

# 5 Year Energy Conservation Plan (2024 - 2028)

Energy Management & Facilities  
Maintenance



**CELEBRATE**

# Who Are We?

## Our Mandate:

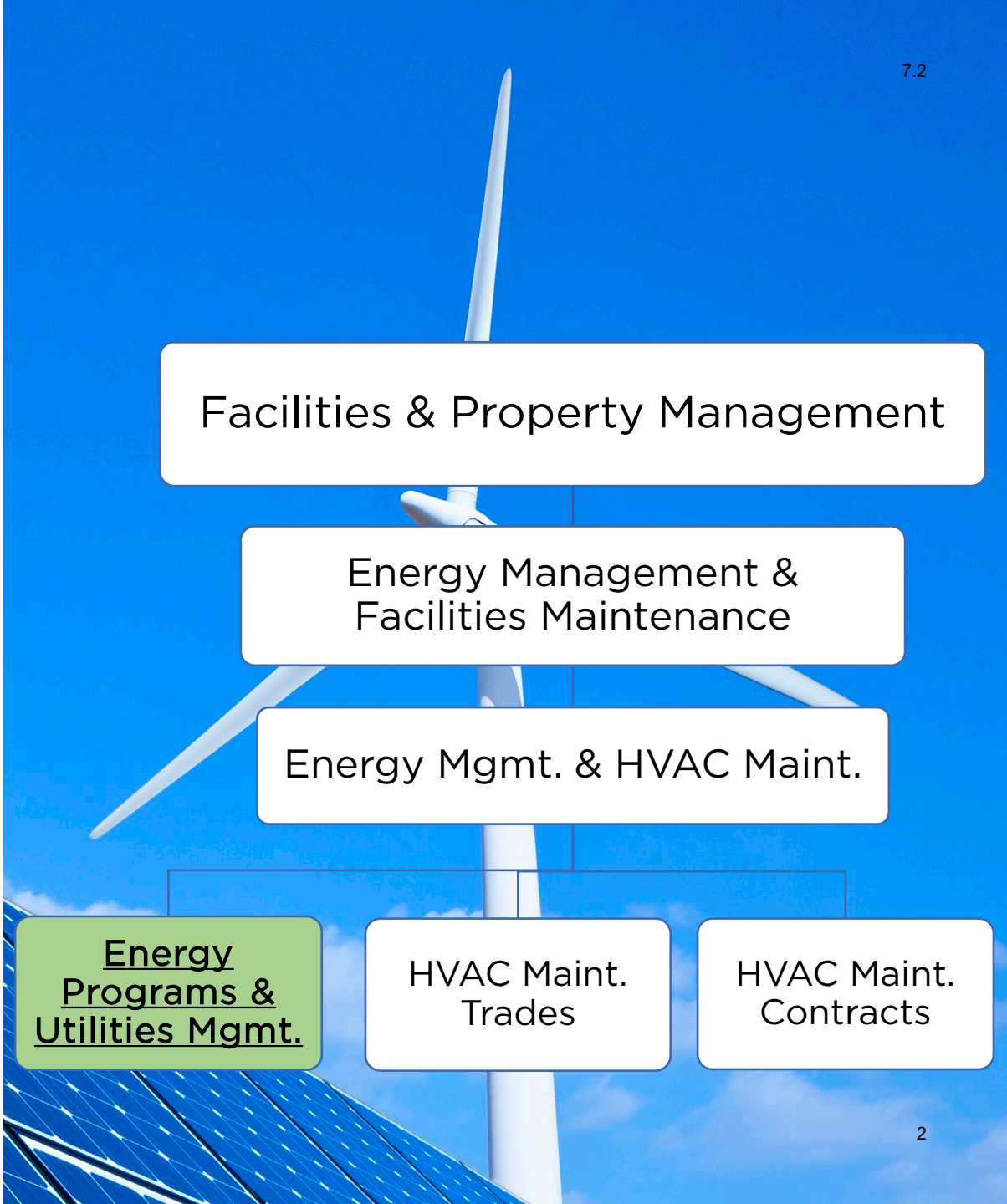
- To reduce utility consumption and GHG emissions in Municipal Facilities

## Our Work:

- To set targets, implement best practices, and measure performance

## Our Team:

- 5 energy & utility specialists working collaboratively with 7 HVAC Maint. Trades staff and 5 HVAC Maint. Contracts staff

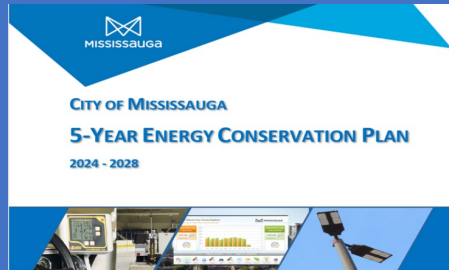


# Why Are We Here?

- Previous Plan Achievements
  - Results
  - Completed Initiatives & Projects
- Present the New Plan
  - Targets
  - Planned Initiatives & Projects
- Endorsement of the New Plan



# 5 Year Energy Conservation Plan (2024 - 2028)



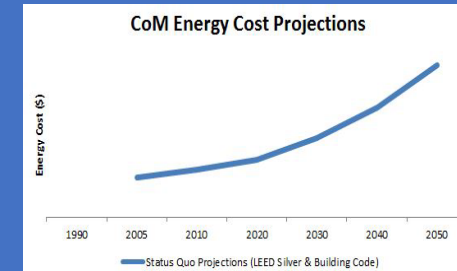
## Ontario Regulation 507/18

- Public municipalities to report usage
- Develop & implement a CDM Plan starting in 2019
- Update the CDM plan every 5 years



## Climate Change Action Plan Target

- Need to meet the City's aggressive Community & Corporate targets
- Reduce GHG emissions
  - 40% by 2030 below 1990 levels
  - 80% by 2050 below 1990 levels



## Utility Budget Stability

- Need to mitigate the rising utility costs (projected at 3% annually)

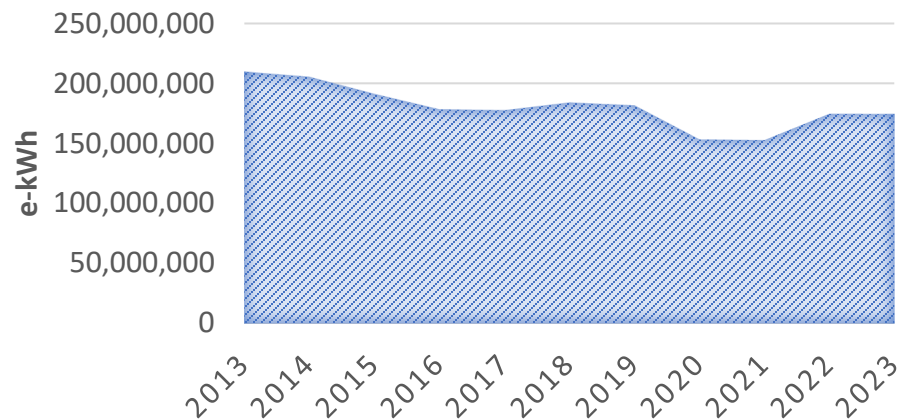


# Previous 5 Year Energy Conservation Plan (2019 - 2023)

## Results:

- 5% reduction in Energy since 2018
  - 7% reduction in electricity
  - 3% reduction in natural gas
- 3.3% reduction for GHG emissions since 2018
- \$1.3M in avoided utility costs
- \$700k in received incentives

CITY WIDE TOTAL ENERGY CONSUMPTION



CITY OF MISSISSAUGA

**5-YEAR ENERGY CONSERVATION PLAN**

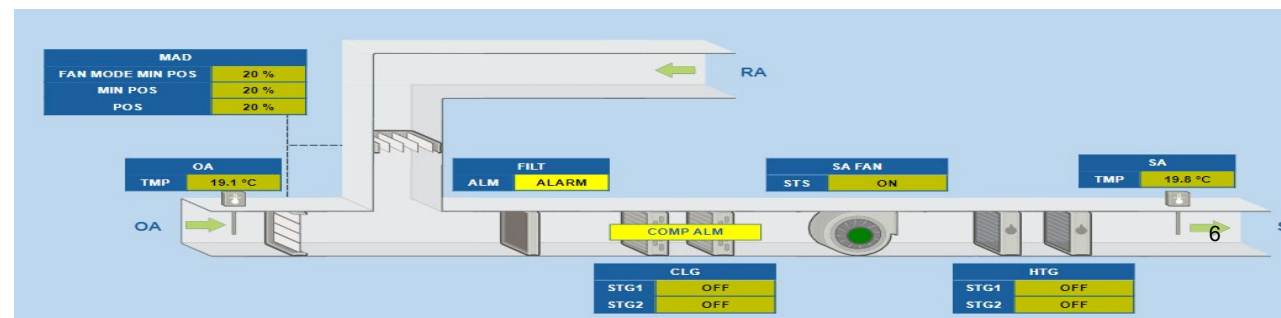
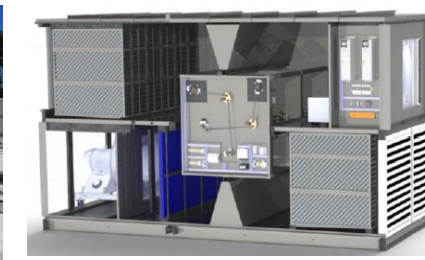
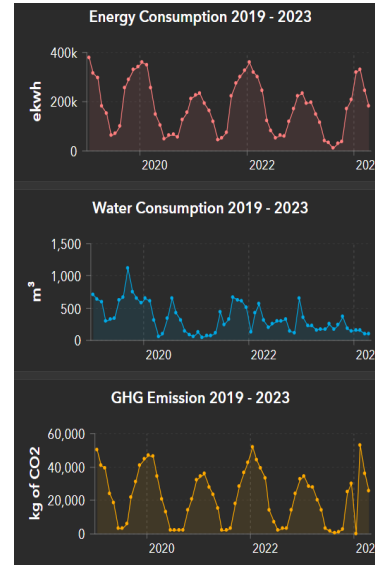
2019 - 2023



# Previous 5 Year Energy Conservation Plan (2019 - 2023)

## Major Projects Completed:

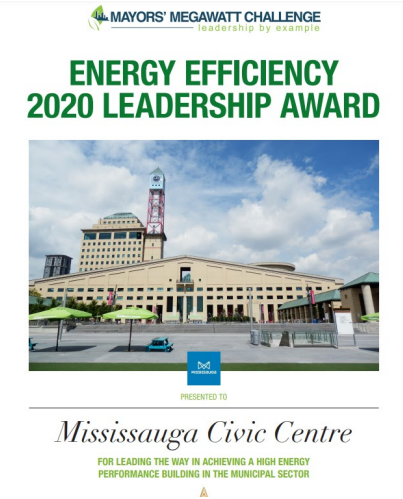
- Energy Efficient Lifecycle Upgrades
  - VRF Heat pumps at Transit Facility
  - Heat Pump Roof Top Units
  - High Efficiency boilers & VFD
  - Regenerative Pool Filters
- Pool water drain heat recovery
- Iceplant energy upgrade & operation optimization
- BAS Upgrades at various facilities
- High performance lighting upgrade
- Energy Monitoring & Fault Detection System (SkySpark)



# Previous 5 Year Energy Conservation Plan (2019 - 2023)

## Awards Received:

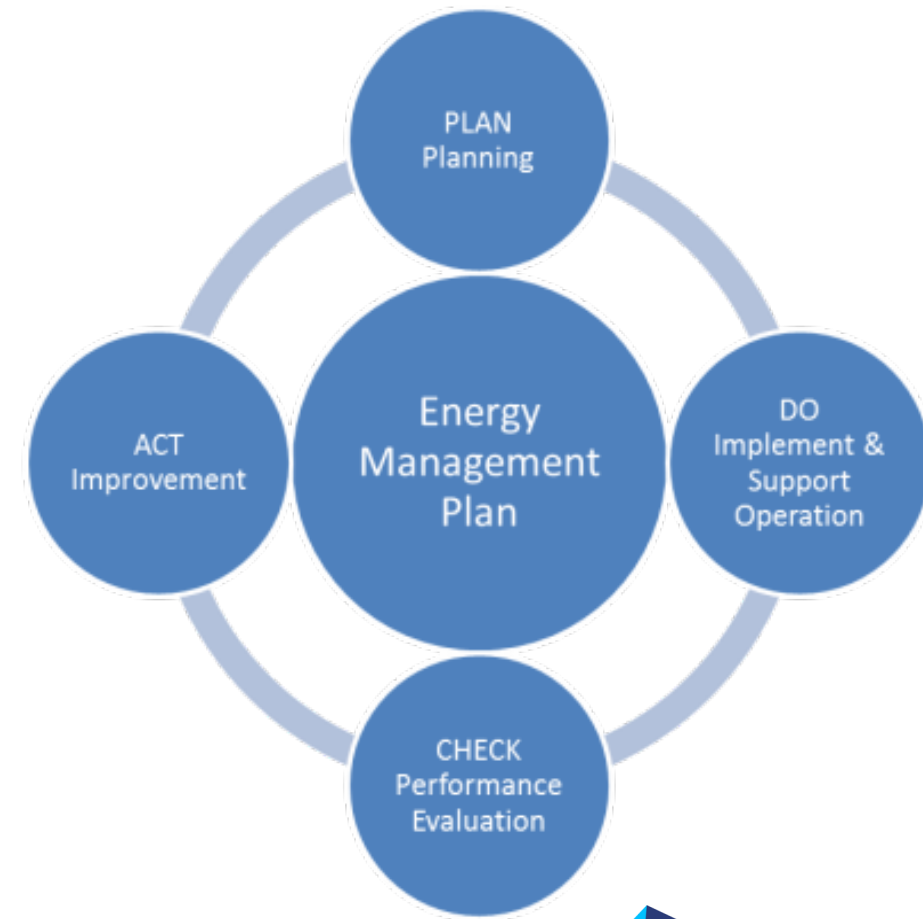
- ISO 50001 certification for energy management - Frank McKechnie CC (2021 - 2023)
- ENERGY STAR® Building of the year for Ice and Curling Rink - Erin Mills Twin Arena (2023)
- ENERGY STAR® certification for Erin Mills Twin Arena (2019, 2020, 2022)
- Energy Efficiency Leadership Award for Mississauga Civic Centre (2020)
- Energy Manager Award (2019 & 2021)
- Don Harrison Energy Champion Award (2019)



# New 5 Year Energy Conservation Plan (2024 - 2028)

## ISO 50001 Continual Improvement Framework:

- PLAN:
  - Set a target of 1% reduction in energy consumption and greenhouse gas (GHG) emissions each year over the energy consumption of 2023.
- DO:
  - Request funding each year and execute the planned projects during the five (5) year period.
- CHECK:
  - Utilize real-time data to track the performance of the projects and diagnose operation problems.
- ACT:
  - Improve energy performance by addressing deficiencies and continually driving energy performance.



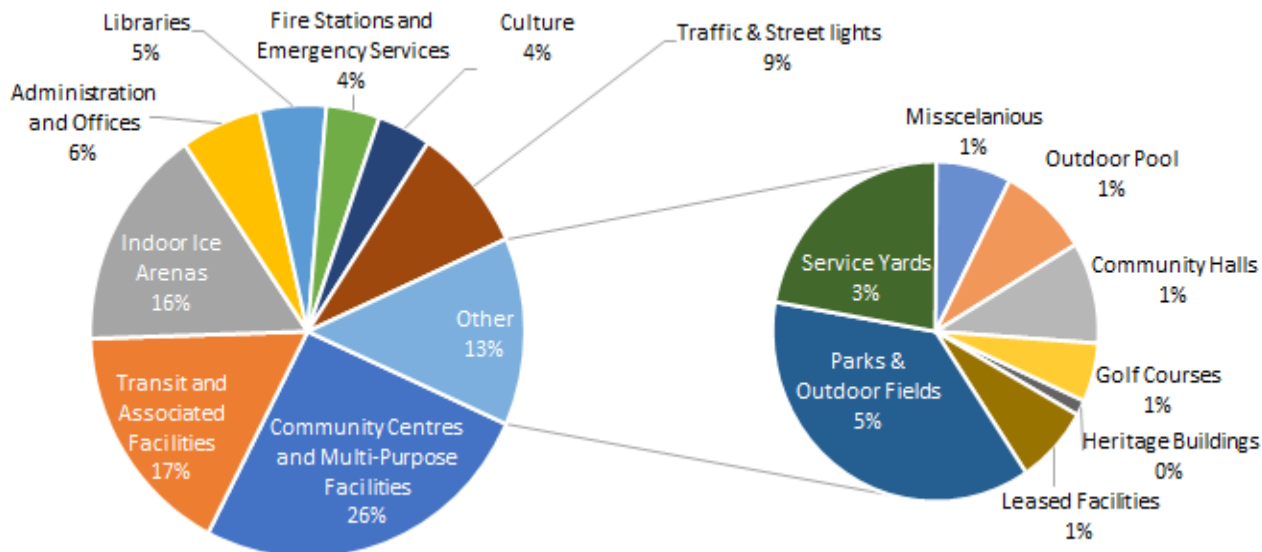


# New 5 Year Energy Conservation Plan (2024 - 2028)

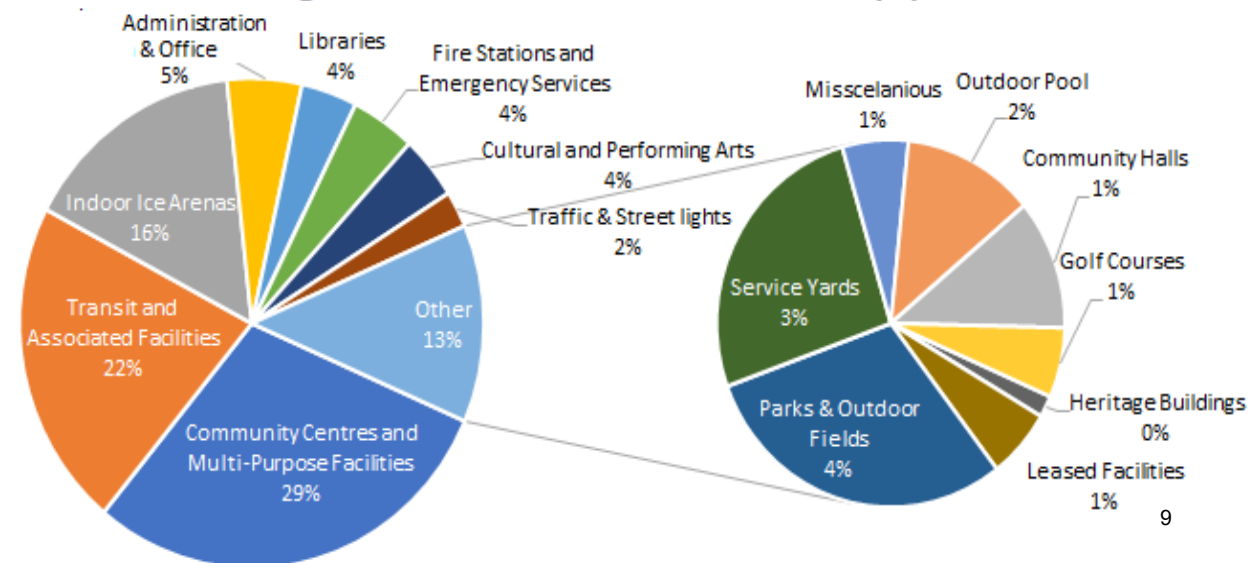
## Portfolio Usage Breakdown

- 349 sites and 17 archetypes across the City
- Community Centers, Arenas and Transit are 3 biggest users
  - 59% Energy Use
  - 67% for GHG emissions
- Majority of the planned initiatives and projects in the above archetypes

Percentage of Energy Consumption from all facilities (%)



Percentage of GHG Emission from all facilities (%)



# New 5 Year Energy Conservation Plan (2024 - 2028)

## Planned Initiatives and Projects

- Ice plant heat recovery
- Pool Heat Recovery
- Electric Ice Resurfacer
- Renewable Energy
- Generation
- Mechanical Systems Energy Upgrade
- Lighting Upgrade
- Controls Upgrade & Operation Optimization
- Ongoing Commissioning
- Metering & Sub-metering

Energy Measure Implementation Plan for City Facilities

Energy Measure	2024				2025				2026				2027				2028			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Pool Heat Recovery																				
Iceplant Heat Recovery																				
Electrification Ice Resurfacers																				
Building Ongoing Commissioning																				
Energy Upgrade For DHW Systems																				
Energy Upgrade For HVAC Systems																				
Control Upgrade																				
Metering & Sub-metering Equipment																				
Lighting Upgrades																				
Operation Optimization																				
Renewable Energy Generation																				

Scheduled Implementation

Cancelled Implementation

Q1 = Jan - Mar  
Q2 = Apr - Jun

Q3 = Jul - Sep  
Q4 = Oct - Dec

Status = Completed

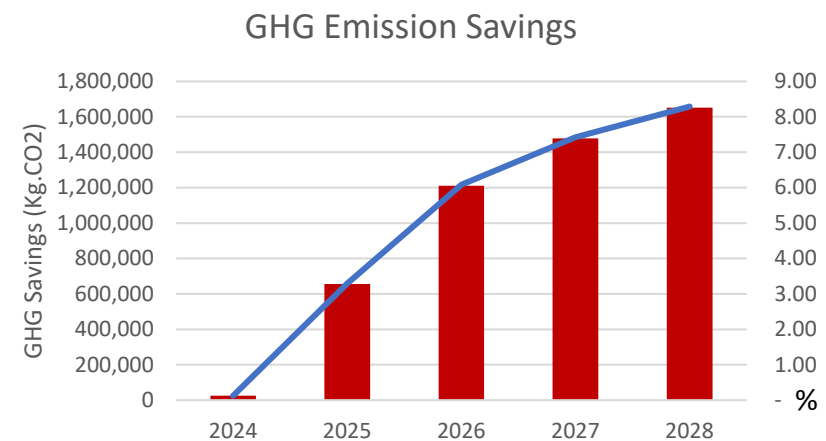
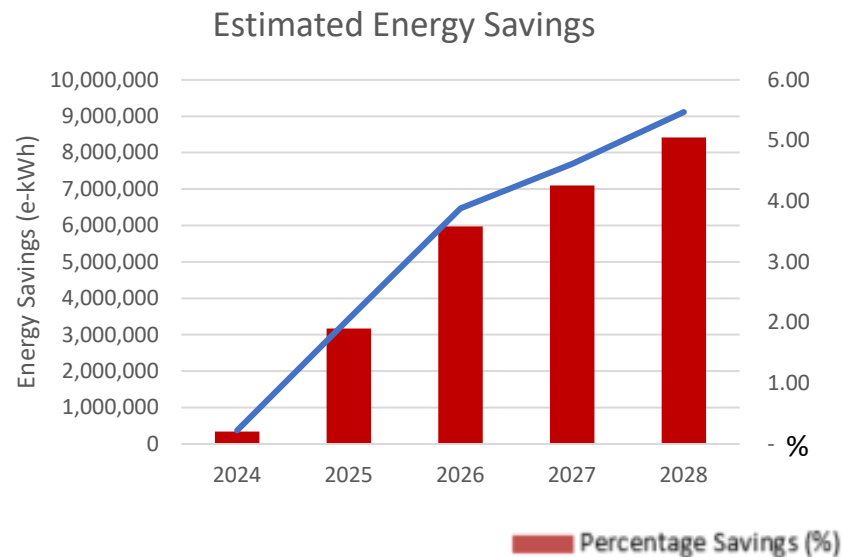
Status = Underway



# New 5 Year Energy Conservation Plan (2024 - 2028)

## Targets

- Achieve 5.0% energy use reduction over 2023 baseline
- Achieve 8.3% GHG Emissions reduction over 2023 baseline
- \$560,050 of utility cost to be avoided
- The energy use & GHG emissions will be measured and reported annually



# Questions

## Sumeet Jhingan

Manager, Energy Management & HVAC Maintenance

[sumeet.jhingan@mississauga.ca](mailto:sumeet.jhingan@mississauga.ca)

## Yasser Ismail

Supervisor, Energy Programs & Utility Management

[Yasser.Ismail@Mississauga.ca](mailto:Yasser.Ismail@Mississauga.ca)