

PW19043  
Item 9.1



# 2018 Annual Energy Report

## June 3, 2019

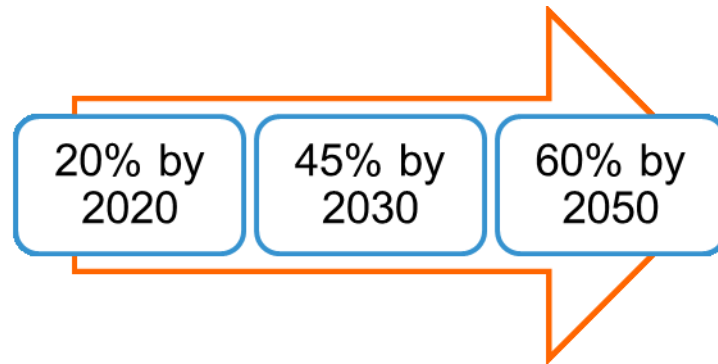
# Introduction

- The Annual Energy Report for 2018 is intended as a detailed review of the past 12 months of activities as they relate to energy usage, costs, energy performance, procurement efforts and conservation initiatives for corporate assets.
- The greenhouse gas emissions reductions and inventory report for the 2017 calendar year is also included.

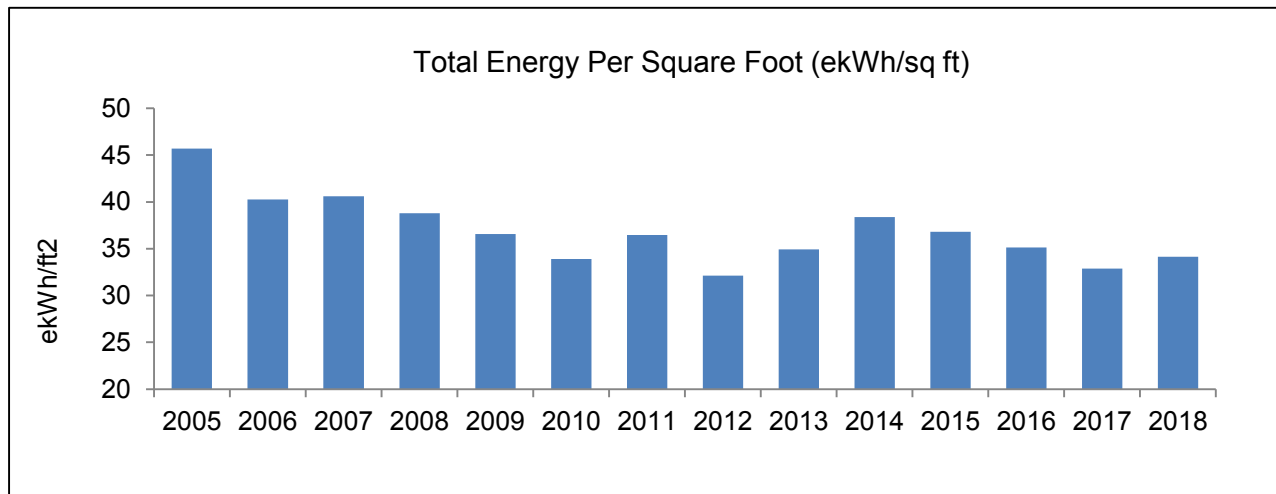
# Corporate Energy Policy

- The policy is designed to:
  - act as a guideline for making energy-related decisions as it pertains to corporate assets;
  - facilitate the achievement of city-wide energy intensity and emissions reduction targets;
  - define policies for capital investment, energy procurement, renewables;
  - address legislative requirements.

# Energy Intensity Reduction Targets



2018 - Energy intensity reduction of **25%**

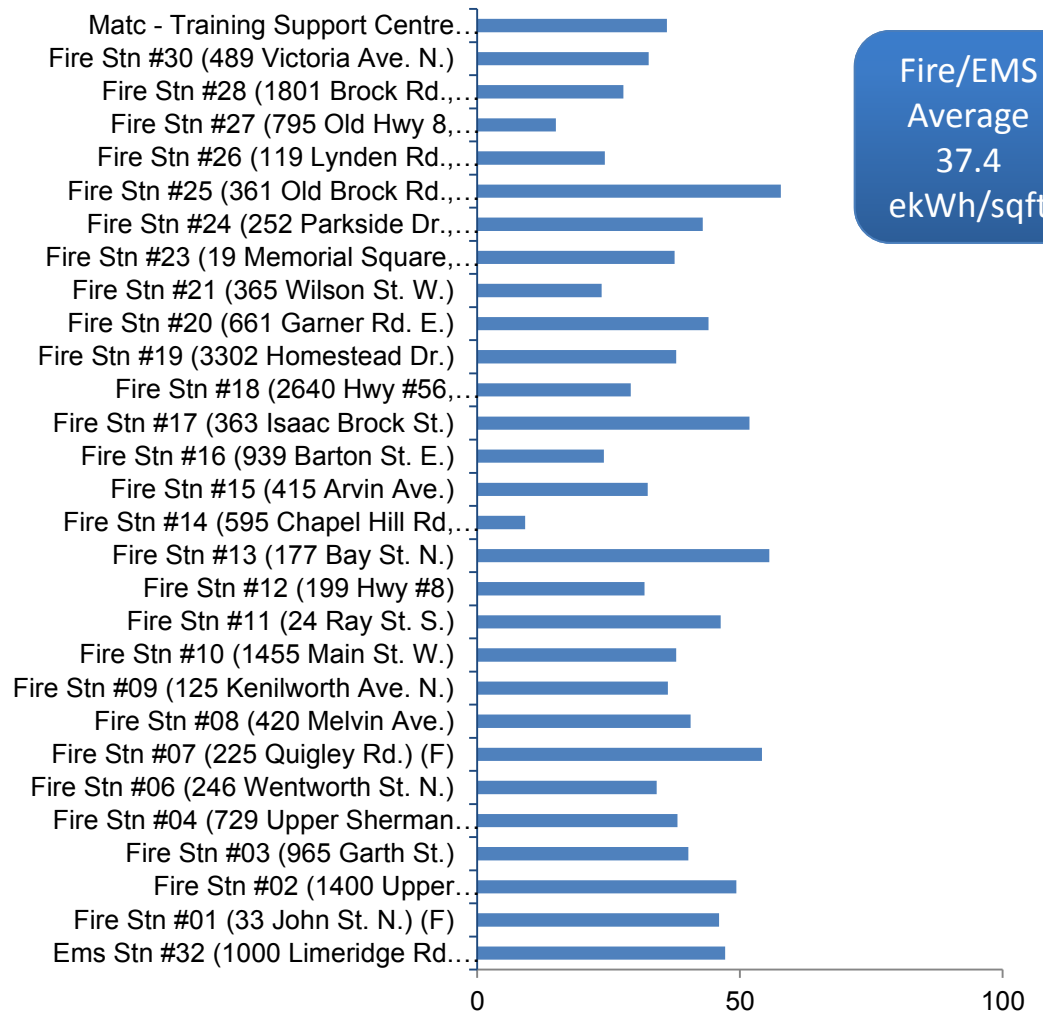


# Energy Intensity Per Portfolio

Sample of Energy Intensity by property for EMS & Fire

City Wide Energy Intensity  
Average of **34.13**  
ekWh/sqft

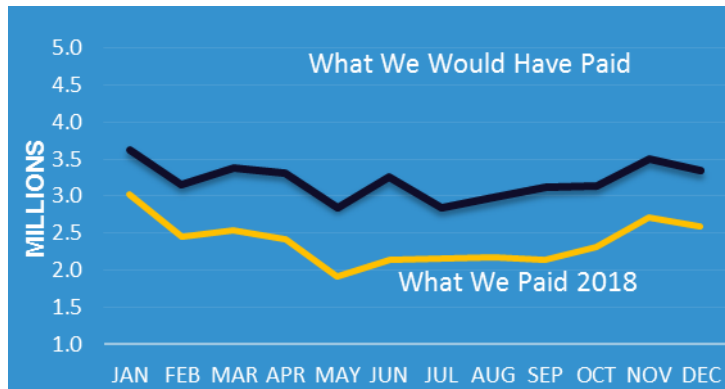
Fire/EMS Energy Intensity (ekWh/sqft)



\* Details Found in Appendix

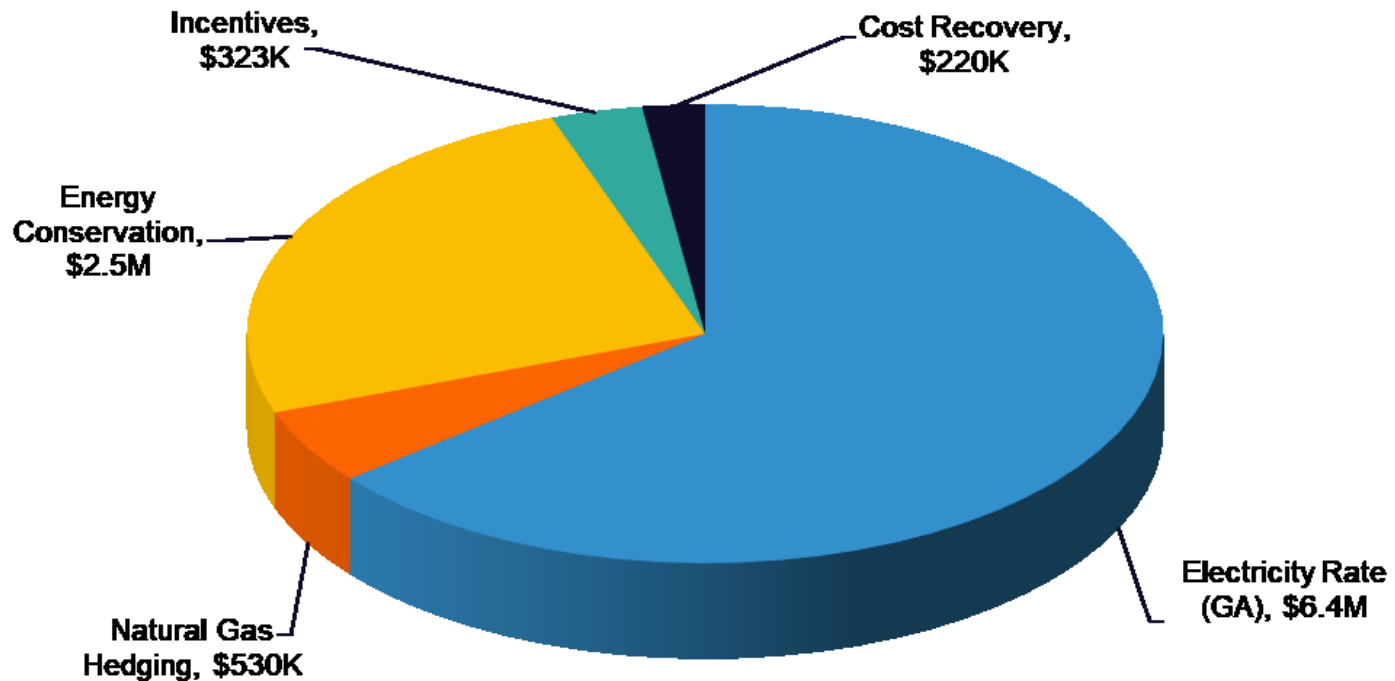
# Energy Strategies and Programs

**Energy Strategies & Programs**  
resulted in \$9.9M savings and  
avoided costs for 2018.



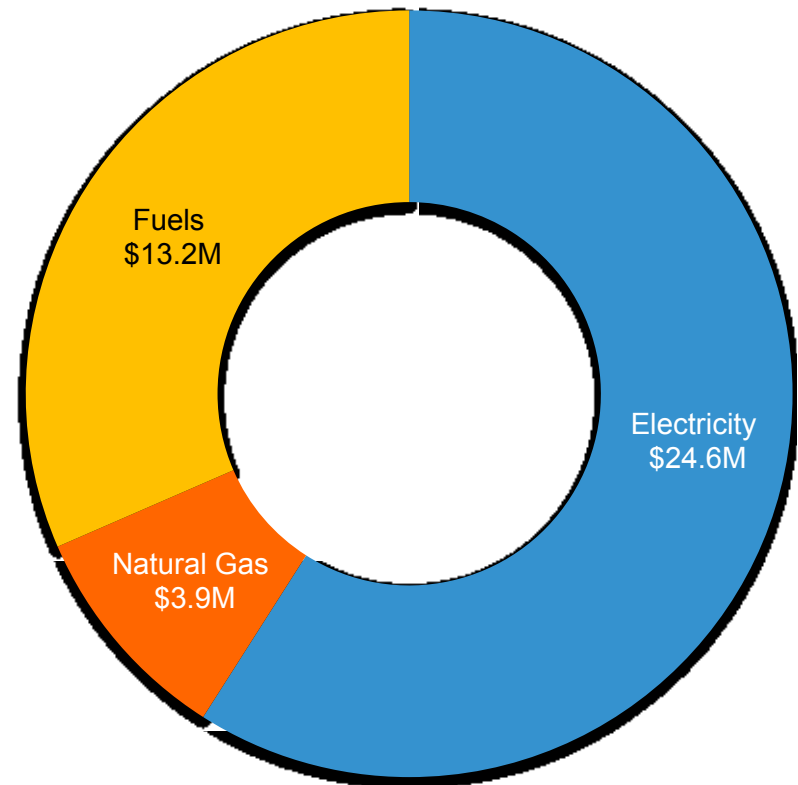
- Utility Rates & Commodity Strategies
  - Global Adjustment
  - Hedging
- Cost Recovery
  - Billing/rate errors and corrections
  - Tax recovery programs
- Energy Conservation & Incentives Programs
  - Savings achieved from energy efficiency projects
  - Incentives received

# Breakdown of Energy Strategies and Programs - 2018





# Overall Costs: Electricity, Natural Gas & Fuels - 2018

- Facilities costs incurred by City-owned buildings/sites and exclude City Housing Hamilton. Sites linked to the district energy system with utility costs provided from HCE are included in electricity and natural gas respectively.
- Fuels include diesel, unleaded gasoline and CNG for all Transit and Fleet operations but does not include Hamilton Police Services or Darts.
- Sites with partial data may be excluded.





# Facilities

- Overall Combined Electricity and Natural Gas consumption was 2%  over 2017.
- Overall Combined Electricity and Natural Gas cost was 5.6%  than 2017.

Combined Consumption and Cost Comparison

| Total Energy Overview  |              |              | Comparisons  |              |               |
|------------------------|--------------|--------------|--------------|--------------|---------------|
|                        | 2005         | 2017         | 2018         | 2018 vs 2005 | 2018 vs 2017. |
| Total Energy (ekWh)    | 400,722,256  | 343,345,087  | 350,049,621  | -13%         | 2.0%          |
| Total Energy Cost (\$) | \$27,177,303 | \$30,277,305 | \$28,580,942 | 5%           | -5.6%         |
| Total Energy (\$/ekWh) | \$0.068      | \$0.088      | \$0.082      | 20%          | -7.4%         |



# Vehicle Fuels

- Corporate Average Fuel Economy (CAFE)

CAFE 2018 to base Year Comparison

| Diesel Litre Equivalent (DLE) per 100 KM | BASE (2012) | 2018 |
|--|-------------|------|
| Unleaded Gasoline                        | 20.7        | 19.4 |
| Diesel                                   | 54.5        | 54.1 |
| CNG                                      | 66.2        | 70.7 |
| Total                                    | 46.2        | 44.8 |
| Overall % Changed in DLE/100 KM          |             | -3%  |

- Fuel Costs and Consumption

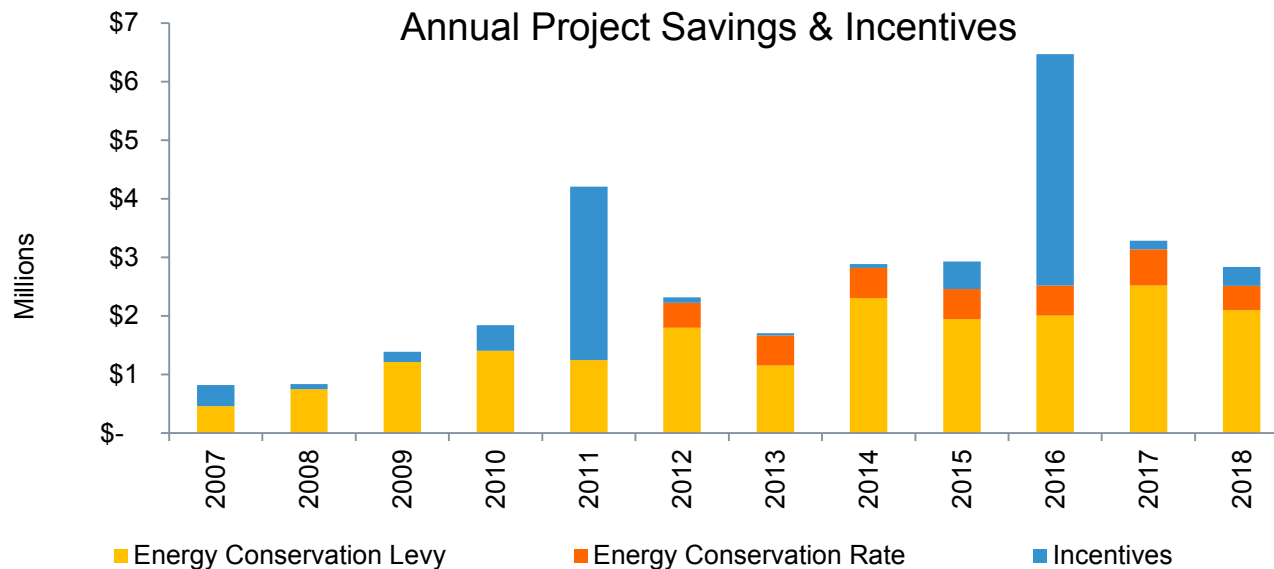
- Consumption overall 5%  than 2017
- Cost overall 15%  than 2017

2018 Cost and Consumption of Fuels

| Fuel Type         | Consumption Litres | Cost                | Average \$/L |
|-------------------|--------------------|---------------------|--------------|
| Diesel            | 9,172,662          | \$ 9,752,970        | \$ 1.06      |
| Unleaded Gasoline | 2,248,360          | \$ 2,372,824        | \$ 1.06      |
| CNG (DLE)         | 5,104,215          | \$ 1,032,545        | \$ 0.20      |
| <b>Total</b>      | <b>16,525,237</b>  | <b>\$13,158,339</b> |              |

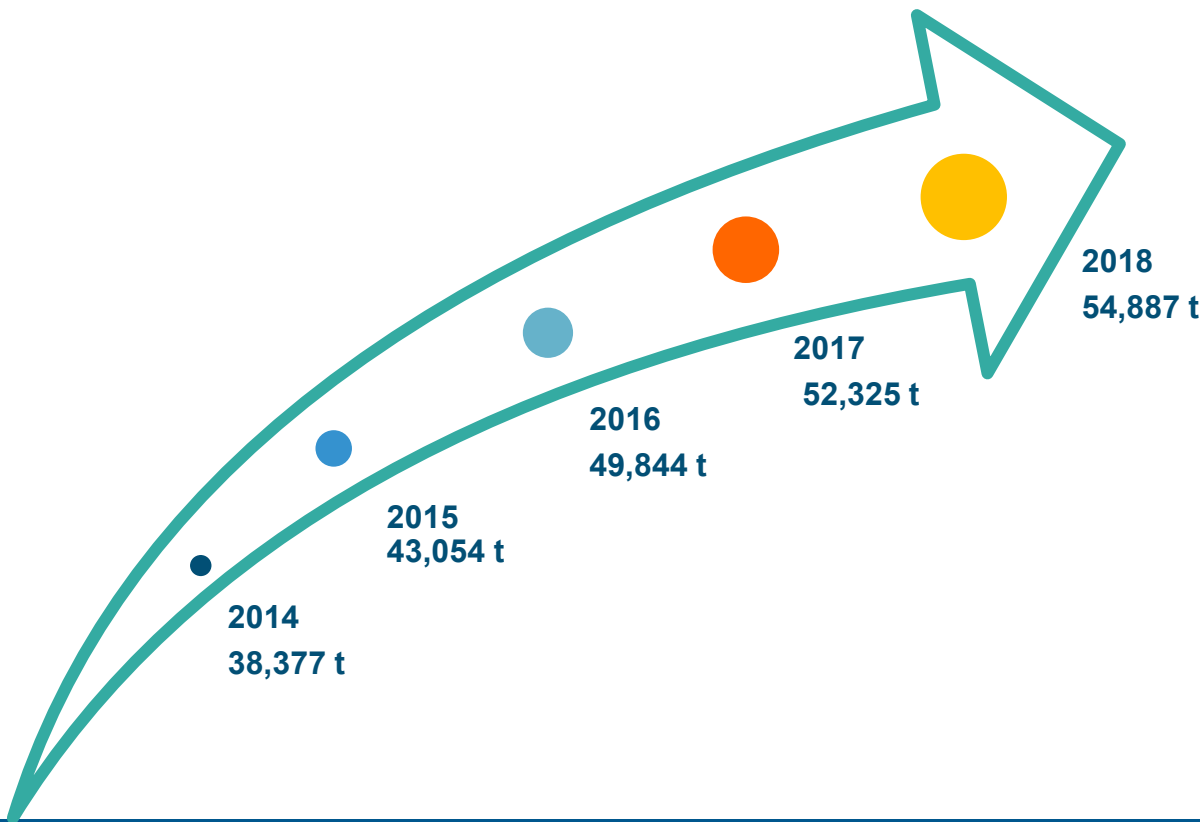
# Energy Conservation

- Energy Efficiency Projects
- Incentives



- Energy efficiency project work often has the added benefit of GHG Emissions reductions

Cumulative GHG Reductions from Energy Conservation Projects in tCO<sub>2</sub>e



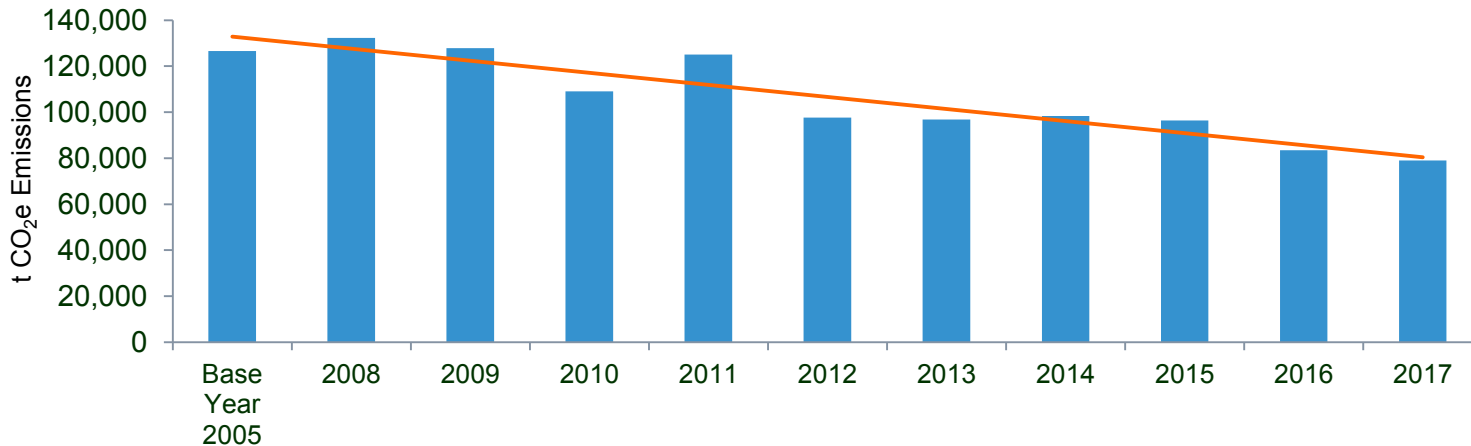
# GHG Emissions 2017 Report

## Targets outlined in the CEP

| Year | Emission Reduction & Offset Target |
|------|------------------------------------|
| 2020 | 20%                                |
| 2030 | 50%                                |
| 2050 | 80%                                |

2017 Inventory of  
79,028 tonnes CO<sub>2</sub>e =  
**38%** Decrease from  
2005

City of Hamilton Corporate GHG Emissions Annual Trend (tCO<sub>2</sub>e)



# Final Thoughts

- Several factors impact success of initiatives:
  - Regulatory changes;
  - Funding & budget constraints;
  - Market factors; and
  - Behavior and attitude.

Key is to keep targets in sight and focus efforts to reduce usage and carbon footprint of corporate facilities.

## What's New?

- Mayor's declaration on Climate Change; and
- Revision of the Corporate Energy Policy document.