

COMMUNITY ENERGY & EMISSIONS REDUCTION PLAN

Executive Summary



Context

Climate change is a threat to all life on the planet and to people's livelihoods. To address this crisis, we must urgently reduce carbon emissions and prepare for the consequences of a warming planet. Ontario has already seen these consequences through the increasing severity of rain, snow, ice and wind events, greater temperature fluctuations and extremes, changing wildlife migration patterns, and the growing presence of vector-borne diseases. In the next quarter century, it is expected that the types of climate change impacts and their severity will increase. These impacts all come at a significant cost to municipalities, residents, and businesses, and inaction will be expensive.

A global shift towards a low-carbon economy is underway, primarily motivated by the urgent need to address the mounting risks and impacts of climate change. A transformation in our urban and energy systems towards low or zero carbon systems is needed to address this climate emergency. This transformation will see changes in how we design our cities and neighbourhoods, how people and goods travel, the supply and distribution of our energy needs, how we build our homes and buildings, the production and supply of goods and services, how we manage our waste, and more. A clean energy and urban transition is already underway, locally and globally. With the Brampton 2040 Vision and the Community Energy and Emissions Reduction Plan (CEERP), Brampton is positioning itself well to address the climate emergency. However, acceleration is needed to reduce the cost of climate change inaction, and fully realize the economic, social and environmental opportunities of this transition.

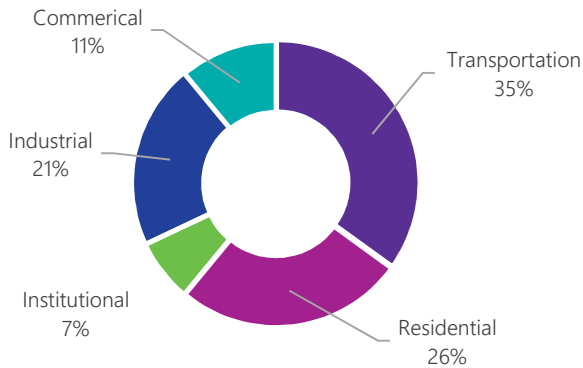
A significant economic opportunity exists to make a clean energy transition. Eliminating wasted energy and localizing energy production will provide an enhanced economy in Brampton. This will directly contribute to more localized jobs, higher property values, lower property taxes, and lower costs of living over the long-run. Currently, not only is a good portion of energy wasted by inefficiency, but the majority of dollars spent on energy end up in the pockets of other communities. This reveals a significant economic opportunity for Brampton to capitalize on by working to retain and recirculate more of these energy dollars within the community, leading to the creation of more local jobs, new industries and economies, greater savings for local business operations, and more affordable living for residents.

“This is not just about coping with climate change, but prospering through it.”

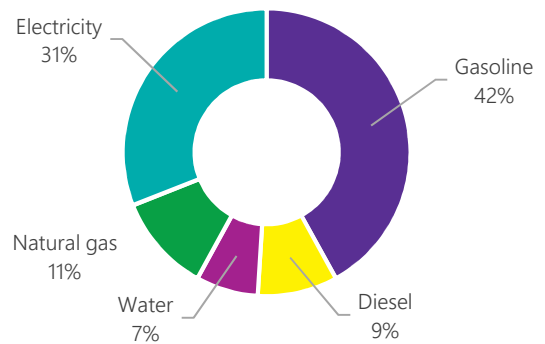
- Canada's National Round Table on the Environment and the Economy, 2012



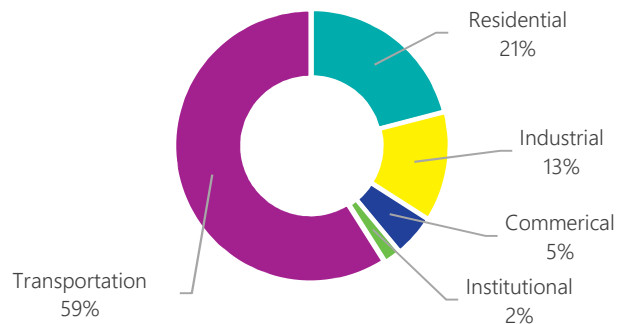
Brampton Source Energy Use by Sector, 2016



Brampton Energy Costs by Utility, 2016



Brampton Emissions by Sector, 2016



Brampton's Community Energy and Emissions Reduction Plan establishes an evidence-based strategy to reduce emissions in Brampton

In 2015, the Paris Agreement, a historic international agreement, was signed in Paris by 195 countries to hold “the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change.”

Since then, over 1,468 jurisdictions in 28 countries have declared a climate emergency, including 501 Canadian municipalities. In June 2019, Brampton City Council voted unanimously to declare a climate emergency. The Region of Peel, in solidarity with its local municipalities, also declared a climate emergency in October 2019. This is a call to action for all sectors of society – government, business, the community and individuals.

Considering 60% of energy consumption and over half of all greenhouse gases (GHG) in Canada are influenced by communities - for instance, the transportation of people, goods, and services, the powering of local industry, and the heating, cooling, and lighting of homes and buildings - all levels of government are enabling local action on climate change. As a signatory to the Paris Climate Agreement, the Canadian federal government set a target to reduce national GHG emissions by 80% below 1990 levels by 2050. In 2016, the Pan-Canadian Framework on Clean Growth and Climate was approved. Putting a price on carbon has been an important part of the Government of Canada's Climate Action Plan. The Province of Ontario has also committed to reducing GHG emissions to 30% below 2005 levels by 2030 and in 2018 released Preserving and Protecting our Environment for Future Generations: A Made-in-Ontario Environment Plan.

Addressing climate change is accelerating a shift by communities to also examine the challenge of a clean energy transition and to create community energy plans. Over 400 Canadian communities have developed community energy plans to establish local priorities for reducing energy use and energy-related emissions.

The Community Energy and Emissions Reduction Plan establishes an integrated strategy that allows Brampton to benefit economically from its energy transition.

Reducing climate change helps capitalize on multiple benefits, such as health and wellness, social equity, environment and economic opportunities, and is one of several reasons driving communities to undertake energy planning. Communities must ensure they are well positioned to manage the risks and opportunities associated with the current global energy transition, one that is moving towards a more distributed energy system. Action on climate change is one central factor towards this transition. Other factors include the:

- decreasing costs for technologies that generate and distribute energy locally;
- convergence of communication and energy technologies, commonly referred to as “smart-grid”;
- growing systemic inefficiencies in our current centralized energy system; and
- need to increase community resiliency by addressing escalating concerns about energy security, which includes consumer issues of affordability, accessibility and reliability.

**Our community spends
\$1.8 billion
on energy each year**



**\$1.4 billion
of these energy
dollars currently
leave the community**

Community energy transformation creates significant local economic development opportunities. For instance, local job creation occurs in three ways:

1. direct jobs are created by businesses that support energy efficiency improvements (e.g. construction trades), or design and build and/or operate local supply and distribution systems;
2. indirect jobs are created in supply chains that deliver goods and services to businesses in the direct job category; and
3. induced jobs are created when the newly-hired workers in direct or indirect jobs spend their new earnings on goods and services in the community.

The provision of competitive and reliable energy services also serves to attract and retain investment in all community sectors.

The Community Energy and Emissions Reduction Plan establishes an aligned strategy that supports the Brampton 2040 Vision: Living the Mosaic.

Municipal governments are responsible for managing the growth and development of their communities. They have a key role in ensuring the establishment of compact, mixed-use, walkable, and transit-friendly cities. Analysis from the International Energy Agency states that governments directly or indirectly drive more than 70% of global energy investments, and that they have a historic opportunity to steer those investments onto a more sustainable path.

Brampton's population is expected to grow from 600,000 to 900,000 by 2041. This rapid urbanization puts pressure on municipal leaders who must manage the growth and development of the community while protecting residents' quality of life. Planning and designing smart, transit-orientated, energy efficient communities helps reduce these pressures by supporting Brampton's economic development, quality of life and social equity while addressing climate change.

In 2017 and 2018, the City engaged thousands of Brampton citizens in the development of a transformative community vision that advocates for compact, mixed-use, walkable, and transit-friendly neighbourhoods in an exceptional urban experience. The Brampton 2040 Vision: Living the Mosaic is

a bold new vision for the future of Brampton. Central to the Vision are seven ambitious vision statements dealing with sustainability and the environment, transportation, creating and retaining jobs, recreation, health, social issues, and arts and culture.

The CEERP relates to more than just the Sustainability and Environment statement of the Brampton 2040 Vision. It links to most aspects from the other Vision statements, such as sustainable urban places, complete neighbourhoods, an interconnected green park network, denser urban and town centres, local jobs, and an integrated transportation contributing to civic sustainability with an emphasis on walking, cycling, and transit.

Introduction

Community energy planning considers all local energy movement that impacts activities within a community, including supply, distribution, and end-use. Brampton's Community Energy and Emissions Reduction Plan (CEERP) was initiated to combine efforts of the municipality, local utilities, and community stakeholders to create a roadmap to improve energy efficiency, reduce GHG emissions, ensure energy security, create economic advantage, and increase resilience to climate change.

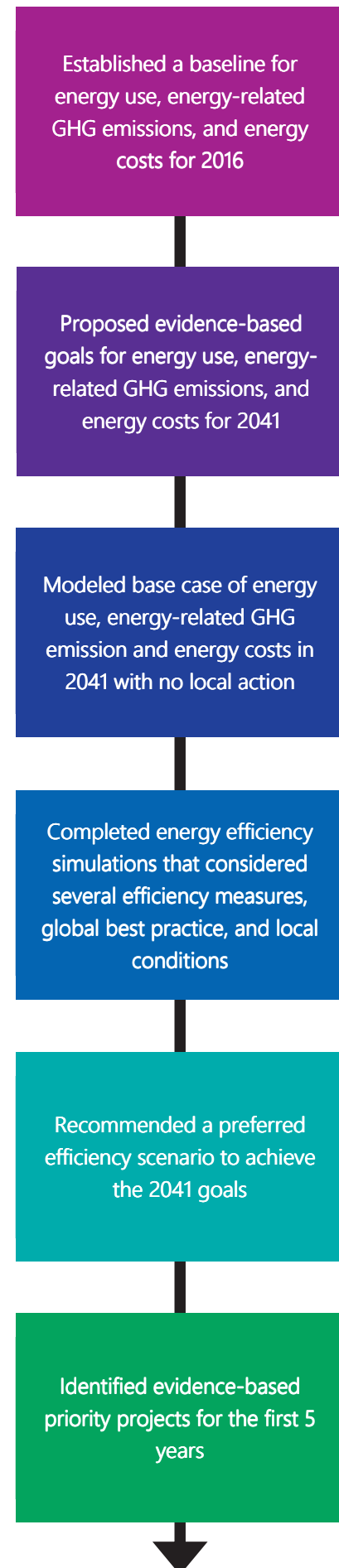
The City of Brampton and Sheridan College came together to facilitate the development of the CEERP. They convened a Community Task Force to provide governance and oversight of the planning process. The Community Task Force represented many different community stakeholders within Brampton, representing a cross-section of local business, energy, public sector and environmental organizations.

The City also secured funding from the Government of Ontario to support the planning of this Strategy. Both the City of Brampton and Sheridan College contributed funding towards the completion of the CEERP and assigned staff to a Project Working Team to support the Community Task Force.

The Project Working Team (PWT), consisting of City representatives and an external consulting team, managed the CEERP planning process.

Guided by an Engagement Plan, various channels were developed to engage the appropriate stakeholders and community-at-large to inform, consult, and involve them in the development of the CEERP. More details on engagement are found in the 2019 Engagement Plan Report.

The results of the analytical work that led to the development of the preferred overall strategy are summarized in this report and found in more detail in the 2019 CEERP Analytical Report.



Community Task Force



The Plan

The strategy presented in the CEERP is the road map to achieve a clean, sustainable, and resilient energy future in Brampton and is based on:

- understanding Brampton's Baseline and Base Case for energy use and energy-related emissions;
- understanding Brampton's population and employment growth;
- community engagement;
- results of simulations of Brampton's growth employing several efficiency measures (see 2019 Analytical Report for more details); and
- global best practice and assessment of local opportunities.

The preferred strategy is based on a framework that aligns:

- one vision;
- six principles organized under four categories;
- three goals;
- seven strategic directions;
- 24 objectives and targets; and
- six priority projects for the first five years.

The Community Task Force recognizes that successful implementation of the strategy will require all sectors of Brampton's society to undertake activities aligned with the six Priority Projects. The primary aspiration of the CEERP is to shape Brampton's energy future by creating the right conditions for public and private sector community action. The roles of different private and public sectors in achieving the CEERP Goals and Objectives are explored in Chapter 5.

The CEERP contains an Action Plan that will be pursued to support the implementation of the Priority Projects (see Chapter 5, Section 5.7).

The Community Task Force acknowledges that energy and climate policies are changing rapidly as governments respond to both local and international pressure to reduce GHG emissions. The market will also continue to innovate, and more cost-effective technologies will emerge to accelerate the uptake of low-carbon local energy supply and distribution technologies designed for rapidly urbanizing communities like Brampton. Consequently, the Task Force recommends a review and update of the CEERP, as appropriate, every five years.

Brampton's energy future is clean, sustainable, resilient, and supports the Brampton 2040 Vision.

Vision

The Community Task Force approved the following CEERP vision statement: *Brampton's energy future is clean, sustainable, and resilient and supports the Brampton 2040 Vision.*

Principles

The Community Task Force approved six principles to guide the strategic implementation and to ensure decision making conforms to the long-term vision of the CEERP. The principles shaped the formation of goals, objectives, and targets and helped prioritize actions.

Environmental

- Work towards climate neutrality.

Energy

- Benchmark energy performance against global best practices.

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.

Goals

The Community Task Force approved three goals, based on the assessment of local energy and emissions data (where Brampton is today) relative to global best practice (where Brampton could be). The Task Force chose realistic over aspirational goals, while still recognizing that the goals will require regular updates to adapt to changes in climate policy, energy policy, and global best practice.



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

The Community Task Force approved seven strategic directions, which reflect Brampton’s urban and energy transition, as well as the Brampton 2040 Vision.



Green Communities



Transportation Efficiency



Home and Building Efficiency



Local Energy Supply and Distribution



Industrial Efficiency



Green Infrastructure



Communications, Engagement, and Monitoring

Objectives and 2041 Targets

The Community Task Force approved objectives and targets which reflect the preferred scenario and the measures considered in the energy efficiency simulations.

Strategic Direction	#	Objective	2041 Target
Green Communities	1A	Achieve near net-zero communities	Attain near net-zero GHG emissions for new communities in Heritage Heights and new buildings in Town Centres, and Major Urban Growth Areas
	1B	Policy is aligned	Complete all policy updates as identified in the Action Plan and its subsequent updates
	1C	Establish Major Growth Areas and Town Centres	Meet the Brampton 2040 Major Growth Areas and Town Centres density and job targets (to be revised through the OP Review process)
Transportation Efficiency	2A	Reduce average trip length	Reduce average trip length by 3.75% for light-duty vehicles from 2016 levels
	2B	Increase trips by walking and cycling	Increase the share of passenger kilometres travelled walking and cycling to 7%
	2C	Increase trips by Brampton Transit	Increase the share of passenger kilometres travelled by Brampton Transit to 9.0%

	2D	Increase trips by GO Transit	Increase the share of passenger kilometres travelled by GO Train to 8.5%
	2E	Increase use of electric vehicles	Increase electric share of light-duty vehicles to 22% and heavy-duty vehicles to 7%
	2F	Increase efficiency of vehicles	Increase efficiency of gas/diesel vehicles by 36% and electric vehicles by 20% from 2016 levels
Home and Building Efficiency	3A	Increase efficiency of existing homes	Achieve a 35% residential sector efficiency gain from 2016 levels by retrofitting 80% of existing homes
	3B	Increase efficiency of other existing buildings	Achieve a 22% commercial and institutional sector efficiency gain from 2016 levels by retrofitting 60% of existing buildings
	3C	Increase delivered efficiency of new property	Achieve a 17% Ontario Building Code efficiency gain from 2016 levels
	3D	Increase water efficiency of existing homes and buildings	Achieve a 34% water efficiency gain from 2016 levels
Local Energy Supply and Distribution	4A	Implement district energy in high growth districts with a mix of combined heat and power and other low-carbon heating and cooling sources	Serve 70% of existing high growth Energy Planning Districts and 80% of new high growth Energy Planning Districts with district energy
	4B	Install solar hot water in stable residential areas (low growth districts)	Serve 10% of hot water and heating needs in homes not served by district energy with solar hot water
	4C	Generate significant amounts of solar power installed on suitable rooftops and other locations	Supply 8% of Brampton's electricity needs with locally generated solar power
Industrial Efficiency	5A	Proliferate best practice to all local industry	Achieve a 20% industrial sector efficiency gain from 2016 levels
Green Infrastructure	6A	Expand the Urban forest	Plant 1 million trees by 2040
	6B	Increase restoration of natural heritage system	Increase restoration and enhancement management to 45ha/year
	6C	Integrate natural assets into the City's asset management program	Determine a dollar value for the City's natural assets
Communications, Engagement, and Monitoring	7A	Increase awareness of the importance of energy planning among residents and businesses	Establish a Community Organization (e.g. CCET) to engage in ongoing outreach and education
	7B	Engage with businesses, non-profits, institutions, residents, utilities	At minimum engage with: large energy users, Brampton Board of Trade, Sheridan College, Ryerson University, Algoma University, BILD, Enbridge Gas, and Alectra Utilities

	7C	Partner with other municipalities and levels of government	At minimum, partner with neighbouring municipalities and the Region of Peel
	7D	Integrate with corporate performance metrics (KPI)	Establish a community GHG emissions and energy efficiency target on the Corporate Performance Dashboard and update regularly
	7E	Establishment of self-supporting Community Organization (e.g. CCET) that is focused on delivering community energy planning excellence	Attain recognition as a regional centre for energy excellence

Priority Projects: 2020 - 2025

The Community Task Force approved six priority projects for the next five years.

1. Ensure the City of Brampton policies and programs align with supporting the CEERP Objectives and Targets.
2. Establish a system to deliver standardized retrofits to Brampton homeowners.
3. Update the Transportation and Transit Master Plan (TTMP) to reflect complete streets and the integrated nature of mobility and built form.
4. Integrate District Energy Systems in appropriate locations within the City of Brampton.
5. Develop Integrated Energy Master Plans for public facilities and private development.
6. Establish a community organization to lead the development and implementation of select priority projects.

The rationale for these six priority projects is provided in Chapter 5, Section 5.6.

Action Plan

Beyond the Priority Projects, the CEERP outlines additional actions to take in order to ensure the Plan's objectives and targets are met. These are on-going, short, medium, or long-term actions based on the goals and strategies. The Action Plan is in Chapter 5 (Section 5.7) of the report.

Governance and Oversight of Implementation

Individual and independent action on climate change has been and will continue to be important. However, the scale of actions necessary to address the climate emergency and energy transition require coordinated and collective effort within Brampton and will need to involve the City, residents, businesses, agencies, and institutions to accelerate market transformation.

To ensure that the CEERP does not 'sit on a shelf' and implementation of the 2020-2025 Priority Projects is achieved and sustained, it is necessary for the City to consider identifying and dedicating resources to oversee, coordinate, implement, and report on the overall progress of achieving the Plan's targets.

The establishment of an independent community organization to work in parallel with the City's efforts to implement the CEERP is one way to accelerate, organize, and commence collective actions within the community. The Brampton 2040 Vision recommended the establishment of such an organization, called the Institute for Sustainable Brampton (ISB), which would facilitate "public-private actions to position Brampton in the vanguard of suburban sustainability."

In the fall of 2019, the City initiated a process to define a framework for a Community Organization. Through this process the Community Task Force and stakeholders, alongside the City, Region of Peel, and Sheridan College, developed a mandate for the ISB that focuses on achieving Brampton's urban and energy transition. As such, this Community Organization would be renamed the "Centre for Community Energy Transformation" (CCET) and could serve as a hub for coordinating and reporting on the progress made in implementing select CEERP community priority projects.

Conclusion

Brampton is well positioned to be a leader in North America in this global urban and energy transition. The Brampton 2040 Vision has set the foundation for the urban change needed to succeed in this transition. By adopting the CEERP, Brampton will be joining the ranks of the global community of cities taking a leadership role in the fight against climate change and preparing for the opportunities provided by the energy transition underway. As a leader, Brampton can set an example of how a suburban city can come out economically stronger and improve resident's quality of life while successfully combating climate change.

The CEERP provides a more sustainable, urban, and vibrant future for our city, aligned with nature and "one planet" living. Our diverse community is energized and ready to take action towards energy and emissions reduction. The power of connections and our partnerships will allow us to work towards our vision of an energy future that is clean, sustainable, resilient, and supports the Brampton 2040 Vision. As Brampton moves towards achieving the economic, emissions, and energy savings goals of the CEERP, we also need to look beyond our targets to work towards eventual climate neutrality.

At the time of writing this report, the Covid-19 pandemic was occurring. It has shown us a glimpse of the impacts future climate threats could have on our communities. It has taught about the urgency of taking swift action collectively and the vital need to build resilient communities. If we wait to see further impacts of climate change, it will be too late.