will motivate homeowners to gradually improve their home's energy performance and adaptation to climate change impacts.

Contractor capacity building

When surveyed, homeowner expressed that accessing qualified contractors was a barrier to completing home retrofits. Given the types of measures that are eligible and incented, it is expected that this program will result in an increased demand for contractors with expertise in insulation and heat pumps. Based on the records of the Canada Home Builders Association (CHBA), very few local contractors in the Thunder Bay area have been trained on net zero techniques.

CHBA has an approved curriculum for renovators and builders on net zero concepts and techniques. The local college, Confederation College, already offers several courses related to green building design and they have expressed interested to support the upskilling of residential contractors in the Thunder Bay and broader Northwest area.

Regarding heat pump technology, HRAI offers a course on heat pump sales to help technicians become more familiar with heat pump concepts.

Benefits

The benefits of engaging with contractors to offer training are two-fold. First, training increases the knowledge base of the available contractor. Second, it engages contractors into the program and encourages them to promote the program to their clients.

Key Components

To encourage contractors to participate in trainings, the City can offer them free of charge or for a subsidized rate. They can also work with local contractor associations to promote the contractors who have taken the training. However, it is not recommended to limit homeowners to only the qualified list of contractors as limiting the supply of skilled labour can put upwards pressure on its cost.

In addition to offering the trainings outlined above, the City can provide information about the loan program to contractors, emphasizing that contractors will be paid directly from the credit union for participating retrofits. This will increase contractor trust in the program and may encourage contractors to advise their clients about it.

3.4 Consumer protections

Robust consumer protection measures are critical to the success of a home retrofit program offering financing, especially when financing is offered through a financial institution. They help ensure that a homeowner's investment in energy improvements delivers on projected benefits, represents good value, and is well-suited to the participant's financial circumstances. It is therefore important that participating homeowners fully understand the cost implications, project risks, and financing details to make a well-informed decision. Without these protections in place, homeowners may be deceived by the program outcomes (e.g. unrealized energy savings) and run the risk of taking on debt they will struggle or be unable to repay. While these risks affect all homeowners, they are particularly salient for low- and fixed-income households, which tend to have less capacity to take on additional debt payments, especially when they are higher than expected.

At the same time, it's important to recognize that vulnerable groups and underserved communities are often the most likely to spend a considerable portion of their income on home energy costs, while simultaneously being the least able to prepare for, and recover from, the impacts of climate change. The HEILP program must aim to strike a balance between consumer protections, which prevent homeowners from assuming debt that will cause them undue financial hardship, and flexibility to ensure the program is broadly accessible to the community and able to have a meaningful impact on the City's program objectives. Critically, the program acknowledges that it will not be suited to all homeowners, and that a wide range of solutions are needed to meet the City's emissions targets. HEILP should not provide loans to homeowners who cannot afford the repayment.

The HEILP program includes numerous consumer protection measures including the following:[23]

- **Transparency.** The Coach will convey program disclosures to participants verbally during one-on-one calls with a view to promote an understanding of the implications and risks. This will complement, rather than substitute, written program disclosures. It is important to communicate the program disclosures early on, and to reiterate them within the loan agreement. The loan agreement should clearly state the total amount of the loan, the total amount the homeowner will pay over the term of the assessment, the fees charged, and

[23] A comprehensive list of consumer protection measures, based on best practices for PACE programs, are detailed in PACE Nation's (2021) Residential Property Assessed Clean Energy (R-PACE) State and Local Consumer Protection Policy Principles report. Some best practices may not apply in the same way given that this program doesn't use the LIC mechanism for repayment.

the payment schedule. It should also state the consequences linked with failure to pay any outstanding balance, and that the loan will stay with the participant even after the sale of the home.

- **Fraud prevention.** The program administrator will communicate clear guidelines to program delivery partners (Table 8-2) and stakeholders with a view to limit the spread of predatory practices and program misrepresentation. The program's Coach will also inform homeowners about how to ensure their contractors hold all necessary licences and certifications to conduct the work proposed. The post-retrofit energy assessment will validate that the upgrades were completed correctly before the credit union remits payment to contractors.

4. Program Details

This section details the specifics of the home energy improvement loan program including the eligibility criteria for both participants and retrofit measures, the incentives available, and the terms of the loan product.

4.1 Participant eligibility criteria

To evaluate applications to the program, the HEILP administrator will gather required documentation from applicants and will coordinate with the credit union to perform the necessary checks needed to confirm the following minimum eligibility criteria is respected.

1. The applicant must be the **owner** of the home in which energy improvements are made.[24]
2. The property must be **located** in the City of Thunder Bay.
3. The home must be considered a **low-rise** residential property three-storeys or less (detached, semi-detached, row housing, similar) and situated on a permanent foundation, with a space heating system and all windows and doors in place, such that it is eligible for an EnerGuide assessment.[25]
4. The applicant must agree to a **pre- and post-retrofit energy assessment**. If submitting a pre-retrofit energy assessment completed prior to the program's pre-approval, it must be dated no more than 48 months prior to the homeowner's application submission date, provided that no major energy upgrades were completed in the intervening period, to be accepted.

Other underwriting criteria and eligibility requirements are to be negotiated with the credit union during the program start-up period.

4.2 Qualifying improvements

Eligible projects will need to meet baseline requirements for qualifying upgrades (listed in Appendix B).

Note that the credit union may be willing to increase the total loan to allow the homeowner to incorporate measures that are not on the eligibility list. That portion of the loan may not be backstopped by the LLR, and the blended interest rate applied may therefore be higher.

Baseline project requirements

Applicants will need to demonstrate that their financing request meets the following requirements:

1. Financed upgrades include **one or more** qualifying energy measure(s).
2. Financing is **not** used for the installation or replacement of any fossil fuel system.
3. Up to 30% of total approved financing may be directed toward qualifying **supporting measures**, including climate adaptation.
4. Financed measures are consistent with or exceed the minimum energy efficiency standards recommended in the **EnerGuide assessment**.
5. Financed upgrades must be completed within **12 months** following the execution of the loan pre-approval, though a 6-month extension may be possible for homeowners who need more time to complete their projects.

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[24] While non-owner-occupied properties are eligible, other measures should be implemented and enforced to protect renters from potential rent increases and "renovictions". For more information on best practices, refer to Kantamneni, A., & Haley, B. (2023). Energy Efficiency in Rental Housing: Policy Mixes for Efficiency, Affordable and Secure Housing.

[25] Natural Resources Canada. (2023). EnerGuide Energy Efficiency Home Evaluations.

The program will also permit DIY upgrades if they align with the overall program objectives and are for measures that do not require a qualified professional or any certification to complete. This therefore excludes measures like heat pumps and solar PV which must be installed by a qualified contractor and therefore cannot be DIY projects. The applicant will need to obtain written approval from the credit union *before* proceeding with any purchases or work and provide all receipts for materials at the end of the installation. Homeowners will not be allowed to claim charges for their own time.

Eligible measures

The program will finance energy improvement measures and qualifying supporting measures, recognizing that homeowners will, in many cases, incur related costs that fall outside of a strictly defined scope for home energy equipment installation. For instance, some homes may need electrical wiring and service upgrades prior to certain improvements, while other homes may benefit from mold remediation before further work is completed. Additionally, homeowners may also wish to pair retrofit measures with minor related renovations for aesthetic or practical reasons, such as replacing the door frame trim or painting around work sites. To allow for reasonable flexibility, up to 30% of the loan value may be dedicated to costs associated with the energy improvements.

The program will also aim to promote and finance measures which support the program's overall objectives, including climate adaptation. However, because HEILP's primary focus is to support energy upgrades that reduce GHG emissions, additional improvements will not be permitted to represent more than 30% of the total financing request. This cap is consistent with the CEF initiative's requirements for qualifying homeowner projects.

The Coach or credit union may work directly with homeowners to clarify what energy, adaptation and supporting measures are eligible. The credit union may offer greater financing to cover any other costs; however, these would not be backstopped by the LLR.

4.3 Program rebates and incentives

With the close of the Canada Greener Homes Grant program and the launch of the Ontario Home Renovation Savings Program, less substantial incentives are currently available for home energy upgrades, specifically for the installation of heat pumps in homes heated with natural gas (see Table 2-2 for a description of available programs). There nonetheless remains multiple incentives which aim to support home energy improvements for LMI households, including:

- Natural Resources Canada (NRCan)'s Oil to Heat Pump Affordability Program;
- Enbridge's Winterproofing Program;
- Save on Energy's Energy Affordability Program; and
- Canada Greener Homes Affordability Program (pending launch).

The HEILP program will leverage the grant funding from FCM to offer additional incentives to homeowners in ways that complement these programs. Additional incentives can encourage program participation, stimulate demand for specific measures that may be otherwise unpopular, and reduce total project costs for homeowners. Incentives to be offered under this program are outlined in Table 4-1.

HEILP incentives will be paid directly to the credit union, reducing the homeowner's loan balance. Non-HEILP incentives will be paid to the homeowner, who will have the choice whether they use it to

pay down their loan balance. As a reminder, there are no penalties for early repayment with the credit union loan product.

The program will remain responsive to larger market trends, given the frequent fluctuations in available program offerings. Thunder Bay will tailor incentives to address emerging market gaps. As an example, the Canada Greener Homes grant program stopped accepting new applications in 2024 and announced it would be replaced by the Canada Greener Homes Affordability Program for LMI households only.[26] To date, no more information about that re-opening has been provided.

Table 4-1: Program incentives offered for home energy improvements

Measure	Incentive	Requirement	Notes
General			
EnerGuide assessment (pre- and post-retrofit)	$600		Paid directly to Service Organization
Air sealing, blower-door assisted (for homes >3 air changes/hr)	$400	Air tightness goal in EnerGuide assessment	Paid directly to Service Organization
Insulation *Insulated area must be >70% of surface area of the facade and use products that are < 4.2 kg CO2eq/FU.*			
Attic or Roof	$500	R-value +25	
Exterior Walls	$2,000	R-Value +8	Semi-detached and corner unit townhouses homes receive 75%, townhouses receive 50%.
Foundation/Basement	$500	R-Value +20	
Cold Climate Heat Pumps *For homes primarily heated with natural gas.*			
Air source, central	$1000/ton Max $3,000		
Air Source, mini split	$500/ton		
Geothermal HP	Max $1,500		

[26] Natural Resources Canada. (2024). Canada Greener Homes Initiative – February 2024 Update.

Note: The total incentive offered will not exceed 10% of the loan value.

4.4 Term sheet

Table 4-2 below outlines the preliminary terms of the unsecured loan product and are subject to change in the final version, pending further negotiation with the participating credit union, as well as the provisions in an eventual agreement with FCM. Certain elements of the term sheet may also be adjusted throughout the program implementation period to better respond to the funder, City, and homeowner needs.

Table 4-2: Preliminary program term sheet

Terms	Details
Eligible Borrowers and Properties	Homeowners that comply with participant eligibility criteria (Section 4.1)
Eligible Measures	• Qualifying energy efficiency, renewable energy and fuel switching upgrades • Related engineering and electrical service upgrades • Necessary repairs and health and safety requirements to install qualifying measures • Climate adaptation measures Detailed list of measures in Appendix B
Time to Complete Work	• 12 months from the date of issuance for the Loan Pre-Approval. • Extensions of additional 6 months may be granted upon request.
Amount	• Minimum of $5,000 / maximum of $60,000 • Up to 100% of qualifying measures • Up to 30% of the total financing request may be directed to supporting measures defined in Section 4.2. In the case of consecutive applications to the program, the maximum amount available is reduced by the outstanding loan balance.
Term	For amounts less than $20,000, the maximum term is 10 years, and for amounts of $40,000 or more, the maximum term is 15 years.
Interest Rate	• Fixed interest rate (basis points to be determined)
Administration Fee	TBD
Advanced Disbursement	Up to 50% of the loan value
Payment Frequency	TBD
Early Repayment	No prepayment penalty for amounts over TBD

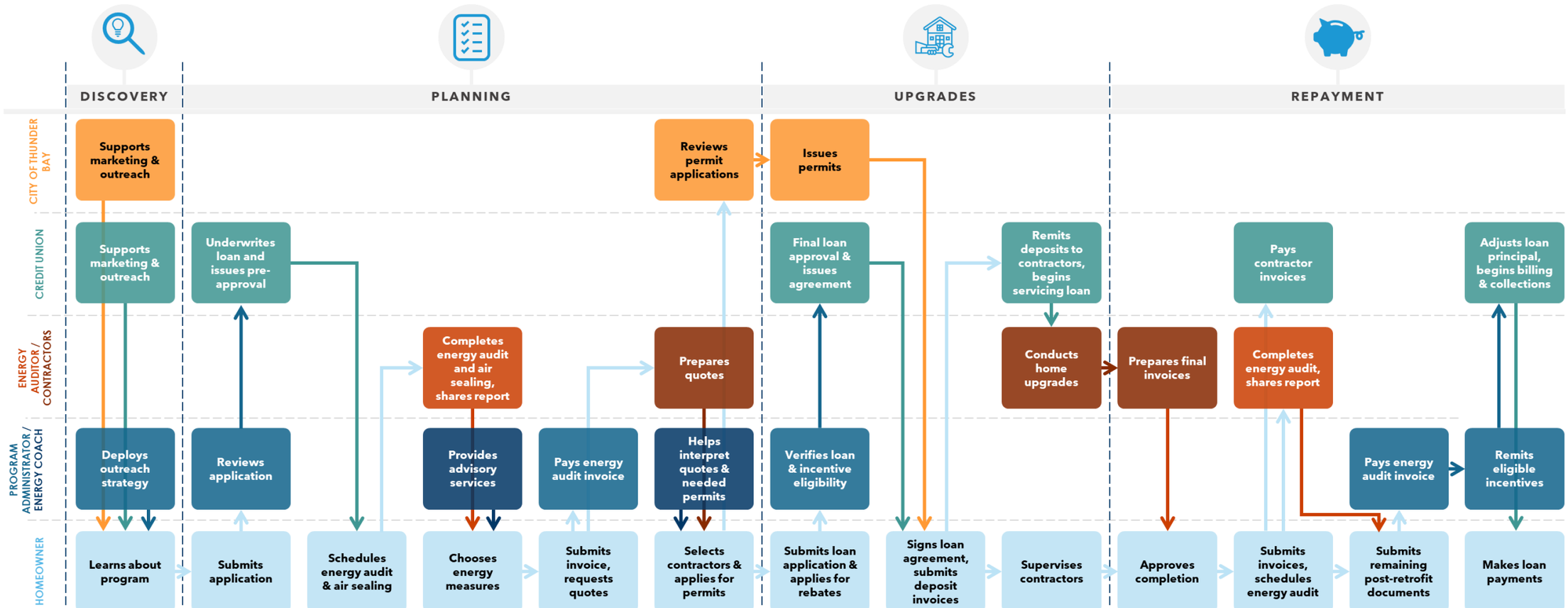
5. Multi-Stakeholder Journey

This section describes the five program stages: discovery, planning, upgrades, repayment, and re-entry (Figure 5-2). Each stage details the homeowner experience, as well as the different delivery activities conducted by the main program stakeholders—the program administrator, credit union, City of Thunder Bay, energy assessors, and contractors. It also identifies the associated documentation, system infrastructure, and internal controls for quality assurance needed.

Figure 5-1: Summary of five program stages

The multi-stakeholder HEILP journey map shown in Figure 5-2 below summarizes the interactions between different stakeholders at different program stages. Further discussions will be needed to finalize the process map once the program administrator and credit union are contractually engaged.

Figure 5-2: Preliminary multistakeholder HEILP journey map



The following sections detail each of these steps in greater detail.

1. Discovery

During the discovery stage, a mix of targeted marketing, outreach and educational strategies are used to reach the target audience and inform them of the benefits of the program and low-carbon energy efficiency and climate adaptation more broadly. The primary objective is to generate interest in the program and encourage eligible homeowners to move forward with an application.

Process description

The following steps are carried out at the discovery stage:

- **Program promotion.** The program administrator, supported by the City and the credit union, raises awareness about the program by deploying the marketing and outreach strategy through different communication channels and mediums. Interested homeowners learn more about the different considerations surrounding a home retrofit project by exploring the information and features available on the program webpage and by submitting enquiries to the program administrator or on the online bulletin board.
- **Education.** The program administrator promotes the benefits of home energy and adaptation upgrades, in partnership with the City, the Credit Union, and trusted collaborators.

Homeowner experience & stakeholder responsibilities

At this stage, the primary delivery agents collaborate to ensure consistent messaging and amplify the reach of program promotion efforts. Table 5-1 below details each of the main homeowner and stakeholder steps.

Table 5-1: List of primary homeowner and stakeholder steps at the discovery stage

Stakeholder	Experience / responsibilities
Homeowner experience	• Learn about low-carbon energy efficiency and climate adaptation. • Made aware of the program and how it supports their priorities (e.g. comfort, cost savings). • Encouraged to peruse the information made available, pose questions, and apply to the program.
Program administrator	• Deploy the marketing and outreach strategy, including promotional materials and the online bulletin board. • Respond to enquiries from homeowners. • Issue regular invoices to City of Thunder Bay for services rendered.
Credit union	• Support the deployment of the marketing and outreach strategy. • Direct interested homeowners to the program website.
City of Thunder Bay	• Support the deployment of the marketing and outreach strategy. • Direct interested homeowners to the program website. • Pay invoices to the program administrator.

Supporting documentation and infrastructure

The documentation needed to support the discovery stage includes:

- Program marketing and outreach strategy.
- Final educational and promotional materials.
- Website featuring content on program offering, processes, and FAQ, as well as an interactive online and monitored bulletin board. A directory of registered energy assessors and guidance on how to vet and work with contractors may also be added.
- Detailed process and procedures, including standard response times.

Internal controls for quality assurance

Key Performance Indicators (KPIs) and supporting measurement tools will help monitor the effectiveness of marketing and outreach efforts, as well as communications and engagement with homeowners.

2. Planning

Interested homeowners submit a program application. If they meet the program's eligibility criteria and receive loan pre-approval, they are then required to obtain an energy assessment, which can help them choose the upgrades they will complete. Once decided on the scope of their project, participants obtain and compare quotes from contractors. Participants may request to meet one-on-one or as part of a group with the Coach for assistance making informed decisions.

Process description

The following steps are carried out at the planning stage:

- **Eligibility assessment.** Interested homeowners submit a completed application through the program's online portal, by email or by postal mail. The application is first reviewed by the program administrator, who confirms eligibility based on the minimum program criteria (Section 4.1). Ineligible homeowners are notified, provided the reasons for the refusal, and directed to other programs for which they may qualify. Eligible applications are passed to the credit union, who begins underwriting the loan application.
- **Application notice.** The credit union notifies applicants of their loan pre-approval or refusal. Participants who are pre-approved are given supplementary information to guide their next steps and promote transparency.
- **Energy assessment & air sealing.** Program participants obtain a pre-retrofit energy assessment and complementary blower-door assisted air sealing work to respect the program's eligibility requirements. Participants are reimbursed through the program's incentives. With the energy assessment report, homeowners are able to better understand their home energy performance of the home and have access to personalized list of recommended upgrades to maximize energy savings. Homeowners may work with the Coach to select appropriate improvements for their property, taking into account their priorities, preferences, financial circumstances, and other factors.

- **Contractor quotes.** Once decided on the scope of their project, participants contact local contractors to request quotes. The Coach is available to help homeowners navigate this process, including how to find relevant contractors and how to negotiate, interpret and compare the quotes they receive.

Homeowner experience & stakeholder responsibilities

At this stage, homeowners apply to the program and map out their project with guidance from the energy assessment, personalized retrofit roadmap, contractors, and the Coach. Table 5-2 below details each of the main homeowner and stakeholder steps.

Table 5-2: List of primary homeowner and stakeholder steps at the planning stage

Stakeholder	Experience / responsibilities
Homeowner experience	• Apply to the program by preparing and submitting an application, attestation and consent form, alongside any other required supporting documentation. The homeowner may be asked to provide additional information, if needed. • Notified of whether their application has been pre-approved. If so, information is provided to assist with next steps and manage expectations. • Hire a registered energy advisor to complete a pre-retrofit energy assessment, coupled with complimentary air sealing work (optional). • May submit their energy assessment to the Coach to obtain a personalized retrofit roadmap (optional). • Decide on the scope of their project and contact a variety of contractors to obtain quotes. • May May participate in one-on-one or group coaching sessions (optional) to obtain advice on what energy measures and adaptation improvements are best suited to their property, priorities and preferences, financial circumstances, and other factors, and how to find appropriate contractors and assess the price and quality of quotes. • Retain their selected contractors and obtain any required permits.
Program administrator	• Evaluate applications against the program's eligibility criteria, and request clarifications or additional information where needed. • Inform ineligible applicants of the reasons for refusal and redirect them to program for which they may qualify. • Forward eligible applications to the credit union for review. • If needed, help homeowners identify a suitable energy advisor. • Provide energy coaching services via group sessions and one-on-one support. • Pay the energy advisor using the program incentives. • Monitor program activity and follow up on any inactive files. • Issue regular invoices to City of Thunder Bay for services rendered.
Credit union	• Begin loan underwriting and issue a notice of loan pre-approval or refusal.
City of Thunder Bay	• Remit payment to the program administrator.

Supporting documentation and infrastructure

The documentation needed to support the planning stage includes:

- Centralized web platform, with integrated Customer Relationship Management (CRM) software (or equivalent) and encryption function for financial documents.
- Final eligibility and underwriting criteria, along with the list of required documentation.
- Application, attestation,[27] and consent forms.
- Notice of pre-approval/refusal template.
- Program and loan application forms.
- Detailed process and procedures, including standard response times.

Internal controls for quality assurance

CRM software can help monitor application progress to trigger follow-ups when warranted, as well as to generate valuable data to evaluate program performance, including the average time it takes to review applications.

3. Upgrades

Participants submit their financing request form and share their selected quotes. The program administrator verifies whether all costs are eligible and confirms what incentives apply, then forwards the application to the credit union to finalize the loan agreement. The credit union disburses funds to cover contractor invoices upon satisfactory project completion.

Process description

The following steps are carried out at the upgrades stage:

- **Loan application.** Once participants have selected their preferred contractors, they submit a completed financing request form through the online portal. Within that form, participants have the option of requesting an advance disbursement to cover contractor deposits and related fees. The program administrator uses the information collected to validate that costs are consistent with the program's criteria for qualifying measures, then notifies the credit union to proceed with the loan agreement, which likely will begin accruing interest. Once fully executed, and required municipal permits have been issued, participants may authorize their contractors' work.
- **Home upgrades.** Contractors proceed with the quoted home improvements, with oversight from the participant.
- **Contractor payment.** Before the work commences, the credit union remits payment to cover program-approved contractor deposits and related fees for participants who

[27] The attestation form should, at minimum, ask homeowners to acknowledge that they have read the terms and conditions of the program, confirm that all the information submitted is true and accurate to best of their knowledge and that they have the authority to submit the attestation, and agree to providing timely responses to questions from the program administrator.

requested the advanced disbursement option. At the end of the project, the credit union provides a loan disbursement to the homeowner to pay the remaining balance.

Homeowner experience & stakeholder responsibilities

This stage centers around finalizing all agreements and approvals needed to authorize the contractors' work. Table 5-3Table 5-2 below details each of the main homeowner and stakeholder steps.

Table 5-3: List of primary homeowner and stakeholder steps at the upgrades stage

Stakeholder	Experience / responsibilities
Homeowner experience	• Submit quotes and completed financing request form. • Submit rebate applications to external programs. • Sign the loan agreement.
Program administrator	• Lead coaching services with participants. • Respond to written and phone enquiries. • Work with local contractors if needed to clarify certain aspects of the quote. • Monitor program activity and follow up on any inactive files. • Issue regular invoices to City of Thunder Bay for services rendered.
Credit union	• Process financing documentation. • Prepare, sign and execute the loan agreement. • Remit payment to cover contractor deposits and related fees, if requested. • Loan servicing
City of Thunder Bay	• Issue any necessary municipal permits. • Remit payment to the program administrator.

Supporting documentation and infrastructure

The documentation needed to support the discovery stage includes:

- Loan agreement template.
- Centralized web platform, with integrated CRM software (or equivalent) and encryption function for financial documents.
- Detailed process and procedures, including standard response times.

Internal controls for quality assurance

CRM software can help monitor file progress to trigger follow-ups when warranted. Clear and consistent communication facilitated by the centralized web platform will be key to coordinate between participants, contractors, and the program administrator.

4. Repayment

Participants ensure the contractors' work has been completed to satisfaction and coordinate with the credit union to ensure contractors are paid in a timely manner. In addition, participants obtain a post-retrofit energy assessment and submit the remaining documentation. The program administrator remits payment to the energy advisor, calculates the applicable incentives, and provides the funds to the credit union, who adjusts the loan principal accordingly. The credit union manages billing and collections over the term of the loan.

Process description

The following steps are carried out at the financing stage:

- **Final disbursement**. Once participants are satisfied with the work completed, they forward the financing request and a copy of the contractor invoices to the credit union. The credit union provides the final disbursement to cover approved financing costs.
- **Energy assessment.** Participants obtain a post-retrofit energy assessment to fulfill program requirements and help understand the impact of their upgrades.
- **Project closing**. The homeowner submits all remaining documentation. The administrator then pays the energy advisor and submits applicable incentives to the credit union to bring down the loan principal. A homeowner survey is circulated to help estimate the additionality and impact of the program and to evaluate the participant experience.
- **Loan servicing.** The credit union bills and collects payment from borrowers. Participants may opt into a pre-authorized payment plan to help streamline the collections process. The process for addressing delinquencies and defaults is consistent with the credit union's existing policies and procedures.

Homeowner experience & stakeholder responsibilities

This stage is centred on final invoicing and loan payments. Table 5-4 below details each of the main homeowner and stakeholder steps.

Table 5-4: List of primary homeowner and stakeholder steps at the repayment stage

Stakeholder	Experience / responsibilities
Homeowner experience	• Submit the final financing request and a copy of the contractor invoices to the credit union to receive the disbursement. • Use disbursed funds to pay contractors. • Obtain a post-retrofit energy assessment and submit all other required documentation. • Make loan payments over the term of the loan.
Program administrator	• Process the final homeowner documentation and request additional information and clarification as needed. • Remit applicable incentives to the credit union.

Stakeholder	Experience / responsibilities
	• Provide regular invoices to City of Thunder Bay for services and reimbursement of incentive amounts forwarded. • Circulate the homeowner survey. • Collect required data for reporting purposes. • Monitor program activity and follow up on any inactive files. • Issue regular invoices to City of Thunder Bay for services rendered.
Credit union	• Draft modifications to the loan agreement, if applicable. • Coordinate modified loan agreement signatures, if applicable. • Disburse funds to borrowers. • Adjust the loan principal to account for HEILP and other incentives, and any additional payments. • Manage billing and collections, including any delinquencies and defaults.
City of Thunder Bay	• Remit payment to the program administrator. • Prepare regular reports to the program funder (FCM), with support from the program administrator and credit union, to fulfill funding requirements.

Supporting documentation and infrastructure

The documentation needed to support the discovery stage includes:

- List of required documentation for final disbursement.
- Centralized web platform, with integrated CRM software (or equivalent) and encryption function for financial documents.
- Detailed process and procedures, including standard response times.

Internal controls for quality assurance

Key Performance Indicators (KPIs) and supporting measurement tools will help monitor the overall effectiveness of the program processes and services based on the perspectives of participants who fully completed the program. The program may also conduct virtual or on-site quality assurance checks on a sample of completed projects. Finally, the program will implement strict protocols for managing personal identifiable information and data security.

5. Program re-entry (optional)

Former program participants are invited to consider additional home energy and adaptation upgrades through the HEILP program. Permitting and encouraging re-entry allows homeowners to phase their home retrofits over time with structured guidance from the personalized retrofit roadmap prepared during the previous planning stage.

Process description

The following steps are carried out at the program re-entry stage:

- **One-on-one meeting.** The energy Coach offers a one-on-one meeting with each former participant to revisit their retrofit roadmap and to discuss their current priorities and circumstances. This personalized engagement can help motivate homeowners to reflect on investing in further property improvements.
- **Repeated stages.** Homeowners interested in moving forward will prepare an application and move through the program stages anew. Certain steps may be more streamlined. For instance, if the post-retrofit energy assessment is still valid, the homeowner will not need to obtain another energy assessment. In addition, there may be an option to modify rather than renegotiate the loan agreement, provided it has not yet been discharged.

Homeowner experience & stakeholder responsibilities

At this stage, the homeowner re-immerses themselves in the program. Table 5-5 below details each of the main homeowner and stakeholder steps.

Table 5-5: List of primary homeowner and stakeholder steps at the program re-entry stage

Stakeholder	Experience / responsibilities
Homeowner experience	• Invited to meet with a Coach to discuss additional home upgrades using the retrofit roadmap as a starting point for reflection. • Meet with the Coach to discuss the opportunity further, if desired.
Program administrator	• Monitor the CRM to identify homeowners to re-contact. • Outreach to encourage homeowners to consider re-entering the program. • Disclose program re-entry terms and conditions. • Meet one-on-one with interested homeowners to review their retrofit roadmap, discuss their current priorities and circumstances, and advise them on the process to re-enter the program. • Issue regular invoices to City of Thunder Bay for services rendered.
Credit union	• No direct support at this stage. • Redirect re-entry enquiries from participants to the program administrator.
City of Thunder Bay	• Remit payment to the program administrator.

Supporting documentation and infrastructure

The documentation needed to support the discovery stage includes:

- Description of terms and conditions and other relevant disclosures for program re-entry.
- Central web platform, with integrated CRM (or equivalent) and encryption functionality.
- Detailed process and procedures, including standard response times.

Internal controls for quality assurance

CRM software can help trigger follow-ups at opportune times, track communication preferences, and keep note of discussion details.

6. Projected Uptake & Impacts

This section presents the anticipated program uptake, impacts and co-benefits. These estimates are based on results from Dunsky's proprietary financing program model and informed by available costing information, uptake data from other jurisdictions, and building archetypes representative of common housing types in the community. A sensitivity analysis with three uptake scenarios is shown to demonstrate a range of program possibilities under different conditions. Further details on the inputs and assumptions used in the financing program model are provided in Appendix C.

6.1 Estimated participation rate

Based on the modelling results of different uptake scenarios, the program is expected to support **up to 531 participants within the first four years of operations.** This represents 2.4% of the total eligible housing stock (39,485 dwellings). The preliminary budget and impact estimates are built around the 'FCM Scenario'.

Table 6-1: Estimated uptake, City of Thunder Bay[28]

Uptake Scenario	Average Annual Uptake Years 1-4	Total Cumulative Uptake Years 1-4
Low	33	130
FCM scenario[29]	**50**	**198**
High	132	529

Program uptake could exceed projections if there is substantial pent-up demand, if existing programs sunset, and if other initiatives that further drive demand for home energy and adaptation improvements are introduced at the local, provincial and federal levels in the coming years. The HEILP program is also expected to indirectly increase retrofit activity outside of the program by motivating homeowners to undertake energy and adaptation improvements through other financing options (e.g. savings, home equity loan) as the local retrofit ecosystem becomes more established and as residents become more aware and familiar with the associated benefits.

6.2 Environmental impacts

Based on the projected uptake for the program, Table 6-2 and Table 6-3 present the estimated energy saving and GHG reductions resulting from home retrofits completed through the HEILP program, respectively.

Table 6-2: Estimated energy savings (GJ)

Uptake Scenario	Average Annual Energy Savings Years 1-4	Total Cumulative Energy Savings Years 1-4
Low	2,322	9,289
FCM scenario	**3,542**	**14,169**
High	8,959	35,835

[28] Some totals may not add up exactly due to rounding across all tables in this section.
[29] The FCM scenario was created for the purposes of the CEF application and sits between the low and high uptake scenarios.

Table 6-3: Estimated GHG savings (tCO_2e)

Uptake Scenario	Average Annual GHG Savings Years 1-4	Total Cumulative GHG Savings Years 1-4
Low	112	446
FCM scenario	**164**	**657**
High	413	1,651

While the HEILP program will play a role in meeting the City's climate action objectives, various other policies, regulations and initiatives—both carrots and sticks—will be needed to achieve net zero emissions across the existing housing stock by 2050.

6.3 Program co-benefits

The program will generate multiple co-benefits, in addition to supporting the City's GHG, energy and adaptation objectives. Some of the expected community benefits resulting from the program's direct and indirect impacts include:

- Reduced rate of energy poverty across the City;
- Increased economic activity (e.g., jobs created);
- Improved homeowner comfort;
- Improved health and safety (e.g., better air quality, less moisture and mold issues); and
- Increased home values.

This program will also allow the City to be well positioned to support residents meet future and growing pressures to undertake energy and adaptation upgrades, as well as to expand to target commercial and multifamily buildings.

7. Program Funds

This section provides an overview of the program's preliminary capital and operating budgets, the proposed flows of capital, and the purpose and structure of the proposed loan loss reserve supporting the program's associated loan product.

7.1 Preliminary program budget

To capitalize the HEILP program, the City intends to apply to FCM's CEF initiative. The following high-level estimate of the program's operating and capital needs is intended to help the City prepare its application to the CEF initiative and secure the required commitment from Council, assuming the program is awarded funding from FCM. It will also support the City's regular budget planning for the years ahead.

Table 7-1 shows the estimated funding needed to administer the program during its first four years of operations and

Table 7-2 shows potential contributions from different parties and revenue sources, noting that the CEF initiative requires that a portion (20%) of the program's total eligible costs be covered by non-FCM sources. In this case, the credit union funds would cover that match funding requirement. While it is the applicant's responsibility to secure these funds, the matching contribution may be committed by any number of external parties and therefore do not necessarily need to be entirely covered by the City. In this program's case, the capital is entirely provided by a local credit union, which amply covers the portion of the total eligible costs by non-FCM sources.

Table 7-1: Preliminary HEILP program budget

Program Expenditures	Year 1[30]	Year 2	Year 3	Year 4	Total
Operation costs	$376,500	$169,250	$158,000	$148,000	$851,750
Program rebates	$118,976	$131,738	$133,538	$150,917	$535,169
Additional services for low-income participants	$5,000	$5,000	$5,000	$5,000	$20,000
Loan loss reserve	$153,280	$181,640	$185,640	$224,260	$744,820
Homeowner financing	$766,400	$908,200	$928,200	$1,121,300	$3,724,100
Total expenditures	$1,420,156	$1,395,828	$1,410,378	$1,649,477	$5,875,839

[30] Year 1 includes the program start-up and the first full year of the program.

Table 7-2: Sources of funding to cover the program budget

Sources of Funding	Year 1[18]	Year 2	Year 3	Year 4	Total
City (in-kind existing staff time)	$96,250	$45,000	$33,750	$33,750	$208,750
Application fee	$0	$0	$0	$0	$0
FCM (grant)	$404,226	$260,988	$262,788	$270,167	$1,198,169
FCM (loan loss reserve)	$153,280	$181,640	$185,640	$224,260	$744,820
Credit union (loan capital)	$766,400	$908,200	$928,200	$1,121,300	$3,724,100
Total funding	$1,420,156	$1,395,828	$1,410,378	$1,649,477	$5,875,839
% loans in grant (FCM)	53%	29%	28%	24%	32%
% covered by non-FCM sources	61%	68%	68%	70%	67%

The final estimates for the budget are based on the moderate scenario. During the program's 4-year implementation period supported with FCM funding, HEILP will support an estimated 200 home retrofits.

FCM is expected to provide most of the funds needed to support the program operations through the initial start up period and first four years. After FCM's funds have been fully expended and the loan loss reserve agreement expires, an alternative arrangement with the capital provider will need to be identified, and the revenue streams will need to be adjusted to account for operating costs no longer covered by the FCM grant (e.g. increased participant fees, reduced incentives, alternative funding for operational costs).

Alternative sources of program funds could include:

- **City funds** could replace the FCM's loan loss reserve if the program wishes to continue a similar collaboration with the capital provider or other financial institutions offering unsecured personal loans. The City would then need to provide funds for a Loan Loss Reserve and place them in an escrow fund, to secure the loan amounts deployed. The Loan Loss Reserve would then be administered directly by the City.
- **Private capital** from financial institutions, such as local credit unions, chartered banks, and other potential capital providers could be used to deliver another model of financing, such as through an LIC. In most instances, the program's potential financial partners are expected to set minimum drawdown amounts. This means the program will need to make best efforts to generate great enough financing volumes to ensure borrowed funds are passed through to homeowners within a given amount of time. For the City of Thunder Bay, the volume of loans may require regional collaboration. Other

financial instruments, such as sustainability-linked bonds, may be considered as part of a larger portfolio of municipal capital projects.

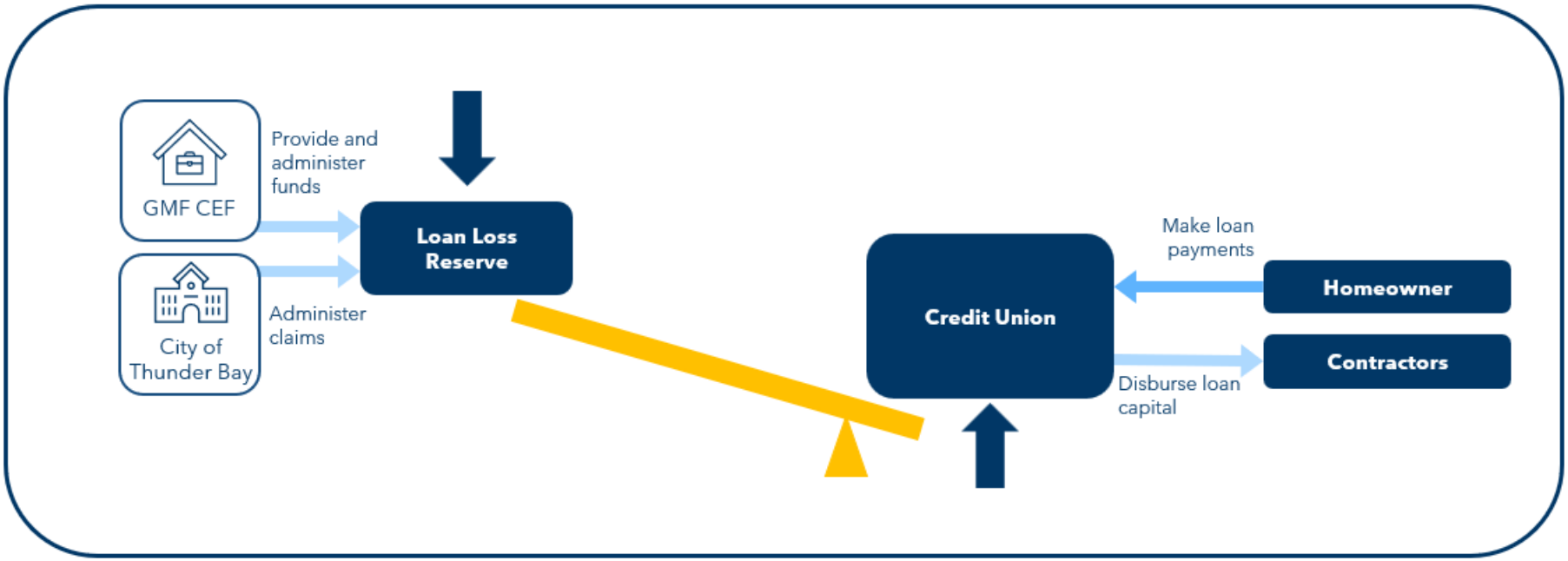
The City will also need to identify new revenue streams to cover the program's operating costs when the program transitions away from its dependence on CEF's grant contributions. Alternatively, the program operating costs could be reduced. This could include:

- The City subsidizing a portion of the program's operating costs.
- Increasing program participation and/or financing fees paid by the participants.
- Adding fees for services that were previously free (e.g. Coach).
- Relaxing some of the program eligibility criteria to increase participation volumes (e.g. render the home EnerGuide assessment optional or replacing it with a lower burden assessment).
- Finding other sources of funding, including public grants (provincial or federal governments), philanthropic funds, or private sponsors.
- Sharing costs and risks with other jurisdictions led by a common program administrator. This approach can leverage efficiencies of scale.
- Evaluating program processes to identify potential areas for efficiency gains.
- Reducing program services.
- Providing municipal contributions to cover a portion of administration costs. For instance, it could draw from an internal green fund dedicated to supporting the City's climate action initiatives.

7.2 Capital flows

Figure 7-1 below illustrates the capital flows between key program actors. Some adjustments to this flowchart may be warranted once agreements with all relevant parties have been put in place.

Figure 7-1 Simplified capital flow diagram



Direct payment to contractors

The credit union(s) are likely to manage the direct disbursement to contractors for the HEILP program participants, which is a more streamlined approach than having the homeowner pay contractors as it enables the funds to pass through fewer hands (Figure 7-1). It also alleviates some of the administrative burden for homeowners and avoids them from needing bridge financing.

It also is preferred by contractors as they have confidence that the payment will be made and the homeowner will not use the funds for other reasons. Table 7-3 outlines some of the strengths and shortcomings of this more direct approach to contractor payments.

Table 7-3: Strengths and shortcomings of a direct contractor payment structure

Strengths	Shortcomings
Enhances the homeowner experience. Homeowners are not responsible for managing large sums of money. **Reduces the risk of misuse of funds.** This approach ensures that borrowed funds are directed to home improvements, rather than other uses. **Builds trust with contractors** Contractors have confidence they will be paid, so they may be willing to promote the program, take on more clients, and offer better payment terms.	**Increased administrative complexity.** Direct contractor payments create additional responsibility for the credit union and can become particularly complex on projects involving multiple contractors.

7.3 Loan loss reserve

A Loan Loss Reserve (LLR) is a credit enhancement tool where a pool of funds is set aside to cover a portion of losses incurred by lenders from homeowner repayment defaults. The balance of the LLR fund may fluctuate as the balance of outstanding loans changes, since deposits are held until loans are repaid by the homeowners. In the event of default, lenders can apply to the LLR fund to be made whole for a portion of their demonstrable losses. Risks are shared between both parties as the LLR only covers a portion of losses. For the credit enhancement stream of the FCM CEF program, the LLR funds are attributed to the program, but remain in the possession of the FCM, which administers the fund.

The presence of the LLR allows the City to negotiate preferential terms with financial partners such as below-market interest rates, expanded underwriting criteria to homeowners with lower credit scores, longer term lengths and amortization periods, increased maximum loan amounts, or other benefits for participating homeowners.

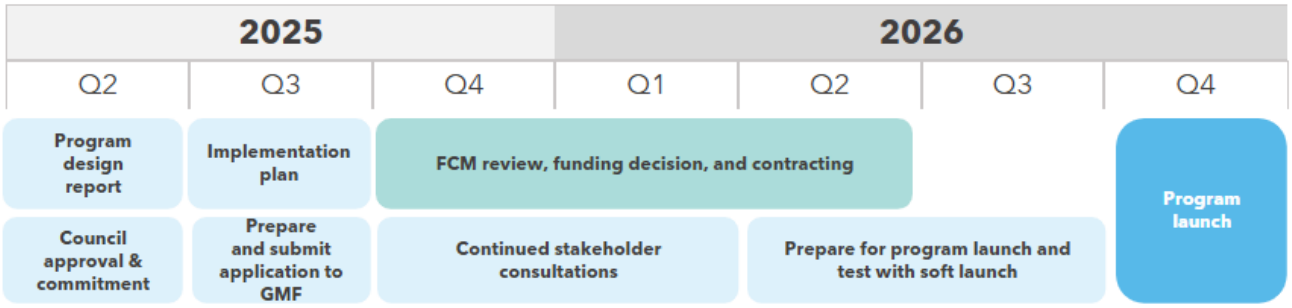
8. Implementation Plan

This section maps out a high-level near-term plan to prepare for program implementation. It includes a timeline leading up to program launch, as well as series of required start up tasks. It also describes the roles and responsibilities of the different stakeholders that will support program delivery. A more detailed Implementation Plan is developed for the HEILP in another document.

8.1 Program launch timeline

Based on the approximate timeline to program launch, shown in Figure , the program's expected launch date falls in the last quarter of 2026. Following the start-up period, the City is expected to continue receiving funds and credit enhancement from FCM for up to four years, after which time alternative sources of revenue and different credit enhancement will need to be secured.[31]

Figure 8-1: Illustrative program timeline



The CEF initiative allows costs incurred following the full application date to be reimbursed, provided the program is awarded funding. To expedite the timeline, the City may opt to incur some costs prior to funding confirmation and final contracting from FCM. Following this approach would allow the City to continue advancing efforts to prepare for program launch with less delay, as FCM's review and contracting process can last over 12 months.

8.2 Start up plan

Once the City has submitted its funding application to FCM and is ready to move forward, several tasks must be completed to prepare for program launch. The start up period will be shaped by close collaboration between the City, the credit union, as well as the program administrator once retained. The following section provides a high-level overview of these activities, which include but are not limited to:

1. **Council and funding commitment**. The City will need to secure Council endorsement and the requisite commitment of staff time allocations to fulfill application requirements to the CEF initiative (see the callout box below).
2. **Application to FCM's CEF initiative**. The City will need to complete an application to FCM's CEF initiative to fund the majority of operating costs and provide credit enhancement to facilitate the deployment of capital during the program's start up period and initial implementation years.

[31] As an example, after Ottawa's Better Homes program was fully subscribed, it transitioned to a model that leverages private capital. To cover its operating expenditures, it included a fee structure for program participants.

3. **Resourcing**. The City will need to retain a program administrator through a process consistent with its procurement policies. The City will also need to re-engage with different municipal teams, to notify them of the activities they will be responsible for during the start up period, or the added volume they may see through the program start-up (for permits, or general inquiries, for example). This will help to firm up the internal and external resourcing plan, while providing municipal staff with some lead up time to anticipate the changes to their future workload.
4. **Legal and financial activities**. The City will work with legal council to draft a contract with the credit union, to finalize the program's term sheet and work out the processes and procedures to store and share data, transfer funds, and finalize the conditions for access to the loan loss reserve funds.
5. **Program infrastructure**. Working with the program administrator and other third parties, the City will oversee the building of the program's backend infrastructure (e.g. CRM, centralized web platform) and website. This step may require a significant investment of time to ensure all software is well customized to the needs of the program and safety requirements.
6. **Delivery partner engagement**. The City, credit union and program administrator will need to work together to finalize the program's various processes and procedures, create alignment, and offer training and support. In addition, the program administrator will need to work with local energy assessors, relevant contractor firms, and other potential program delivery partners (e.g. local environmental organizations) to communicate the details of the program and enhance understanding of climate adaptation home improvements.
7. **Marketing and outreach strategy**. The program administrator will be responsible for developing a complete marketing and outreach plan for the program, leveraging its previous experience. The administrator will also be responsible for producing promotional and website content and materials.

The following section elaborates on these seven key start-up tasks.

1. Council and funding commitment

Approval from the City's Council is needed to proceed with a credit enhancement program application to FCM and to secure the required matching contribution representing 20% or more of total eligible costs from the credit union (Section 7.1). At the same time, the Council resolution may also request delegating authority to one or more designated municipal staff (e.g. CFO) for the purposes of negotiating and executing a funding agreement with FCM, negotiating and executing a service agreement with the retained program administrator, and negotiating the terms of the LLR with both the FCM and the credit union, and proceed to claims against the LLR as needed.

FCM funding and required contribution

Through the Community Efficiency Financing (CEF) initiative, FCM offers funding to cover up to 80% of total eligible costs across the combined operating and capital budget. FCM may provide a credit enhancement of up to $2M to support third party financing and up to $5M grant for start-up and operating costs. The grant cannot make up more than 50% of the combined third-party financing and start-up and operating costs or exceed the total start-up and operating costs. For this program, the capital contributions from the credit union make up this match funding contribution. To demonstrate to FCM that the City has some "skin in the game," the City should commit some staff time to support program delivery.

2. Application to FCM's CEF initiative

Preparing a credit enhancement program application to the CEF initiative requires extensive documentation. The City will need to demonstrate that HEILP is a municipal priority and aligns with existing plans and strategies, provide evidence of consultation with the Province, provide a detailed budget, and identify all sources of program funding. Because the CEF initiative's funding award process is competitive, the application should also emphasize the program's innovative features.

While preparing the funding application to FCM, the City will need to:

- **Finalize the program budget.** Through further discussions with the potential program administrator and partnering credit union, the City will need to finalize its budget structure, including compensation framework for program administration services, and specific structure of the program's incentives.
- **Prepare application documents.** The CEF initiative requires applicants to undergo a pre-application process to confirm eligibility before submitting a full funding application. The pre-application process is relatively short and straightforward, whereas the full application will require preparing a more complex and lengthy application form and project workbook, as well as compiling all required supporting documentation.

FCM has communicated that the CEF initiative is expected to sunset in 2026, with the last funding attributions planned for the end of March 2026. As such, the City must continue to advance through CEF's application stages within the next months to fully take advantage of this funding and capacity building opportunity.

3. Resourcing

To deliver the HEILP program, the City will need to allocate the appropriate resources, clarify roles and responsibilities, and ensure adequate staffing both internally and externally.

- **Designate a City program lead**. Once the City receives confirmation of funding award (or earlier, depending on the City's tolerance for risk), the City can begin to undertake the activities needed to prepare for program launch. To do so, dedicated staff will need to be assigned to lead and coordinate activities during the program start up, implementation and evaluation processes. The program lead will need adequate allocated time and resources to successfully deliver on their responsibilities.
- **Retain a third-party program administrator.** The City will need to enter into a service agreement with a qualified third-party program administrator. To help select an appropriate partner, a thorough review of the program's roles and responsibilities should be conducted in consultation with affected municipal departments. The firm retained may impact the flow of funds currently envisioned in Figure 5-2, depending on their disbursement capabilities.
- **Retain a partnering credit union.** The City will need to enter into a final agreement with the credit union retained as a program partner. A thorough review and negotiation of roles and responsibilities, loan terms and loan loss reserve access conditions should be conducted. Negotiations with the credit union may impact the roles and responsibilities and flow of funds currently outlined in this report.
- **Engage other affected municipal staff.** While the program administrator will take on much of the program's day-to-day responsibilities during implementation, the program lead will need to work closely with relevant municipal staff within the City during the start up period to share information on the program, collect input, delegate tasks, and support training efforts on program processes and related activities.

  Some municipal staff members offer valuable support and expertise that can help to effectively set up the program (e.g. Building Services), while others will be essential to the program's ongoing operations (e.g. Climate Change and Sustainability). They will thus need to clearly understand their roles and responsibilities. Staff consultation will serve to uncover potential hurdles to address prior to program launch, and to better understand staff needs and preferences when developing detailed processes and procedures.

4. Legal and financial activities

The exact terms for the participant term sheet, as well as the flow of funds and reporting requirements, should be clarified.

- **Finalize the Term Sheet.** Once the terms of the funding agreement with FCM have been established, the City and credit union will be able to finalize the program's term sheet, since the two are closely connected. The City should negotiate more attractive financing terms for homeowners, based on the loan loss reserve fund and City support. In addition, flexibility on the repayment terms should be given, to increase the ability for reducing interest charges, and early repayments should be allowed with reasonable conditions. The City could negotiate access to loans for lower income and more vulnerable populations, which could be done by offering different coverage of the Loan Loss Reserve for some specific profiles of applicants.

- **Financial Reporting.** The City will need to coordinate with FCM, the credit union, and the program administrator to finalize the program's capital flows, fee structure, and reporting requirements. For instance, the program administrator may remit payment directly to contractors for initial incentives (for assessment and air sealing) to further simplify the process for homeowners and minimize delays. Incentives may also be disbursed from the program administrator to the credit union, and discussions are still ongoing for the credit union to disburse payments directly to contractors. Additionally, the City, program administrator and credit union will need a clear understanding of the approach to store and share private information and conduct regular budget reconciliations to update the FCM. Further discussion is needed to reach a final decision on these items.
- **Establish an LLR.** The program may receive access to a credit enhancement from FCM in the form of an LLR which will be administered by the FCM. A LLR serves to mitigate participant default risk and promote greater confidence from the private capital provider. While similar programs administered through LIC model have historically had very low default rates (less than 1%), LLRs can help protect financial institutions from the cost and risk associated with a payment default. While the FCM will administer the LLR funds, the terms of the LLR, including the loss coverage rate and description of eligible withdrawals and specific withdrawal process, require further reflection and negotiation and may need to align with FCM funding requirements.

5. Program infrastructure

To support program operations, HEILP will require the following backend infrastructure and systems. Coordination with the selected program administrator is recommended as they may already have some of these items in place.

Table 8-1: Program infrastructure and systems to be developed

Lead	Infrastructure/systems	Status
Program oversight		
Administrator	• Centralized web platform, with an integrated CRM tool.	To be implemented
Administrator	• Secure file sharing platform to send and receive files from program internal delivery agents and program participants.	To be implemented
Administrator	• Integrated data collection tools.	To be developed
Administrator	• Processes and software to manage paying incentives to contractors, energy advisors and to the credit union, and follow participant files.	Build on existing processes
Program capital		
City	• Processes and software to manage paying invoices from third parties and advancing incentives to the program administrator.	In place

Lead	Infrastructure/systems	Status
City	• Monitor incentive payments and lead program administration budget reconciliations.	To be developed
City	• Establish withdrawal processes to access Loan Loss Reserve to backstop qualifying losses.	To be developed
Credit union	• Processes and software to manage loan agreements, repayments and communicating loan schedules to participants.	In place
Credit union	• Processes to follow participant files and lead reports on program participant repayments and loan status	To be developed
Credit union	• Processes in case of loan delinquency and default	In place
Credit union	• Processes to request LLR coverage in case of loan default	To be developed
Program delivery		
Program administrator	• Directory of registered energy assessors and contractors	To be developed
Program administrator	• Create and update program website.	To be developed

6. Delivery partner engagement

The City, credit union, and program administrator will need to work together to finalize the program's various processes and procedures, create alignment, and offer training and support to staff. In addition, a variety of industry actors will be critical to the program's success. They can help promote the program, support program delivery, and ensure alignment and coordination across program messaging and offerings. As such, the City will engage with, and enter into agreements where needed (e.g. funding, MOU), with key delivery partners. These are detailed in Table 8-2.

Table 8-2: Responsibilities of key program delivery partners

Delivery partner	Responsibilities
Green Municipal Fund	• Disburse grant funds based on drawdown requests (provided funding is awarded). • Offer and manage LLR funds and provide payments in case of withdrawals requests. • Offer capacity building materials and activities.
Local utility (Synergy North)	• Promote the program (e.g. utility bill inserts). • Coordinate to align program offerings.
Service Organizations / Energy Advisors	• Participate in information sessions to understand the program and align on program messaging. • Communicate local capacity relative to demand and identify any opportunities to improve program processes.
Contractors	• Participate in information sessions to understand the program and align on program messaging. • Communicate local capacity relative to demand and identify any opportunities to improve program processes. • Participate in climate adaptation training to understand opportunities to integrate adaptation measures and offer added value to homeowners.
Canada Home Builder Association (CHBA) & Heating and Refrigeration Air Conditioning Institute (HRAI)	• Provide curriculum for contractor training • Maintain a list of certified contractors
Training provider or local college	• Offer net zero contractor trainings and heat pump courses. • Promote training to students and contractors.
Municipal Property Assessment Corporation	• Provide data on home size/age and possibly energy/emissions ratings
Local environmental organizations and community groups	• Participate in information sessions to understand the program and align on program messaging. • Promote the program, refer potential participants, and share general information on energy upgrades and climate adaptation.

7. Marketing and outreach strategy

The program administrator will develop a marketing and outreach strategy with support from the City's communications team. It will serve to raise awareness of the program and engage with the broader market to drive interest and uptake. This section outlines some of the key considerations to support the development of a more detailed strategy during the start-up period. Drawing from best practices, the marketing and outreach strategy may include some of the following activities.

- **Lead an energy upgrades and climate adaptation awareness campaign**. A public education campaign would promote a basic understanding about the importance and benefits of energy efficiency, building decarbonization and electrification, and climate adaptation, while debunking some of the most common misconceptions. Information can be shared through press releases, social and traditional media, information sessions and community events, utility and property tax bill inserts, and local associations, organizations and colleges. The campaign should be designed with the target audience and local demographics in mind. The messaging should be tailored to resonate with different groups and reflect their level of education, language, awareness, and other factors.
- **Leverage delivery partners and other industry actors.** Engaging with and collaborating with other actors in the residential retrofit ecosystem is critical to the program's success. It can improve awareness and understanding of the HEILP program, stimulate further interest from homeowners, and promote greater clarity and consistency across communications from different parties. In addition, the HEILP program can be used to encourage more contractors to deepen their knowledge of materials and techniques that improve both energy and adaptation in homes to upskill and upsell their services. Trainings can be held virtually and in-person, with information circulated through associations, places of business, industry trade shows, conferences, and other events. Existing educational content and training modules should be leveraged wherever possible.
- **Target messaging to reach homeowners at key home retrofit trigger points.** Targeting homeowners at optimal moments (i.e. retrofit "trigger points") can help to promote energy and adaptation upgrades. Retrofit trigger points occur when homeowners are more likely to integrate energy and adaptation investments into their home renovation or another major purchase. This can mean reaching homeowners during planned renovations or equipment replacements and when buying or selling a home. Homes with fossil fuel heating systems also represent a significant opportunity to reduce emissions and should be prioritized in outreach efforts.

Best practices for consumer protections also recommend clear and transparent communications. As such, it is important that program communications convey the following points unambiguously:

- **HEILP is not a government assistance program.** The program should not be misinterpreted as a form of financial aid or subsidy from the government.
- **HEILP is not free.** Any home improvements financed through the program come at a cost, which will need to be repaid.
- **HEILP payments are collected through a local credit union.** Participating homeowners should understand that the financing provided through the program comes from the local credit union will become due and payable once the upgrades are completed.

8.3 Delivery roles and responsibilities

A third-party organization will be retained as program administrator to oversee most of the program's administrative responsibilities and services offered to homeowners, with support from the credit union and City at key stages. Outsourcing these responsibilities will minimize the impact on municipal staff, while leveraging operational efficiencies as experienced

administrators already have developed some of the needed infrastructure, materials and content.

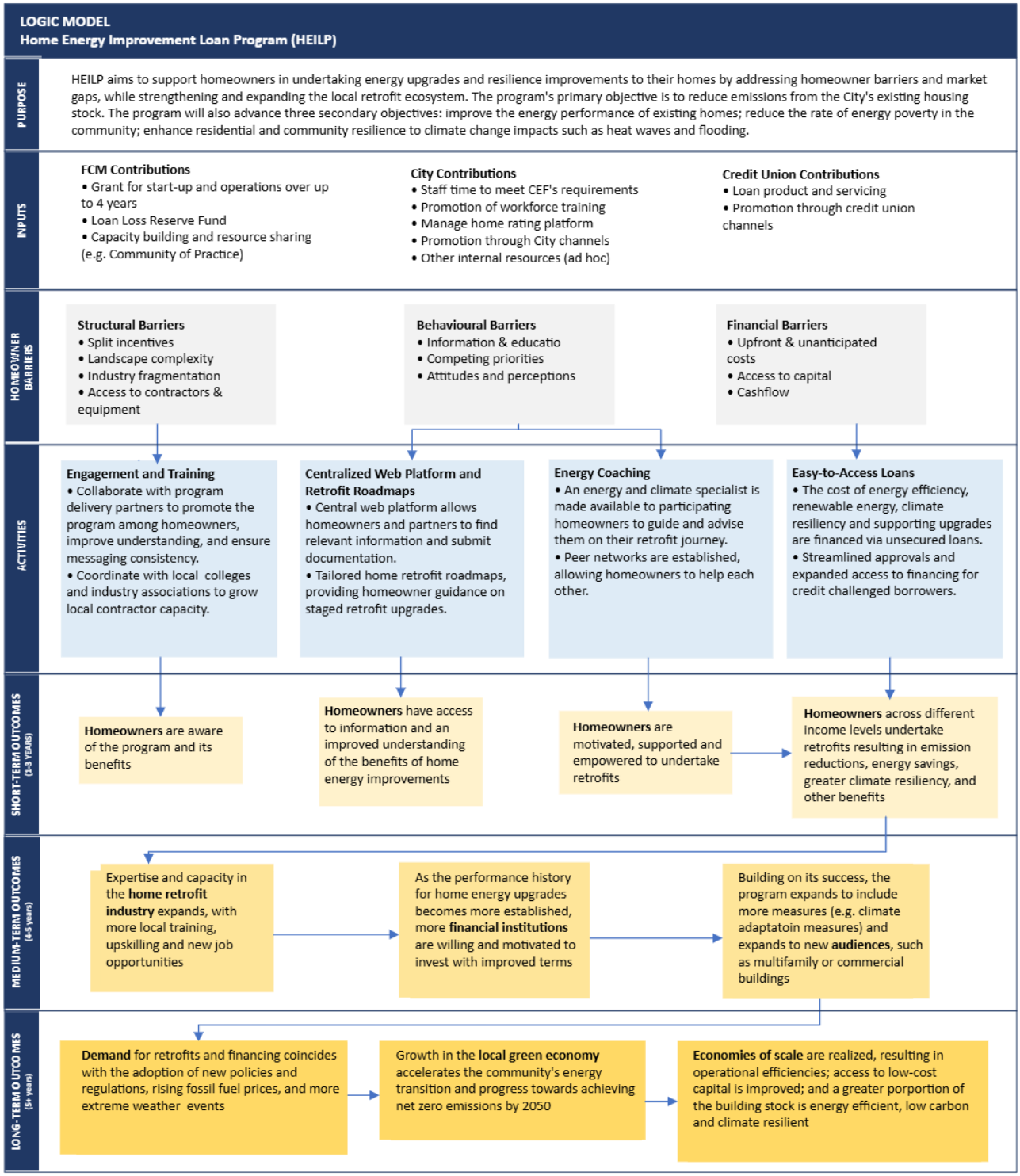
Table 8-3 describes the key roles and responsibilities of the primary program partners and administrator.

Table 8-3: Roles and responsibilities of main HEILP program partners

Program Lead	Detail of Role / Responsibilities
City of Thunder Bay	• Negotiate and execute agreement(s) with the funder(s) and capital provider(s). • Oversee the program, including final decisions over spending and contracted partners. • With credit union(s), define the program's term sheet and eligibility requirements. • Evaluate and monitor program performance. • Fulfill reporting requirements to program funder(s). • Prepare updates for Council, as needed. • Remit payments to the program administrator and other relevant parties. • Establish processes and oversee withdrawal requests to the LLR. • Support program marketing and outreach activities. • Manage the contractor training and home energy labeling elements of the program.
Program administrator	• Lead program marketing and outreach activities. • Manage the centralized web platform in communication with any software provider. • Deliver energy coaching services to homeowners. • Report on program performance to the City. • Oversee participant files throughout the project pipeline. • Lead the coordination among internal stakeholders. • Respond to enquiries and complaints to ensure customer satisfaction and uphold program reputation. • Circulate the homeowner survey to participants and collect other program data for program evaluation and reporting.
Credit union	• Prepare advance disbursement requests based on near-term disbursement projections. • Remit payment to participants, including advance disbursements. • Disburse funds in accordance with the terms of the loan facility. May involve payments directly to contractors. • Collect loan payments from the homeowners. • Manage any delinquencies and defaults and request loan loss reserve funds to recover partial losses when needed. • Collect and communicate key program data. • Support program marketing and outreach activities.

Appendices

Appendix A. Program theory logic model



Appendix B. List of eligible measures

The energy and adaptation measures described in the tables below are eligible for program financing. Other supporting measures may be considered as part of the upgrades in line with the criteria set out in Section 4.2 on qualifying upgrades.

Table B- 1: Qualifying energy conservation measures

Category	Eligible Measures	Minimum Eligibility Criteria
Heating, ventilation and air conditioning (HVAC)	Cold-climate air source heat pump	• ENERGY STAR® qualified • Certified by Canadian Standards Association (CSA) • Installed by a licensed, qualified professional
HVAC	Ground source heat pump	• ENERGY STAR® qualified • Certified by Canadian Standards Association (CSA) • Installed by a licensed, qualified professional
HVAC	Heat recovery ventilator / energy recovery ventilator	• Listed with the Home Ventilating Institute • Installed by a licensed, qualified professional
Thermal envelope	Attic Insulation	• Min. 20% of attic/ceiling area: Increase insulation from ≤ R35 to ≥ R50 • Cathedral / flat roof: Increase insulation by ≥ R14 or achieve ≥ R28
Thermal envelope	Exterior wall insulation	• Add R3.8 – R20 to 100% of building • Add ≥ R3.8 to achieve ≥ R12
Thermal envelope	Basement Insulation	• Add R12 – R23 to 100% of basement • Add R10 – R23 to 100% of crawlspace • Add R24 to 100% of floorspace above crawl space • Must upgrade a minimum of 20% of total wall area
Thermal envelope	Comprehensive Air Sealing	• Achieve base target or better
Thermal envelope	Window/door/skylight	• ENERGY STAR® qualified
Thermal envelope	Connected thermostat	• ENERGY STAR® qualified smart thermostats
Water heating	Drain-water Heat Recovery	• Minimum 30% efficiency
Water heating	High-efficiency water heater	• ENERGY STAR® qualified electric resistance water heater • ENERGY STAR® qualified heat pump water heater

Category	Eligible Measures	Minimum Eligibility Criteria

Other	Renewables	• Rooftop solar photovoltaics:
		  ○ Certified by Canadian Standards Association (CSA)
		  ○ ≥1.0 kW DC
		  ○ For grid connected system: letter of approval or permission for interconnection issued by the local electrical or building authority
		• Solar hot water systems

Other	Battery storage	• Connection to solar system
Other	Electric vehicle charging stations	• EV charging infrastructure (Level 2)

Table B-2: Eligible adaptation improvements (capped at 30% of total financing per project)

Category	Eligible Improvements	Minimum Eligibility Criteria
Flood-proofing	Backwater valve	• Certified by Canadian Standards Association (CSA) • Installed by a licensed, qualified professional
Flood-proofing	Sump pump/pit systems or backup sump pump	• Installed by a licensed, qualified professional
Flood-proofing	Permanent sealing of unused floor drain	• Installed by a licensed, qualified professional
Flood-proofing	Gutter downspout extension	• Angled away from the house
Flood-proofing	Basement window well covers	• Must be easily openable from the inside
Flood-proofing	Rain gardens	• Can be DIY, accompanied with guidance from the Coach
Drought prevention	Water efficient toilet	• Uses 4.8 litres or less per flush

Appendix C. Description of modeling approach

Dunsky's proprietary financial model generates valuable estimates to guide the design study, including the program's projected uptake, energy and GHG savings, municipal and third-party staffing needs, start up and operating costs and capital requirements.

A summary of the model's inputs and outputs is provided below.

Inputs

- **Archetype analysis.** Four building archetypes were developed to represent common low-rise (i.e. Part 9) housing characteristics in Thunder Bay. The archetypes used in this study are designed as single-family dwellings with different heating systems and construction years, as well as one archetype for row/townhomes.
- **Retrofit packages.** Ten retrofit packages were developed to represent combinations of energy efficiency and renewable energy measures. The combinations of measures were also selected to align with the program requirements and to reflect homeowner preferences for certain technologies.

Outputs

- **Uptake projections.** The program's uptake projections are based on several variables, including the estimated housing market size, participation rate, and uptake variations between retrofit packages. The results provide a Low, FCM scenario[32], and High uptake scenario to establish a reasonable range for program participation.
- **Budget estimates.** Based on the uptake projections and other design choices, the financial model is used to estimate the program's total operating and capital expenditures, while identifying the estimated staff and other resources needed for program implementation. The results are used to identify the matching contribution required to apply for funding to FCM FCM's CEF initiative.

Housing archetypes

Drawing from available EnerGuide and Municipal Property Assessment Corporation (MPAC) data, the study defines four archetypes that are representative of common housing types in Thunder Bay, with key characteristics summarized in Table C-1 below. The estimated bill savings and GHG emission reductions shown are based on the study's retrofit packages.

[32] The FCM scenario was created for the purposes of the FCM application and sits between the low and high uptake scenarios.

Table C-1: City of Thunder Bay housing archetypes

	SFD Natural Gas, Pre-1976	SFD Natural Gas, Post-1976	SFD Electric	Row/Townhouse
Type	Single family dwelling	Single family dwelling	Single family dwelling	Row/Townhouse
Year of construction	Before 1976	After 1976	All ages	All ages
Primary space heating source	Natural gas	Natural gas	Electricity	Natural gas
Stories	1 story	1 story	1 story	2 stories
Total area	101 m^2	142 m^2	115 m^2	122 m^2
Total annual energy consumption (% for space heating)	192 GJ (72%)	149 GJ (64%)	185 GJ (72%)	130 GJ (60%)
Annual GHG emissions	8.4 tCO_2eq	6.2 tCO_2eq	1.5 tCO_2eq	5.4 tCO_2eq
Estimated annual GHG emissions reduction from cost-effective upgrades	0.6 – 7.9 tCO_2eq	0.5 – 6.0 tCO_2eq	0.6 tCO_2eq	1.7 tCO_2eq

Retrofit packages

The project team developed ten retrofit packages with different combinations of measures, accounting for Thunder Bay's housing stock characteristics, their average energy consumption, and the results from the homeowner survey. Four retrofit packages were created for each of the single-family natural gas-heated archetypes, as they account for the majority of homes in Thunder Bay. The total costs of the retrofit packages range between $13,000 and $67,000 before rebates. The measures included in each of the retrofit packages are described in Table C-2.

Table C-2: Summary of Retrofit Packages

Package	1	2	3	4	5	6	7	8	9	10
Equipment										
Heat pump[33]				✓				✓	✓	
Water heater				✓			✓	✓		✓
Solar PV array[34]				✓				✓		
Insulation										
Ceiling	✓	✓		✓	✓	✓		✓		✓
Basement wall	✓	✓		✓	✓	✓		✓		✓
Wall		✓				✓				
Windows	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Package costs										
Est. costs ($)	12k	20k	9k	49k	13k	22k	9k	51k	24k	13k
Incentives ($)[35]	4k	10k	1k	16k	4k	10k	1k	14k	4k	4k
Final amount ($)	8k	10k	8k	33k	9k	12k	8k	37k	19k	9k
Benefits										
Est. energy savings (GJ/yr)	12	21	23	139	8	16	22	120	67	30
Est. GHG savings (tCO_2eq/yr)	0.6	1.0	1.3	8.0	0.4	0.8	1.3	6.0	0.6	1.7

Uptake projections

The uptake projections consider the estimated market size, participation rate and uptake variations between retrofit packages.

- The total market size is 39,485, defined as the number of eligible low-rise (Part 9) homes. Additional variables are used to further refine and segment this market across the four archetypes. These include the types of homes, proportion of homes that are owner-occupied, and the primary home heating fuel.
- The model's uptake rates are informed by a mix of data from longstanding programs in both Canada and the US, more recent programs launched during the pandemic, and Dunsky's professional judgement. The model generated a low, FCM scenario, and high-uptake scenarios to establish a range of potential participants. The project team is using the FCM scenario to develop budget estimates.

[33] Heat pump is assumed to be an all-electric cold climate air source heat pump
[34] The cost of a solar PV system varies according to the overall size of the system, which is set in relation to the archetype's assumed electricity consumption and total size.

Budget estimates

The program's operating budget assumes the City will retain a third-party program administrator, rather than run the program in-house, and will access the combined credit enhancement and loan from FCM's CEF initiative during the initial 4-year program implementation period. The capital budget is informed by the estimated number of participating households and average cost of the modelled retrofit packages. Taken together, the total operating and capital budget can help the City develop cashflow projections, plan internal resourcing needs and formulate the funding application to FCM.

Appendix D. Risk mitigation strategy

Table D-1 below describes potential risks associated with program implementation, alongside risk mitigation strategies. These measures are expected to be further refined once program delivery partners are on-boarded.

Table D- 1: Risk Mitigation Strategy

	Potential Risk	Risk Description	Mitigation Strategies
1.	**FINANCIAL RISKS**		
1.1	Refusal from FCM CEF Grant Funding and Credit Enhancement	The most attractive funding source is the FCM CEF program, but it is highly competitive so there is a risk that the City will not be successful securing these funds.	• The City can continue collaborations with the credit union(s) on offering a loan product and can seek other funding sources to cover the program operational costs. • Scale down the program to the bare minimum and implement an administrative fee to cover some of the costs.

1.2	Insufficient uptake of loans to cover operating costs	While the aim is to deliver a cost-neutral program, low uptake may hinder the program's financial viability since the grant is tied to the loans deployed. The City would need to cover the delta between program costs and grant earned.	• Do a soft launch of the program with minimal start up costs to ensure there is some uptake before adding more expensive features.
			• Design delivery contracts and administrative costs as commission-type arrangements where possible to reduce risk to the City. Tie incentives to loan recipients only. Consider a regional third-party administrator to share costs, resources and risks with other communities.
			• Explore ways to generate revenue streams (e.g. sponsorships, referral kickbacks, fee-for-service fees, participant fees).
			• Scale down the program to the bare minimum.
			• Implement other complementary strategies to drive homeowner demand for energy and adaptation improvements, including:
			  ○ Improve the community's understanding and appreciation of energy efficiency and climate adaptation and make it easy for households to take initial steps (e.g. behavioural changes).
			  ○ Promote the program by engaging and sharing resources with local community organizations and other stakeholders.[36]

[36] Contractors can play an enormous role in driving program uptake, as they can influence homeowner choices during renovations. Therefore, contractors should be trained and equipped to market the program. Program consistency and transparency over time may also contribute to growing the local green workforce.

			○ Offer incentives that address gaps or shortfalls in other initiatives. ○ Promote word-of-mouth program promotion by focusing on creating a positive participation experience and showcasing success stories. ○ Revise financing terms (e.g. interest rates, terms, underwriting) to improve the offer as needed, without compromising consumer protection measures. ○ Simplify program requirements (e.g. do not require home energy assessments). ○ Support local green workforce capacity and expertise and promote the value of adaptation improvements as a value-add. ○ Conduct an interim (mid-program) evaluation to identify challenges in the existing offer and opportunities for improvement. ○ Develop complementary policies, such as home energy rating disclosures and green development standards and promote voluntary standards.[37]
1.3	Cost overruns	The final program budget may vary from the design study's estimated program costs due to the current degree of uncertainty pertaining to specific details.	• Include a contingency within the budget and use conservative estimates. As part of the start up phase, obtain quotes for required third party services and products and revise the budget accordingly.
1.4	Delinquent payments and defaults	Should homeowners fail to make payments, the credit union(s) will need to use collection remedies such as penalties, interest charges, and other collections mechanisms.	• Implement robust consumer protection measures to mitigate the risk of creating or contributing financial hardships for participating homeowners, as well as to provide a degree of quality assurance for the installed measures. • Adopt a flexible process for addressing delinquent payments to provide options to homeowners struggling to make payments.
1.5	Insufficient Loan Loss Reserve	If more homeowners default on their loans than there is Loan Loss Reserve to backstop, then the credit union(s) will be in a loss position.	• Homeowner defaults from these types of programs tend to be less than 1%. The LLR is expected to total 20% of the loan value, so a significant buffer is built into the program design. However, if the default rate trends high, the credit union should revise their underwriting criteria and collections processes to prevent further defaults. Also, the program delivery team should implement more consumer protection measures to avoid defaults.

1.6	Loan Loss Reserve misuse	As the loans to applicants are unsecured and from a private party, it may be tempting to relax the measure eligibility requirement and provide loans that go beyond the measure eligibility guidelines from FCM CEF. This could cause confusion for the appropriate use of the Loan Loss Reserve in case of loan delinquency or default.	• Provide clear directions to the credit union(s) that it is their responsibility to ensure, with the help of the program administrators, that the projects conform to the measure eligibility guidelines. • Clarify that if the credit union was to authorize a loan for measures beyond those eligible, they void the possibility to rely on the Loan Loss Reserve in case of loan delinquency for the entirety of the loan.
2.	**PROGRAM DELIVERY RISKS – INTERNAL**		
2.1	Insufficient staff capacity at the program administrator	Staff may be stretched thin	• Borrow or purchase a pre-existing CRM system from an experienced administrator to streamline and automate processes. • Start the program with a soft launch to build experience before uptake increases. Delay adding complicated features to the program delivery until the staff team have gained some experience. • Plan to slow or pause participation (e.g. limit program promotion), or to proactively manage participant expectations about processing timeframes and potential delays, during moments in the year that are particularly busy. • Identify strategies that can be implemented on short notice to increase resourcing for the program.
2.2	Program Oversubscription	Uptake for the program could be higher than expected and the funds may not be sufficient to cover the operational costs.	• If uptake of the loan is higher than expected, the program term can be shortened from four years. FCM allows for programs to expedite their terms, provided that the reporting requirements are met. • If uptake is too high, marketing efforts can be slowed, and an administrative fee could be added to help recover some of the operational expenses.
2.3	Coordination difficulties	Close coordination may be challenging across all program partners	• Procure the advice of an experienced program administrator regarding program delivery processes and systems across different parties. • Purchase a proven CRM system to support coordination without need for direct communication at every step.

			• Test program systems with a few participant files and adjust any processes that are unclear, inefficient or impractical. • Build program processes in collaboration with the main parties involved and ensure the information is clearly disseminated through trainings, procedure documents, and other means. • Engage regularly with member delivery parties to identify concerns and resolve them early. • Develop a master agreement between the City and all other delivery parties that outlines the responsibilities of each party. • Participate in peer-learning activities with other programs delivering similar programs.
2.4	Reputational risk related to loan defaults	Community backlash if loans lead to financial hardship for homeowners	• Clearly communicate disclosures on eligibility, underwriting criteria, program processes for delinquencies and defaults, and participation risks to promote transparency. • Enforce robust consumer protection measures to ensure homeowners do not take on ill-advised debt. • Leverage the loan loss reserve that can be drawn from to cover missed payments in case of default.
2.5	Process friction (pain points)	The absence of a clear program lead with sufficient capacity, resources, and authority to obtain the necessary approvals and to manage overall program oversight.	• Secure Council support for the program to provide clear direction to municipal staff, delegate signing authority to appropriate members of the senior leadership team and ensure sufficient resources (e.g. staff time) are secured. • Identify a clear program lead to oversee the program's operations and coordinate with staff and delivery partners to address process fragmentation, overcome pain points, and implement adjustments to support continuous improvement efforts.
3.	**PROGRAM DELIVERY RISKS - EXTERNAL**		
3.1	Incorrect payment to contractors	The flow of funds from the credit union to the contractors is a practical but unusual feature of program design. In this situation, some contractors could try to get a deposit directly from their clients, when the credit union	• Proactive communications and notices from the credit union to the applicant must be made in a timely way for every transaction. • Clear communications from the program to clarify that they should not disburse any funds if their loan application is to cover 100% of project costs. •

		is the way, they are to receive their deposit.	
3.2	Poor contractor performance	Contractors who do not correctly install selected upgrades may indirectly present reputational risks to the program by contributing to a poor participant experience. Poorly installed equipment can result in unmaterialized energy and GHG savings, impacting the program's ability to deliver on its stated objectives and homeowners' capacity to afford payments on their home upgrades if energy savings fall substantially short.	• Direct homeowners to existing vetted contractor list (e.g. HRAI and CHBA, RenoMark, insulateandairseal.ca) that enforce a quality assurance process and disciplinary measures (e.g. probation and expulsion from the list). • Communicate to contractors the expectations of the program and the information to be provided in quotes. • Develop an online bulletin board where participants can provide their reviews of contractors. • Ensure all contractors meet industry standards when quotes are submitted to the administrator prior to any work being authorized. • Manage, track and resolve complaints to the best of the program's ability, and clearly communicate liability disclosures.
3.3	Local workforce capacity	If retrofit demand outpaces local workforce capacity, homeowners may face delays and higher total project costs (e.g. to pay for travel costs for professionals from further away).	• Provide contractor training through partnerships with the local college and relevant associations. • Promote trainings being offered by others and offer subsidies for registration if necessary (e.g. HRAI Heat Pump Champion training, CHBA Net Zero training, NAIMA Insulation Training).
3.4	Changing rebate and incentive landscape	Sunsetting financing and incentive programs, as well as pollution pricing, can make home retrofits less affordable and attractive, while contributing to market confusion.	• Monitor the financing and incentive programs offered by other entities, as well as any applicable pollution pricing, and ensure the program materials and communications remain up to date. • Adjust the program's rebates and incentives as needed to ensure funds are directed to where they are most needed and continue to reflect the program's priorities.

Appendix E. Other Municipal Home Energy Loan Programs

To get a sense of the diversity of program models used by mid-sized municipalities across Canada for home energy retrofits, see the examples in Table E, showing that programs use a range of delivery models, funding sources, and market support elements.

Table E-1: Examples of Home Retrofit Programs in Canadian Mid-Sized Municipalities

Program model	Program Name (status)	Location	Delivery model & agent	Source of funds	Interest rate, loan terms & fee	Additional market support
LIC In-House model	Guelph Greener Homes (ongoing)	City of Guelph, ON	LIC in-house, delivered in-house by Guelph	FCM CEF City of Guelph	Loan up to $50k; 0% interest rate; Loan term of 10 years; No program fee	Grants for low-income households
LIC Shared model	Energize Bridgewater (ongoing)	Town of Bridgewater, NS	LIC in-house, admin by Clean Foundation	FCM CEF Town of Bridgewater	Loan of $15k to $40k;1% interest rate; Loan term up to 15 years; $400 program fee	Energy assessment booking; Energy Coach from Clean Foundation; Trade partner network
LIC Turnkey Model	Switch Charlottetown (ongoing)	City of Charlottetown, PEI	Turnkey with LIC backstop, delivered by SwitchPACE	FCM CEF Efficiency PEI	Loan up to $40k; 0% interest rate; Loan term of 15 years; 5% program fee	Energy coaching service: advisory support for retrofit project inquiries, contractor quotes and home energy assessment booking and interpretation; Direct payment to contractors.
	TBD (Application under review)	Town of Newmarket	Turnkey with LIC backstop, delivered by Enerva	TBD	TBD	TBC
LIC Turnkey Model, privately funded	Residential Clean Energy Improvement Program	Town of Stettler, Alberta	LIC, delivered by Alberta Municipalities	Vision Credit Union Stettler	Loan of $3k to $50k; 5.60% interest rate; Loan term of useful life or < 25 years; 5% program fee	List of qualified contractors

	(pre-qualification)					
Private lending model (unsecured loans)	Durham Greener Homes (amending to LIC)	Durham Region	Windfall Ecology Centre for market support & credit unions for loans	FCM and Credit unions	Private lending model offering unsecured, variable rate loans for 10-year terms at prime+2%.	Home energy Coach, One-stop-shop website, Home energy ratings (not public)
Market-Support (without loans)	CHIRP (Community Home Improvement and Adaptation Program)	Greater Sudbury	Delivered by internal staff – Affordable Housing and Home Energy Concierge	Funded through Housing Accelerator Funds	No loan offered	Coach support to residents by City staff

Appendix F. List of Alternative Funding Sources Beyond FCM Funding

To support program start-up, we identified potential alternative funding sources. Table F-2 presents each program's funding potential, eligibility criteria and key considerations for Thunder Bay to meet the requirements. Those avenues for alternative funding would require further analysis and may orient some program design decisions. They are presented from the highest potential fit to the lowest. New initiatives from the federal government could also be announced regarding housing supply, housing affordability and home retrofits, according to the election platform of the new government elected in April 2025.

Table F-2: Alternative funding sources

Program	Description	Funding available	Eligibility	Considerations
Intact Municipal Resiliency Grants	Initiatives that implement proven adaptation solutions, protecting the community at large or homeowners.	Up to $200k /project.	Municipalities eligible.	Specific adaptation measures at the homeowner level for resilience to floods are funded. The program would need to include home flooding resilience interventions.
Ontario Clean Home Heating Initiative	Residents in some communities received top-up incentives for electric heat pumps.	$8.2 million total allocated in 2021 and 2023. Up to $4,500 in incentives /applicant.	Residents are the applicants, but specific municipalities identified by the Government of Ontario.	Could enquire with the government and/or Enbridge (who delivered the incentives) to understand if this program could be expanded or renewed.
CMHC Innovation Fund	Address barriers to innovative homebuilding. Priority is given to modular and prefab buildings to help address homelessness and focus on delivery of homes.	$57 billion committed in 2024 for creation of 156k units and repair of 290k units. Amount per project not disclosed.	Municipalities are eligible. Projects must demonstrate affordability, innovation for affordable housing, through transformational, breakthrough or incremental innovation.	A program focused on affordable secondary suites might be eligible.
Canada Community Building Fund	Permanent source of federal funding for local infrastructure,	Thunder Bay receives around $7M yearly.	Funds already allocated to municipalities.	Funds are reserved for infrastructure investments. If funds are not all

	distributed through the AMO. Includes projects for community energy systems, adaptation and capacity-building			earmarked, it could be explored if there is flexibility to use it for related initiatives that are not strictly municipal infrastructure.
Greener Neighbourhood Pilot Program: Sustainable Buildings Canada	Funds already awarded for Market Transformation Team, for social housing (including part 9 row housing and MURBs)	$602k awarded	N/A	Discussing with Sustainable Buildings Canada could help understand their funded project for part 9 row housing. Some resources might help with program implementation.

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