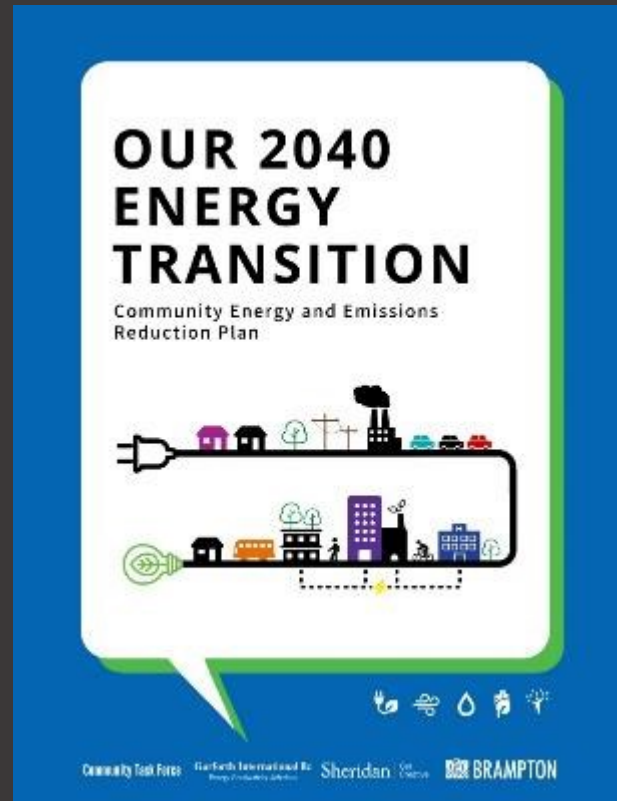


Community Energy & Emissions Reduction Plan

BEAC
October 13, 2020



CEERP

- Partnerships
- Foundational document
- History of municipal leadership on climate change



CEERP: Brampton's Response to the Climate Emergency

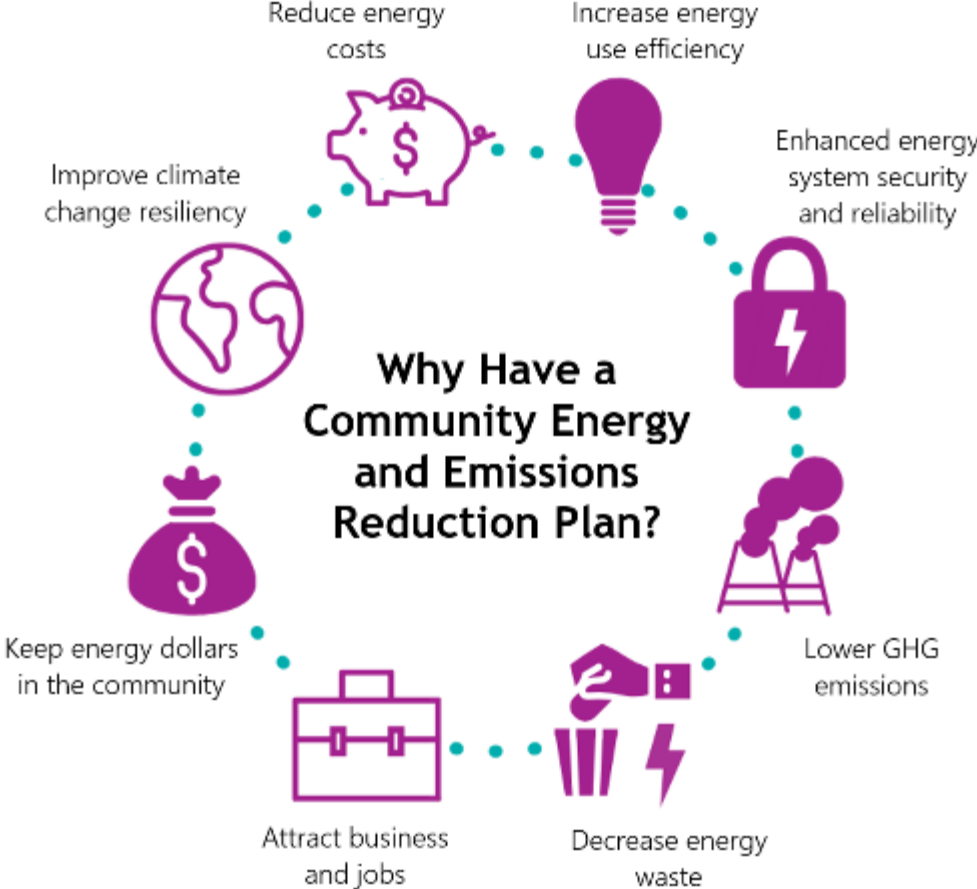
Brampton City Council Declares Climate Emergency

by Dylan Olley on June 6, 2019
in News, Hot Topics, Politics

Like Share Tweet



The Brampton City Council is looking to take action against climate change.

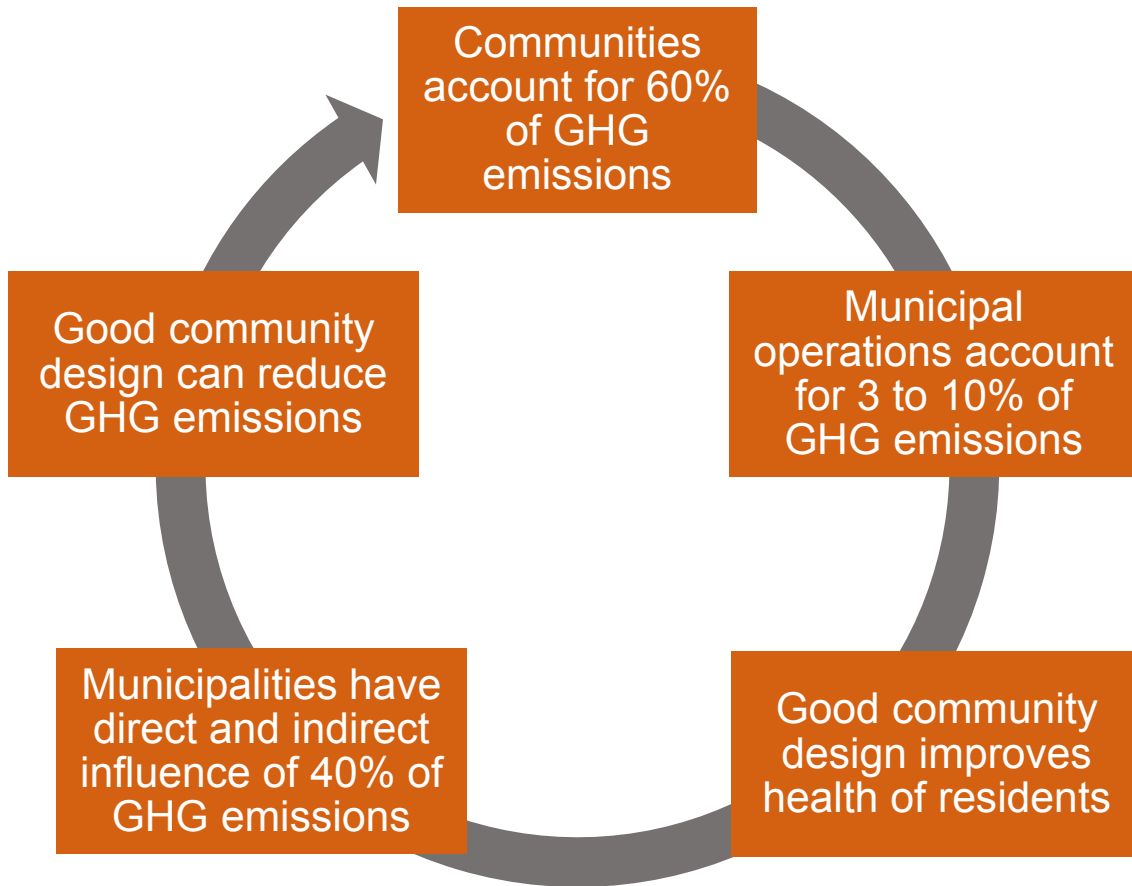


Co-Benefits

- Environmental
- Social
- Health
- Economic



Local Planning Matters



- Economic, environmental, social, and cultural outcomes:
- Healthier communities, denser, convenient, more housing choices, local jobs
- More transit, cycling, and walking
- Reduced energy costs
- Attract new business and create green jobs
- Improve building energy efficiency
- Achieve international GHG reduction targets
- Increase energy security
- Enhance climate change resilience

Community Task Force

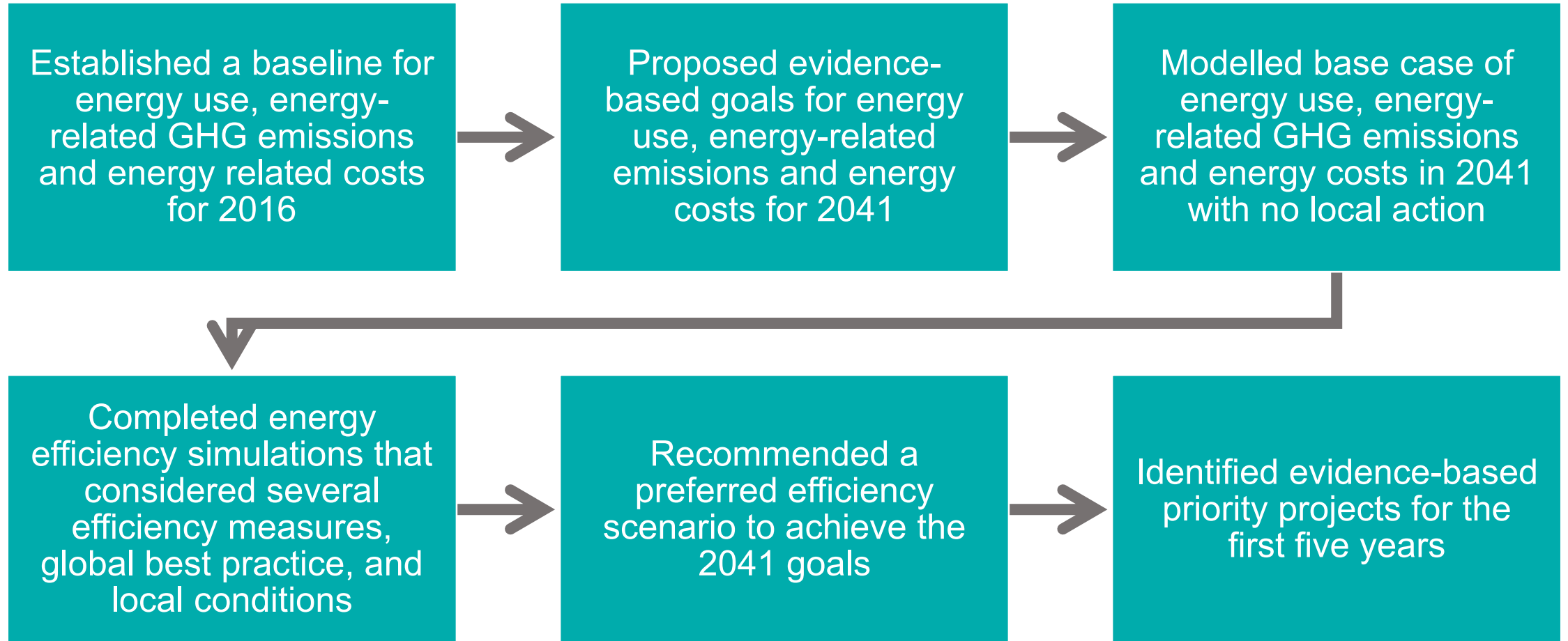


Engagement

- Council workshops
- Departmental/divisional consultations
- Environment Advisory Committee meetings
- Stakeholder presentations (Association of Energy Engineers, Partners in Project Green, BILD, York University)
- CEERP Task Force meetings
- Nordic City Solutions workshop
- Grow Green Team meetings
- Community Survey
- Mapping workshop
- Public events (tree plantings, open houses, Vision Celebration, Public Works week, Heart Lake Run, Farmers Market)
- Public information sessions
- Social media (Twitter, Instagram, Facebook)

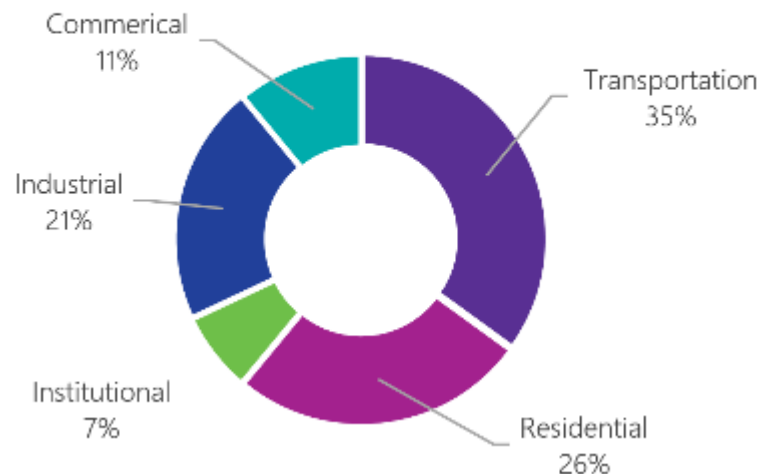


Evidence Based Process

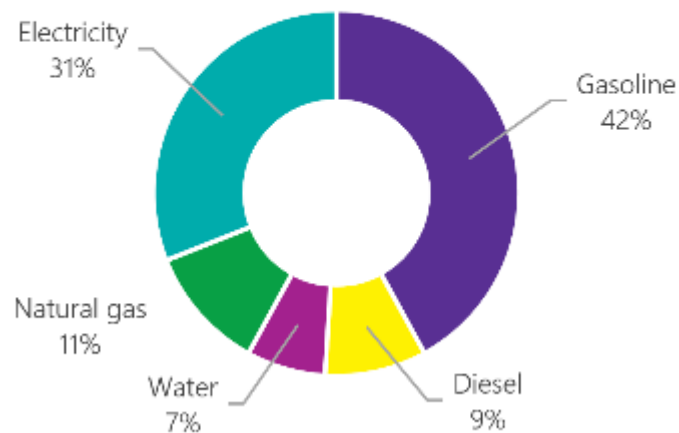


2016 Base Case

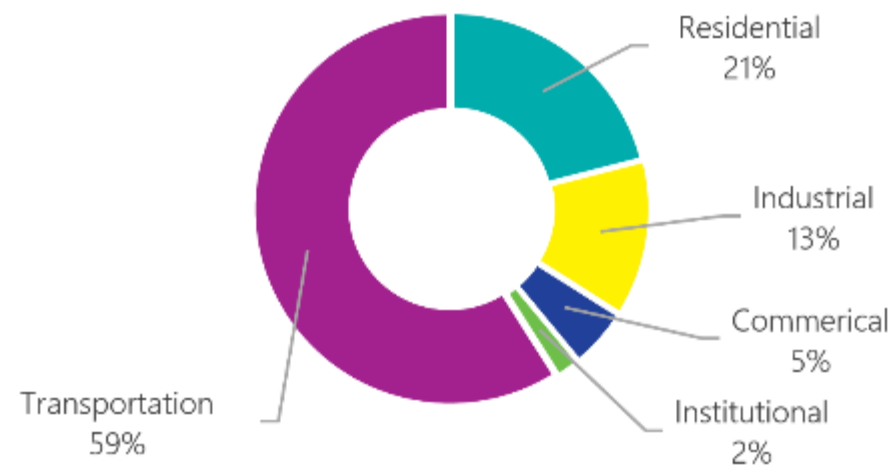
Brampton Source Energy Use by Sector, 2016



Brampton Energy Costs by Utility, 2016



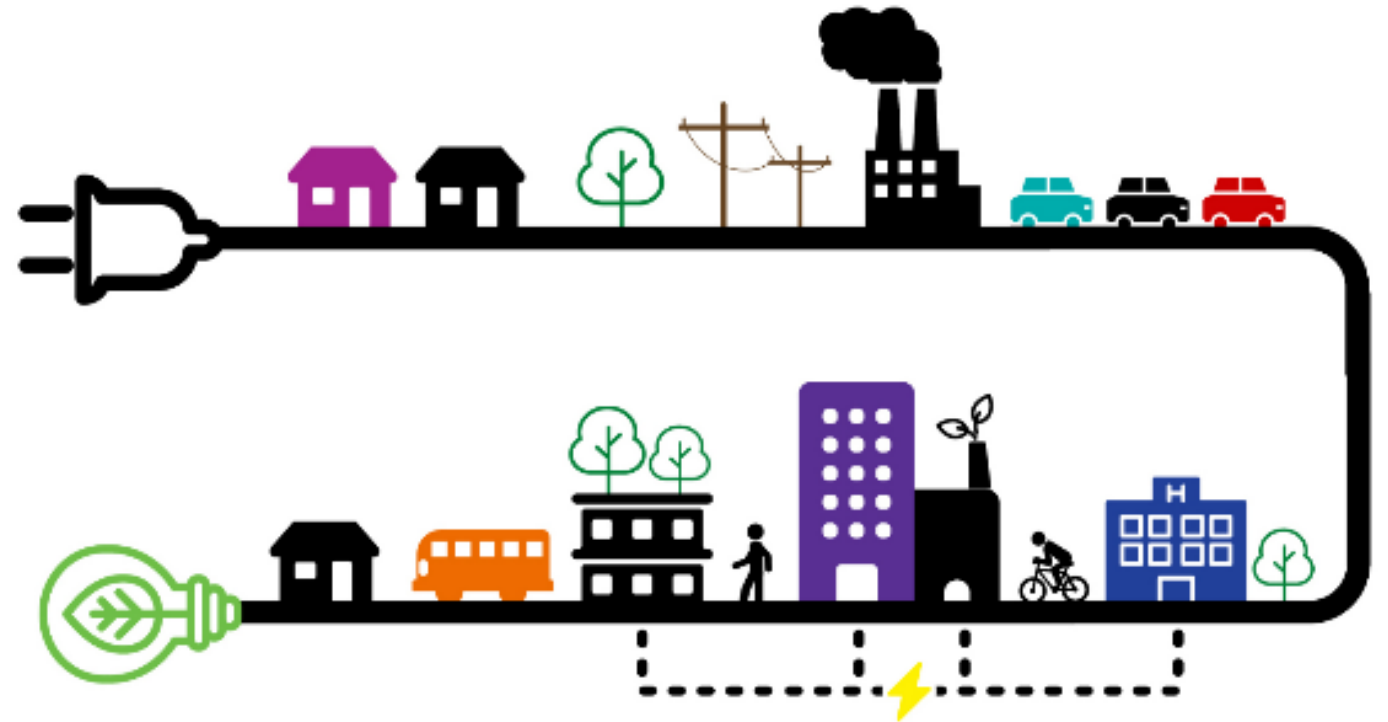
Brampton Emissions by Sector, 2016



CEERP Framework

Addressing the Climate Change
Emergency requires:

- Urban transition
- Energy transition
- Community commitment and collaboration



ENVIRONMENTAL

Work towards climate neutrality

ENERGY

Benchmark energy performance against global best practice

ECONOMIC

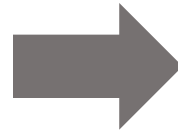
All energy related public and private sector investments will meet acceptable risk-adjusted returns

Energy costs will be competitive compared to comparable North American communities

Local employment will be generated

RELIABILITY

Energy systems will be designed to meet the challenges of changing user expectations, climate uncertainty and new technology options



Energy

Based on global best-practices, reduce community-wide energy end use by at least 50% from 2016 levels by 2041.

Emissions

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.

Economic

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

Strategic Directions



**GREEN
COMMUNITIES**



**TRANSPORTATION
EFFICIENCY**



**HOME AND BUILDING
EFFICIENCY**



**LOCAL ENERGY SUPPLY
AND DISTRIBUTION**



**INDUSTRIAL
EFFICIENCY**



**GREEN
INFRASTRUCTURE**



**COMMUNICATION,
ENGAGEMENT, AND
MONITORING**

2041 Targets

Green Communities

- Attain near net-zero GHG emissions for new communities in Heritage Heights, and new buildings in Town Centres and Major Urban Growth Areas

Home and Building Energy Efficiency

- **Retrofit 80% of homes to achieve a 35% efficiency gain**

Transportation

- Reduce trip lengths by 3.75%
- Increase Active Transportation to 7%
- Increase trips using Brampton Transit to 9%
- Increase trips using GO transit to 8.5%



2041 Targets

Industrial Efficiency

- Achieve a 20% industrial sector efficiency gain from 2016 levels

Energy Supply and Distribution

- Increase solar energy by 8%
- Serve 80% of new growth areas with district energy
- Serve 70% of existing high growth areas with district energy

Green Infrastructure

- Plant 1 million trees by 2040
- Increase restoration and enhancement management to 45 ha/year
- Determine dollar value for the city's natural assets



Priority Projects

1. Ensure City of Brampton policies and programs are aligned with supporting the CEERP objectives and targets;
2. **Establish a system to deliver standardized retrofits to Brampton homes;**
3. Update the Transportation Master Plan (TMP) to reflect complete streets and the integrated nature of mobility and built form;
4. Integrate District Energy Systems in appropriate locations within Brampton;
5. Develop Integrated Energy Master Plans for public facilities and private development; and
6. Establish a Community Organization to lead the development and implementation of select priority projects (CCET).

Action Plan

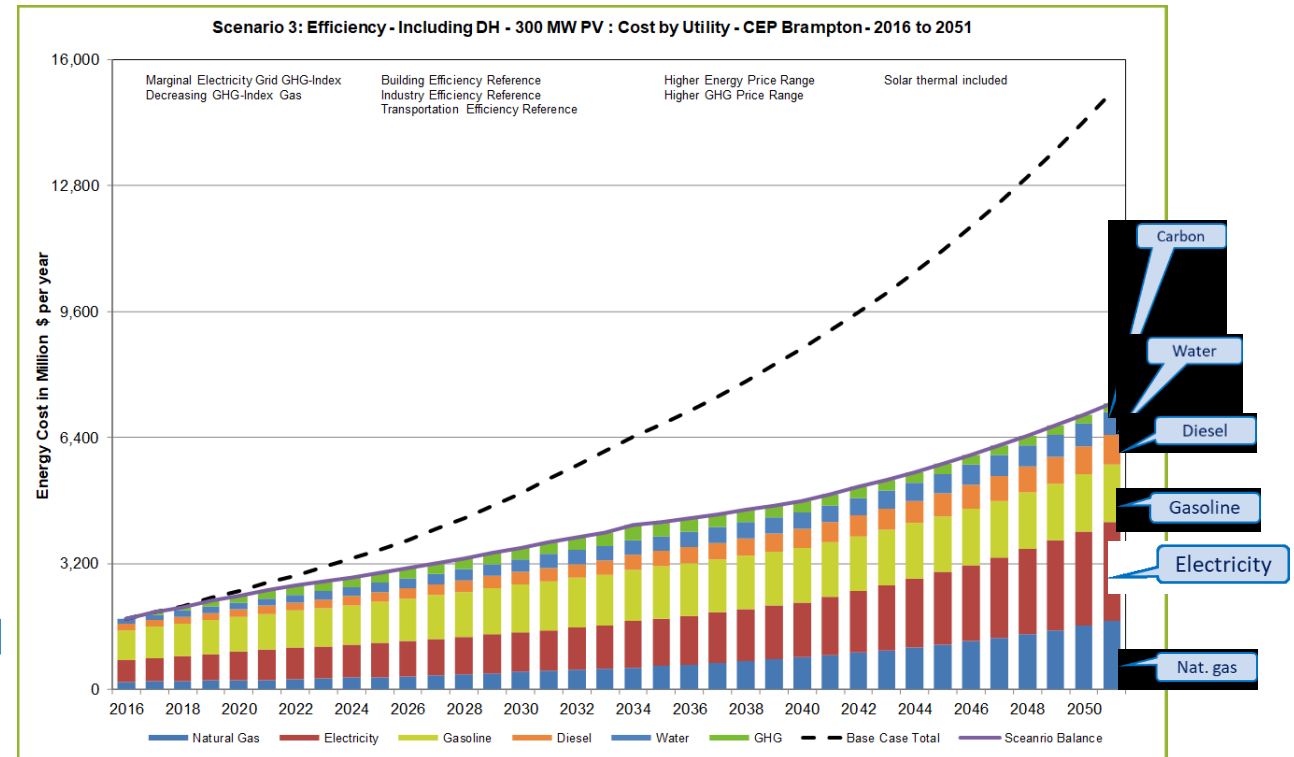
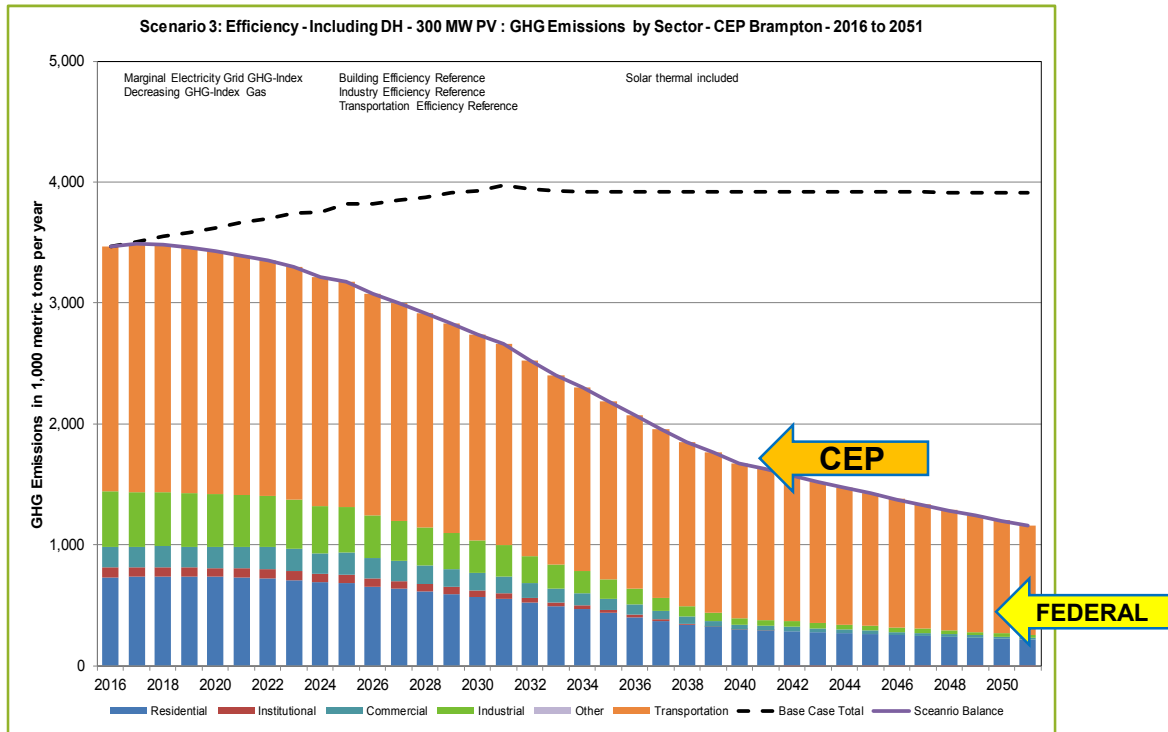
- Five year action plan
- Actions for each strategic direction
- Identifies leads and partners
- Example actions:
 - Implement Active Transportation Master Plan
 - Integrated Energy Plan for Shoppers World redevelopment
 - Launch electric buses and charging stations
 - Grow City-owned EV Charging stations
 - Update City's Sustainability Metrics
 - Undertake Heritage Heights Community Energy Plan

Local Energy Supply and Distribution				
#	Action	Lead	Partner(s)	Timeline
Corporate				
5.1.1	Complete Integrated Energy Management Plans for priority municipal facilities to align with the targets of the Corporate Energy and Emissions Management Plan 2019-2024: A Zero Carbon Transition and the CeEMP. ¹	COB	COMM, DEV	Medium-term
5.1.2	Investigate distributed energy options for City facilities, including solar, geothermal, and waste heat recovery.	COB	COMM	Medium-term
District Energy				
5.2.1	Develop business cases for District Energy System, including but not limited to, low carbon fuel options (e.g. geothermal, heat recovery, wastewater heat recovery, solar PVT, and hybrid of PV and thermal) in areas identified in the CDEEP energy district mapping. ²	COMM	COB, DEV, ROP, BUS	Short-term
5.2.2	Investigate the requirements for the use of City road right-of-ways for the purposes of installing district energy infrastructure. ³	COB	ROP	Medium-term
5.2.3	Develop a Business Case for establishing a district energy company to distribute thermal energy to homes and buildings. ⁴	COM	COB, ROP, UI	Short-term
5.2.4	Identify and pursue opportunities for combined heat and power (CHP) partnerships for district energy. ⁵	COB	COMM	Medium-term

Industrial Efficiency				
#	Action	Lead	Partner(s)	Timeline
Corporate				
6.1.1	Implement an economic development marketing campaign highlighting Brampton energy advantages as an incentive to locate business in this city.	COB	COMM	Medium-term
6.1.2	Establish or join an existing community of practice for facility energy managers from public and private sectors to share local industrial energy management expertise.	COMM	BBOT, DEV, RPPG	Short-term
6.1.3	Develop a comprehensive inventory of large energy users in Brampton.	COMM	COB	Medium-term
6.1.4	Develop a comprehensive inventory of "green" employers in Brampton.	COMM	COB	Medium-term

CEERP: Energy and Emissions

- GHG Emission reduction of 50% by 2041
- Potential cumulative energy savings of \$26 billion by 2040



Resolution

- Community Energy and Emission Reduction Plan and its Priority Projects be endorsed by Council;
- commit staff resources and capital funding towards the immediate development and implementation of the Community Energy and Emissions Reduction Plan's six priority projects, which include:
 - Ensuring the City of Brampton policies and programs align with supporting the CEERP Objectives and Targets;
 - **Establishing a system to deliver standardized retrofits to Brampton homeowners;**
 - Updating the Transportation Master Plan (TMP) that prioritizes safer, healthier and more environmentally efficient movement of people which also reflects complete streets and the integrated nature of mobility and built form;
 - Integrating District Energy Systems in appropriate locations within Brampton;
 - Developing Integrated Energy Master Plans for public facilities and private development; and
 - Establishing a community organization to lead the development and implementation of select priority projects.
- That the following interim and total targets be approved:
 - to reduce greenhouse gas (GHG) emissions by 30% from 2016 levels by 2030;
 - to reduce greenhouse gas (GHG) emissions by 50% from 2016 levels by 2040, and
 - to establish a pathway to reduce greenhouse gas (GHG) emissions by at least 80% by 2050; and
- That staff be directed to update the Official Plan, as part of the Brampton 2040 Official Plan Review, to reflect the principles, goals, strategic directions and targets of the Community Energy and Emissions Reduction Plan

Moving Forward

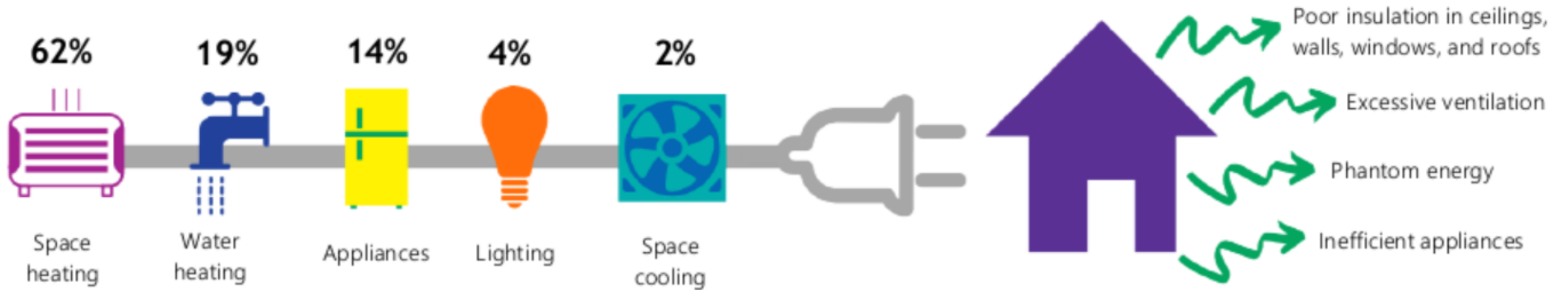
- Municipal resources through corporate Green Team
- Implement Action Plan
- Implement Priority Projects
- Ensure municipal policy/program alignment
- Work to establish CCET
- Develop District Energy Business Case
- **Continue to develop Home Retrofit Business Case**
- Monitor progress/report back
- Communication/outreach



Home Energy

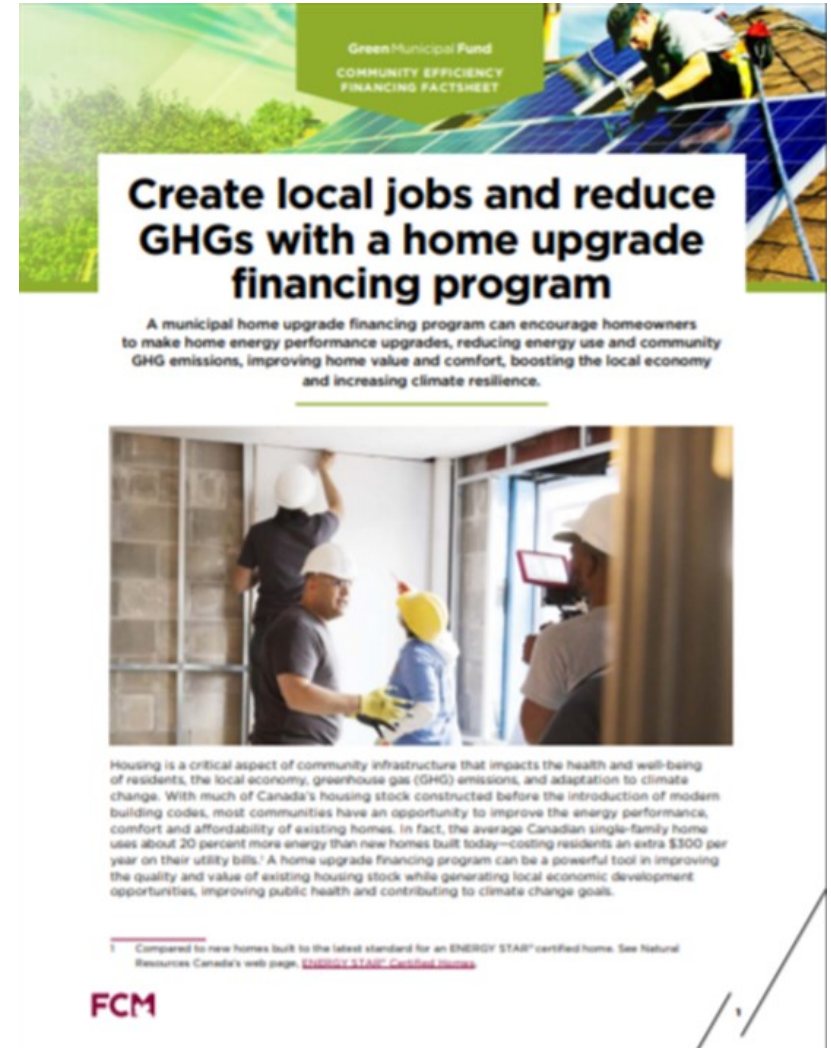
How Do Canadian Homes Use Energy?

How Do Canadian Home Lose Energy?



Residential Energy Efficiency Program


- On average, homes and buildings in Brampton are approx. half as efficient as global benchmarks
- Residential buildings: 2nd highest energy use, energy cost and emissions
- Funding Opportunity with the Federation of Canadian Municipalities (FCM) to design a home retrofit program
- Brampton, in partnership with Mississauga and Caledon, is submitting a funding application to complete a **design study in 2021**.
 - The **Design Study** will use market information and research to advance the design of a home retrofit program to meet the needs and priorities of the three regional partners



Green Municipal Fund
COMMUNITY EFFICIENCY
FINANCING FACTSHEET

Create local jobs and reduce GHGs with a home upgrade financing program

A municipal home upgrade financing program can encourage homeowners to make home energy performance upgrades, reducing energy use and community GHG emissions, improving home value and comfort, boosting the local economy and increasing climate resilience.



Housing is a critical aspect of community infrastructure that impacts the health and well-being of residents, the local economy, greenhouse gas (GHG) emissions, and adaptation to climate change. With much of Canada's housing stock constructed before the introduction of modern building codes, most communities have an opportunity to improve the energy performance, comfort and affordability of existing homes. In fact, the average Canadian single-family home uses about 20 percent more energy than new homes built today—costing residents an extra \$300 per year on their utility bills.¹ A home upgrade financing program can be a powerful tool in improving the quality and value of existing housing stock while generating local economic development opportunities, improving public health and contributing to climate change goals.

¹ Compared to new homes built to the latest standard for an ENERGY STAR[®] certified home. See Natural Resources Canada's web page, [ENERGY STAR[®] Certified Homes](#).

FCM

Home Retrofit Program

What is a home retrofit program?

- A financial program that drives investment in home energy performance upgrades

Three main types:

- **Property Assessed Clean Energy (PACE)** - most popular option. Uses a municipality's local improvement charge (LIC) mechanism for loan repayment. In this program, a homeowner hires a contractor to upgrade their home and the contractor invoice amount is financed with an annual charge on the property tax bill.
- **On-bill repayment financing** - allows the cost of the home energy upgrade to be repaid via the homeowner's utility bill. This type of program requires the close participation and partnership of a utility company.
- **Direct lending** - occurs when a municipality works with a credit union or bank to offer a financial product customized for home energy upgrades. Municipalities can often offer a partial loan guarantee to a lending institution in exchange for attractive rates, good terms, and a convenient homeowner application process.



Benefits of a Home Retrofit program



Value for homeowners

- An energy-efficient home is more **comfortable, healthier and affordable**
- A well-designed financing program can offer a comprehensive suite of services **to make upgrading a home simple and easy**
- Municipalities are uniquely positioned to offer services and programs that give homeowners **confidence and peace of mind to undertake a home energy retrofit**



Climate action and economic recovery

- Home retrofit programs can have deep **and lasting environmental and economic benefits**
- They can **drive significant investment in the local economy** by engaging local energy advisors, suppliers, and contractors to help homeowners save energy



Community resiliency

- A home retrofit program can encourage homeowners to invest in measures that will **protect homes from extreme weather events** like wind storms, heavy rain, flooding and heat waves **while improving energy efficiency**

Value Proposition

A **HOME RETROFIT PROGRAM** that can reduce energy consumption and GHG emissions while addressing a number of other public policy goals:

- **Economic development and job creation:** Local contractors complete the home energy upgrades, which means more money circulates in the community.
- **Addressing energy poverty and social equity concerns:** Programs can target low-income homeowners, offering an opportunity to lower energy bills.
- **Neighbourhood revitalization:** Programs can focus on improving the health and vitality of specific neighbourhoods, achieving savings on energy upgrades by targeting groups of homes to create economies of scale.
- **Public health:** Retrofitted homes have better comfort and indoor air quality, improving the health and well-being of residents.

How can BEAC help ?

- Support and promote the CEERP benefits to your networks
- Support the establishment of a Residential Energy Efficiency Program (REEP)
- Promote the REEP and its benefits to Brampton to your networks
- Participate in engagement activities in establishing the REEP

Thank you

Pam Cooper

Senior Environmental Planner

Public Works and Engineering

pam.cooper@brampton.ca

905.874.2265

