CENTRE FOR COMMUNITY ENERGY TRANSFORMATION

Business Plan 2024/2025 – Executive Summary

August 2024

ACKNOWLEDGEMENTS

The Centre for Community Energy Transformation (CCET) recognizes and acknowledges that our work takes place on lands that are part of the Treaty Lands and Territory of the Mississaugas of the Credit. For thousands of years, Indigenous peoples inhabited and cared for this land, and continue to do so today. We acknowledge the territory of the Anishinabek, Huron-Wendat, Haudenosaunee and Ojibway/Chippewa peoples; the land that is home to the Metis; and most recently, the territory of the Mississaugas of the Credit First Nation who are the direct descendants of the Mississaugas of the Credit.

We are grateful to have the opportunity to work on this land, and by doing so, give our respect to its first inhabitants.

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Reducing Carbon Emissions from Buildings

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CCET's mandate is focused on convening partners to accelerate a community transition towards a low-carbon future, and work with municipal collaborators to:

- Accelerate Deep Home Retrofits
- Advance Low Carbon District Energy Systems
- Spur Institutional, Commercial and Industrial (ICI) Energy Efficiency
- Promote Climate Change Related Outreach and Engagement

The need to turn the curve on greenhouse gas (GHG) emissions from buildings

While there is demonstrated progress to reduce carbon emissions in sectors such as electricity generation and heavy industry, greenhouse gas emissions (GHGs) from buildings have increased between 2005 to 2022 (Sawyer et al. 2023 for the Canadian Climate Institute). Building emissions in Canada have increased by 2.3 MT or 2.7% since 2005 (Simon 2024).

Carbon emissions in the region of Peel increased by 9% between 2021 and 2022 (The Atmospheric Fund 2023). Most of the increase is a result of the 'Buildings' sector (8.9% increase) and 'Transportation' sector (11.5% increase). While the population in the region of Peel increased by about 16,000 people or just over 1%, per capita emissions increased by 8.7%, from 6.9 tonnes CO2e (tCO2e) per person in 2021 to 7.5 tCO2e per person in 2022.

Who We Are and How We Work

CCET was established as a not-for-profit to work with multiple municipal partners to contribute to implement their climate mitigation plans and scale-up climate action.

Vision / Mission / Mandate	CCET Value Proposition
Vision: A sustainable energy future **Mission:** To lead an inclusive suburban energy transformation **Mandate:** Implement catalytic priorities to accelerate a community transition towards a low-carbon future **Transformation Programs:** • Accelerate Home Energy Retrofits • Advance Low Carbon District Energy Adoption • Spur Institutional, Commercial and Industry (ICI) Energy Efficiency	**Practitioners** - Staff are advisors serving the community and listening to community feedback to tailor program offerings **Convenors** - We connect people and organizations for coordinated climate action **Agile** – Our not-for-profit structure allows us to act and adapt quickly **Champions** – Build momentum with all stakeholders and celebrate leadership **Fundraisers** – We will secure external funding to advance CCET's mandate to work in the community

Goals and Objectives

Goal 1: Accelerate Home Energy Retrofits for Low-rise Buildings

Target: Energy efficiency retrofits are completed for 3% of the low-rise residential building stock annually by 2030, aided by incentives and financing options (e.g. Local Improvement Charges), to accelerate GHG reductions and equitably save residents' energy.

CCET will track progress towards Goal 1 according to the Objectives and Outcomes below. Key performance indicators (KPIs) developed for each Objective can be found in the "Business Plan - Part 1" document.

Objectives		Outcomes
	Become a trusted advisor in the community	CCET established as a trusted source of information CCET's presence and brand enhanced
	Raise awareness of the benefits of energy retrofits through community engagement	Increased awareness of home energy retrofits Community feedback integrated into CCET's offerings
	Address energy burden	Established partnerships or working relationships with community groups that serve income eligible and underserved households Gathered and incorporated feedback and research options (e.g. turnkey programs) for measures to address energy burden
	Build strategic partnerships	Partner and stakeholder relationships established and maintained Support for funding and grant applications to implement the enabling services and financial tools is secured

Objectives		Outcomes
	Launch an energy coach service	Increased uptake of existing retrofit programs Improved likelihood of successful application to the Federation of Canadian Municipalities (FCM) Community Efficiency Financing (CEF) stream of funding Increased awareness of incentives and financial tools (e.g. LIC financing) The ability to track homeowner progress on their retrofit journey is determined Work plan to grow the energy coach service under varying scenarios (e.g. with and without CEF funding) is developed
	Launch a One-stop Window	Improved functionality of a One-stop Window
	Secure private capital	Confirm the processes and legal arrangements for CCET to collaborate with municipal partners to capitalize an LIC financing offering Alternate financing tools identified and tested
	Prepare an application to the Community Efficiency Financing stream of funding of the Federation of Canadian Municipalities	Demonstrate ability to implement the applicant intake process for a potential LIC offering Demonstrate ability to manage financial flows

Goal 2: Advance District Energy and Low Carbon Thermal Networks in Priority Nodes

Target: Promote the business case for district energy (DE) among key sectors and advance the expansion of low-carbon DE opportunities.

Objectives		Outcomes
	Host a district energy forum by Q4 2024	Increased knowledge of DE systems and neighbourhood decarbonization with government decision makers, municipal practitioners, the building sector and other key sectors CCET's role and activities to advance DE systems further defined Outreach to economic sectors that contribute to neighbourhood decarbonization (e.g. manufacturers, utilities, organized labour, etc.) is achieved CCET's brand further established
	Map and identify building profiles in priority DE areas/nodes	Baseline building profiles and energy usage developed DE business cases developed for select priority areas

The Opportunities

Equitable access to energy efficiency programs

Census data from Statistics Canada suggests that a significant proportion of households in the region of Peel experience energy burden:

- 20% (Caledon) to 29% (Brampton) of owner-households spend 30% or more on shelter costs (see Business Plan – Part 2 for definition of shelter costs)
- 37% (Brampton) to 40% (Caledon) of tenant households spend 30% or more on shelter costs
- 54% of households have an after-tax household income less than $100,000

A transition to net zero energy communities could further disadvantage households experiencing energy burden. CCET will work with municipal partners and other collaborators to build on existing energy affordability initiatives to deliver energy efficiency programs that benefit equity-deserving and income eligible households, including both homeowners and renters.

Financing options for home energy retrofits

Almost 320,000 dwellings in the region of Peel are low-rise (single detached, semi-detached and townhomes) and the average homeownership rate across the three municipalities (Brampton, Mississauga and Caledon) is 75% (Peel Region Census Information Hub). Residents in Brampton, Caledon and Mississauga collectively undertook over 16,000 energy retrofits since 2006 that utilized an EnerGuide audit (Natural Resources Canada EnerGuide data for Peel Region). This represents an average annual retrofit rate of about 0.5% and achieved energy consumption savings of 22% on average.

The pace of energy retrofits and the resulting carbon reductions need to be dramatically increased. Innovative municipally-supported financing programs have successfully increased the understanding and interest among households of the benefit of home energy retrofits, and the resulting rate of energy retrofits in Ontario and Canada.

CCET will work with municipal partners to provide financing options to homeowners to undertake home energy retrofits. This includes exploring the Local Improvement Charges (LIC) financing option which has the benefit of:

- spreading financing payments over long time periods (e.g. 15 to 20 years) to ease loan repayments and
- attaching loans to the property rather than the homeowner.

Community engagement is central to marketing the financing offerings and assisting households through the program steps to complete energy retrofits. CCET will do this by maintaining a one-stop web portal as a resource and application portal, as well as providing an energy coach service to residents.

Priority nodes to assess feasibility of low carbon district energy systems

CCET will advocate to assess the feasibility for low carbon district energy as early as possible in the planning process for the significant development opportunities described in the table below.

Priority Node	Status
Bramalea City Centre, Brampton	A City of Brampton precinct plan anticipates redevelopment to higher densities. Applications have been submitted for 25 Peel Centre Drive and 30 Peel Centre Drive at the periphery of the Bramalea City Centre mall.
Shopper's World, Brampton	Redevelopment of 20 hectares (50 acres) for proposed 5,000 residential units and 950,000 square feet of combined commercial and retail space. Source: Shoppers World Brampton
Square One, Mississauga	Redevelopment of 53 hectares (130 acres) for proposed 35,000 person (18,000 residential units) mixed-use community Source: Oxford and AIMCo
Downtown Brampton	Redevelopment opportunities in the northwest quadrant of Hurontario Street (Hwy 10) and Queen Street (Hwy 7) include Brampton's Innovation Centre and a Metrolinx transit hub in addition to private development for residential towers.
Downtown Mississauga	A feasibility study for low carbon district energy has been prepared for the City of Mississauga with a recommendation for the first phase of construction to connect public buildings owned by the City of Mississauga and Sheridan College. Source: City of Mississauga
Heritage Heights, Brampton	A Community Energy Plan in support of the Secondary Plan for Heritage Heights recommends a low carbon district energy system to service the medium and high density areas of Heritage Heights. Source: City of Brampton

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Goals, Financial Forecast and Performance Monitoring

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1.0 GOALS and OBJECTIVES

Since its incorporation as a not-for-profit in May 2022, CCET has been building capacity to accelerate climate action in the cities of Brampton and Mississauga and Town of Caledon (in the region of Peel) working collaboratively with municipal partners. This introductory Business Plan continues the focus on building capacity in the two priority program areas - accelerating home energy retrofits and advancing low carbon district energy - and shifts CCET's focus from establishing the organization to connecting with the community, partners and stakeholders on our transformation programs. A timeline through 2024 and 2025 is forecast in the Business Plan given that CCET is a start-up and the need to advance a variety of activities to implement the transformation programs. This is a living document and will be reviewed within 12 months to assess progress.

Two Goals are the focus of CCET's efforts in 2024 and 2025:

- Accelerating home energy retrofits, and
- Advancing low carbon district energy systems

Objectives in support of each Goal are described below, including the intended outcomes (key results) and proposed key performance indicators to track progress. This provides a framework for CCET to report on progress to the community, partners and funders as well as adjust efforts based on performance measures, as needed.

1.1 Goal 1: Accelerate Home Energy Retrofits for Low Rise Buildings

Energy efficiency retrofits are completed for 3% of the low rise residential building stock annually by 2030, aided by incentives and financing options (e.g. Local Improvement Charges), to accelerate GHG reductions and equitably save residents' energy.

Objective: Become a trusted advisor in the community

How we will track progress on this Objective:

- Build a strong online presence (e.g. website, social media platforms)
- Conduct regular outreach in the community
- Be available to respond to inquiries
- Provide resources in multiple languages
- Provide resources to undertake a retrofit journey and 'Net Zero Roadmap'

Outcomes (Key Results):

- CCET established as a trusted source of information
- CCET's presence and brand enhanced
- Increase uptake of existing retrofit programs by households

Implementation and Resources

- Managed by the Lead-Home Energy Retrofits
- Supported by energy coach (e.g. recruit Climate Action Specialist and/or contract the energy coach service through existing auditors, partner and other energy professionals)
- Supported by dwelling archetype analysis
- Supported by Communications Plan (evaluate tactics from broad awareness to neighbourhood canvassing)
- Fully functional website and content (e.g. calendar of events, "How to" guides)
- Translation resources

Proposed indicators to measure progress on the Objective to 'Become a trusted advisor in the community'

Outcomes and Key Results	**Proposed Indicators**
CCET established as a trusted source of information	Total number of unique retrofit resource materials developed (e.g., report, video, newsletter, webinar, learning modules, training modules) Number of additional languages materials are available Number of individuals that visit the resources pages and number of downloads of resource material
CCET's presence and brand enhanced	Number of website visits Number of inquiries received Number of subscriptions to a CCET newsletter

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Objective: Raise awareness of the benefits of energy retrofits through community engagement and incorporate feedback to improve CCET's offerings

How we will track progress on this Objective:

- De-mystify energy retrofits (e.g. webinars, surveys, neighbourhood meetings, events, etc.)
- Gather feedback on community needs to inform the energy coach service (e.g. pilot energy coach service, surveys, webinar feedback, etc.)
- Support community champions to raise awareness of energy retrofits
- Identify testimonials
- Provide resources on incentives and financing options

Outcomes (Key Results):

- Increased awareness of home energy retrofits in the region of Peel
- Community feedback integrated into CCET's offerings
- Build awareness in the community of incentives and financing tools
- Increase uptake of existing retrofit programs by households

- Improve the likelihood of a successful application by CCET and municipal partners to the Federation of Canadian Municipalities' (FCM) Community Efficiency Financing (CEF) stream of funding

Implementation and Resources

- Managed by Lead-Home Energy Retrofits
- Supported by dwelling archetype analysis
- Supported by Communications Plan
- Supported and implemented by energy coach (e.g. recruit Climate Action Specialist and/or contract the energy coach service through existing auditors, partners and other energy professionals)
- Fully functioning website (website content developed largely using internal resources)

Proposed indicators to measure progress on the Objective to 'Raise awareness of the benefits of energy retrofits'

Outcomes and Key Results	**Proposed Indicators**
Increased awareness of home energy retrofits	Number and type of engagement activities held (e.g. surveys, webinars, events, etc.) Number of individuals reached for each type of activity Number of additional languages that materials are provided/available Testimonials in place Number of community champions or ambassadors recognized
Community feedback integrated into CCET's offerings	Number of community groups and individuals engaged Number of feedback sessions/opportunities for feedback offered Number of unique responses

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Objective: Address energy burden and identify CCET's role to improve access of retrofit programs for underserved and income eligible households

How we will track progress on this Objective:

- Build relationships with community groups and agencies that serve income eligible households
- De-mystify energy retrofits (webinars, surveys, neighbourhood meetings, etc.)
- Gather community feedback on community needs to improve access to retrofit programs (surveys, webinar feedback, etc.)

- Research options (e.g. turnkey solutions) for measures to address energy burden
- Research energy equity initiatives in other jurisdictions (e.g. Efficiency Canada, ACEEE, etc.)
- Increase awareness of available incentives and financing tools (e.g. LIC financing)

Outcomes (Key Results):

- Established partnerships or working relationships with community groups that serve income eligible and underserved households
- Gathered and incorporated feedback and research options (e.g. turnkey programs) for measures to address energy burden
- Increase uptake of existing retrofit programs
- Identify specific measures to address energy burden and allocate for grant funding in a possible future application to the CEF stream of funding
- Build awareness of LIC financing and seek feedback on other financial instruments or measures that may be effective

Implementation and Resources

- Managed by Lead-Home Energy Retrofits
- Supported by dwelling archetype analysis
- Supported by energy coach (e.g. recruit Climate Action Specialist and/or contract the energy coach service through existing auditors, partners and other energy professionals)
- Additional consulting resources to gather available information on energy poverty and assist with stakeholder outreach

Proposed indicators to measure progress on the Objective to 'Address energy burden'

Outcomes and Key Results	**Proposed Indicators**
Established partnerships or working relationships with community groups that serve income eligible and underserved households	Number of community groups contacted Number of community groups with established relationship
Gathered and incorporated feedback and research options (e.g. turnkey programs) for measures to address energy burden Identify measures to address energy burden and allocate for grant funding in the application to the CEF stream of funding	Gather community feedback on community needs to improve access to retrofit programs (surveys, webinar feedback, etc.) Research options (e.g. turnkey solutions) for measures to address energy burden Report or briefing note on energy equity initiatives in other jurisdictions (e.g. Efficiency Canada, ACEEE, etc.) Materials and engagement initiatives to increase awareness of available incentives and financing tools (e.g. LIC financing)

Objective: Build strategic partnerships to deliver the energy coach service and potential incentives and financing tools

How we will track progress on this Objective:

- Provide regular liaison with the energy auditor network
- Engage in regular communications with the contractor network and relevant organizations (e.g. HRAI, NAEMA, RenoMark)
- Strengthen relationships with utilities (Alectra, Enbridge, Hydro One) through regular communications and data sharing
- Engage the real estate community
- Engage financial institutions and financial services agencies
- Build awareness of LIC financing and assess alternate financing options (e.g. rent-to-own financing, etc.)

Outcomes (Key Results):

- Partner and stakeholder relationships established and maintained
- Support for funding and grant applications to implement the enabling services and financial tools is secured
- Improve content for a future CEF application

Implementation and Resources

- Managed by Lead-Home Energy Retrofits
- Supported by dwelling archetype analysis
- Supported by energy coach (e.g. recruit Climate Action Specialist and/or contract the energy coach service through existing auditors, partners and other energy professionals)

Proposed indicators to measure progress on the Objective to 'Establish strategic partnerships'

Outcomes and Key Results	**Proposed Indicators**
Partner and stakeholder relationships established and maintained	Number of organizations contacted Number and types of stakeholder outreach initiatives (e.g. workshops, meetings, webinars, etc.)
Support for funding and grant applications to implement the enabling services and financial tools is secured Improve content for a future CEF application	Numbers of letters of support Number of MOUs, cooperation agreements, etc. Specific stakeholder feedback incorporated into CCET's offerings Information resources and outreach initiatives (e.g. workshops, etc.) on financial tools

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Objective: Launch an energy coach service in 2024

How we will track progress on this Objective:

- Offer a free home energy assessment through contracted services and partner arrangements
- Select neighbourhoods for energy coach service as part of ongoing community engagement
- Research and prepare a 'One-stop Window' and determine resource requirements to launch and maintain the 'One-stop Window'
- Setup format for customer database
- Test the process structure for the energy coach service associated with a future LIC financing offering or alternate financing tools
    - Application form for energy coach service
    - Process and infrastructure to review customer profiles, projects and applications
    - Process and infrastructure to manage energy coach scheduling and resourcing
    - Process to forecast and estimate energy coach staff requirements
    - Contractor, energy advisor, and energy coach database
- Research and prepare 'Net Zero Roadmaps' for dwelling archetypes
- Prepare to scale-up the energy coach service by gathering feedback from residents to inform the main scope of the energy coach service and options to triage inquiries

Outcomes (Key Results):

- Increased uptake of existing retrofit programs
- Improved likelihood of successful application to CEF stream of funding
- Increased awareness of incentives and financial tools (e.g. LIC financing)
- The ability to track homeowner progress on their retrofit journey is determined
- Work plan to grow the energy coach service under varying scenarios (e.g. with and without CEF funding) is developed

Implementation and Resources

- Oversight by Lead-Home Energy Retrofits
- Supported by dwelling archetype analysis
- Implemented by energy coach (e.g. recruit Climate Action Specialist and/or contract the energy coach service through existing auditors, partners and other energy professionals)

Proposed indicators to measure progress on the Objective to 'Launch energy coach service'

Outcomes and Key Results	**Proposed Indicators**
Increased uptake of existing retrofit programs	Number of households participating in energy coach service
Improved likelihood of successful application to CEF stream of funding	Number of inquiries received to CCET and responses related to energy retrofits
Increased awareness of incentives and financial tools (e.g. LIC financing)	Extent of specific neighbourhood outreach (e.g. households reached, responses received, people engaged, etc.)

Outcomes and Key Results	Proposed Indicators
	Number of website visits and inquiries specific to financial tools
The ability to track homeowner progress on their retrofit journey is determined Work plan to grow the energy coach service under varying scenarios (e.g. with and without CEF funding) is developed	Test process structure for energy coach service ○ Application form for energy coach service ○ Process and infrastructure to review customer profiles, projects and applications ○ Process and infrastructure to manage energy coach scheduling and resourcing ○ Process to forecast and estimate energy coach staff requirements Contractor, energy advisor, and energy coach database

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Objective: In 2024, launch a One-stop Window as an enabling service with a focus on providing resources to homeowners and landlords on home energy education and the retrofit processes

How we will track progress on this Objective:

- Launch a revised CCET website with a compelling, simple, secure, and user-friendly design (i.e. customer-centric lens).
- Seek input from community groups that represent underserved households (e.g. Peel's Community Response Table) on the website accessibility.
- Test website functionality and 'single point of contact' service through engagement with implementation partners and seeking community input (at events, surveys, etc.).
- Track website effectiveness (e.g. through website analytics and surveys).
- Identify future functionality (e.g. track customer retrofit journey, homeowner login portal) and determine resource requirements to implement desired functionality.

Outcomes (Key Results):

- Improved functionality of a 'One-stop Window'
- Increase uptake of existing retrofit programs
- Improve likelihood of successful application to CEF stream of funding
- Raise CCET's brand as a trusted advisor in the community and subscriber base

Implementation and Resources

- Oversight by Lead-Home Energy Retrofits
- Website design and IT support services
- Informed by energy coach (e.g. recruit Climate Action Specialist and/or contract the energy coach service through existing auditors, partners and other energy professionals) through feedback from household interaction and

Proposed indicators to measure progress on the Objective to 'Launch a One-stop Window'

Outcomes and Key Results	Proposed Indicators
Improved functionality of a One-stop Window	Specific input received from community groups that represent underserved households (e.g. Peel's Community Response Table) on website accessibility Tests (e.g. workshop, surveys) of website functionality and 'single point of contact' service Website analytics

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Objective: Secure private capital for energy retrofits for use in a future LIC offering and explore alternate financing tools

How we will track progress on this Objective

- Engage financial institutions and FCM
- Confirm securities required by CCET and partners
- Determine lending criteria and any legal matters for CCET to be the recipient of loan amounts to distribute to homeowners under an LIC financing offering
- Evaluate options to process and track financing applications from homeowners
- Evaluate alternative financing offerings (e.g. rent-to-own) to provide choice for households

Outcomes (Key Results):

- Confirm the processes and legal arrangements for CCET to collaborate with municipal partners to capitalize an LIC financing offering
- Improve likelihood of a successful application to the CEF stream of funding
- Alternate financing tools identified and tested

Implementation and Resources

- Oversight by Lead-Home Energy Retrofits
- Implementing an LIC offering will require a Project Manager (at minimum) to track financial flows and ensure the applicant intake process runs smoothly
- Legal services (contracted)

Proposed indicators to measure progress on the Objective to 'Secure private capital'

Outcomes and Key Results	Proposed Indicators
Confirm the processes and legal arrangements for CCET to collaborate with municipal partners to capitalize an LIC financing offering	Financial institutions engaged Type of securities and lending criteria confirmed Options to process and track financing applications from homeowners reviewed and recommendation determined
Alternate financing tools identified and tested	Evaluate alternative financing offerings (e.g. rent-to-own) to provide choice for households Risk register developed and risk management identified

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Objective: Prepare elements of a Community Efficiency Financing application to FCM by Q4 2024 (*submission of a CEF application requires municipal Councils to endorse an implementing LIC bylaw)*

How we will track progress on this Objective

- Establish the ecosystem of partners (energy auditors, contractors, financial institutions, real estate sector, etc.) and letters of support
- Put in place value-add elements (e.g. addressing equitable engagement and energy burden, energy coach service experience, elements of a One-stop Window)
- Incorporate community engagement findings to tailor service offerings (enabling services and financing mechanisms)
- Prepare application forms and process map for applicant intake to an LIC offering (i.e. business systems) to work across multiple municipalities
- Track implementation of a Communications Plan to demonstrate program marketing ability
- Confirm process to set up a dedicated loan loss reserve fund
- Confirm loan underwriting criteria to evaluate applicant eligibility
- Identify consumer protection measures
- Identify program monitoring measures and financial flow monitoring

Outcomes (Key Results):

- Demonstrate ability to implement the applicant intake process for a finance offering
- Demonstrate framework to manage financial flows

Implementation and Resources

- Managed by Lead-Home Energy Retrofits in collaboration with municipal partners
- IT service support
- Supported by energy coach

Proposed indicators to measure progress on the Objective to 'Prepare an application to CEF stream of funding'

Outcomes and Key Results	**Proposed Indicators**
Demonstrate ability to implement the applicant intake process for a potential LIC offering	Identify the required business systems to work across multiple municipalities
Demonstrate ability manage financial flows	Confirm process to set up a dedicated loan loss reserve fund Confirm loan underwriting criteria to evaluate applicant eligibility Identify consumer protection measures Identify program monitoring measures and financial flow monitoring

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Objective: Prepare to launch an LIC financing offering in collaboration with municipal partners
(Implementation requires municipal Councils to endorse an implementing LIC bylaw)

How we will track progress on this Objective

- Secure funding and establish legal entities to flow funds (see Financial Forecast)
- Establish financial accountability and audit mechanisms
- Confirm back-end processing by municipal partners (i.e. charge on property tax bill)

Outcomes (Key Results):

- Pending LIC bylaws endorsed in the partner municipalities

Implementation and Resources

- Oversight by Lead-Home Energy Retrofits
- Requires a Project Manager (applicant intake and financial accountability) and Communications Specialist (marketing and outreach) to implement the LIC

1.2 Goal 2: Advance District Energy and Low Carbon Thermal Networks in Priority Nodes

Promote the business case for district energy (DE) among key sectors and advance the expansion of low-carbon DE opportunities.

Objective: Host a district energy forum by Q4 2024

How we will track progress on this Objective

- Convene key sector players to identify desired outcomes of the forum
- Prepare 'primers' to advance the discussion
- Secure professional coordination and facilitation expertise
- Secure sponsors
- Deliver a synopsis of the findings from the DE forum

Outcomes (Key Results):

- Increased knowledge of DE systems and neighbourhood decarbonization with government decision makers, municipal practitioners, the building sector and other key sectors
- CCET's role and activities to advance DE systems further defined (through planning the DE forum and synopsis of forum findings in a synopsis report)
- Identified several potential 'contributors' and 'partners' to CCET (see CCET Contributor and Partner Role' policy)
- Outreach to economic sectors that contribute to neighbourhood decarbonization (e.g. manufacturers, utilities, organized labour, etc.) is achieved
- CCET's brand further established

Implementation and Resources

- Led by Executive Director
- Collaborate with Partners in Project Green or outsource event coordination and execution
- Partner with Future Energy Oakville to host event/forum

Proposed indicators to measure progress on the Objective to 'Host a district energy forum'

Outcomes and Key Results	**Proposed Indicators**
Increased knowledge of DE systems and neighbourhood decarbonization	Number of events Number of attendees Number of sectors and organizations engaged/represented

Objective: Map and identify building profiles in priority DE areas/nodes

How we will track progress on this Objective

- Develop building energy and emissions profile database and/or report in one or more priority DE areas/nodes
- Compile ownership and lease information
- Advance awareness of neighbourhood decarbonization through thermal energy networks

Outcomes (Key Results):

- Baseline information for analysis and outreach is developed
- Baseline information is used to support funding requests
- DE business cases developed for select builders/owners

Implementation and Resources

- Oversight by Executive Director
- Led by DE Lead or outsourced to consultant (resources required)
- Possible partnership with the Sustainable Neighbourhood Action Plan (SNAP) and Sustainable Technologies Evaluation Program (STEP) teams of TRCA
- Fundraising required to implement program elements

Proposed indicators to measure progress on the Objective to 'Map building profiles in DE priority areas'

Outcomes and Key Results	**Proposed Indicators**
Baseline building profiles and energy usage developed DE business cases developed for select priority areas	Number of building owners contacted and number of building owners regularly engaged Number of building owners receiving guidance pertaining to deep retrofits and DE retrofits Number of building owners (along with associated number of buildings, floor space, potential energy and GHG savings) receiving guidance pertaining to the pre-development and/or project planning, design and management of a deep retrofit project Number of building audits / assessments Number of DE business cases for MURBs and for commercial buildings

1.3 Implementation Resources

Accelerate Home Energy Retrofits – Enabling Services

	Become a Trusted Advisor	Raise Awareness of Retrofit Benefits	Address Energy Burden	Build Partnerships	Energy Coach Service
Lead-Home Energy Retrofits	Program Manager				
Climate Action Specialist (or contracted service)	Support Role				Lead
Dwelling Archetype Analysis	Supporting Resources				
Communications Plan	Supporting Resources				
Website Revision	Supporting Resources				
Translation Resources	Supporting Resources				

Accelerate Home Energy Retrofits – Enabling Services and Financing Considerations

	One-stop Window	Financing Tools	CEF Application	Applicant Intake	Monitoring Program and Financial Flows
Lead-Home Energy Retrofits	Program Manager				
Climate Action Specialist (or contracted service)	Support Role				
Project Manager				Lead	
Communications Specialist				Support Role	
Website Revision	Supporting Resources			Supporting Resources	
Translation Resources	Supporting Resources			Supporting Resources	

Advance District Energy and Low Carbon Thermal Networks

	District Energy Forum	Building and Energy Profiles
Executive Director		
Partnerships		
District Energy Lead (or contracted services)		
TRCA	PPG (possible contract)	SNAP/STEP alignment opportunities

Status of Resources to Achieve Goals and Objectives

Resource Need	**Status**
Lead-Home Energy Retrofits	Secured
Climate Action Specialist	Requires additional funding to match base funding
Project Manager – LIC Finance offering and alternate financing tools	Requires additional funding pending municipal partner endorsement of LIC bylaw
Communications Specialist	Requires additional funding pending municipal partner endorsement of LIC bylaw
Dwelling Archetype Analysis	Requires additional funding for a consulting contract or to be undertaken by Climate Action Specialist
Communications Plan	In-house and budget for targeted contracts (e.g. marketing materials)
Website Revision	In-house and contract. Ongoing IT support services under consideration.
Translation Resources	Allocate resources from existing base funding and seek additional funds through project-based proposals to foundations

2.0 FINANCIAL FORECAST

2.1 2024 and 2025 Financial Forecast

Several budget scenarios for the 2024 and 2025 calendar years were evaluated to determine capacity and program growth options, as well as begin to identify fundraising requirements. Two scenarios are presented in the Financial Forecast[‡] below. All scenarios assume funding only from municipal Service Level Agreements (Brampton, Caledon, Mississauga and Peel) continuing at previous levels through 2024 and 2025.

	Budget Estimate (without District Energy Lead)		**Budget Estimate[a] (with District Energy Lead)**	
Expense Category	**2024**	**2025**	**2024**	**2025**
Home Retrofit Program	$115,000	$145,000	$115,000	$145,000
District Energy Program	$30,000	$30,000	$30,000	$30,000
Organization	$353,700	$338,700	$395,200	$463,200
Total Expenses	$498,700	$513,700	$540.200[a]	$638,200
Starting Balance + Anticipated Revenue	$736,000	$737,300	$736,000	$695,800
Ending Balance	$237,300	$223,600	$195,800	$57,600

‡ Assumes funding only from municipal Service Level Agreements and MOUs with local municipalities and Peel Region at same level as previous years.

[a] Assumes recruiting District Energy Lead by September 2024

Direction for capacity building can be derived from the scenarios:

- Recruiting additional staff without additional revenue generation results in a negative balance some time in 2025. Any further staff recruitment requires additional fundraising to offset costs, whether in the form of a District Energy Lead or 'coordinator' functions to support the transformation programs.
- The scenario above that includes recruiting the District Energy Lead in 2024 assumes that Peel Region is able to provide a contribution of $100,000 a year for 2024 and 2025.
- The base case cost scenario includes a small budget to engage the energy auditor network and contractor network. However, more comprehensive engagement such as education opportunities and training will require fundraising for specific projects.
- Addressing equity deserving or income-qualified households is not budgeted separately. Initiatives such as identifying and testing additional incentives (e.g. pilot projects) or gathering community-specific information regarding energy burden (e.g. deep engagement with community groups that represent underserved households) requires additional fundraising.
- Deriving additional baseline information such as dwelling archetype analysis or updated energy poverty mapping, should it be determined as a priority, will require additional fundraising.

2.2 Home Energy Retrofit Program - Financial Scenarios 2025 to 2029

Three (3) scenarios present a range of options for CCET to consider in planning expenses and revenue generation requirements for the residential retrofit program. The table below represents estimated annual expenses and revenues to implement an LIC-based financing offering and energy coach service starting in 2025 and continuing to 2029.

	Annual	**Annual**	**Annual**
	Scenario 1 Moderate/High Uptake	**Scenario 2 Low Uptake**	**Scenario 3 Low Uptake**
	Maximum CEF/FCM Funding	**Minimal CEF/FCM Funding**	**No CEF/FCM Funding**
Expense or Revenue Category	600 applicants per year	100 applicants per year	100 applicants per year
Expenses			
Municipal Administration Costs	$ 225,000	$ 225,000	$ 225,000
CCET Program Coordination - Program Lead	$ 84,000	$ 84,000	$ 96,000
CCET Program Coordination - Project Manager	$ 90,000	$ 90,000	
CCET Program Coordination - Communications Specialist	$ 80,000		
CCET Energy Coach - Climate Action Specialist Position or Contracted Service	$ 90,000	$ 90,000	$ 90,000
CCET Energy Coach - Additional contracted services	$ 60,000		
Marketing	$ 50,000	$ 25,000	$ 25,000
Translation/Accessibility	$ 25,000	$ 15,000	$ 15,000
One-stop Window and CRM ongoing Maintenance Costs			
Start-up Costs - Legal	$ 100,000	$ 100,000	$ 100,000
Start-up Costs - Applicant Intake	$ 50,000	$ 50,000	in house
Start-up Costs - One-Stop Window	$ 50,000	$ 50,000	in house
Start-up Costs - Dwelling Archetype data	$ 50,000	$ 50,000	in house
Tracking Flow of Funds (Auditing Costs)			
TOTAL ONGOING PROGRAM COSTS	$ 704,000	$ 529,000	$ 451,000
ADMINISTRATION COSTS TO COVER WITH EXTERNAL FUNDING	$ 704,000	$ 180,000	$ 130,000
TOTAL START -UP COSTS	$ 250,000	$ 250,000	$ 100,000
Loan Loss Reserve	$ 500,000	$ 75,000	$ 75,000
Loan Disbursements	$ 10,000,000	$1,500,000	$1,500,000

	Annual	**Annual**	**Annual**
	Scenario 1 Moderate/High Uptake	**Scenario 2 Low Uptake**	**Scenario 3 Low Uptake**
	Maximum CEF/FCM Funding	**Minimal CEF/FCM Funding**	**No CEF/FCM Funding**
Expense or Revenue Category	600 applicants per year	100 applicants per year	100 applicants per year
TOTAL COSTS	$ 11,454,000	$2,005,000	$1,805,000
Reenues			
Admin Fees	$ 270,000	$ 45,000	$ 30,000
Energy Coach Service Fee			$ 3,750
FCM Grant	$ 1,250,000	$ 187,500	
FCM Loan (flow through)	$ 2,500,000	$ 375,000	
Private Capital (flow through)	$ 7,500,000	$1,125,000	$ 1,500,000
TOTAL REVENUES	$ 1,520,000	$ 232,500	$ 33,750
TOTAL ANNUAL ADMIN COSTS (required to be covered)	$ 1,204,000	$ 255,000	$ 205,000
REVENUES LESS ONGOING COSTS	$ 316,000	$ (22,500)	$ (171,250)
REVENUES LESS ONGOING COSTS AND START-UP COSTS	$ 66,000	$ (272,500)	$ (271,250)

All scenarios assume:

- the need for a Climate Action Specialist position (or equivalent contracted service) to serve as the energy coach and coordinate additional resources to meet energy coach service levels
- $100,000 in legal costs to set up the 'special purpose entity' to flow and track capital funds and establish legal agreements between CCET and municipal partners
- Setting aside a Loan Loss Reserve calculated as 5% of the loan disbursements
- Loan management is not out-sourced to a third-party administrator with a demonstrable record of lending and the software capabilities

Scenario 1 – Moderate to High Uptake with Successful Community Efficiency Financing Application

- Based largely on Dunksy Energy program design report and Dunsky cost estimates
- Assumes maximum loan and grant amount from FCM ($10M loan and $5M grant)
- Grant amount covers program administration costs and offsets base funding from municipal Service Level Agreements
- Allows for additional funds that can be allocated for additional incentives for income eligible households

- Allows CCET to hire 3 additional staff on 3-year contracts (Project Manager, Climate Action Specialist, Communications Specialist)
    - Dunsky assumes 4-5 FTE required to run the program by Year 3, with 6 FTE required in Year 1 for start-up and as efficiencies are learned
- Estimates $150,000 for energy coach service ($90,000 for Climate Action Specialist and $60,000 for additional contracted services), offering the service at an estimated cost of $250 per applicant if 600 applicants utilize the service
- Assumes grant funding can cover part of CCET's Lead-Home Energy Retrofits position, thus extending the base funding from municipal partners
- Allocates $225,000 from grant funding to offset municipal partner staff costs (assuming 0.5FTE per municipality)
- Assumes $30M secured from private financial institutions in addition to $10M loan from FCM
- Loan Loss Reserve calculated at 5% of loan disbursements
- Assumes administration fee of $450 per applicant as recommended by Dunsky Energy

Scenario 2 – Low Uptake Estimate from Dunsky Report (not costed out in Dunsky Report)

- Based on the low uptake option in Dunksy Energy program design report (this estimate was not costed out in the program design report), but assuming 100 applicants per year rather than 60 applicants per year as the low estimate in the Dunsky Energy report
- Assumes loan and grant amount from FCM are pro-rated based on the ratios developed by Dunsky Energy ($1.5M loan and $750,000 grant over 4 years)
- Assumes municipal partners cover the municipal staff time as an in-kind contribution (not reimbursed by FCM grant)
- Assumes that CCET base funding from municipal SLAs covers the Program Lead (i.e. Lead-Home Energy Retrofits)
- Two additional positions (Climate Action specialist or equivalent contracted service; and Project Manager for applicant intake tracking and financial flow tracking) can be covered by the FCM grant
- Assumes the Communications Specialist position cannot be cost-recovered, so would have to covered by other funds if added to the Program Coordination costs
- Assumes start-up costs would have to be covered by other funds
- Assumes administration fee of $450 per applicant as recommended by Dunsky
- Assumes $4.5M secured from private financial institutions in addition to the $1.5M loan from FCM over a 4-year period

Scenario 3 – Low Uptake Estimate Without Offset by FCM Funding

- Assumes capital from sources other than FCM (e.g. financial institutions, Infrastructure Ontario)
- Assumes municipal partners cover the municipal staff time as an in-kind contribution
- Assumes that CCET base funding from municipal SLAs cover the Program Lead (i.e. Lead-Home Energy Retrofits)

- Assumes that additional funding is required (e.g. from private foundations) to cover the Climate Action Specialist (or contracted energy coach service) and Project Manager positions
- Assumes Communications Specialist cannot be cost-recovered, so would have to covered by other funds if added to the Program Coordination costs
- Assumes start-up costs would have to be covered by other funds
- Assumes administration fee of 2% of loan amount
- Assumes $6M secured from private financial institutions and other sources (e.g. Infrastructure Ontario) over the four year period
- Assumes that the only revenue includes administration fees and results in an annual deficit of $201,250 if not covered by other costs

Financial Scenario Summary – Home Energy Retrofit Program (estimated annual expenses and revenue starting in 2025)

	Scenario	1	2	3
Budget Impact	**Revenue**	$1.52M	$232,500	$33,750
	Capital Flow Through	$10M	$1.5M	$1.5M
	Expenses Scenario 1	Ongoing $1.204M (+ $316K)		
		Ongoing + Start-up (+ $66K)		
	Expenses Scenario 2		Ongoing $255,000 (- $20,500)	
			Ongoing + Start-up (- $272,500)	
	Expenses Scenario 3			Ongoing $205,000 (- $171,250)
				Ongoing + Start-up (- $271,250)
Programmatic and Operational Impacts	**Expense Constraints**	None. Fully funded assuming successful FCM funding. FCM grant offsets municipal SLA funding.	Assumes: • Municipal admin provided as in-kind • Ongoing CCET SLA funding covers CCET Lead-Home Energy Retrofits position • Project Manager and Climate Action Specialist (or equivalent contracted service) essentially covered by FCM grant	Assumes: • Municipal admin provided as in-kind • Ongoing CCET SLA funding covers CCET Lead-Home Energy Retrofits position • Project Manager and Climate Action Specialist must be funded by other sources if not covered by SLA base funding
	Program Impact	Funds available to address energy burden Collect fee of $450 per applicant	Collect fee of $450 per applicant Assumes a Project Manager is still required to assist with FCM reporting and other project accountability and transparency	Assumptions that risk reducing program uptake include: • Admin fee of 2% of loan amount • Half of applicants willing to pay nominal $50 fee for energy coach service

	Organizational Impact	Ability to add staff to meet program needs		Assumes a skeleton staff can implement the LIC financing and energy coach Assumes start-up requirements other than Legal services can be completed in-house

Proposed Changes

The following recommendations are derived from the financial forecast and assumptions to implement LIC financing for residents:

- Identify opportunities to reduce the start-up costs while the energy coach service and website are utilized in 2024
- Review Loan Loss Reserve requirements
- Add an administration fee with any successful project-specific fundraising proposal to offset base contribution from the municipal partners
- Review PACE business models from the US with a focus on examples of reducing processing and administration costs
- Assess if a revised Greener Homes program to address low and moderate income households (e.g. more upfront grants to pay for energy efficiency measures) is further aided by the LIC financing (long payback terms)

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APPENDIX A – MEASURING PROGRESS (Key Performance Indicators)

Many of the indicators to measure and report on progress relate to CCET's initiatives and efforts. These are 'process-based' key performance indicators (KPIs) as CCET builds capacity and demonstrates a track record of accomplishment.

'Outcome-based' KPIs are also proposed (e.g. GHG reductions achieved) along with the data source and proposed reporting period (e.g. monthly or annual).

Process-based Key Performance Indicators (KPIs)

Objectives and Key Results	Proposed Indicators
Accelerating Home Energy Retrofits for Low Rise Buildings	
CCET is a trusted advisor	
CCET established as a trusted source of information	Total number of unique retrofit resource materials developed (e.g., report, video, newsletter, webinar, learning modules, training modules) Number of additional languages materials are available Number of individuals that visit the resources pages and number of downloads of resource material
CCET's presence and brand enhanced	Number of website visits Number of inquiries received Number of subscriptions to a CCET newsletter
Raise awareness of the benefits of energy retrofits	
Increased awareness of home energy retrofits	Number and type of engagement activities held (e.g. surveys, webinars, events, etc.) Number of individuals reached for each type of activity Number of additional languages materials are provided/available Testimonials in place Number of community champions or ambassadors recognized
Community feedback integrated into CCET's offerings	Number of community groups and individuals engaged

Objectives and Key Results	Proposed Indicators
	Number of feedback sessions/opportunities for feedback offered Number of unique responses
Build awareness in the community of incentives and financing tools	Number and type of resources on incentives and financing tools Findings of research and testing of financing options (e.g. workshops, pilot projects, etc.)
Address energy burden and energy equity	
Established partnerships or working relationships with community groups that serve income eligible and underserved households	Number of community groups contacted Number of community groups with established relationship
Gathered and incorporated feedback and research options (e.g. turnkey programs) for measures to address energy burden Identify measures to address energy burden and allocate for grant funding in the application to the CEF stream of funding	Gather community feedback on community needs to improve access to retrofit programs (surveys, webinar feedback, etc.) Research options (e.g. turnkey solutions) for measures to address energy burden Report or briefing note energy equity initiatives in other jurisdictions (e.g. Efficiency Canada, ACEEE, etc.) Materials and engagement initiatives to increase awareness of available incentives and financing tools (e.g. LIC financing)
Establish strategic partnerships	
Partner and stakeholder relationships established and maintained	Number of organizations contacted Number and types of stakeholder outreach initiatives (e.g. workshops, meetings, webinars, etc.)
Support for funding and grant applications to implement the enabling services and financial tools is secured Improve content for a future CEF application	Numbers of letters of support Number of MOUs, cooperation agreements, etc. Specific stakeholder feedback incorporated into CCET's offerings Information resources and outreach initiatives (e.g. workshops, etc.) on financial tools
Launch an energy coach service	
Increased uptake of existing retrofit programs Improved likelihood of successful application to CEF stream of funding	Number of households participating in energy coach service Number of inquiries received to CCET and responses related to energy retrofits

Objectives and Key Results	Proposed Indicators
Increased awareness of incentives and financial tools (e.g. LIC financing)	Extent of specific neighbourhood outreach (e.g. households reached, responses received, people engaged, etc.) Number of website visits and inquiries specific to financial tools
The ability to track homeowner progress on their retrofit journey is determined Work plan to grow the energy coach service under varying scenarios (e.g. with and without CEF funding) is developed	Test process structure for energy coach service ○ Application form for energy coach service ○ Process and infrastructure to review customer profiles, projects and applications ○ Process and infrastructure to manage energy coach scheduling and resourcing ○ Process to forecast and estimate energy coach staff requirements ○ Contractor, energy advisor, and energy coach database
Launch a One-stop Window	
Improved functionality of a One-stop Window	Specific input received from community groups that represent underserved households (e.g. Peel's Community Response Table) on website accessibility Tests (e.g. workshop, surveys) of website functionality and 'single point of contact' service Website analytics
Secure private capital	
Confirm the processes and legal arrangements for CCET to collaborate with municipal partners to capitalize an LIC financing offering	Financial institutions engaged Type of securities and lending criteria confirmed Options to process and track financing applications from homeowners reviewed and recommendation determined
Alternate financing tools identified and tested	Evaluate alternative financing offerings (e.g. rent-to-own) to provide choice for households Risk register developed and risk management identified
Prepare elements of a CEF application	
Demonstrate ability to implement the applicant intake process for a potential LIC offering	Identify the required business systems to work across multiple municipalities
Demonstrate ability manage financial flows	Confirm process to set up a dedicated loan loss reserve fund Confirm loan underwriting criteria to evaluate applicant eligibility

Objectives and Key Results	Proposed Indicators
	Identify consumer protection measures Identify program monitoring measures and financial flow monitoring
Advance District Energy and Low Carbon Thermal Networks	
Increased knowledge of DE systems and neighbourhood decarbonization	Number of events (e.g. DE Forum) Number of attendees Number of sectors and organizations engaged/represented
Baseline building profiles and energy usage developed DE business cases developed for select priority areas	Number of building owners contacted and number of building owners regularly engaged Number of building owners receiving guidance pertaining to deep retrofits and DE retrofits Number of building owners (along with associated number of buildings, floor space, potential energy and GHG savings) receiving guidance pertaining to the pre-development and/or project planning, design and management of a deep retrofit project Number of building audits / assessments Number of DE business cases for MURBs and for commercial buildings

Outcome-based Key Performance Indicators (KPIs)

Proposed Indicator	Data Source (Reporting Period)
Number of retrofits started Number of retrofits completed	NRCan energy audit data (annual)
Number and proportion of retrofits by dwelling archetype	NRCan energy audit data (annual)
Energy savings and GHG reductions from retrofits	NRCan energy audit data (annual)
Number of applicants utilizing energy coach service Average cost or time for energy coach service per applicant % of applicants using energy coach to total # of applicants proceeding with retrofits	CCET tracking (monthly) CCET tracking (monthly) CCET tracking and NRCan (annual)

APPENDIX B – CCET 2024/2025 Budget Estimate

	Budget Estimates (current staff resources)		Budget Estimates (recruiting District Energy Lead in 2024)	
EXPENSE BREAKDOWN	2024	2025	2024	2025
Staff and Benefits	$277,500	$277,500	$319,000	$402,000
Organization (Accountant fees, software, Insurance, Payroll, IT Services, etc.)	$ 31,200	$ 31,200	$ 31,200	$ 31,200
Website Design and Maintenance	$ 5,000	$ 5,000	$ 5,000	$ 5,000
Communications Plan/Marketing Strategy	$ 20,000	$ 5,000	$ 20,000	$ 5,000
Translation Services	$ 20,000	$ 20,000	$ 20,000	$ 20,000
Retrofit Program - Engagement Materials + Services	$ 30,000	$ 30,000	$ 30,000	$ 30,000
Retrofit Program - Engagement (Event Space)	$ 5,000	$ 5,000	$ 5,000	$ 5,000
Retrofit Program - Energy Coach Services	$ 40,000	$ 60,000	$ 40,000	$ 60,000
Retrofit Program - Equity-deserving Groups	$ 20,000	$ 20,000	$ 20,000	$ 20,000
Retrofit Program - Auditor Network	$ 10,000	$ 10,000	$ 10,000	$ 10,000
Retrofit Program - Contractor Network	$ 10,000	$ 10,000	$ 10,000	$ 10,000
Retrofit Program - One-stop Window		$ 10,000		$ 10,000
DE Program - Event (coordination and location)	$ 20,000	$ 20,000	$ 20,000	$ 20,000
DE Program - Event (honoraria, fees for facilitators, SMEs, etc.)	$ 10,000	$ 10,000	$ 10,000	$ 10,000
TOTAL ESTIMATED EXPENSES	$498,700	$513,700	$540,200	$638,200
STARTING BALANCE + ANTICIPATED GRANTS	$736,000	$737,300	$736,000	$695,800
REVENUES LESS EXPENSES	$237,300	$223,600	$195,800	$ 57,600

CENTRE FOR COMMUNITY ENERGY TRANSFORMATION

Business Plan 2024/2025 – Part 2

Background and Context

August 2024

ACKNOWLEDGEMENTS

The Centre for Community Energy Transformation (CCET) recognizes and acknowledges that our work takes place on lands that are part of the Treaty Lands and Territory of the Mississaugas of the Credit. For thousands of years, Indigenous peoples inhabited and cared for this land, and continue to do so today. We acknowledge the territory of the Anishinabek, Huron-Wendat, Haudenosaunee and Ojibway/Chippewa peoples; the land that is home to the Metis; and most recently, the territory of the Mississaugas of the Credit First Nation who are the direct descendants of the Mississaugas of the Credit.

We are grateful to have the opportunity to work on this land, and by doing so, give our respect to its first inhabitants.

We thank the CCET Board of Directors for their leadership and contribution to the Business Plan.

CCET acknowledges the municipal partners (City of Brampton, Town of Caledon, City of Mississauga, and the Region of Peel) and the Advisory Group for their contribution to the Business Plan 2024/2025.

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INTRODUCTION

The need to accelerate climate action

The Intergovernmental Panel on Climate Change (IPPC) in 2022 and 2023 issued its most stark warning yet about dangerous climate change:

> "To avoid mounting loss of life, biodiversity and infrastructure, ambitious, accelerated action is required to adapt to climate change, at the same time as making rapid, deep cuts in greenhouse gas emissions."

The IPCC recommendations for action focus on strengthening nature and supporting healthy ecosystems while also noting the role of cities in providing climate action:

> " … green buildings, reliable supplies of clean energy, and sustainable transport systems that connect urban and rural areas can all lead to a more inclusive and fairer society".

In late 2023 at COP28, the Global Renewables and Energy Efficiency Pledge was endorsed by 132 countries with a goal to triple renewable energy generation and double annual energy efficiency improvements by 2030. This commitment relates directly to CCET's mandate to accelerate home energy retrofits and advance low-carbon district energy systems to scale up greenhouse gas (GHG) emissions reduction.

CCET's program focus:
- Accelerate home energy retrofits
- Advance district energy and low carbon thermal networks

Canada has experienced unprecedented extreme weather events

The consequences of climate change have played out across Canada over the last few years in the form of unprecedented extreme weather events:
- The British Columbia Coroners Service confirmed that the heat dome of June 25 to July 1, 2021 resulted in 619 heat-related deaths
- In 2022, Hurricane Fiona (Category 4) was the strongest hurricane on record to hit Canada
- Canada's 2023 wildfire season has been the most destructive ever recorded

The impacts of climate change will affect human health, ecosystem resilience, and hard (i.e. grey) infrastructure (Canada in a Changing Climate – Synthesis Report). CCET's program areas focus on GHG reductions (i.e. mitigation) rather than on climate adaptation. However, improving energy efficiency of buildings, advancing district energy, and promoting on-site renewable energy generation also builds resiliency in our communities. This is primarily by:
- improving the ability to shelter in place in case of extreme weather events in energy efficient buildings

- improving the resilience of energy infrastructure through distributed energy resources (DERs) and low carbon thermal networks (i.e. low carbon district energy systems).

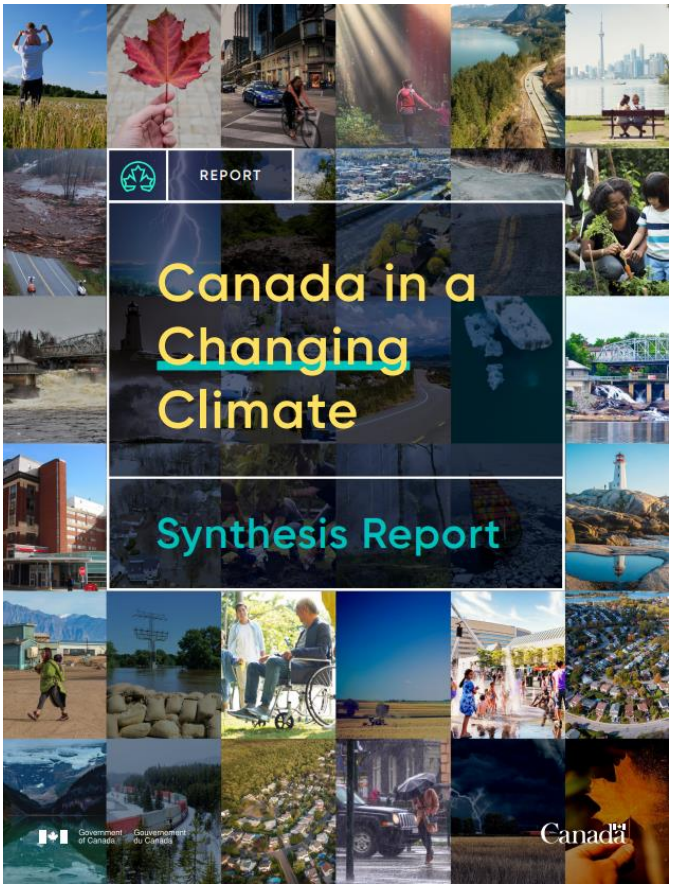
Risks to human health from climate change
(Source: Canada in a Changing Climate – Synthesis Report)

Natural hazards
- Direct impacts to life and property
- Indirect impacts (e.g. flood damage resulting in mold, fungi and bacteria affecting health)

Air quality
- Exposure to air pollutants (e.g. wildfire smoke)

Infectious diseases
- Diseases that can emerge or spread due to continued warming

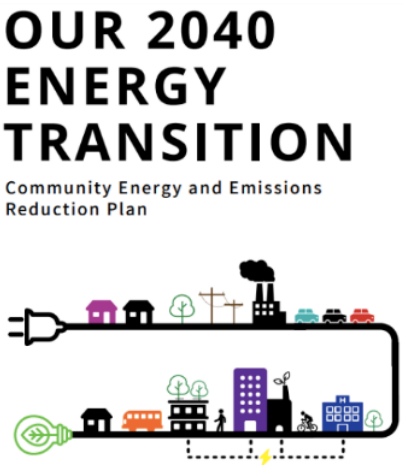
Food and water safety and security
- Extreme weather events can disrupt supply chains and result in food contamination



Municipal Partner Climate Action Commitments

CCET's focus is informed by climate action plans of our municipal partners. CCET is collaborating with municipal partners to implement the following climate action commitments.

City of Brampton



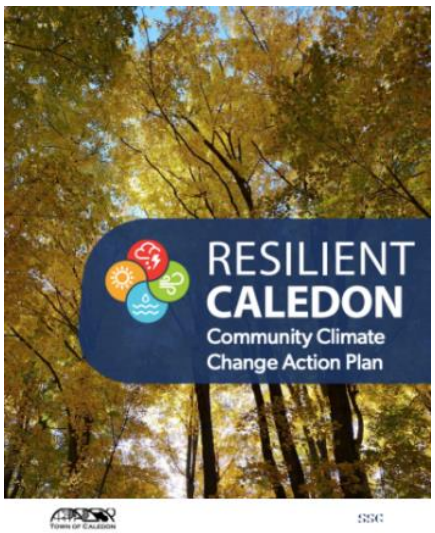
Reduce community-wide emissions by 50% from 2016 levels by 2041, and establish a pathway to reduce emissions by at least 80% by 2050 to meet or exceed federal and provincial targets.

Retain at least $26 billion in cumulative energy costs within the community by 2041.

Climate Emergency Declaration 2019

Global Covenant of Mayors for Climate and Energy 2020

Town of Caledon



Mitigate: Reduce community-wide GHG emissions to reach net zero by 2050 and follow a carbon budget that aligns with 1.5°C warming, which would entail a 36% reduction of emissions by 2030.

Adapt: Increase resiliency of the Town, its residents, economy and the natural environment to current and future climate impacts

Climate Emergency Declaration 2020

Global Covenant of Mayors 2017

City of Mississauga

The Climate Change Action Plan (CCAP) aims to help Mississauga become a low-carbon and resilient community, with current targets to reduce greenhouse gas emissions by 40% by 2030, and 80% by 2050 (compared to 1990 levels). The CCAP will be updated in 2024-2025 to better align with IPCC recommendations to limit global warming to 1.5°C.

Climate Emergency Declaration 2019

Joined Global Covenant of Mayors for Climate and Energy in 2017

Why CCET's Focus and Our Collaboration with Partners is Needed

GHG emissions from buildings are still increasing

The independent report of the Canadian Climate Institute on Canada's progress on GHG reduction shows progress is being made, but accelerated efforts are required particularly for two sectors: oil/gas sector; and buildings. Emissions are still growing in these sectors as shown in Figure 2 from the report of the Canadian Climate Institute and excerpted below.

> "With the Clean Fuel Regulations fully implemented, there is a need to turn attention to buildings, which we see as a continued risk, because of rising emissions in the sector. Federal, provincial, territorial, and municipal governments must work together to implement these policies as soon as possible to drive down emissions."
> (Source: Independent Assessment of Canada's 2023 Emissions Reduction Plan: A Progress Report (climateinstitute.ca), page 7)

The results of the independent assessment prepared by the Canadian Climate Institute reinforces CCET's mandate to accelerate home energy retrofits and advance district energy to reduce GHG emissions in the buildings sector through:

- energy efficiency improvements
- fuel switching away from fossil fuel for space heating and domestic hot water heating
- connecting buildings along low carbon thermal networks
- promoting on-site renewable energy generation, where appropriate.

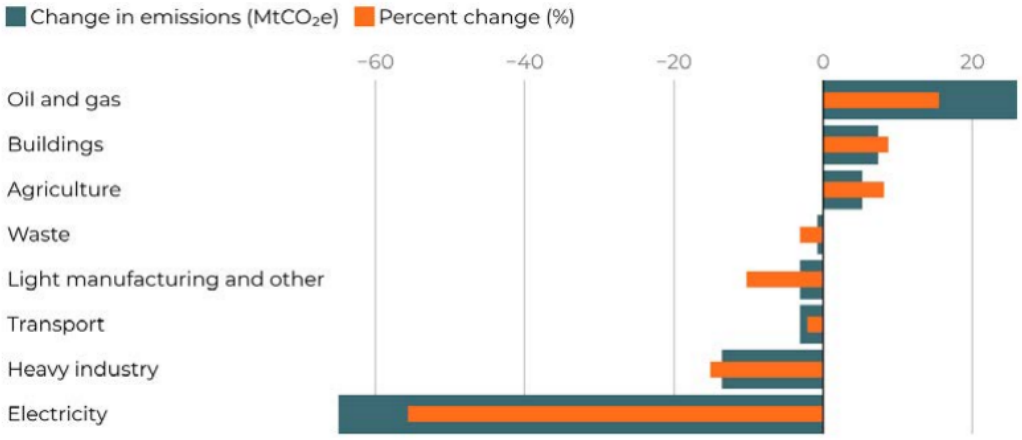


Figure 1 Sector emissions (nationally) from 2005 to 2022 showing GHG emissions from buildings continuing to increase.
Source: Canadian Climate Institute "Independent Assessment of Canada's 2023 Emissions Reduction Plan Progress Report".

According to the national greenhouse gas inventory, the Energy sector as a whole comprises 81% of total GHG emissions (see Figure 2 below) and contributed to most of the 8.4% in overall carbon reductions between 2005 to 2021. The national GHG inventory identifies a 16% decrease in carbon emissions from the 'Residential' sector and attributes this to a decrease in the consumption of light fuel oil in most provinces and territories. Switching away from light fuel oil for home heating has a clear rate of return and represents the "low hanging fruit" of home energy retrofits. Utility bill savings alone are often not a driver for home energy retrofits in most parts of southern Ontario.

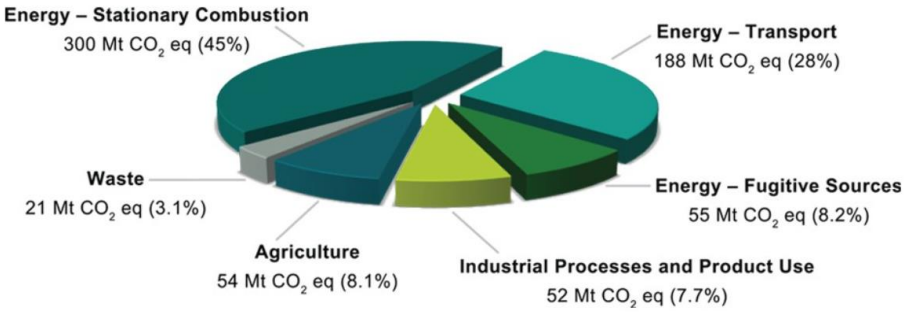


Figure 2 Total GHG emissions in the 2021 national inventory. The 'Energy sector' includes Stationary Combustion, Transport and Fugitive Sources as shown in the figure.

Next to fuel switching away from fossil fuels for electricity generation and transport, the International Energy Agency identifies "energy efficiency and behavioural change" as one of the most important decarbonization strategies.

Key behavioural changes in buildings and transport:

- Space heating temperatures moderated to 19-20 °C and space cooling temperatures to 24-25 °C on average by 2030
- Use of internal combustion engine cars phased out in large cities by 2030
- Eco-driving and motorway speed limits of 100 km/h introduced by 2030
- One-out-of-two long-haul business flights are avoided by 2040
  (Source: International Energy Agency Net Zero Roadmap – 2030 Update)

Co-benefits of CCET's Program Areas

The CDP (Climate Disclosure Project) reported on their findings of cities' tracking of climate mitigation co-benefits, which the CDP defined as "beneficial outcomes from action that are not directly related to climate change mitigation". Highlights of the CDP report include:

- Cities citing the co-benefits of their climate action reported 2.5 times more climate actions than cities that did not
- The top co-benefits of mitigation actions reported by cities were shifts to more sustainable behaviour (reported as a co-benefit for 39% of all mitigation actions taken by cities) and improved resource efficiency (33%), followed by enhanced resilience, improved public health and greening the economy.

We anticipate the following co-benefits of CCET's program areas working with municipal partners and stakeholders:

- Enhanced resilience (e.g. improved energy efficiency of the building stock and district energy will provide improved energy security and allow the option for residents to shelter in place in the event of extreme weather events)
- Health improvements (mainly through reduced air pollutants)
- Household financial savings through utility bill savings
- Stimulating the local economy
- Electricity load management as fuel switching away from fossil fuels places more demand on the electrical grid

CCET Value Proposition

CCET will deliver accelerated climate action working collaboratively with partners with a focus on being:

Practitioners	Staff are advisors serving the community and listening to community feedback to tailor program offerings
Convenors	We connect people and organizations for coordinated climate action
Agile	Our not-for-profit structure allows us to act and adapt quickly
Champions	Build momentum with all stakeholders and celebrate leadership
Fundraisers	We will secure external funding to advance CCET's mandate to work in the community

ORGANIZATION OVERVIEW

CCET is a not-for-profit, community-based organization that will accelerate our community towards a low-carbon future.

Vision, Mission, Mandate and Values

Vision:

A sustainable energy future.

Mission:

To lead an inclusive suburban energy transformation.

Mandate:

CCET's mandate is focused on convening partners to implement catalytic priorities to accelerate a community transition towards a low-carbon future. CCET's initial focus will be to collaborate with its municipal partners on:

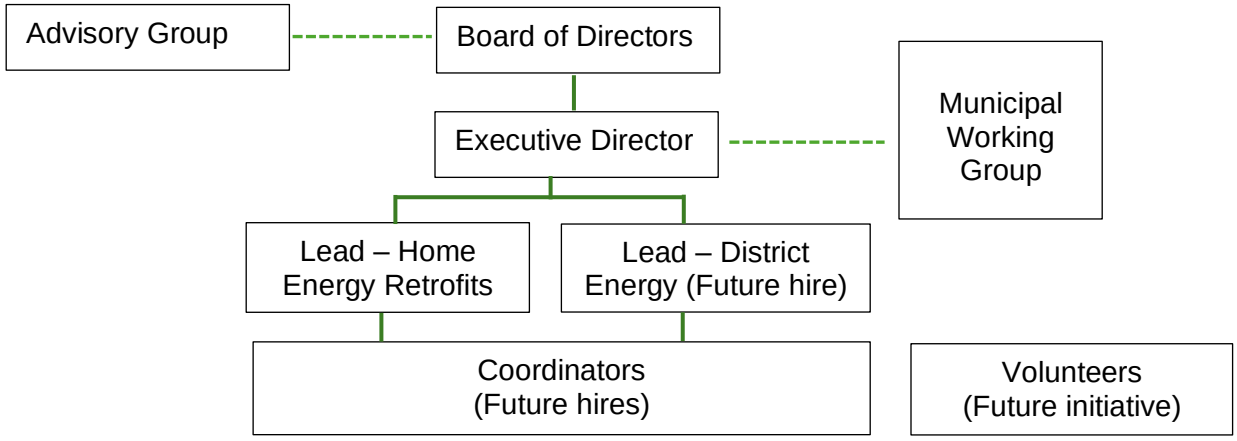
- Advancing Deep Home Retrofits
- District Energy Adoption
- Spurring Institutional, Commercial and Industry (ICI) Energy Efficiency
- Promoting Climate Change Related Outreach and Engagement

Values:

The work we do will:

Be informed by science.
Be replicable by other communities.
Have quantifiable, documented results.
Be collaborative with community partners to amplify our collective impact.
Ensure social justice and inclusivity.
Generate direct, local economic benefits.
Demonstrate the concept of circular economy and one planet living.
Provide educational benefits and engagement opportunities to our community.

People:



Strategic Map

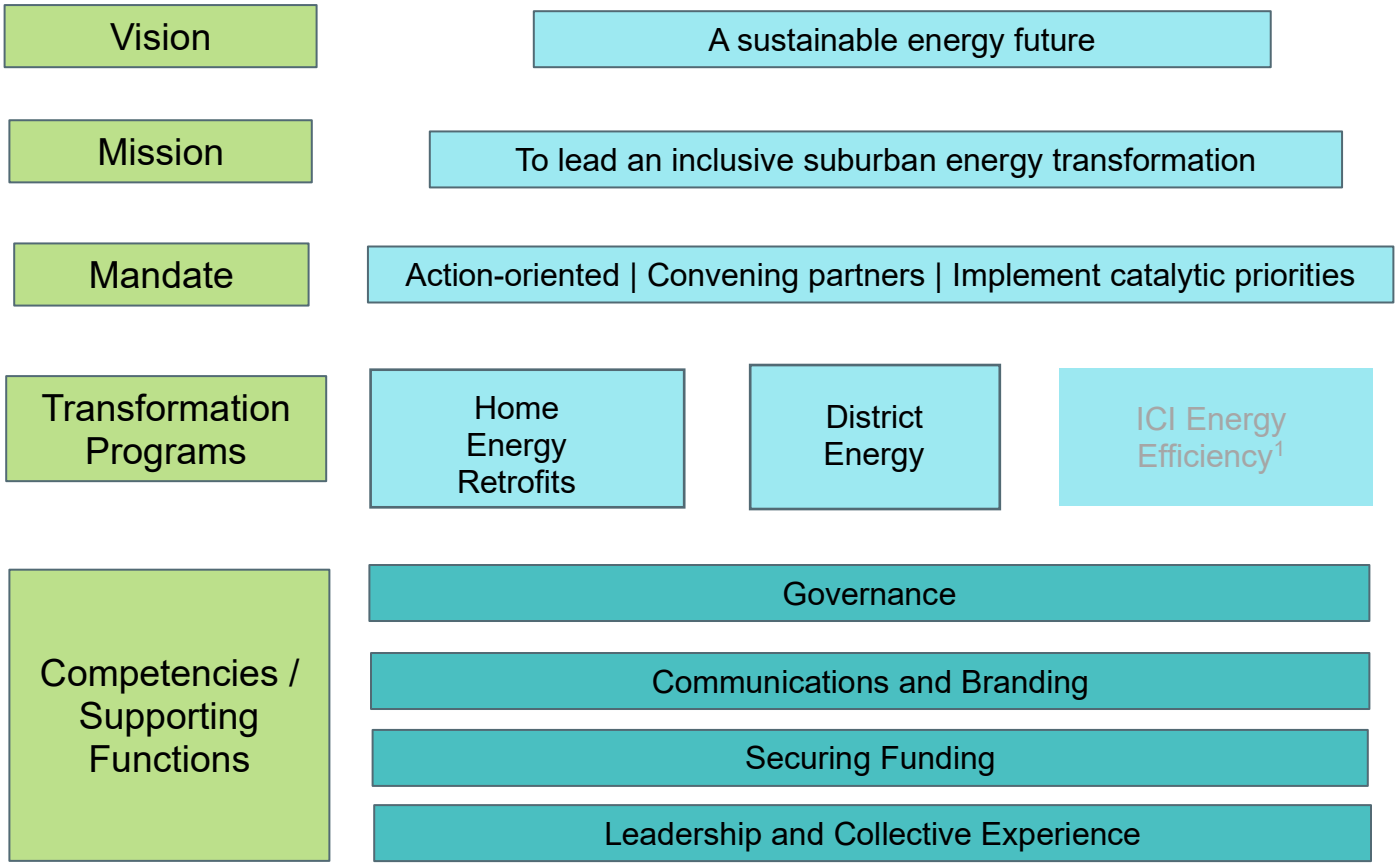


Figure 3 Strategic Map of CCET's Vision, Mission, and Mandate supported by competencies to deliver the transformation programs.
[1] Energy efficiency in the industrial, commercial and institutional (ICI) sectors is not a focus for the start of CCET's work program, but is an element of the effort to advance district energy and low carbon thermal networks.

CCET's 'competencies' shown in the Strategic Map (above) support delivery of the transformation programs.

Governance:

- Strong Board
- Advisory Group for community touch point and feedback
- Municipal Working Group to track performance on service level agreements
- Financial oversight and accountability

Communications and Branding

- Deep community engagement
- Use feedback from community and stakeholder engagement to adapt CCET efforts (action learning)

- Understand audiences to tailor messages from general awareness to targeted outreach

Secure Funding

- Leverage base funding from municipal partners to secure financial support from foundations and other levels of government
- Seek sponsorship opportunities
- Evaluate fee-for-service offerings consistent with the Vision, Mission and Mandate

Leadership and Collective Experience

- Maximize collaborations and partnerships to deliver GHG reduction outcomes and the energy transition
- Distribute leadership and program ownership for program success
- Identify workforce development opportunities

CONTEXT

As estimated by The Atmospheric Fund, the Greater Toronto and Hamilton Area (GTHA) now requires a 9% decrease in carbon emissions per year to meet 2030 targets

Carbon emissions in Brampton, Mississauga and Caledon (region of Peel) increased by 9% between 2021 and 2022 (The Atmospheric Fund 2023). Most of the increase is a result of the 'Buildings' sector (8.9% increase) and 'Transportation' sector (11.5% increase). While the population in the region of Peel increased by about 16,000 people or just over 1%, per capita emissions increased by 8.7% (see Table 1 below), from 6.9 tonnes CO2e (tCO2e) per person in 2021 to 7.5 tCO2e per person in 2022.

Table 1 Peel population and greenhouse gas (GHG) emissions in 2021 and 2022.

	2021	2022
People	1,499,917 (Census)	1,516,019 (Estimated)
Dwelling Units	450,740	455,673
GHG Emissions (tCO2e)	10,410,575	11,349,874
GHG Emissions per capita	6.9	7.5

Population estimates from Peel Region
GHG emissions calculations from The Atmospheric Fund

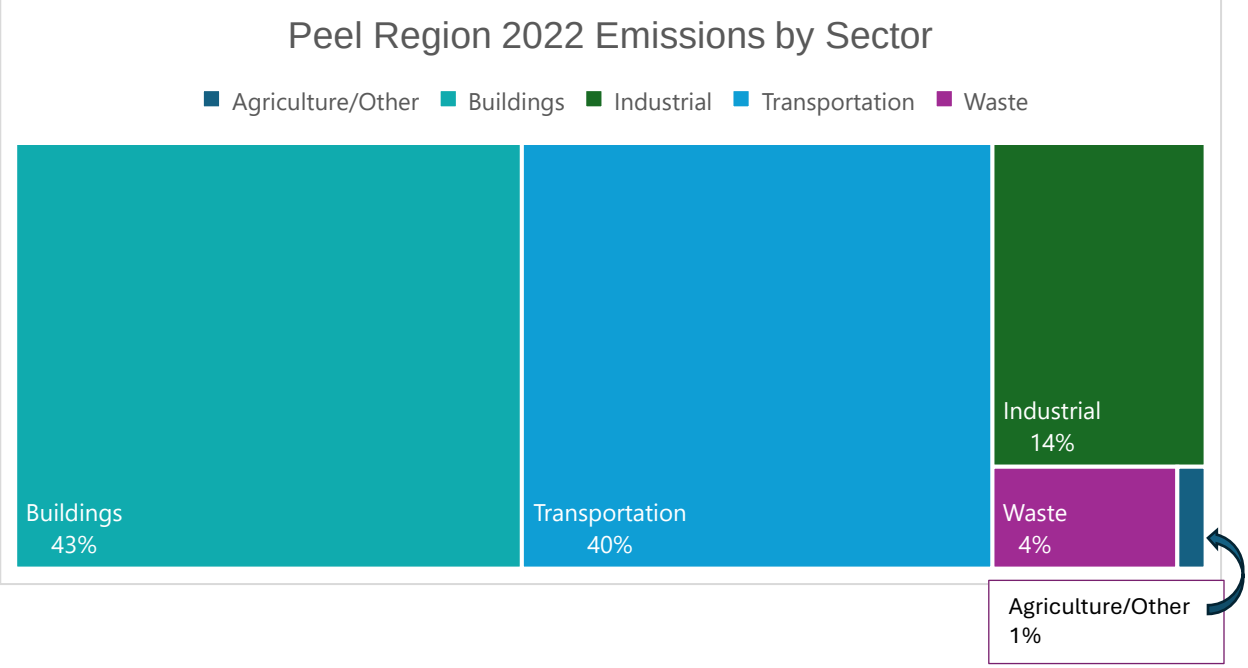


Figure 4 GHG emissions calculation for the region of Peel. Buildings = 4,832,828 tCO2e; Transportation = 4,483,331 tCO2e; Industrial = 1,546,952 tCO2e; Waste = 423,150 tCO2e; Agriculture/Other = 63,613 tCO2e.
(Source: The Atmospheric Fund)

Setting GHG Reduction Targets for Dwellings

A specific breakdown of GHG emissions from residential buildings in comparison to commercial and industrial buildings is not available across the region of Peel. As noted in the Brampton Community Energy and Emissions Reduction Plan (CEERP), it can be assumed that residential buildings account for over 20% of total carbon emissions, or about half of emissions from buildings are from dwellings. Given total building emissions of 4,462,584 tCO2e in 2021 (The Atmospheric Fund) and that half of the emissions are from residential buildings (~ 2,198,137 tCO2e from residential buildings in 2021), the average residential dwelling in the region of Peel emits about 4.9 tCO2e per year (2,198,137 tCO2e per year / 450,450 dwellings) based on 2021 data. [1]

If the average energy efficiency retrofit achieves a GHG reduction of 23% (see Green Communities report on average GHG reductions from retrofits across Canada), then the average retrofit reduces GHG emissions by 1.12 tCO2e in the region of Peel. This would require retrofitting on average over 142,000 dwellings each year to 2030, or retrofitting the entire building stock two and a half times, to achieve a 9% annual carbon emissions reduction from residential buildings.

Such a rate of retrofits from the residential building stock of 450,450 units (of which, approximately 360,000 are ground-related units), is not realistic. An alternative approach to setting GHG emission reduction targets for homes can include setting:

- a target retrofit rate that is a 'stretch' target based on retrofitting the entire building stock by 2050
- a target GHG emissions reduction per retrofit (on average)

Energy Retrofit Rate in the Region of Peel

CCET received EnerGuide audit data in May 2024 from Natural Resources Canada for energy audits completed between 2006 to 2024. Data for building type is not available for all records in the data received. As such, it is assumed that the EnerGuide audits are limited to singe detached, attached and town home dwelling types.

A total of 16,050 energy audits are recorded in the 19-year period from 2006 to 2024 (Figure 5). Years of highest recorded audits occurred in 2009 (2,846 completed audits) and 2023 (2,217 completed audits), which is the last year of complete data. All but three years recorded at least 100 completed energy audits. However, the number of audits varies considerably from year to year and likely tracks the available rebates from program offerings. For example, the number of energy audits increased from 2021 (870 audits), 2022 (1,174 audits) to 2022 (2,117 audits) and

[1] Statistics Canada calculates the average GHG emissions for Ontario dwellings to be 3 tonnes CO2 per household per year (Canadian System of Environmental-Economic Accounts – Energy use and greenhouse gas emissions, 2020). Until energy audit data is analyzed to inform the average household emissions, 4.9 tCO2 is used in this report.

likely reflects the awareness of available rebates from both the federal Greener Homes Program and the Enbridge Home Efficiency Rebate Plus program at that time.

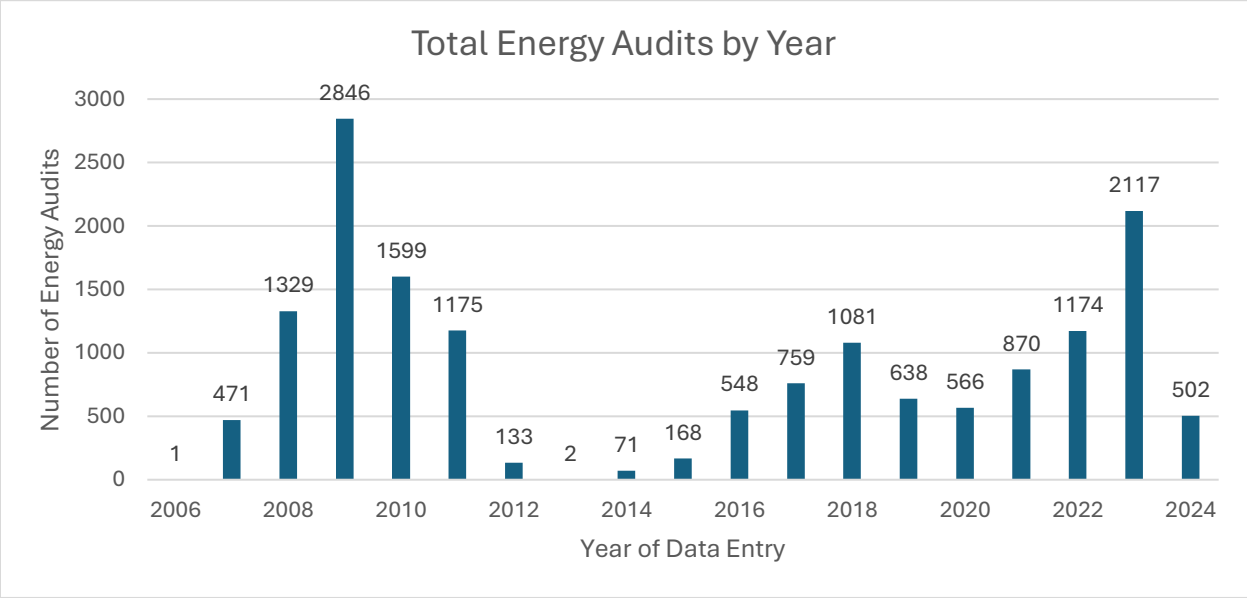


Figure 5 Number of energy audits completed by certified auditors by year. Source: Natural Resources Canada.

Average percent improvement in energy consumption from retrofit measures was also estimated using the EnerGuide data. Note that the energy consumption values are estimated from modelled results recorded in the EnerGuide audit data. Data was assessed by age of dwelling and is shown in Figure 6. Average improvements in energy consumption range from 15% to 30% (Figure 6). This generally agrees with the findings of Green Communities that evaluated an average 23% improvement in energy consumption for energy retrofits.

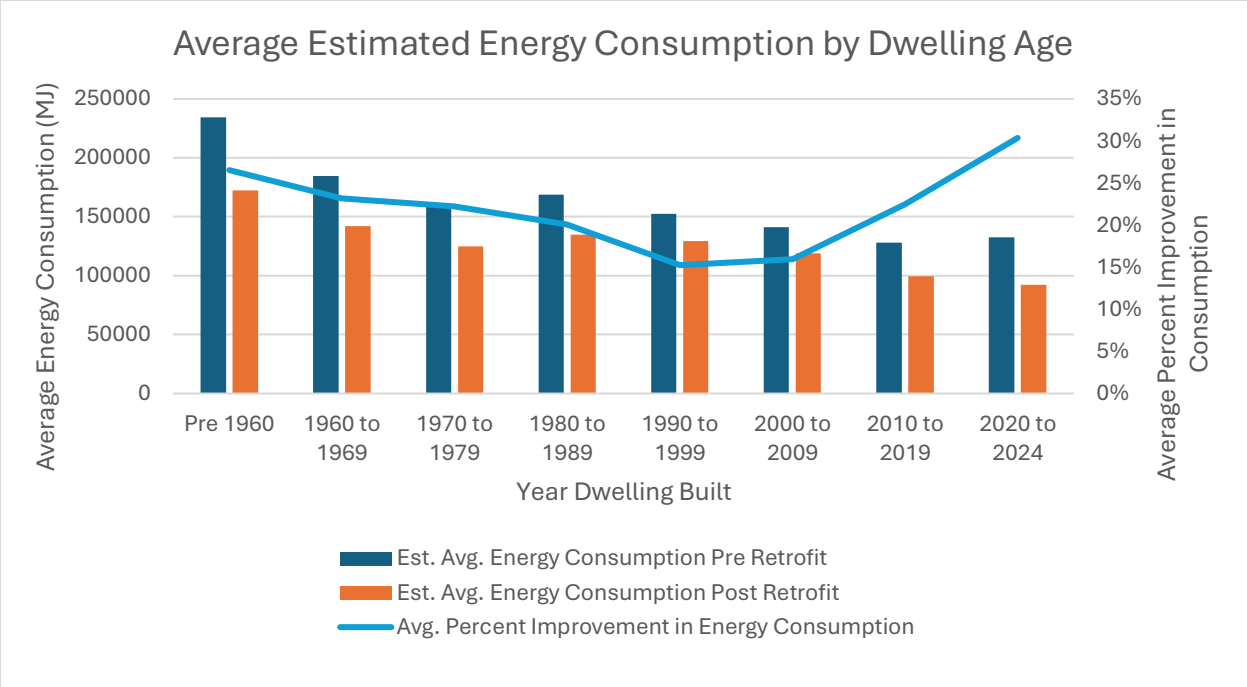


Figure 6 Average estimated improvement in energy consumption from home energy retrofits by age of dwelling. Source: Natural Resources Canada

The Region of Peel's Home Building Stock

Communicating the benefits of energy efficiency to increase the uptake of residential retrofits will require strategies for broad awareness as well as targeted messages. Information related to dwelling type, dwelling age and the geography of energy use is presented below to identify target audiences to accelerate home energy retrofits.

Low-rise dwelling types continue to be the most prevalent in Peel Region

Table 2 Residential dwelling unit breakdown for Peel Region based on 2021 Census information (450,450 total units).

	Mississauga		Brampton		Caledon	
	No. of Units	%	No. of Units	%	No. of Units	%
Single-detached house	90,660	37%	96,020	53%	19,120	81%
Semi-detached house	26,855	11%	24,750	14%	1,650	7%
Row house	34,455	14%	23,055	13%	1,825	8%
Apartment or flat in a duplex	7,895	3%	11,960	7%	335	1%
Apartment (< five storeys)	17,545	7%	8,045	4%	480	2%
Apartment (> five or more storeys)	66,830	27%	18,585	10%	255	1%
Other single-attached house	80	0%	35	0%	15	0%
TOTALS	244,320		182,450		23,680	

Source: Statistics Canada. Total dwellings = 450,450. Total single detached in Peel = 205,800 (46%)

Although intensification is underway in the region of Peel, low-rise dwelling units (detached, semi-detached and row houses) continue to make up the largest proportion of dwelling units: 62% in Mississauga; 79% in Brampton; and 96% in Caledon.

Table 3 Proportion of low-rise dwelling* units in the region of Peel.

	Mississauga	Brampton	Caledon
Detached	37%	53%	81%
Attached	25%	26%	15%
Apartment (<5 storeys)	10%	11%	3%

* Low-rise units total 364,780 and defined as detached, attached (e.g. semi-detached) and apartment building less than 5 storeys.

Most dwellings were built before the year 2000

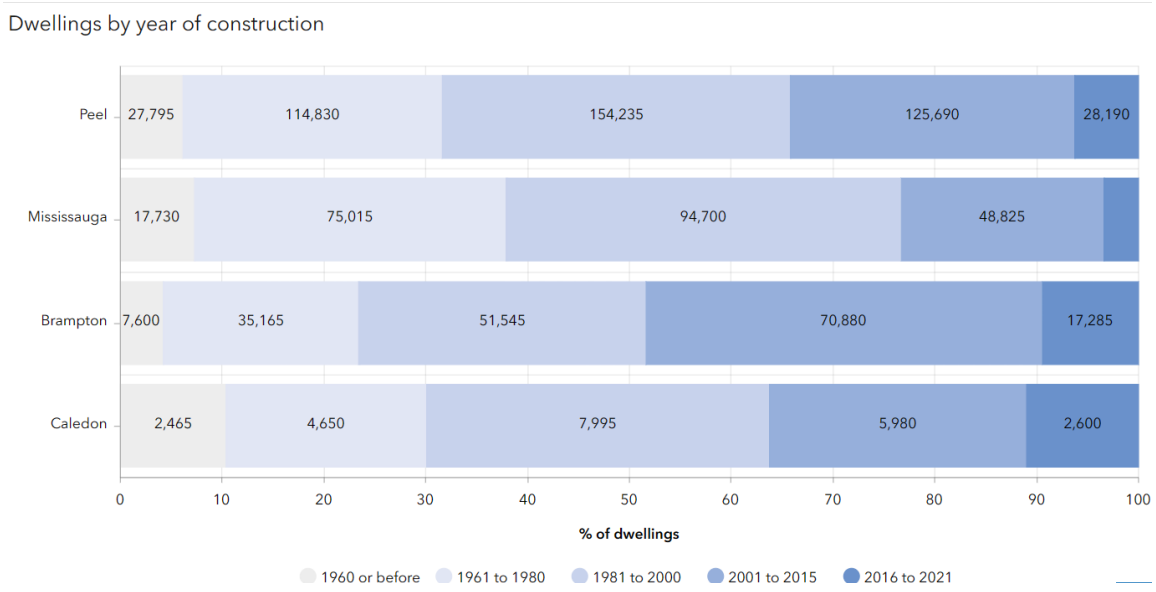


Figure 7 Dwellings by year of construction.
Source: Peel Region [Housing 2021 | Census Information Hub (peelregion.ca)].
NOTE: Peel Total from above = 450740. Built before 2000 = 296,860.

Most dwellings (66%) were built before the year 2000 (Figure 7), such that awareness of deep energy retrofits will be an important element of CCET's communications and marketing. Even low-rise dwellings built between 2000 to 2010 will require mechanical equipment upgrades and present an opportunity for fuel switching, although a limited opportunity for building envelope improvements.

Exploring areas of higher energy consumption as a focus for deeper community engagement

Areas of higher energy consumption or GHG emissions intensity will be a focus for communication tactics. Brampton's CEERP, for example, calculated energy use and GHG emissions for defined energy planning units (EPUs – see Figures 8 and 9 below). As CCET's community engagement deepens, such neighbourhoods can be a focus for communication efforts.

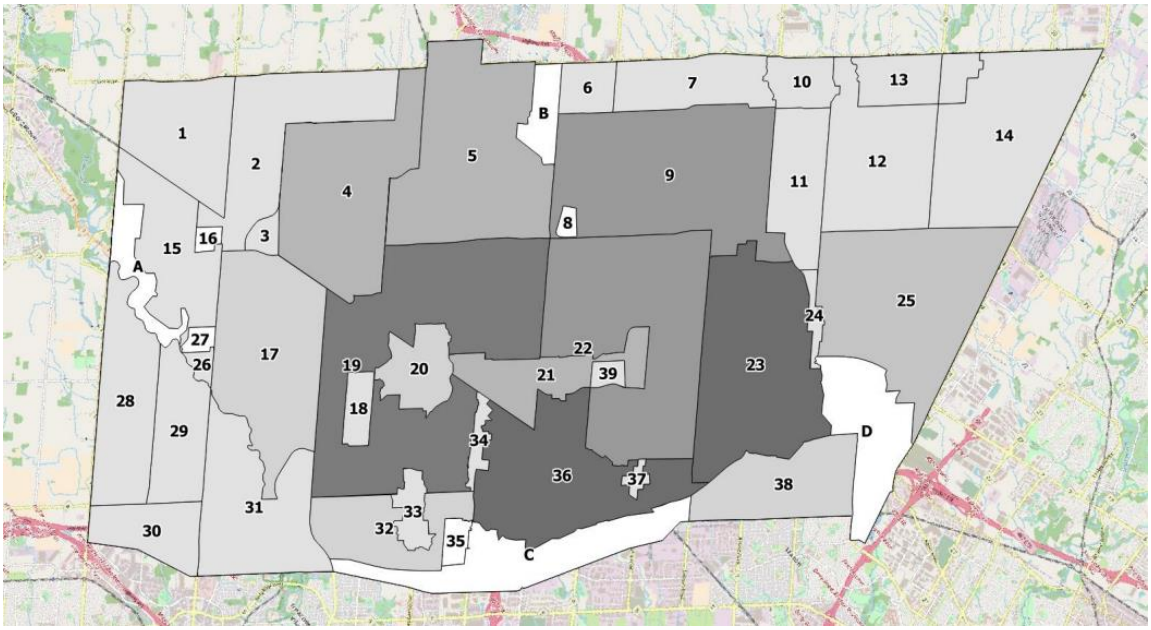


Figure 8 Energy planning units (EPUs) with higher energy consumption (darker shaded areas) from homes and buildings (2016 data). From Figure 7 in Appendix 2 (Analytical Report) of the Brampton CEERP.

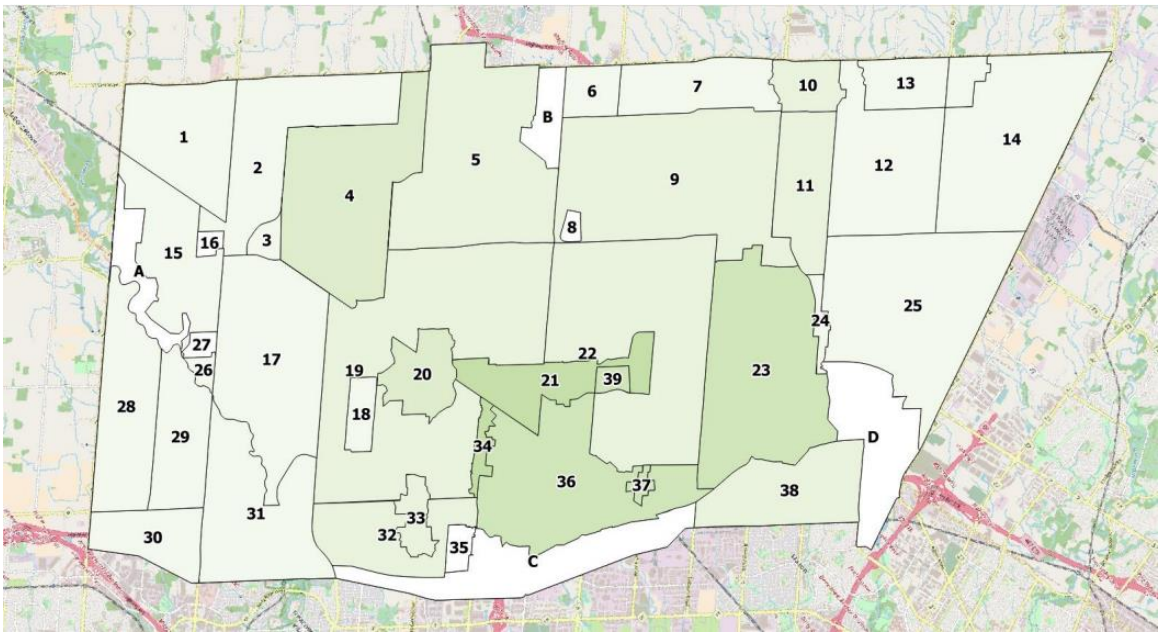


Figure 9 GHG emissions intensity (tonnes/square km) by EPUs. Darker areas represent higher emissions intensity. From Figure 18 from Brampton CEERP (Appendix 2).

Demographics of Households

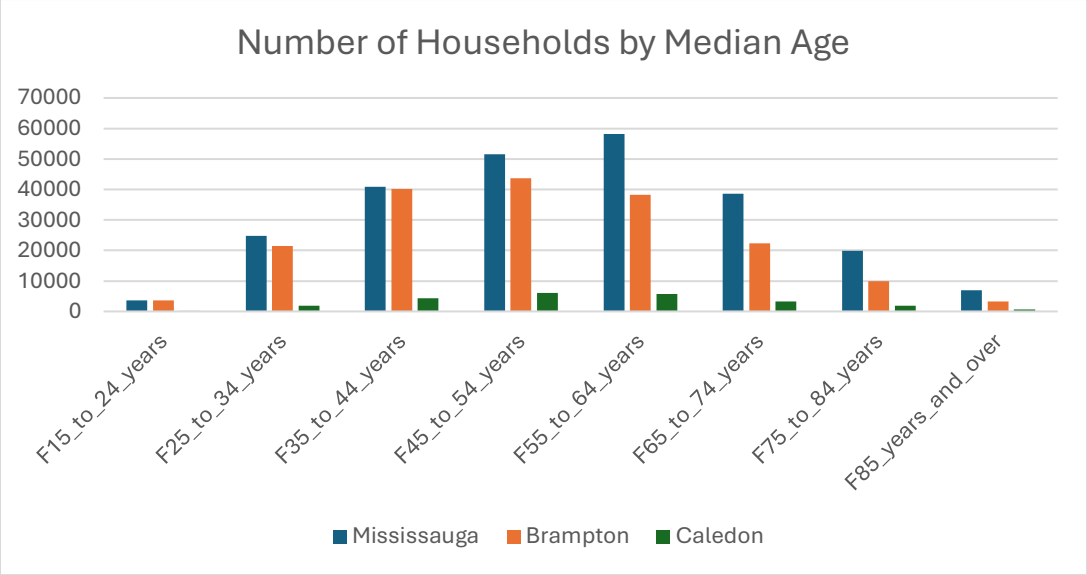


Figure 10 Median age of households in the region of Peel.
Source: Peel Region Census Hub. Includes all dwellings: 244,575 dwellings in Mississauga; 182,475 dwellings in Brampton; 23,700 dwellings in Caledon.

Dunsky Energy was contracted by the three municipal partners to provide a program design report for a future home energy retrofit program. The recommended target audiences described in the report by Dunsky Energy are consistent with the housing and demographic data presented above.

Primary Target Audience

- Homeowners with detached or semi-detached homes that are 10 years or older
    - Over 50% of dwellings in Peel Region were built between 1961 to 2000 and various systems and mechanical equipment will be coming due for replacement

- Homeowners between the ages of 30 to 60 (represents most homeowners as shown in Figure 10 above)
    - Primary motivation:
        - 30-39: First-time homebuyers who found a good deal on a home that requires repairs and upgrades.
        - 35-45: Homebuyers who bought a new property with the intention of renovating.
        - 40-60: homeowners with older homes that are due for home repairs and upgrades.
- Households with a combined income of $125,000 or more
- Households in areas of higher energy consumption and GHG emissions intensity

Secondary Audiences

- Prospective home buyers (tend to renovate within first 3 years)
- Homeowners experiencing a renovation emergency (facing unexpected expenses and will appreciate help)

Key Messages to Homeowners

- CCET can provide trusted advice on energy retrofits, including within the context of deep retrofits and a 'net zero journey'
- CCET can help homeowners navigate existing energy efficiency programs
- Give homeowners confidence in their decisions
- Give homeowners confidence in reducing GHG emissions and saving on utility bills

Addressing Energy Burden and Equitable Engagement

While the residential energy retrofit program should accelerate uptake by households with the financial ability to pursue renovations and to maximize GHG reductions, CCET and municipal partners must ensure that equity-deserving and income eligible households are able to benefit from available retrofit programs and incentives. A report by the American Council for an Energy-Efficient Economy (ACEEE, November 2023) notes the following main strategies to reach underserved households:

- Pursue equitable community engagement
- Establish a one-stop shop
- Create and disclose equity metrics
- Develop a diverse and inclusive energy efficiency workforce
- Tailor marketing based on customers' preferences and behaviours

> **Defining Energy Burden (Canadian Urban Sustainability Professionals)**
> Home energy cost burdens are reported as the percentage of total after-tax household income that is spent on home heating and electricity. For most Canadians, this value is below 3 per cent, which is to say that the median Canadian household spends less than 3 per cent of its after-tax income meeting its home energy needs.
> Households that spend more than twice this value on home energy services, can be said to experience high home energy cost burdens. For purposes of policy discussion, CUSP uses this 6 per cent threshold of home energy cost burden to define households that experience energy poverty.

Available data from Statistics Canada data (2020 data in 2021 Census) suggests that a proportion of households in Peel Region experience energy burden:

- 20% (Caledon) to 29% (Brampton) of owner-households spend 30% or more on shelter costs
- 37% (Brampton) to 40% (Caledon) of tenant households spend 30% or more on shelter costs
- 54% of households have an after-tax household income less than $100,000
    - Almost half of Peel's households have an after-tax household income greater than $100,000.
- The number of households in lower income groups has decreased since 2015.
    - However, 13% of households are living on less than $40,000 per year, although this is down from 20% of households in 2015.

Table 4 Shelter costs related to owner-households (Based on Statistics Canada Census data).

	Number of households spending 30% or more on shelter costs	% of owner-households with a mortgage	% of owner-households spending 30% or more on shelter costs	Average monthly shelter costs for owned dwellings
Mississauga	57695	60	24	$1,974
Brampton	49190	77	29	$2,304
Caledon	4680	64	20	$2,142

Source: StatsCan and Peel Region (Demographics | Data Portal - Peel Region).

Table 5 Shelter costs related to tenant households (Based on Statistics Canada Census data).

	% of tenant households spending 30% or more on shelter costs	% in core housing need	Median monthly shelter costs for rented dwellings	Average monthly shelter costs for rented dwellings
Mississauga	39	28	$1,600	$1,650
Brampton	37	27	$1,520	$1,628
Caledon	40	26	$1,740	$1,776

Source: StatsCan and Peel Region (Demographics | Data Portal - Peel Region).

Definition of Shelter Costs Used by Peel Region

Shelter costs for owner households include:	Shelter costs for renter households include:
• Mortgage payments • Property taxes • Condominium fees • Costs of: electricity, heat, water, and other municipal services	• Rent • Costs of: electricity, heat, water, and other municipal services

Median After-Tax Household Income

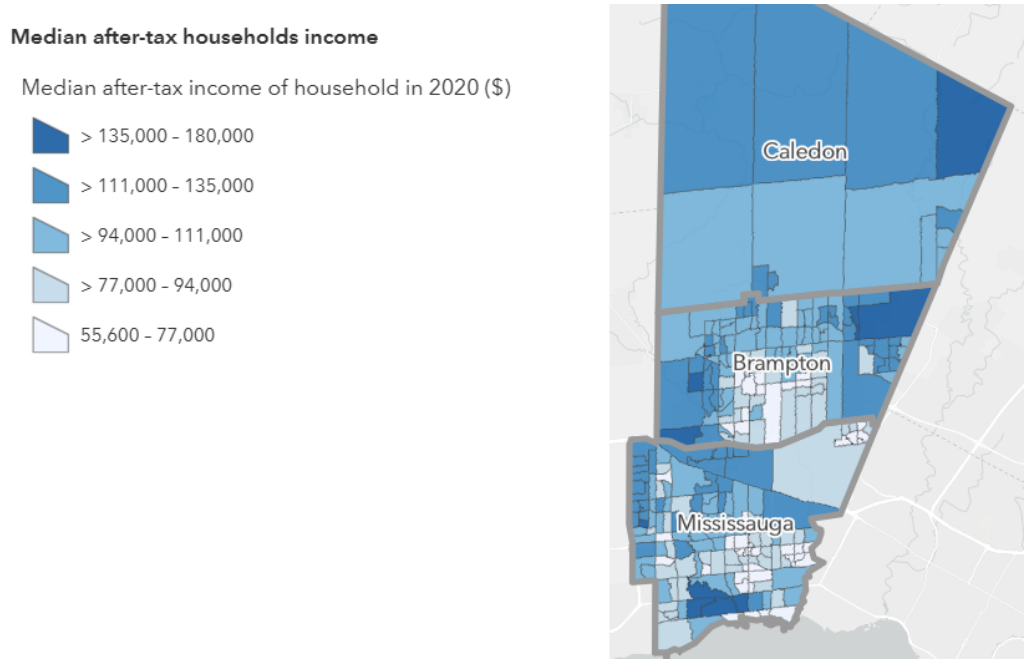


Figure 11 Median after-tax household income by census tract (2020 data).

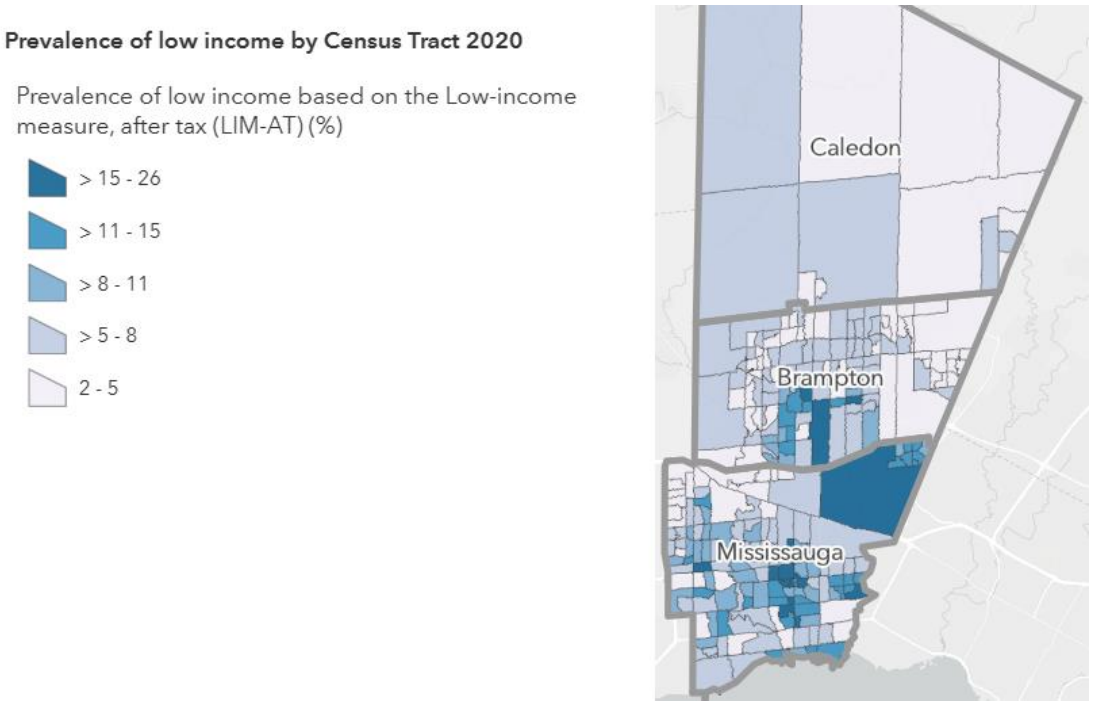


Figure 12 Prevalence of low income households by census tract (2020 data).

Figure 13 Example of mapping energy poverty showing the proportion of households by census tract spending (estimated) more than 15% of after tax income on energy bills. Source: Canadian Urban Sustainability Professionals.

Nationally, about 25% of households in single detached dwellings experience energy burden (CUSP Backgrounder) and a greater proportion of households (22% to 27%) in homes built before 1980 experience energy burden. CUSP (2019) also note that many modest-income households also experience energy burden. This reinforces the need for CCET to obtain better local information on energy burden to best tailor program offerings.

The available information is not sufficient to allow CCET to tailor the home energy retrofit program to ensure equitable access. CCET will pursue the steps below to improve our understanding and approach of equitable engagement to address energy burden:

- Identify and engage community groups that represent underserved communities to inform CCET's program offerings to benefit equity deserving groups and identify collaboration opportunities
- Identify leadership steering opportunities as part of the administration of CCET's home energy retrofit efforts
- Undertake stakeholder consultation to identify workforce development opportunities
- Work with community groups to create equity metrics for regular disclosure as part of CCET's regular reporting on progress
- Update energy poverty mapping for Peel Region

Commercial and Industrial Sectors

Energy efficiency in the industrial, commercial, institutional (ICI) sector is identified as a program area in the strategic framework prepared by the Community Task Force. At this time, it is not a priority for CCET, although business types and locations factor into the efforts to advance and design low carbon district energy systems. As such, a high-level scan of the ICI sector is provided at this time and will be further developed in the future.

City of Brampton

The City of Brampton's Economic Development department provides a summary of key sectors in the City (Source: Key Sectors - City of Brampton | InvestBrampton).

Advanced Manufacturing

- 1,500 companies employing over 30,000 people
- Leading advanced manufacturing companies in Brampton include:
  Stellantis Canada • Brampton Assembly ABB Inc. • Brican Automated Systems Armacell Canada Inc. • Matcor Automotive Inc. • Velcro Canada Corp. Amcor Packaging • Shepherd Thermoforming & Packaging • Aircraft Appliance & Equipment Ltd • MDA ClimateWorx, a Div. of the BEMPRO Global Group • Almag Aluminum Brannon Steel • Gray Tools Canada Inc

Food and Beverage

- 8,500 people employed in over 300 companies

Health and Life Sciences

- 2,300 companies employing over 13,000 medical practitioners and support services
  - doctor's offices to global players in medical research and devices including Medtronic (HQ), Taro Pharamaceuticals (HQ), Dynacare, Canadian Blood Services

Innovation and Technology

- Over 6,500 companies employing over 13,000 people, including
  Air Canada • Rogers Communications • Canon Canada • Amazon • MDA • Survalent • IT Weapons (Konica Minolta)

Logistics

- Over 11,000 companies and 24,000 employers
- Amazon • M-O Freight Works (HQ) • DHL Express Canada (HQ) • CEVA Logistics • Indigo Distribution and Support Centre • Day and Ross Inc. • Hopewell Logistics Inc. • Speedy Transport Group Inc. (HQ) • CN Intermodal • DICOM Express • Allied Systems Canada Company

City of Mississauga

The City of Mississauga profiles the following key sectors (Industries – Invest Mississauga):

- Advanced manufacturing
- Financial services
- Life sciences
- Smart logistics
- Technology
- Creative industries

The following geographic areas have the highest concentrations of businesses according to the available Business Directory:

- Northeast Employment Area (West) – generally immediately west and north of Pearson Airport
- Meadowvale Business Park - Hwy 401 and Mississauga Road area
- Gateway Employment Area (East) – southwest corner of Hwy 410
- Airport Commercial Centre
- Downtown Core

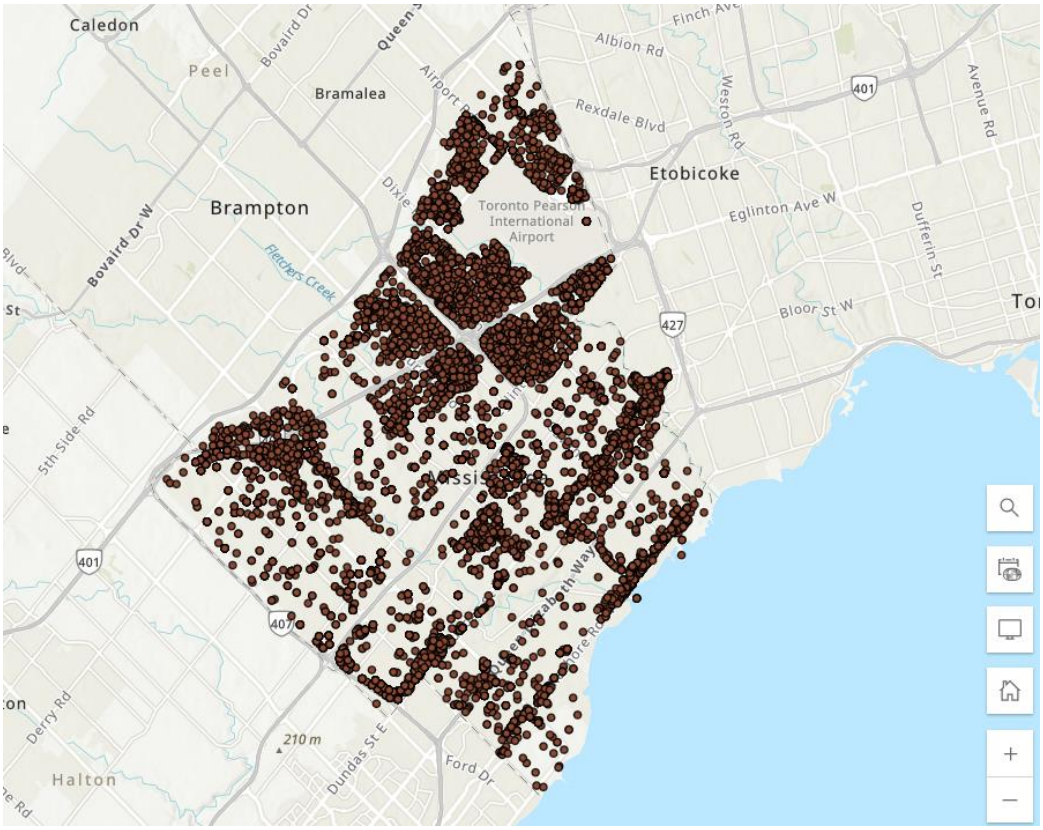


Figure Business locations in the Mississauga Business Directory. Source: (2023 Mississauga Business Directory | Mississauga Open Data Catalogue)

SYSTEMS CHANGE THEORY

Policy Scan

CCET will monitor select policy initiatives that support implementation of CCET's mandate. Opportunities to advance policy instruments will be assessed, including in consultation with the CCET Advisory Group and partners.

Moving Towards Net Zero Standards in the National Building Code (NBC)

- Potential changes to be introduced in the NBC include:
    - Technical requirements to address the energy efficiency of existing buildings and standards for operational GHG emissions in the 2025 NBC
    - Embodied carbon requirements for the 2030 NBC

  Source: June 9, 2023 article in ConstructConnect

Decarbonizing the Electricity Grid Through the National Clean Electricity Regulations

- The proposed regulations aim to decarbonize the national electricity grid by limiting the carbon emissions of electricity generating units starting in 2035

Climate Bylaws Under the Municipal Act, 2001

- The Municipal Act, 2001 grants municipal jurisdiction related to the environment and climate action. In particular, Section 11(2) provides that a "lower-tier municipality and an upper-tier municipality may pass by-laws" respecting "Economic, social and environmental well-being of the municipality, including respecting climate change." (Subparagraph 5 of s. 11(2))
- CCET is not aware of a specific climate change by-law endorsed in a municipality. Source: Canadian Environmental Law Association, Publication No. 1484

Adoption of Municipal Green Development Standards

- Green development standards are widely used in Ontario municipalities to improve the sustainability of new construction. Green standards are an important policy and implementation tool to set out standards to achieve net zero energy buildings. (Source: Clean Air Partnership GDS Briefing Note)
- The Planning Act, 1990 retains the ability to address sustainable design through Site Plan Control, while policy support is also provided broadly in the Municipal Act, 1990.
- Status of municipal partners' green standards:
    - City of Brampton: The Sustainability Metrics is endorsed by Council, including a pathway to net zero energy buildings.
    - Town of Caledon: Recently approved Green Development Standards came into effect as of July 1, 2024. (Source: Climate-Friendly New Development | Have Your Say Town of Caledon previously Future Caledon (haveyoursaycaledon.ca))
    - City of Mississauga: All new residential and non-residential Site Plan Applications submitted after March 1, 2025, will be required to conform to the mandatory Green Development Standards. (Source: Mississauga Green Development Standards Update | City of Mississauga)

Energy Benchmarking of Buildings as a Driver of Efficiency Retrofits

- Efficiency Canada describes building energy benchmarking as "a powerful tool to drive the desired rate and depth of retrofits, while addressing the numerous barriers to increasing the energy and emissions performance of existing buildings".
- The City of Toronto has recommended a Building Emissions Performance Reporting By-law that would apply to all buildings 929 square meters (~10,000 square feet) and larger, which would predominantly include buildings from the commercial, multi-residential, institutional, and industrial sectors. The implementation of mandatory emissions performance standards for all existing buildings is described as the most important of the actions in the City's Net Zero Existing Buildings Strategy.

CCET as an Intermediary Organization

Many climate action areas require a high degree of coordination and collaboration between community partners. CCET's two main program areas, accelerating home energy retrofits and advancing district energy systems, are examples of the coordinated effort that is required:

- The "building-by-building" approach to home energy retrofits requires ongoing coordination with an ecosystem of implementation partners including energy auditors, contractors, manufacturers, the real estate sector, and the financial sector, among others.
- The "neighbourhood decarbonization" approach in advancing district energy and low carbon thermal networks as solutions integrates underground infrastructure planning and maintenance, growth and development planning, and financial investments.

The Peel Climate Change Partnership has been leading a coordinated effort since 2011. Current priorities include:

- Flood Resiliency, led by Credit Valley Conservation
- Green/Natural Infrastructure, co-led by Toronto and Region Conservation Authority (TRCA) and the Region of Peel
- Low Carbon Communities, co-led by TRCA, Town of Caledon and the Region of Peel

CCET can fulfill a role as practitioners and as a "middle actor", as described in Hamilton et al. (2014), to contribute to the coordinated action required for the energy transition:

> "middle actors are neither energy suppliers, consumers nor regulators, but rather actors who shape energy consumption patterns and practices. For example, architects and planners are middle actors because they shape the built environment – materials and design – in which energy is consumed. This framework provides a lens to explore the "middle-out" influence of middle actors: "downstream" (for example, on the energy use of end users, such as householders), "upstream" (for example, on policy and government) and "sideways" (on other local and middle or midstream actors)."

The following principles guide CCET's collaborative and "middle-out" efforts:

- Take an "action-learning" approach in the engagement with residents, partners and stakeholders (Complex Systems Change Starts with Those Who Use the Systems (ssir.org))
- Target the deeper root causes of the problem, rather than the symptoms (Small Organizations: The Change That Systems Change Needs (ssir.org))
- Remain rooted in action and put users at the heart of design
- Fulfill the role as a catalyst for action (Calvert 2024)

AUDIENCE ASSESSMENT

Equitable Access to Energy Efficiency Programs

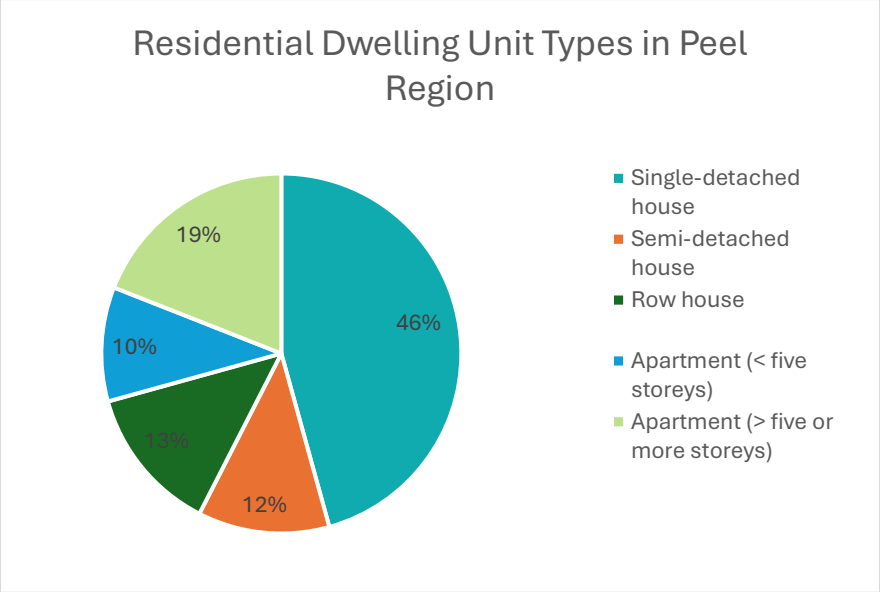
CCET will continue to engage and learn from community groups that represent equity-deserving and underserved groups to determine how we can tailor service offerings to improve equitable access to energy efficiency programs. Importantly, this will inform how CCET and partners approach potential funders to address equity-deserving groups and energy burden, including being open to developing 'turnkey' solutions with implementation partners.

Peel Region's Community Investment Program initiated the Community Response Table (CRT) in March 2020 in response primarily to the COVID-19 pandemic. The CRT is a group of diverse partners, currently over 150, that tracks and monitors the needs of the community and coordinates responses on critical and current issues.

Energy Retrofits of Low-Rise Residential Dwellings

The residential building stock is outlined in the Context section above. As noted in the program design report by Dunsky Energy, CCET's marketing approach to accelerate home energy retrofits will consider that:

- 46% of residential dwellings are single detached homes
- 66% of dwellings were built before 2000
- The median age of a majority of homeowners is between 35 to 64 years of age



Building Owners and Property Managers in District Energy Priority Areas

CCET will convene stakeholders to support the development of business cases in district energy priority areas. Building energy and emissions profiles will be developed as part of business case for low carbon district energy.

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