Corporate

100% Renewable Energy (100RE)

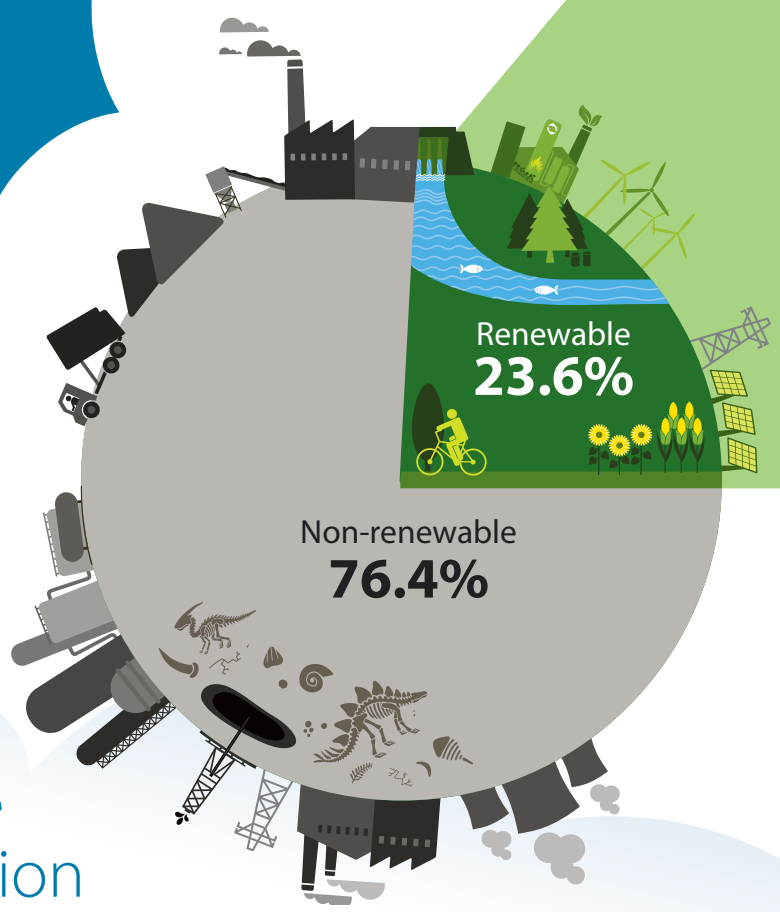
Where we're going

On May 28, 2018 Council unanimously passed the City of Guelph's Corporate 100% Renewable Energy Target:

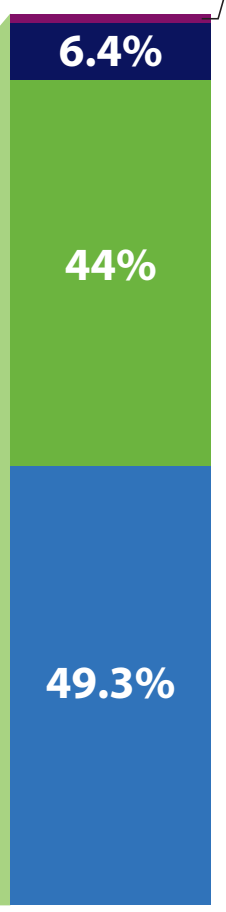
"The Corporation will strive to achieve one hundred percent of its energy needs through renewable sources by 2050"

The Corporation's annual energy consumption is to be equal to or less than the amount of renewable energy generated within or imported into the defined scope and boundary.

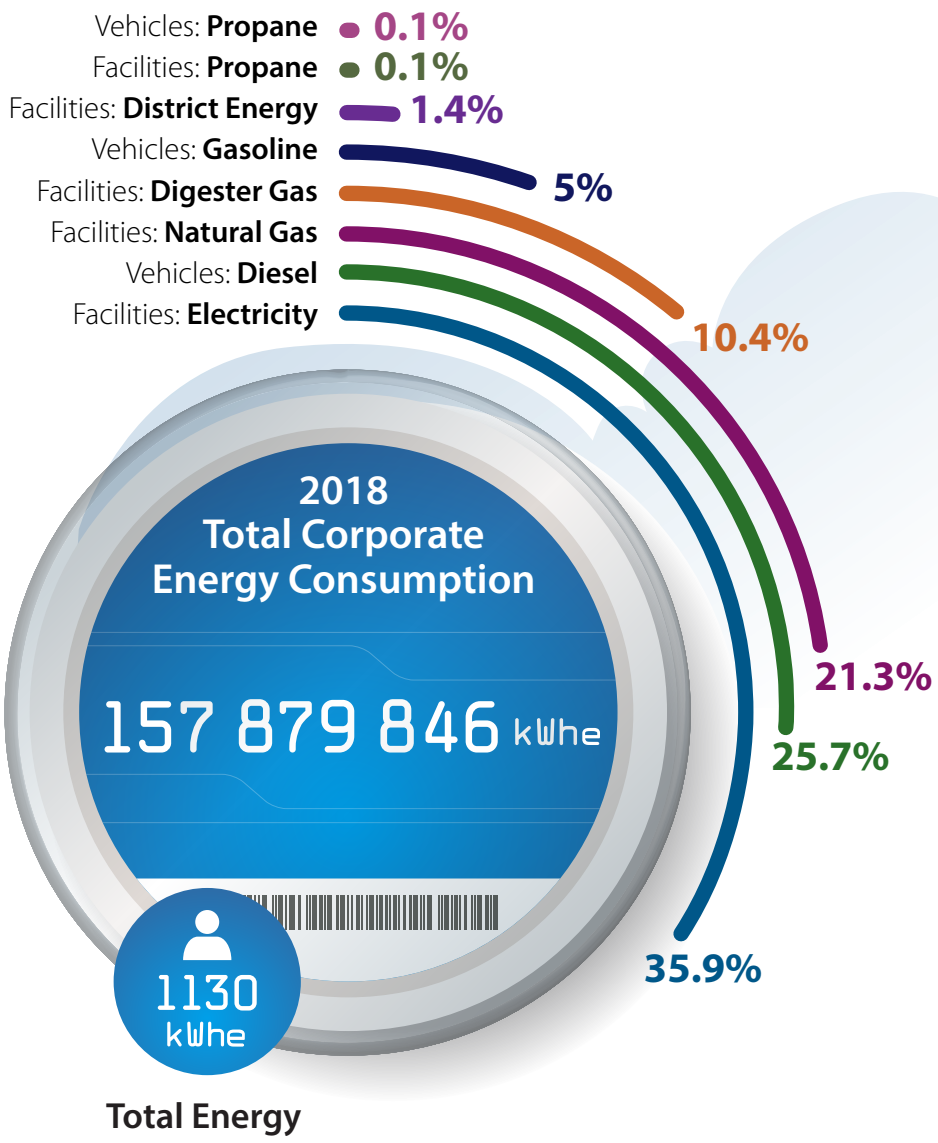
2018 100RE Status



2018 Renewable Energy

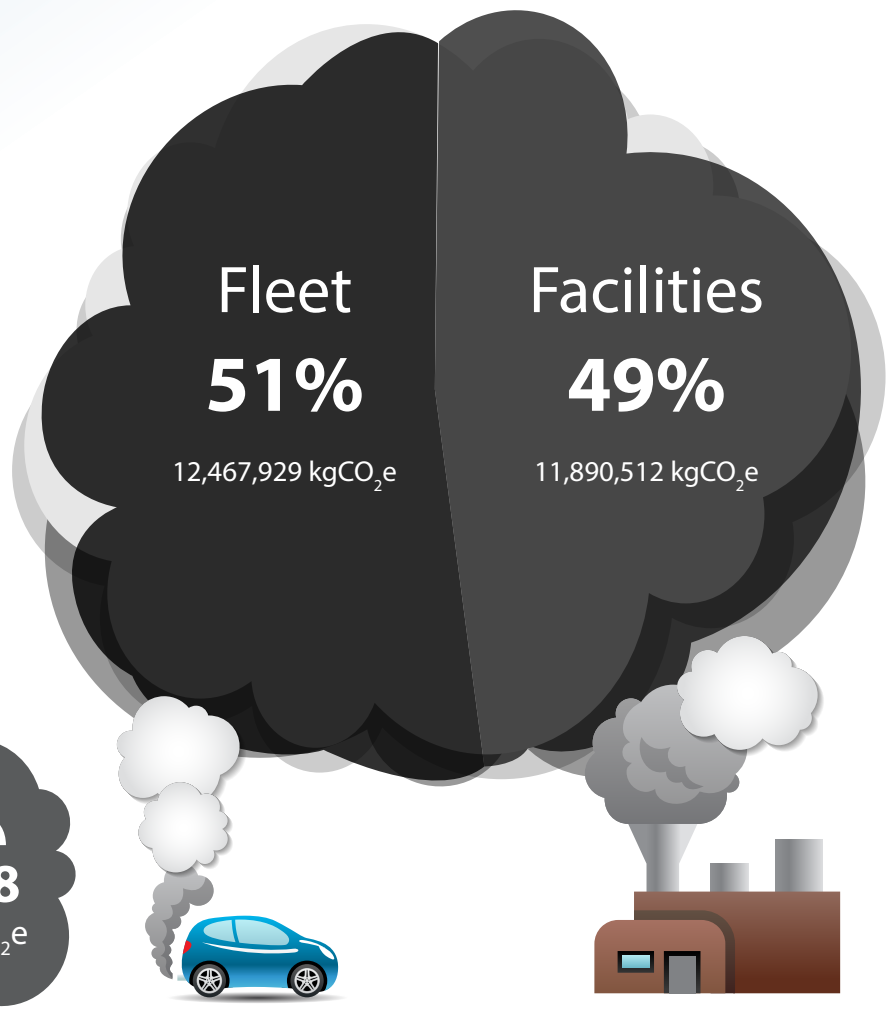


2018 Total Corporate Energy Consumption



Total Energy Consumption per person*

2018 Greenhouse Gas Emissions



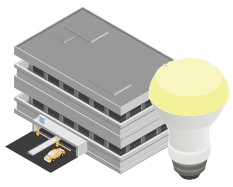
Total GHG Emissions per person*

178 $kgCO_2e$

* based on 2018 City of Guelph population

What we've done—2018 Key Project Highlights

Electricity savings · Water savings · Natural gas savings · Greenhouse gas emissions reduction · Other fuel savings · Project cost



East Parkade LED Lighting Retrofit

All lights in the parking area and stairwells were replaced with vandal resistant energy efficient LED lights. This improves light quality, reduces maintenance costs and saves energy.

- **142,000** kWh/yr
- **2,840** $kgCO_2e/yr$
- **$150,000**

Waterworks Electrical Room Cooling Right-Sizing

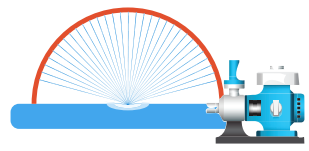
Cooling is needed for electrical equipment to function safely. The old oversized cooling system was replaced with right-sized modular equipment that can provide the appropriate level of cooling as weather effects and equipment usage change.

- **28,000** kWh/yr
- **560** $kgCO_2e/yr$
- **$21,000**

Victoria Road Recreation Centre Ice Plant Controller

An ice plant control system was installed to optimize cooling tower and compressor operations, saving energy and improving ice quality.

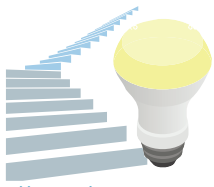
- **201,000** kWh/yr
- **4,020** $kgCO_2e/yr$
- **$29,000**



Norm Jary Splashpad Variable Speed Drive Pump

Pump was right-sized and variable speed drive was installed to allow for better pump control. This reduces water and energy use.

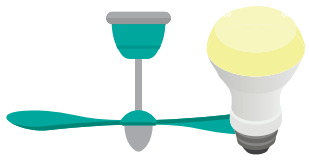
- **4,000** kWh/yr
- **3,680** m^3/yr
- **80** $kgCO_2e/yr$
- **$39,000**



City Hall Parking, Exterior and Stairwell LED Lighting Retrofit

LED lighting retrofit with controls to improve lighting conditions and automatic turn off and dimming based on occupancy.

- **62,000** kWh/yr
- **1,240** $kgCO_2e/yr$
- **$42,000**



Farmer's Market LED Lighting Retrofit and Destratification Fans

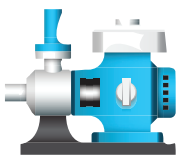
Five destratification fans installed to improve air movement and thermal comfort. All lights have been upgraded to LED.

- **13,000** kWh/yr
- **1,300** m^3/yr
- **2,714** $kgCO_2e/yr$
- **$28,000**

Fire Hall #4 Water Heater Upgrade

The old inefficient draft appliance water heater was replaced with a high-efficient condensing unit that recovers exhaust heat to preheat water.

- **10,000** m^3/yr
- **18,880** $kgCO_2e/yr$
- **$5,000**



Burke Well Variable Speed Drive Pumps

The well pump and booster pump were upgraded with variable speed drives for enhanced controls and more efficient pumping.

- **111,000** kWh/yr
- **2,220** $kgCO_2e/yr$
- **$30,000**

What we're planning—2019 Key Prospect Highlights

LED Streetlights and Controls

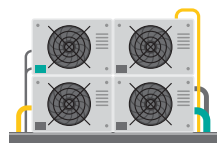
Nearly 13,000 non-decorative streetlights are to be upgraded to LED with network controls. This will improve light quality and reduce operating and maintenance costs.

- **9,465,000** kWh/yr
- **189,300** $kgCO_2e/yr$
- **$8,000,000**

Victoria Road Recreation Centre Cold Water Ice Flooding

Traditionally water is heated to remove air bubbles before flooding and resurfacing ice. An engineered device is to be installed to remove air bubbles using fluid dynamics. This will improve ice quality and reduce the need to heat water for flooding.

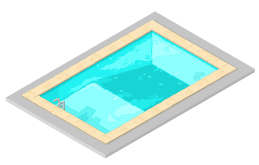
- **44,000** kWh/yr
- **6,500** m^3/yr
- **13,152** $kgCO_2e/yr$
- **$40,000**



West End Community Centre Cooling Tower Replacement with Variable Speed Drive

The existing cooling tower is at the end of its useful life and is to be replaced with an energy efficient unit equipped with a variable speed drive.

- **19,500** kWh/yr
- **390** $kgCO_2e/yr$
- **$30,000**



West End Community Centre Pool Drain Heat Recovery

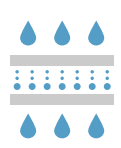
A control system will be installed to optimize pool water drainage rates and recover waste heat from drained pool water to preheat fresh pool water.

- **9,000** m^3/yr
- **1,460** m^3/yr
- **16,992** $kgCO_2e/yr$
- **$30,000**

Zero Emissions Electric Ice resurfacers

Two propane fueled ice resurfacers are being replaced with battery electric models. This will improve indoor air quality by eliminating indoor exhaust and reduce fuel costs and building ventilation requirements.

- **11,000** m^3/yr
- **3,300** L/yr propane
- **25,876** $kgCO_2e/yr$
- **$100,000**



Wastewater Treatment Plant Aeration Upgrade Detailed Design

Detailed design is to be done for the aeration blower upgrades. The upgrades will improve control of air supplied to the treatment process and significantly reduce energy demand by 6,750,000 kWh/yr at the Wastewater Treatment Plant.

CITY OF Guelph
Making a Difference