

A
ZERO
CARBON
Transition

ENERGY and **EMISSIONS**
MANAGEMENT PLAN
HIGHLIGHTS: 2019-2024



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THE PLAN

To meet the challenge of a zero carbon transition for the City's new and existing facilities, this plan reflects three key objectives:



1 MINIMIZE EMISSIONS INTENSITY



2 MINIMIZE ENERGY INTENSITY



3 MAXIMIZE COST RECOVERY

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Brampton is committed to being a Green City. In accordance with the Paris Agreement, Brampton has adopted the provincial and federal greenhouse gas (GHG) emission reduction targets of 30% and 80% for 2030 and 2050, respectively, using a 2010 baseline. The City has set an interim target of 20% GHG emissions reduction by 2024, which is the end year of Brampton's new Energy & Emissions Management Plan, 2019-2024.





The Future

Looking towards a zero carbon transition, the City has created an Energy & Emissions Management Plan highlighting the steps and measures to be taken to meet our planned targets.




Minimize Energy and Emissions in Existing and New Facilities

-  Continue to implement leading-edge energy efficient technologies and renewable energy projects in new and existing City facilities
-  Continue to monitor progress towards energy and emission reduction targets using the International Performance Measurement and Verification Protocol and Brampton's utility data management tool, GreenBEAM


GreenBEAM, short for Green Brampton Energy Asset Manager, receives and analyzes monthly utility data, saving administrative time and effort.

-  Develop a set point policy for temperature, humidity and outdoor air at City facilities
-  Develop a deep retrofit program seeking to deliver zero carbon or high performance
-  Keep energy intensity and renewable technology options top of mind when planning new facilities
-  Establish intensity targets for each type of facility, use energy modelling and cloud computing in the integrated design process to evaluate options.

Maximize Cost Recovery

-  Continue to identify and apply for third-party funding sources
-  Expand the use of energy metering to quantify savings for cost recovery
-  Investigate the procurement of ENERGY STAR® office equipment and Cradle to Cradle Certified™ building materials



 Ongoing Action

 New Action

THE GOAL: A ZERO CARBON TRANSITION

WE'RE MOVING IN THE RIGHT DIRECTION

From 2010 to 2017, the gross area of all City facilities increased by 42%, but energy intensity decreased by 18% and GHG emissions intensity decreased by approximately 39% due to conservation measures and decreasing emission factors.

 **↓ 39%**
GHG EMISSIONS INTENSITY

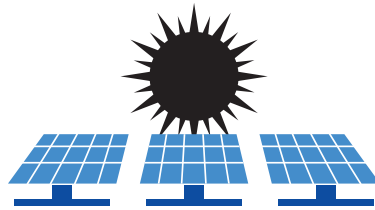
 **↓ 18%**
ENERGY INTENSITY

 **↑ \$5.8M** OF COSTS
HAVE BEEN RECOVERED

MAXIMIZE COST RECOVERY

A total of \$5.8M of costs have been recovered for the City of Brampton through energy conservation, renewable energy, third-party funding, energy procurement, and water rebates from 2014-2019.

HOW IS BRAMPTON REDUCING ENERGY AND EMISSIONS?



THE CITY HAS IMPLEMENTED OVER

13 RENEWABLE ENERGY PROJECTS

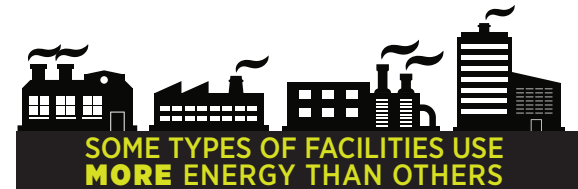
ACROSS CITY-OWNED FACILITIES

SYSTEMS
GEOTHERMAL
SOLAR PHOTOVOLTAIC
SOLAR THERMAL

2014-2019 **50 ENERGY CONSERVATION PROJECTS**
PERFORMED IN THE CITY

ENERGY AND EMISSIONS SAVINGS
EQUIVALENT TO REMOVING

 **1,220 CANADIAN HOUSEHOLDS**
& **690 CARS** 







SOME TYPES OF FACILITIES USE
MORE ENERGY THAN OTHERS

RECREATION AND TRANSIT FACILITIES
COMBINED REPRESENT
**2.7X MORE GHG EMISSIONS
PER SQUARE FOOT** COMPARED
TO ADMINISTRATIVE FACILITIES.

FOCUSING ENERGY AND EMISSION-SAVING
MEASURES AT RECREATION & TRANSIT
FACILITIES HAS THE GREATEST IMPACT.

THE CITY HAS INSTALLED

-  Swimming Pool Heat Recovery at Cassie Campbell Community Centre
-  Instantaneous Water Heaters at Balmoral Recreation Centre
-  De-stratification Fans at Sandalwood Transit
-  High-efficiency LED Lighting at South Fletcher's Sportsplex
-  52 Electric Vehicle Charging Stations
-  Building Automation Systems at 46 Facilities