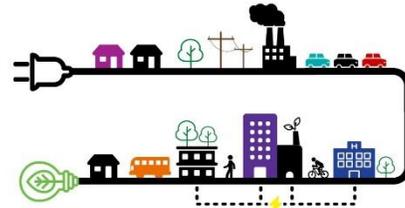


Community Energy & Emissions Reduction Plan

Committee of Council
September 23, 2020

OUR 2040 ENERGY TRANSITION

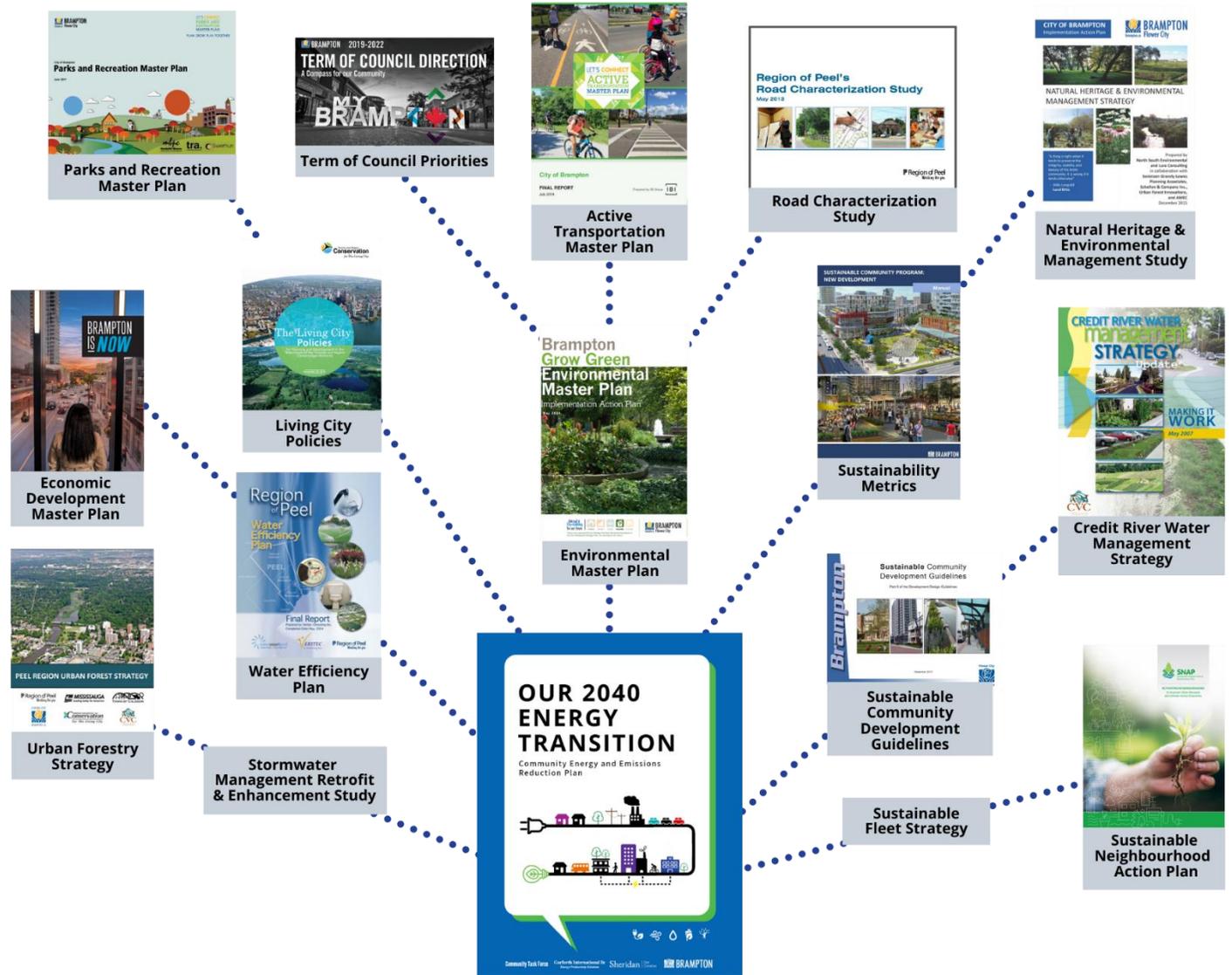
Community Energy and Emissions Reduction Plan



Community Task Force | Garforth International Inc. Energy Productivity Solutions | Sheridan | Set Creative | BRAMPTON

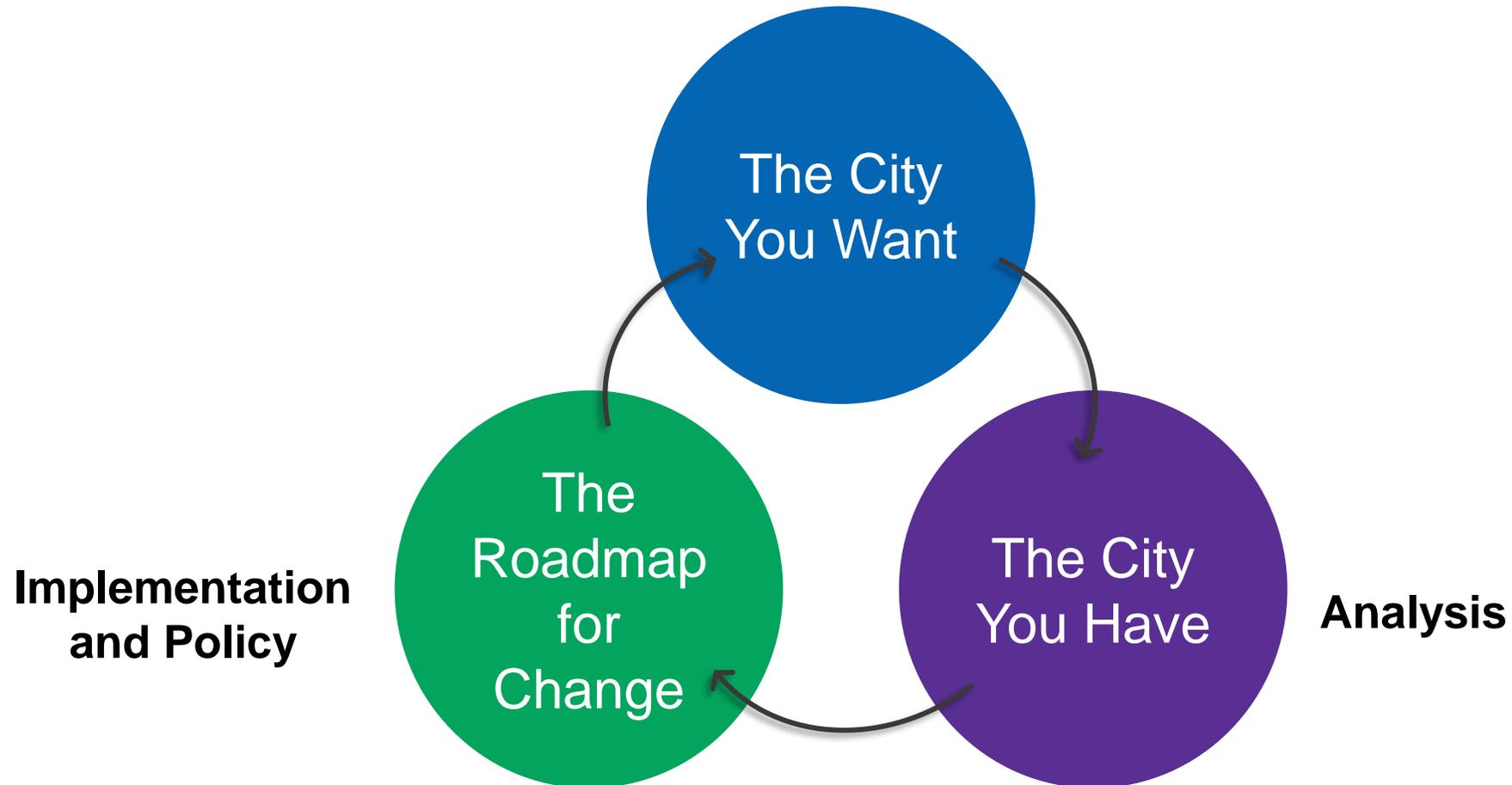
CEERP

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



Transforming Our City: Collective Action

2040 Vision and CEERP



CEERP: Brampton's Response to the Climate Emergency

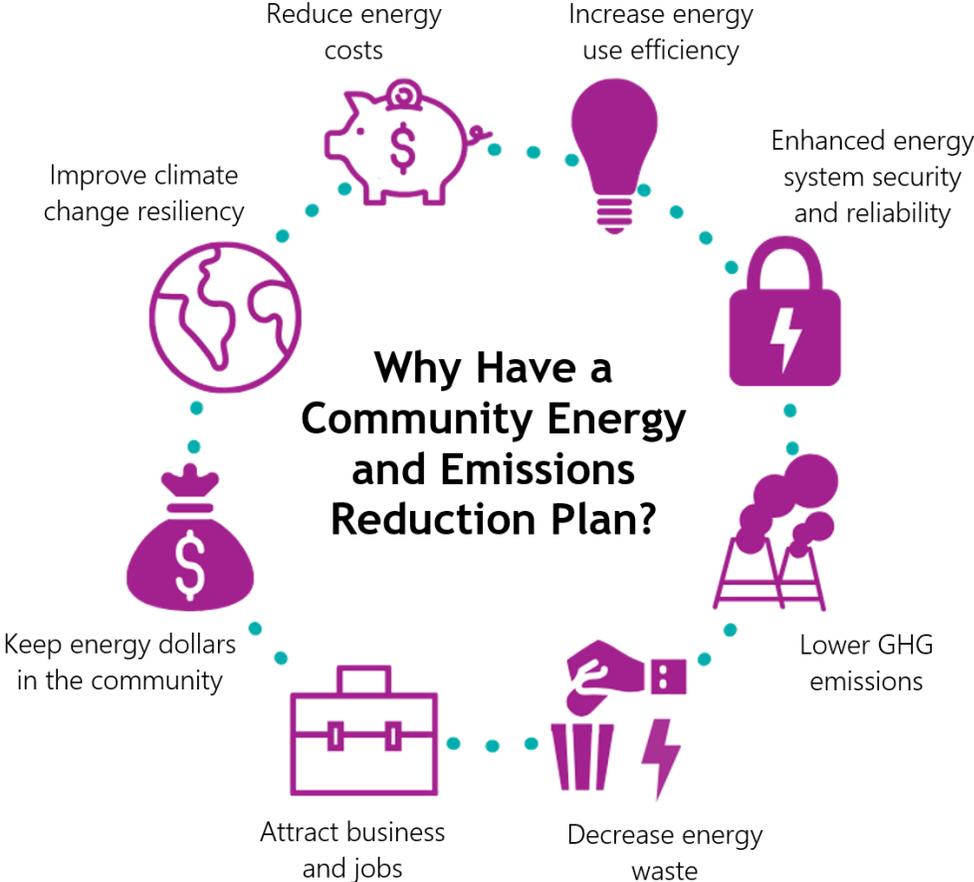
Brampton City Council Declares Climate Emergency

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

Like Share Tweet

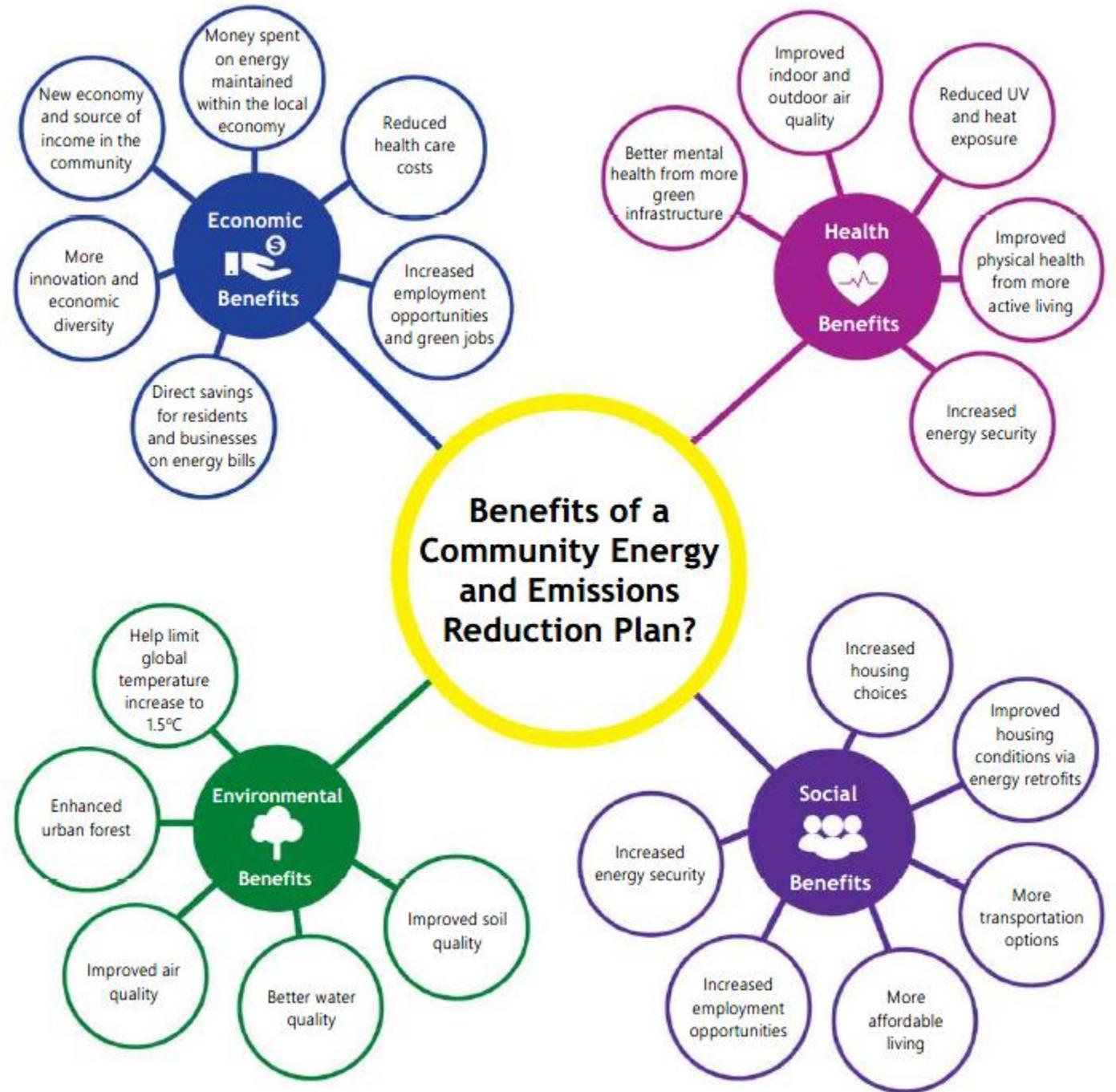


The Brampton City Council is looking to take action against climate change.



Co-Benefits

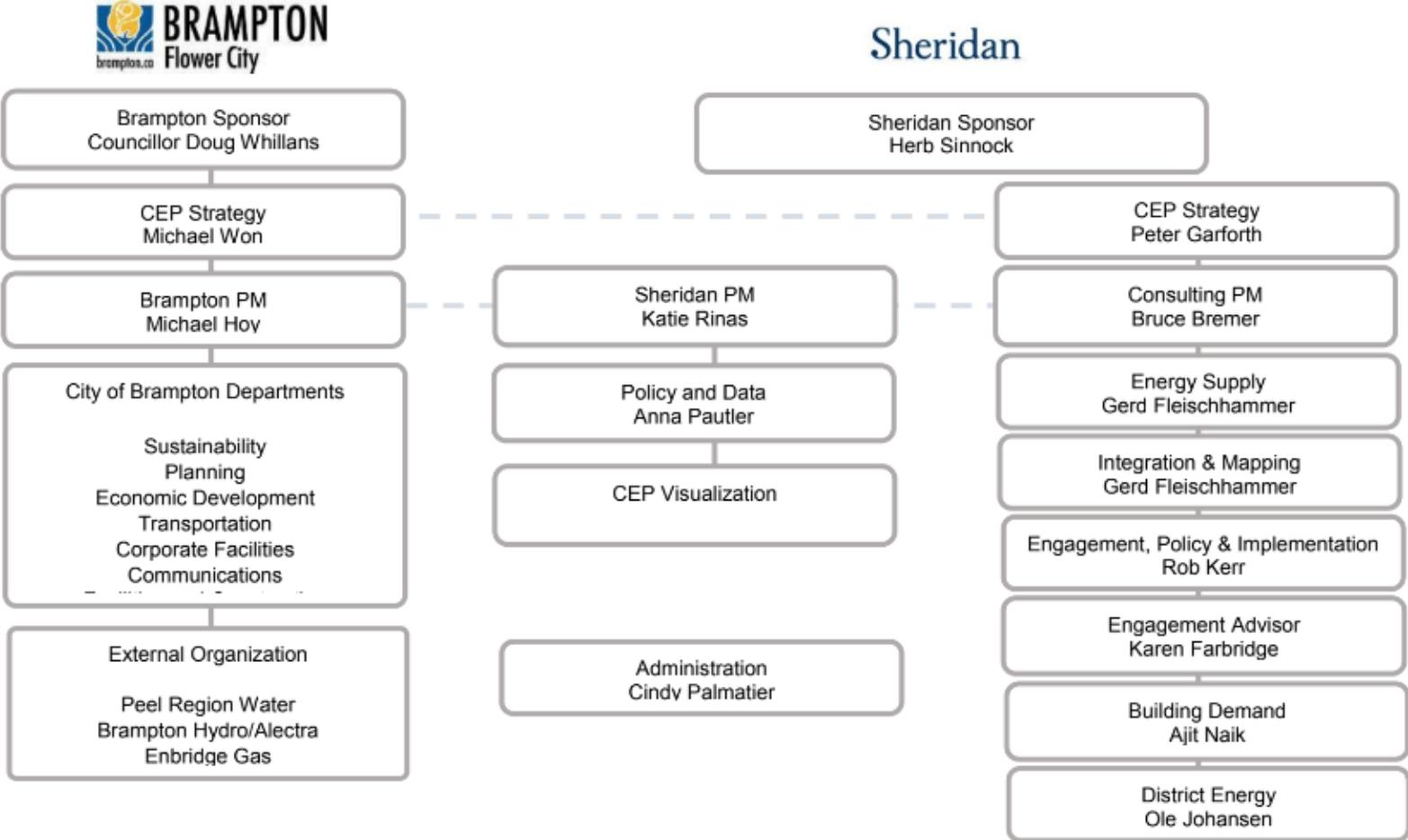
- Environmental
- Social
- Health
- Economic



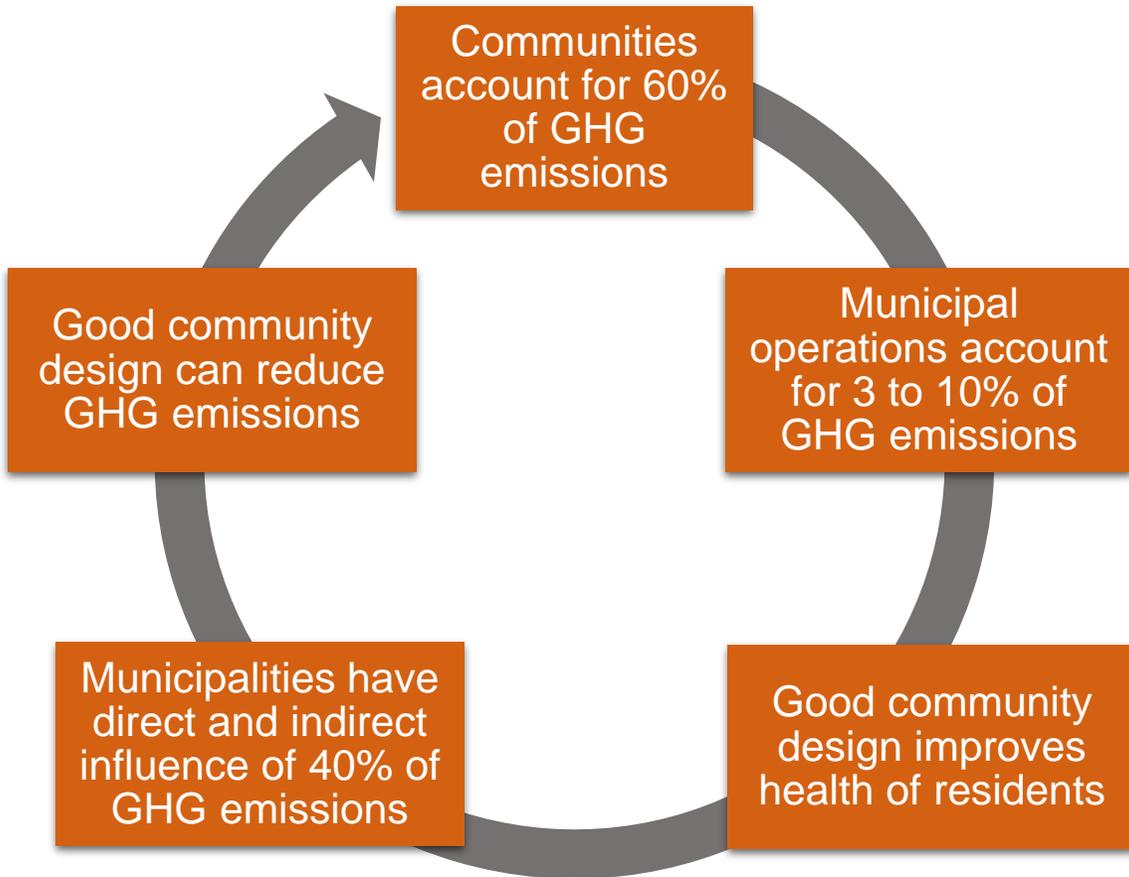
Community Task Force



Project Working Team

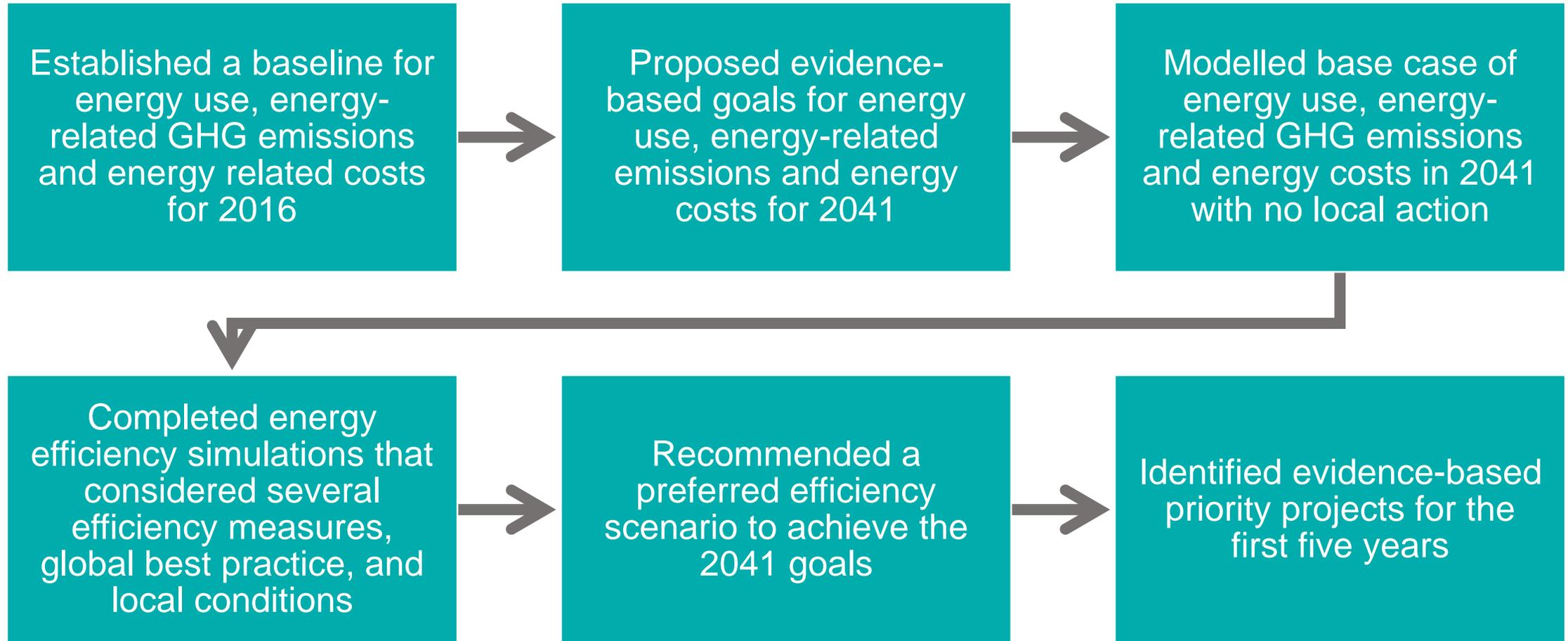


Local Planning Matters



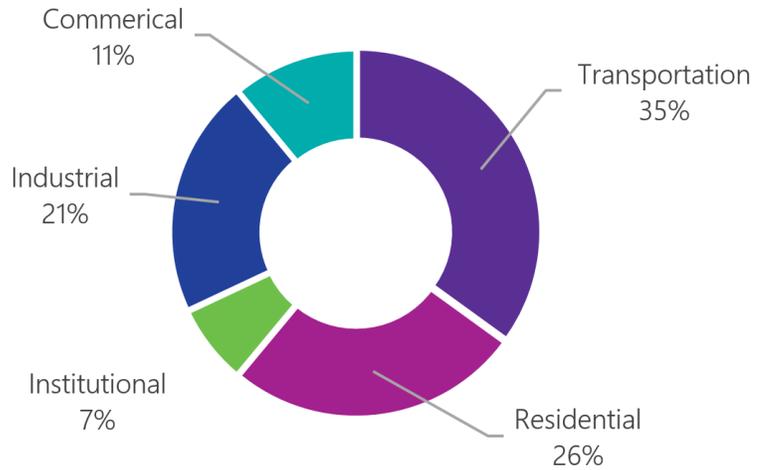
- Economic, environmental, social, and cultural outcomes:
- Healthier communities, denser, convenient, more housing choices, local jobs
- More transit, cycling, and walking
- Reduced energy costs
- Attract new business and create green jobs
- Improve building energy efficiency
- Achieve international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

Evidence Based Process

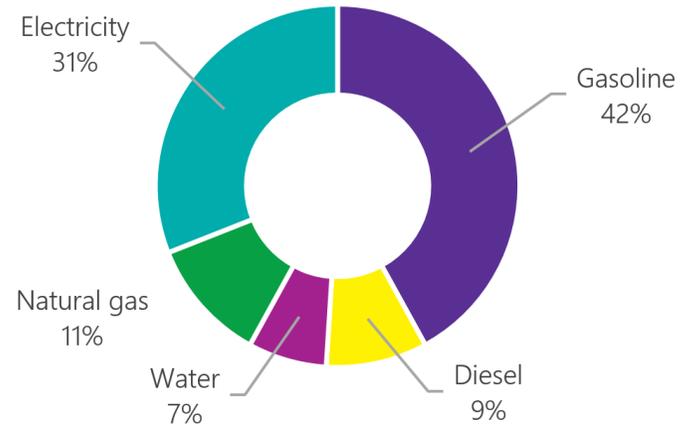


2016 Base Case

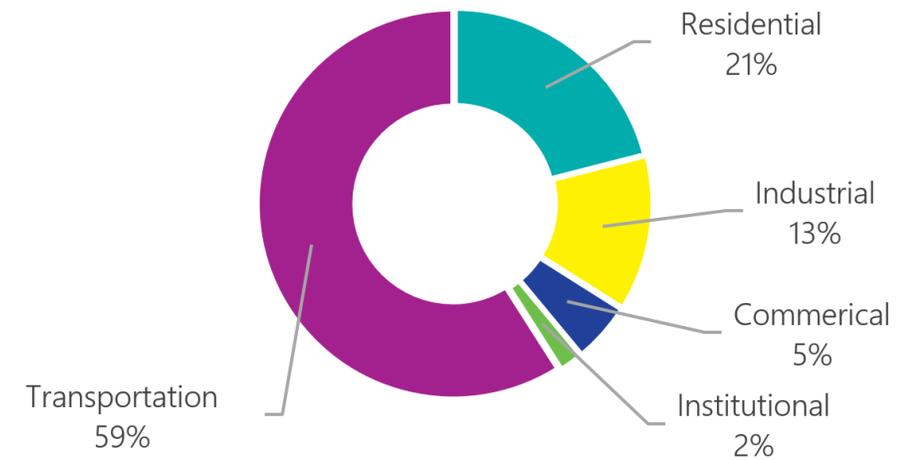
Brampton Source Energy Use by Sector, 2016



Brampton Energy Costs by Utility, 2016



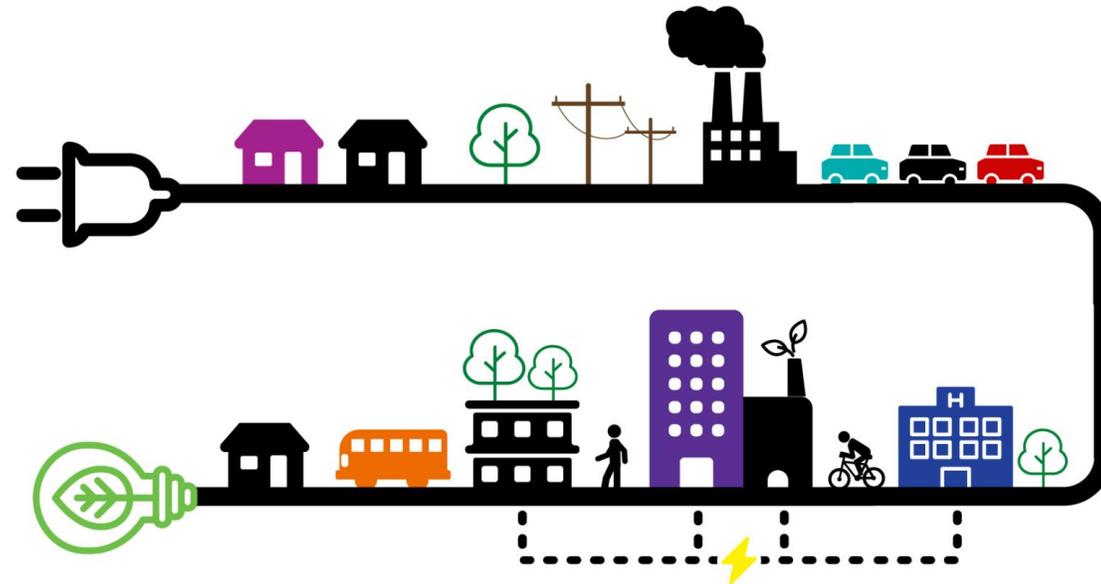
Brampton Emissions by Sector, 2016



CEERP Framework

Addressing the Climate Change Emergency requires:

- Urban transition
- Energy transition
- Community commitment and collaboration



Vision Statement

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

Principles and 2041 Goals

ENVIRONMENTAL

Work towards climate neutrality

ENERGY

Benchmark energy performance against global best practice

ECONOMIC

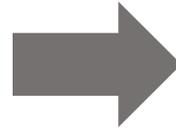
All energy related public and private sector investments will meet acceptable risk-adjusted returns

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

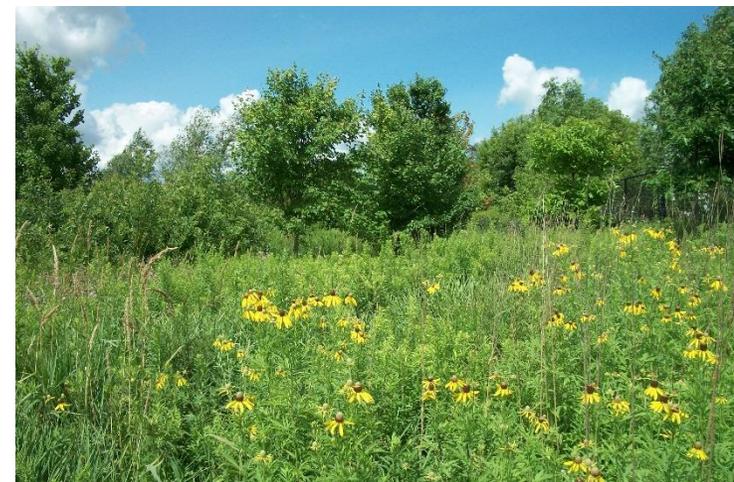
- Achieve a 20% industrial sector efficiency gain from 2016 levels

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.

Action Plan

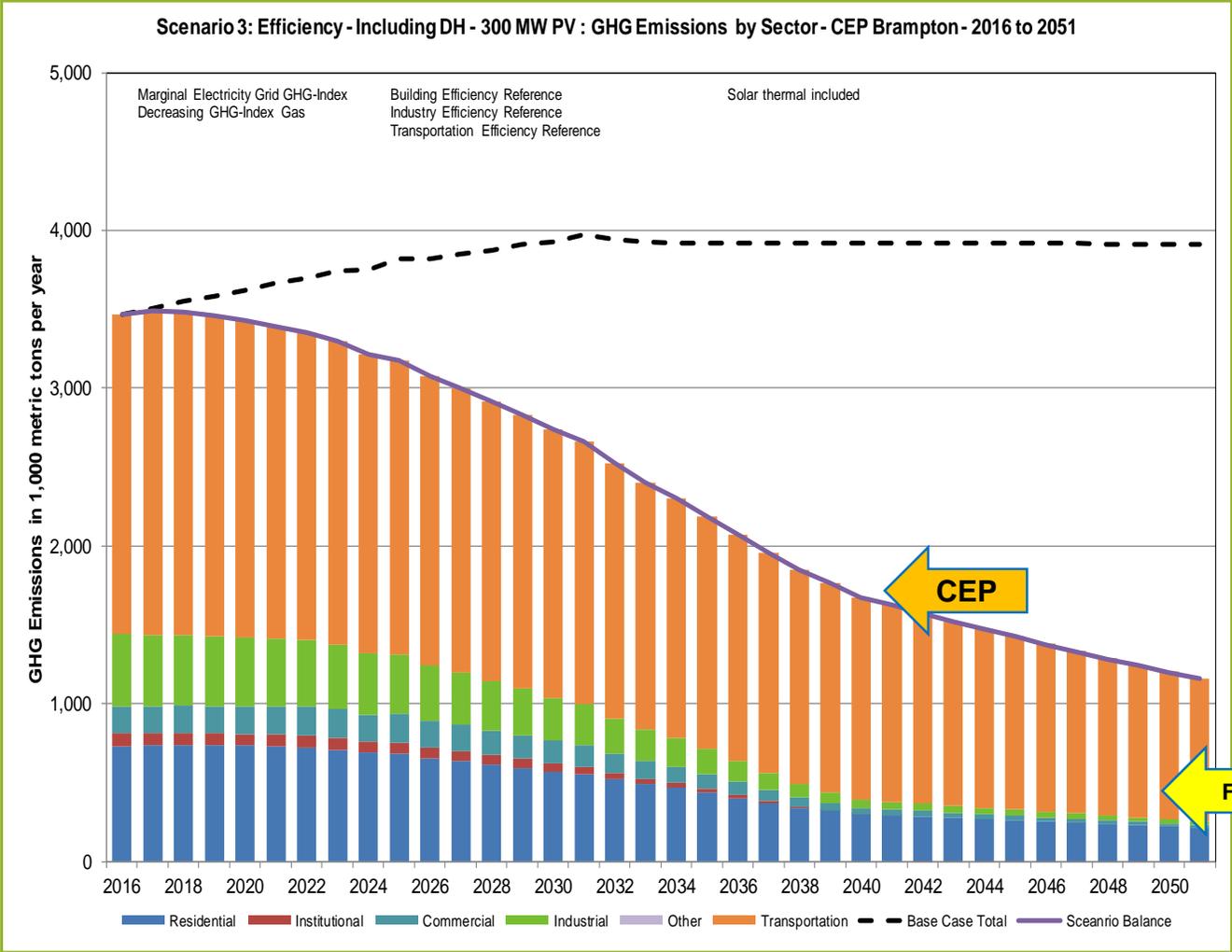
- Five year action plan
- Actions for each strategic direction
- Identifies leads and partners
- Example actions:
 - Implement Active Transportation Master Plan
 - Integrated Energy Plan for Shoppers World redevelopment
 - Launch electric buses and charging stations
 - Grow City-owned EV Charging stations
 - 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 CEERP.* | 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 the CEERP energy district mapping. * | 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.* | 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.* | COM | COB, ROP, UT | Short-term |
| 5.2.4 | Identify and pursue opportunities for combined heat and power (CHP) partnerships for district energy.* | 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, PPG | 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 |

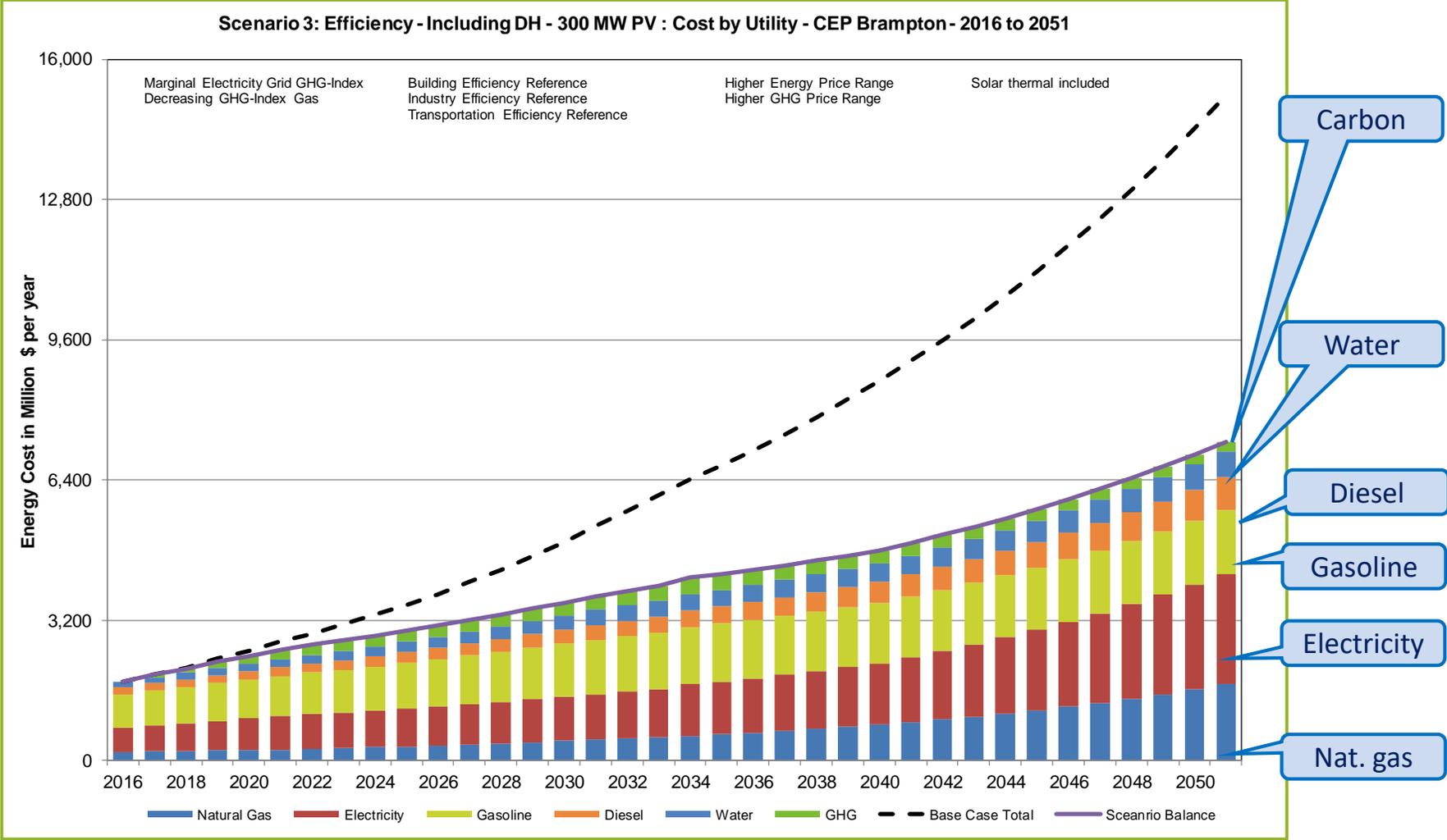
Brampton's GHG Emissions Target

- GHG Emission reduction of 50% by 2041



Brampton's Energy Savings

- Potential cumulative energy savings of \$26 billion by 2040



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



We Have Much to Be Proud Of



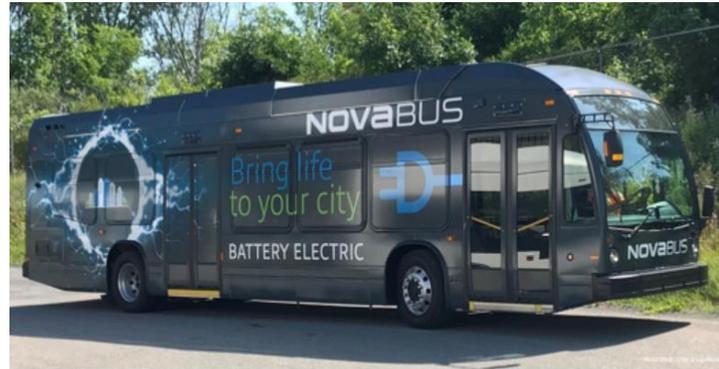
Climate Change Initiatives

RENEWABLE ENERGY PROJECTS



Climate Change Initiatives

SUSTAINABILITY THRESHOLDS FOR NEW DEVELOPMENT



Climate Change Initiatives

ELECTRIC BUS FLEET PILOT PROJECT



Climate Change Initiatives

52 CITY-OWNED ELECTRIC VEHICLE CHARGING STATIONS



Climate Change Initiatives

ACTIVE TRANSPORTATION MASTER PLAN



Climate Change Initiatives

NATURAL HERITAGE RESTORATION PLAN



Climate Change Initiatives

CORPORATE ENERGY MANAGEMENT PLAN
SIX LEED STATUS CORPORATE BUILDINGS





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. We can set an example as to what a successful, growing, suburban city looks like for others to follow.

Thank you

Pam Cooper

Senior Environmental Planner

Public Works and Engineering

pam.cooper@brampton.ca

905.874.2265

**OUR 2040
ENERGY
TRANSITION**

Community Energy and Emissions
Reduction Plan

Community Task Force | Garforth International Inc. | Sheridan | Get Creative | BRAMPTON