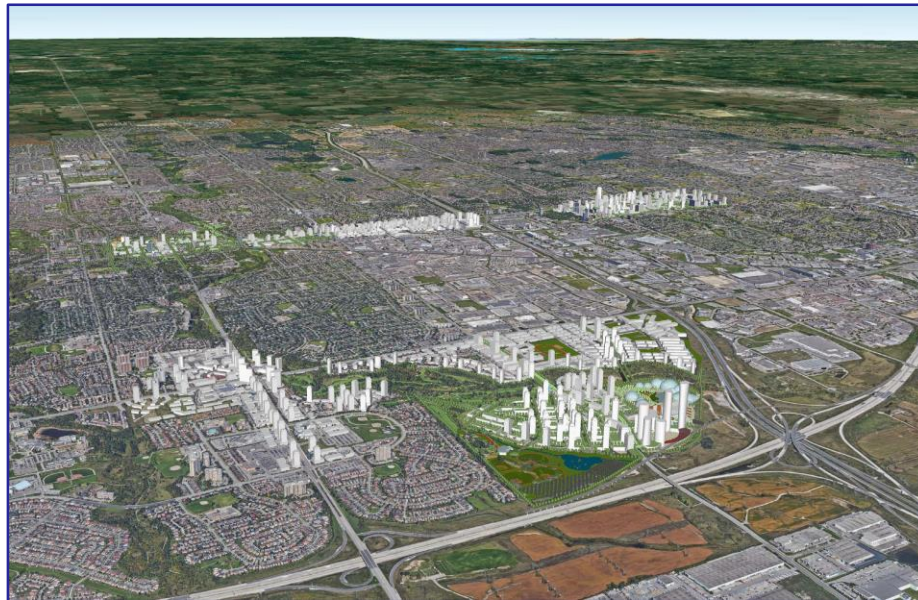


Community Energy And Emissions Reduction Plan

Task Force Meeting #4



Key Piece of The Mosaic

Brampton, Ontario
September 9, 2019

City of Brampton

Community Energy & Emissions Reduction Plan

1. Welcome and Opening Remarks
 - Dave Kapil - Co-Chair

CEERP Task Force #4

High Level Overview

1. Process of Reporting and Approval
2. Agreement on Preliminary Recommendations
3. First Steps in Structuring Task Force Report

City of Brampton

Community Energy & Emissions Reduction Plan

2. Introductions

- a) Project Working Team (City & Sheridan-GIL)*
- b) Task Force Members*
 - *Dave Kapil - Co-Chair*
 - *Herb Sinnock – TF Member and Director, Sustainability, Sheridan College*

City of Brampton

Community Energy & Emissions Reduction Plan

3. Agenda Review

- a) Meeting Package*
- b) Approval of Agenda*
 - *Dave Kapil- Co-Chair*

City of Brampton

Community Energy & Emissions Reduction Plan

4. Task Force Business

- a) Next Meeting Dates*
- b) Pathway to Project Completion*
 - *Dave Kapil - Co-Chair*

CEERP Planning Process

Transition from Analytics to Recommendations

- ✓ Baseline
- ✓ Draft Framing Goals
- ✓ Base Case (BAU) and Risks
- ✓ Scenarios and Opportunities



- Preliminary Recommendations
- Final Goals and Recommendations

CEERP Planning Process

Key Dates to Completion

- Sept 6 2019 - Municipal Department Engagement (MD2) – Economic Development
- Sept 9 2019 - PWT – As above – Prep for Task Force
- Sep 9 2019 - Task Force #4 – Consensus on Recommendations
- Week of Sept. 9 - Nordic Cites Part 2, Major Stakeholder Engagement
- Oct. 14 or 16 (TBD) - Council Workshop
- Mid-Sept to Mid-Oct 2019 - Municipal Department Engagement (MD3)
- Oct 21 2019 - First draft of CEERP report package
- Oct 21 2019 PWT Review of first draft of CEERP report package
- Oct 30 2019 - Distribution of CEERP package to Task Force in advance of TF #5
- Nov 6 2019 - PWT – Pre-Task Force
- Nov 6 2019 (TBD) - Task Force #5
- Nov 2019 - Final CEERP to City of Brampton from Task Force for preparation of staff report to Council
- Nov 2019 - PWT Review final
- Dec 2019 - Preparation for Staff and Task Force delegation(s) to Council
- Jan 2020 – TBD - Council or Committee Meeting

CEERP Planning Process

Reporting Framework



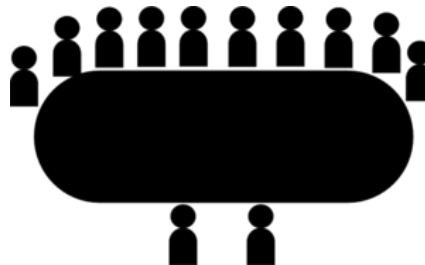
CEERP Report to Task Force

- Task Force Strategy (Title: TBD)
- Background Analytical Document (Appendices)
- Engagement Summary and Evaluation (Appendices)



Staff Report to Council

- Cover for CEERP Report
- Recommendations for Municipal Role in Supporting the Implementation of the CEERP
- Presented by Staff AND Task Force



Committee/Council

- Approves
- Directs Staff

City of Brampton

Community Energy & Emissions Reduction Plan

5. Vision, Goals, Targets, Principles

- a) Brampton Energy/Climate Vision*
- b) Energy and Emissions Goals*
- c) Energy and Emissions Targets*
- d) Economic, System and Community Principles*
- e) Task Force Role: Post – CEERP Implementation and Task Force Strategy*
 - *Herb Sinnock – TF Member and Director, Sustainability, Sheridan College*

CEERP Task Force Report

Task Force Strategy - Guiding Principles

Guiding Principles

Leverage community relationships and serve as a knowledgeable and trusted connector and advocate for a sustainable energy future that is clean, affordable and resilient. We will be guided by the following principles:

1. Environmental

- *A sustainable energy system balances opportunities to benefit the environmental, economic and social future of Brampton.*
- *Respect the climate science and work towards climate neutrality.*

2. Energy

- *Energy performance is benchmarked against global best practice*

3. Economic

- *All energy related investments will meet acceptable risk-adjusted returns*
- *Energy costs will be competitive compared to comparable North American communities*
- *High-quality employment will be generated.*

4. Reliability

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

CEERP Task Force Report

Task Force Strategy – Proposed Report Structure

- **Background**
- **Task Force History**
- **Vision**
- **Mission**
- **Goals**
 - *Energy Goal*
 - *Emissions Goal*
 - *Economic Goal*
 - *Reliability Goal*
- **Guiding Principles**
 - *Environmental*
 - *Energy*
 - *Economic*
 - *Reliability*
- **Focus Areas**
 - *Transportation Efficiency*
 - *Home & Building Efficiency*
 - *Industrial Efficiency*
 - *Local Energy Supply*
- **Projects**
- **KPIs**

CEERP Task Force Report

Task Force Strategy - Vision

Vision

- “Brampton’s energy future is clean, sustainable, resilient and supports the Brampton 2040 Vision”

- Motion: **approve** or amend

CEERP Task Force Report

Task Force Strategy - Mission

Mission

- “Mobilize the entire community to transform Brampton’s energy systems to achieve the Plan targets”

- Motion: **approve** or amend

CEERP Task Force Report

Task Force Strategy – Goal Setting Principles

Goal Setting Principles

- *Data-informed*
- *Time-Bound*
- *Specific*
- *Measurable*
- *Embrace Climate Science*
- *Recognize the urgency of Climate Change*
- *Integrate Global Best Practice*
- *Attainable*
- *Drive the Transformation*

- **Motion: approve or amend**

CEERP Task Force Report

Task Force Strategy - Energy Goals

Energy Goals

- *Based on global best-practices the community-wide energy end use will be at least 50% below 2016 level by 2041*

- Motion: approve or amend

CEERP Task Force Report

Task Force Strategy - GHG Goals

GHG Goals

- *“To reduce community-wide emissions by 50% in 2040 and to establish a pathway to reduce emissions by at least 80% in 2050 and meet or exceed Federal and Provincial targets”*

- Motion: **approve** or amend

CEERP Task Force Report

Task Force Strategy - Economic Goals

Economic Goal

- *“All Energy investments will meet acceptable returns, create competitive advantage over other North American communities, and generate high-quality employment”*

- **Motion: approve or amend**

CEERP Task Force Report

Task Force Strategy - Reliability Goals

Reliability Goal

- *“Energy systems will evolve to meet community requirements, improve service quality, and be resilient”*

- Motion: **approve** or amend



**CEERP Task Force
- Planning and Strategy -**



**Institute for Sustainable Brampton??
- Governance and Implementation-**



Environmental Advisory Committee

City of Brampton

Community Energy & Emissions Reduction Plan

6. Analytical Process

a) Recommendations

- *Herb Sinnock – TF Member and Director, Sustainability, Sheridan College*

Preliminary Recommendations

Summary of Measures

- **Transportation**
 - *Reduce average trip lengths*
 - *Increase trips by train, bus, bike and walking*
 - *Increase use of more electric vehicles*
 - *Maximize efficiency of all vehicles*
- **Homes & Buildings**
 - *Increase efficiency of existing property*
 - *Increase delivered efficiency of new property*
- **Industry**
 - *Proliferate best-practice to all local industry*
- **Local Energy Supply**
 - *Implement district energy in high growth districts*
 - *Supply District Energy with mix of CHP and other low-carbon heating and cooling sources*
 - *Install solar hot water in lower growth districts*
 - *Generate significant amounts of solar electricity*

Preliminary Recommendations

Comprehensive Enabling Measures

- Each Recommended Measure needs comprehensive detailed secondary plans
- Each will include critical enabling measures:
 - *Community & stakeholder engagement*
 - *Institutional structures to deliver Measure*
 - *Governance to ensure quality and ethics*
 - *Marketing to change market norms*
 - *Financing to support scale implementation*
- Many will overlap between CEP Measures and other City planning

CEP Recommendation

Vision 2040 - Institute for Sustainable Brampton

■ Background

- *Vision for 2040 calls for Institute for Sustainable Brampton*
- *Sheridan is developing a centre of excellence in sustainable development*
- *Both focus on creating sustainable communities*
- *Campus is a living example of many CEP measures*
- *CEP implementation requires major ongoing City engagement and capacity building*

■ Recommendation

- *Initially locate Institute for Sustainable Brampton at Sheridan campus*

■ Benefits

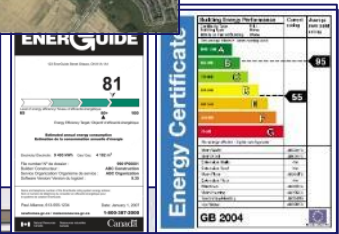
- *Supports CEP implementation*
- *Puts Brampton on national stage*

Retrofit Existing Homes & Buildings Increase Energy Efficiency



- CEP Targets
 - Retrofit 80% of Homes
 - Retrofit 60% of Buildings
 - Efficiency gain ~33% / retrofit
- Recommendation
 - Create new Efficiency Retrofit Entity
 - Offer standard retrofits by property type
 - Delivery via quality-controlled contractors
 - Payment using property tax increment using LIC mechanism – or similar
 - Third-party financing
 - EPLs available when rented or sold
 - Sheridan develop work-force programmes
- Benefits
 - Increased property value
 - Reduced energy costs
 - Higher contractor margins
 - Local employment
 - Business opportunity in other communities

New Homes & Buildings *Ensure Energy Efficiency*



■ CEP Targets

- *Market transparency through EPLs*
- *Exceed current OBC by 1% through 2021*
- *Meet future OBC assuming 10% efficiency gain in each of 2022 and 2032*

■ Recommendation

- *Offer EPLs when rented or sold*
- *Raise customer awareness and expectations through comprehensive outreach*
- *Require developers' plans meet near-zero emissions in Greenfield Neighbourhoods*
- *Engage potential energy efficient mortgage lenders*
- *Engage Alectra, Enbridge, key builders and realtors as champions*
- *Sheridan develop work-force programmes*

■ Benefits

- *Confirmed value for buyers*
- *Competitive edge for quality builders*

All Homes & Buildings *Ensure Water Efficiency*



- **CEP Targets**
 - *Increase water efficiency by 35%*
- **Recommendation**
 - *Include water efficiency package in standard energy retrofit – low flow faucets, showers, toilets*
 - *Create rain-water harvesting, grey water and Xeriscaping information and resource network*
 - *Consider Xeriscaping as option for retrofit entity*
- **Benefits**
 - *Confirmed value for users*
 - *Supports sustainable growth*

Industry *Proliferate Efficiency Best-Practices*



- **CEP Targets**
 - *1% / year energy efficiency gain*
 - *35% water efficiency gain*
- **Recommendation**
 - *Encourage Community Industrial Best Practice Networks*
 - *FCA, Coca-Cola, Amazon & others are examples of quality energy management*
 - *Host global Best Practice events*
 - *Share Industrial energy management expertise in Town*
 - *Sheridan develop work-force programmes*
- **Benefits**
 - *Industrial competitiveness*
 - *Sustained and new employment*
 - *Town reputation*
 - *Inbound industrial investment*

Growth Neighbourhoods Efficient Heating Services



■ CEP Targets

- *Serve 70% of existing target property by 2041 and 80% for new target property with district heating in districts targeted for densification or new growth*
- *EPDs 18, 19, 20, 21, 23, 32, 33, 34, 35, 36, 37, 39 (Densification)*
- *EPDs 1, 2, 6, 7, 14, 15, 16, 25, 26, 27, 28, 29, 30, 38 (Greenfield)*

■ Recommendation

- *Create District Energy Company with appropriate governance*
- *DECo offer heating and selected cooling services*
- *Establish property, policy, planning and construction guidelines*
- *Ensure Area Specific Plans (ASP) include District Energy*
- *Implement best-practice networks and energy centres*
- *Include significant CHP in balanced supply portfolio*
- *Develop business plan to start implementation in 2022*
- *Sheridan College is “living-example”*
- *Raise customer awareness through comprehensive outreach*
- *Engage Alectra, Enbridge, key builders and realtors as champions*
- *Sheridan develop DE work-force programmes*

■ Benefits

- *Competitive, reliable, comfortable thermal services*
- *Local employment*
- *Predictable technical and financial performance*
- *Municipal dividends and investor returns*
- *Pathway to zero-emissions’ heating & cooling*
- *Business opportunity in other communities*

Renewable Solar Thermal Supply Zero-GHG Hot Water & Heating



■ CEP Target

- *Serve 10% of hot water and heating needs on homes not served by district heating*

■ Recommendation

- *Raise customer awareness through comprehensive outreach*
- *Engage Enbridge, key builders and realtors as champions*
- *Include in relevant policy, planning construction guidelines*
- *Retrofit Entity offer as supply option to standard efficiency package*
- *Sheridan develop work-force programmes*

■ Benefits

- *Attractive investment for consumer*
- *New opportunity for contractors*
- *Predictable, proven technology*
- *Local employment*
- *Contribute to decarbonizing heating*

Renewable Supply – Solar Power *Simulated Measures*



- **CEP Target**
 - *Supply 8% of City’s electricity needs by 2041 with solar power installed on suitable rooftops and other locations*
- **Recommendation**
 - *Raise customer awareness through comprehensive outreach*
 - *Engage Alectra, key builders and realtors as champions*
 - *Include in relevant policy, planning construction guidelines*
 - *Retrofit Entity offer as supply option to standard efficiency package*
 - *Sheridan develop work-force programmes*
- **Benefits**
 - *Attractive investment for consumer*
 - *Avoided investment for power utility*
 - *Extended opportunity for contractors*
 - *Predictable, proven technology*
 - *Local employment*
 - *Contribute to decarbonizing electricity*

Transportation

Reduce Trip Lengths



- **CEP Target**
 - *Reduce average trip length for Light-Duty Vehicles (LDV) by 7.5%*
- **Recommendations**
 - *Ensure all relevant Town plans include measures to contribute to target*
 - *Mixed-use compact design*
 - *Increase local job / population ratios*
 - *Increase local social destinations*
 - *Ensure Area Specific Plans (ASP) include measures to contribute to target*
- **Benefits**
 - *Increased local employment*
 - *Attractive, livable neighbourhoods*
 - *Contribute to decarbonizing transportation*

Transportation

Increase Transit & Active Journeys



- **CEP Targets**
 - *Increase active, train and bus share of passenger kilometers travelled (PKT) to 10% for active transportation, and 15% for bus and GO Train.*
- **Recommendations**
 - *Ensure Transportation/Transit Plans include measures to contribute to targets*
 - *Multi-modal transport nodes*
 - *Competitive transit services*
 - *Transit oriented development*
 - *Bike, e-bike and walking routes*
 - *Congestion / district charges...*
 - *Ensure Area Specific Plans (ASP) include measures to contribute to targets*
- **Benefits**
 - *Attractive, livable neighbourhoods*
 - *Reduced driving stress*
 - *Contribute to decarbonizing transportation*

Transportation

Decrease Each Vehicle's Emissions



- **CEP Targets**
 - *Increase electric share of LDV's to 30% and of HDVs to 10% by 2050*
 - *Increase efficiency of gas/diesel vehicles by 2% per year and of electric vehicles by 1% per year*
- **Recommendations**
 - *Raise customer and fleet owner awareness through comprehensive outreach*
 - *Engage vehicle dealers and manufacturers as champions*
 - *Ensure Transportation/Transit Plans include measures to contribute to targets*
 - *LEV/EV parking and charging*
 - *LEV restricted areas*
 - *Transit Fleet configuration*
 - *Ensure Area Specific Plans (ASP) include measures to contribute to targets*
 - *Include in relevant policy, planning construction guidelines*
 - *Retrofit Entity offer EV charging stations as option to efficiency package*
 - *Embrace and lead changes in national & provincial policy*
- **Benefits**
 - *Individual access and parking privileges*
 - *Reduce fuel operating costs*
 - *Contribute to decarbonizing transportation*

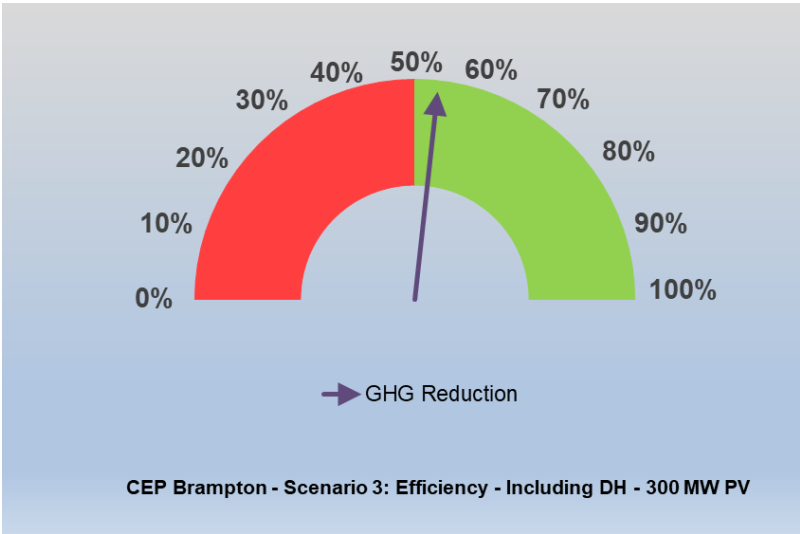
CEP Recommendations

Create a Smart Energy Community....

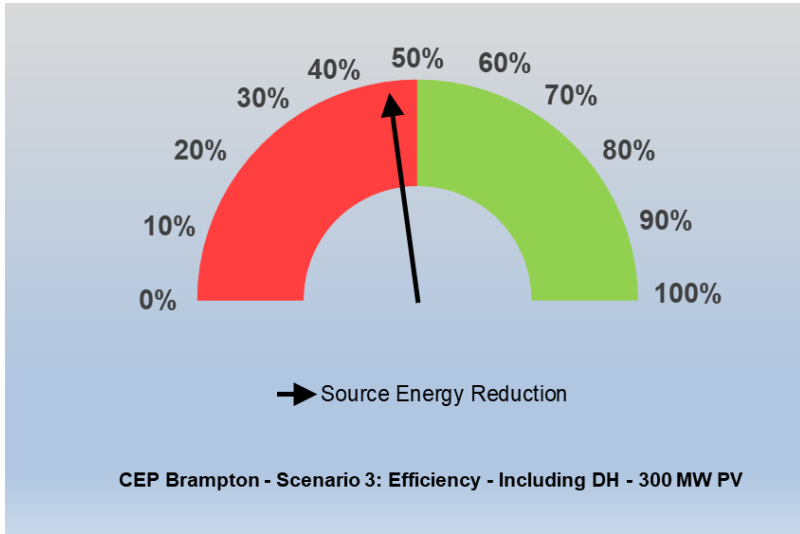
- CEP Target
 - *Integrate relevant information to enable active optimization of City's energy and climate performance*
- Recommendation
 - *Implement interoperable smart-metering for gas, electricity, heating, cooling and water*
 - *Implement comprehensive traffic count and vehicle activity metering systems*
 - *Create interoperable protocols to enable neighbourhood level building automation*
 - *Implement integrated "Smart Energy Community" analysis and reporting platform*
 - *Ensure "Smart Energy Community" measures align with wider "Smart City" goals*
- Benefits
 - *Engagement of community through availability of City's performance*
 - *Ease of implementing continuous improvement*
 - *Ease of making mid-course adjustments*
 - *Ease of setting and tracking more aggressive goals*
 - *Ease of selectively implementing new technologies or processes*

Brampton Simulation – Reference Case Results by 2041

Carbon Emissions



Energy Efficiency



City of Brampton

Community Energy & Emissions Reduction Plan

7. Engagement Updates

- a) *Community Survey*
- b) *Community Events - verbal*
- c) *Mayor and Council - verbal*
- d) *Municipal Departments - verbal*
- e) *Target Networks / Nordic Cities - verbal*
 - *Herb Sinnock – TF Member and Director, Sustainability, Sheridan College*
 - *Michael Hoy, City of Brampton and PWT Member*

City of Brampton

CEERP – Community Survey Results

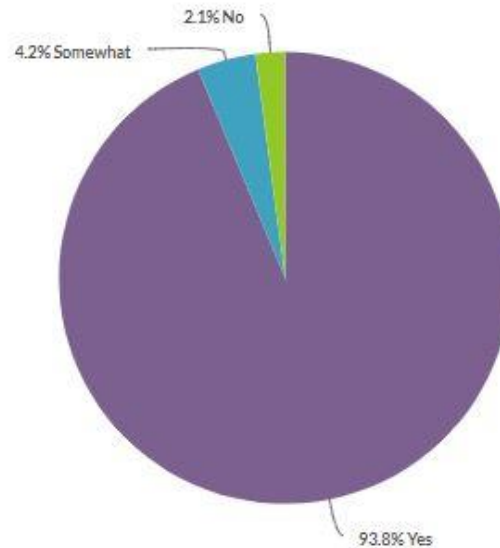
Response Counts



Totals: 96

City of Brampton CEERP – Community Survey Results

1. Do you think that it is important for us to work towards world-class energy performance for our community, as described in the introduction above?











Value	Percent	Responses
Yes	93.8%	90
Somewhat	4.2%	4
No	2.1%	2

City of Brampton

CEERP – Community Survey Results

2. What matters to you? Below are some economic, social and environmental benefits of moving towards a world-class energy performance. Please rank the importance of these benefits to you by re-sorting them on the right side of the page with your highest (most important to you) to lowest (less important to you) choices.

Item	Overall Rank	Rank Distribution	Score	No. of Rankings
Reducing greenhouse gas pollution to fight climate change	1		539	94
Affordable energy services that I can always rely on	2		380	92
Reducing my energy costs.	3		379	92
Creating jobs in the green economy	4		361	93
Keeping more of our energy dollars in the local economy	5		361	91
Brampton taking charge of its own energy future	6		331	92
Generating my own energy	7		250	92



 Lowest Rank Highest Rank

City of Brampton

CEERP – Community Survey Results

3. There are other ways moving towards world-class energy performance can enhance Brampton's livability. Please rank them by scoring each benefit from 1 (most important to you) through 7 (less important to you)

Item	Overall Rank	Rank Distribution	Score	No. of Rankings
Protecting green space and urban trees	1		487	95
Cleaner air	2		484	92
Reducing energy poverty so no one must choose between buying food or keeping the lights on	3		391	94
Making public transit more convenient	4		387	93
Making it easier to walk and cycle in my community	5		374	95
Less time stuck in traffic and more time with family and friends	6		323	93
Improving the comfort of my home or workplace	7		191	93

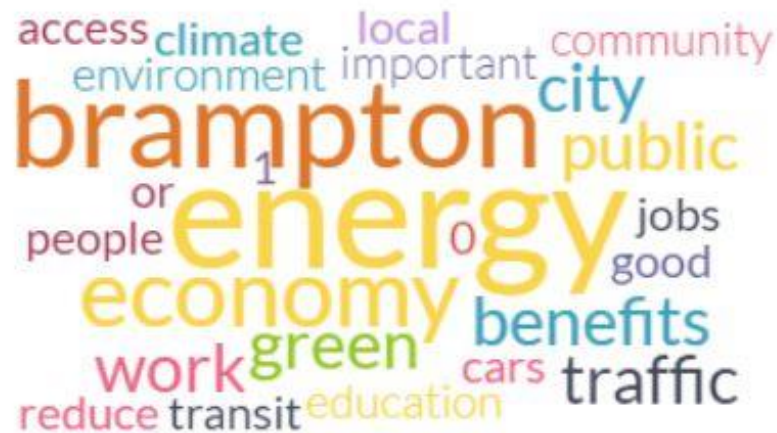


 Lowest Rank Highest Rank

City of Brampton

CEERP – Community Survey Results

4. Did we miss any benefits in Questions 2 and 3 that matter to you?



City of Brampton

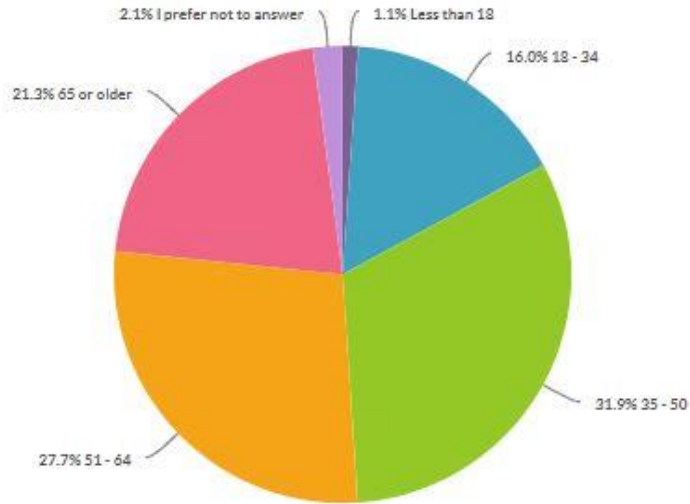
CEERP – Community Survey Results

5. In your own words, what does Brampton's ideal energy future look like in 2050?



City of Brampton CEERP – Community Survey Results

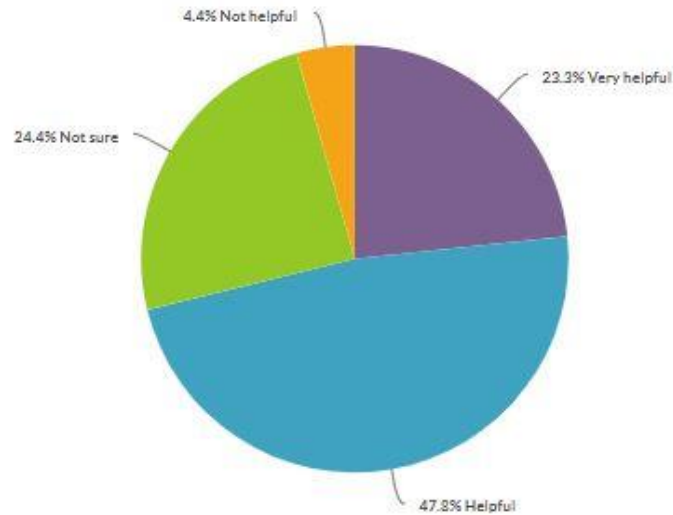
6. In which of the following age categories do you belong?



Value	Percent	Responses
Less than 18	1.1%	1
18 - 34	16.0%	15
35 - 50	31.9%	30
51 - 64	27.7%	26
65 or older	21.3%	20

City of Brampton CEERP – Community Survey Results

7. How did you find this survey in understanding the benefits of community energy planning?



Value	Percent	Responses
Very helpful	23.3%	21
Helpful	47.8%	43
Not sure	24.4%	22
Not helpful	4.4%	4

City of Brampton

Community Energy & Emissions Reduction Plan

8. Communications

- a) Community Communique - TBD*
- b) Infographics Update*
 - *Herb Sinnock – TF Member and Director, Sustainability, Sheridan College*
 - *Michael Hoy, City of Brampton and PWT Member*

Brampton Community Energy & Emissions Reduction Plan (CEERP)



\$1.8 billion

is what our community spends on energy each year on all transportation, residential, commercial, and institutional activities.

In Partnership with
Sheridan College



**\$1.4 billion
(78%)**

of those energy dollars leave the community.

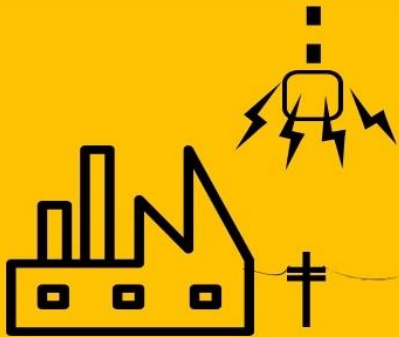
27%

of the energy that the community pays for does not reach our homes, buildings, or vehicles.



City of Brampton

CEERP – Infographics



This energy is primarily lost as heat when one form of energy is converted to another for our use, and through transmission and distribution.



The Community Energy & Emissions Reduction Plan (CEERP)

will act as a guide to help the City, its residents, and businesses develop and adopt new best practices to improve our overall energy efficiency, reduce energy costs, and make positive economic and environmental impacts in our community.

The CEERP identifies local scale solutions to our **BIG** energy problems.

City of Brampton

CEERP – Infographics

Emissions

Current greenhouse gas (GHG) emissions for every Brampton resident are approximately **2x** greater than global best practice, and **10x** higher than Government of Canada's goals for 2050.

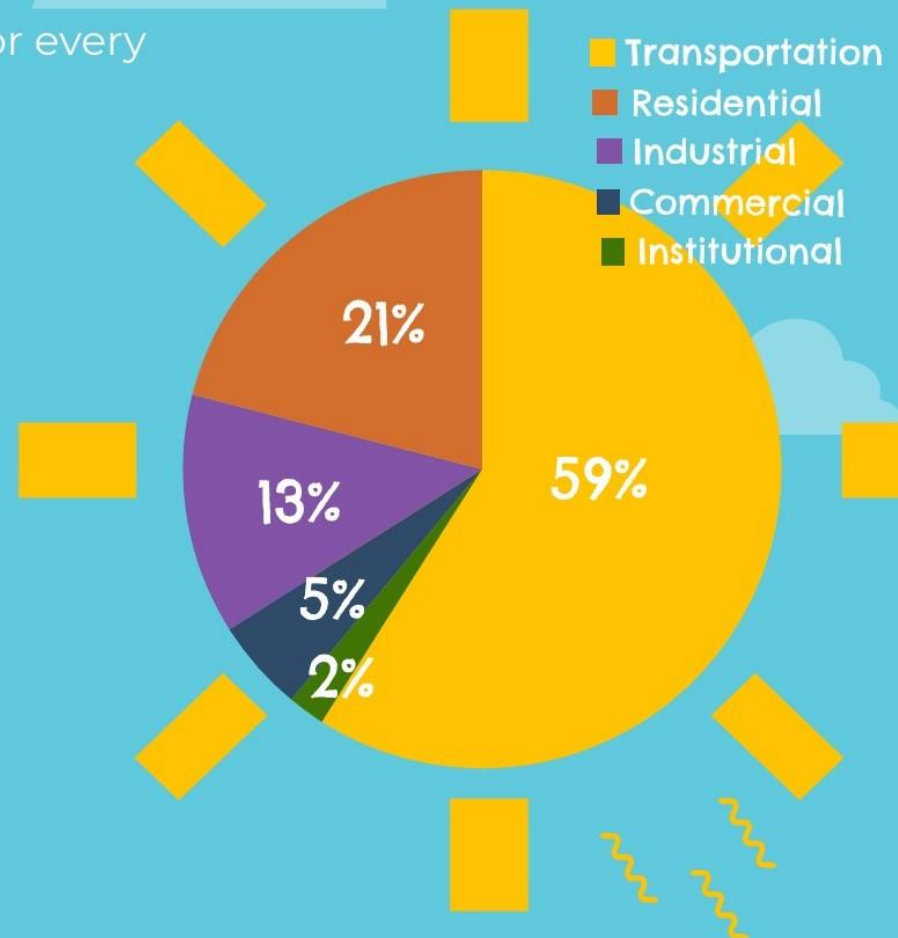
Efficiency

On average, homes and buildings in Brampton are approximately **1/2** as efficient as global benchmarks.

Transportation

Transportation accounts for at least **50%** of all energy costs and emissions in Brampton.

Brampton's 2016 GHG Emissions



City of Brampton

CEERP – Infographics

The Community Energy & Emissions Reduction Plan is a road map that will:



improve energy **efficiency**



reduce greenhouse gas emissions



ensure energy **security**



create **economic** advantage



increase **resilience** to climate change

City of Brampton

CEERP – Infographics

Industry and community leaders have come together to form a CEERP Community Taskforce to advise and collaborate on the development of the plan.



CEERP relies on the integrated efforts of the municipality, local utilities, industry, and the wider community.

Find out more:
www.brampton.ca/CEERP

Follow us:
[@bramgrowgreen](https://twitter.com/bramgrowgreen)



Help Brampton grow green and achieve the 2040 Vision of a sustainable, livable, diverse, and healthy city.



City of Brampton

Community Energy & Emissions Reduction Plan

9. Next Meeting

a) Nov. 6? TBD

■ *Dave Kapil, Co-Chair*

City of Brampton

Community Energy & Emissions Reduction Plan

10. Adjourn

THANK YOU
And
GOOD DAY