

The Regional Municipality of York

Committee of the Whole
Environmental Services
June 13, 2019

Report of the Commissioner of Environmental Services

2018 Corporate Energy Report

1. Recommendation

It is recommended that Council receive this report for information.

2. Summary

This report provides Council with an annual update on greenhouse gas emissions and energy costs from Regional corporate operations. This report is a link to the initiatives and targets detailed in the Region's Energy Conservation and Demand Management Plan.

Key Points:

- Total 2018 emissions from Regional service delivery were 80,635 tonnes of greenhouse gases
- Corporate greenhouse gas emissions increased by 2.7 per cent or 2,100 tonnes in 2018 to support population growth and increased demand for services
- Corporate energy costs rose by six per cent or \$2.87 million in 2018 as a result of an increase in the price of fossil fuels and increases in diesel fuel and natural gas consumption
- Cancellation of Cap and Trade in 2018 resulted in a loss of Provincial funding for programs that supported Regional energy conservation initiatives
- Regional departments continue to develop business cases based on own-source revenue for funding and life-cycle cost savings as justification for conservation investments

3. Background

This report informs Council about the Region's progress toward our Vision 2051 aspirational goal of net-zero carbon emissions

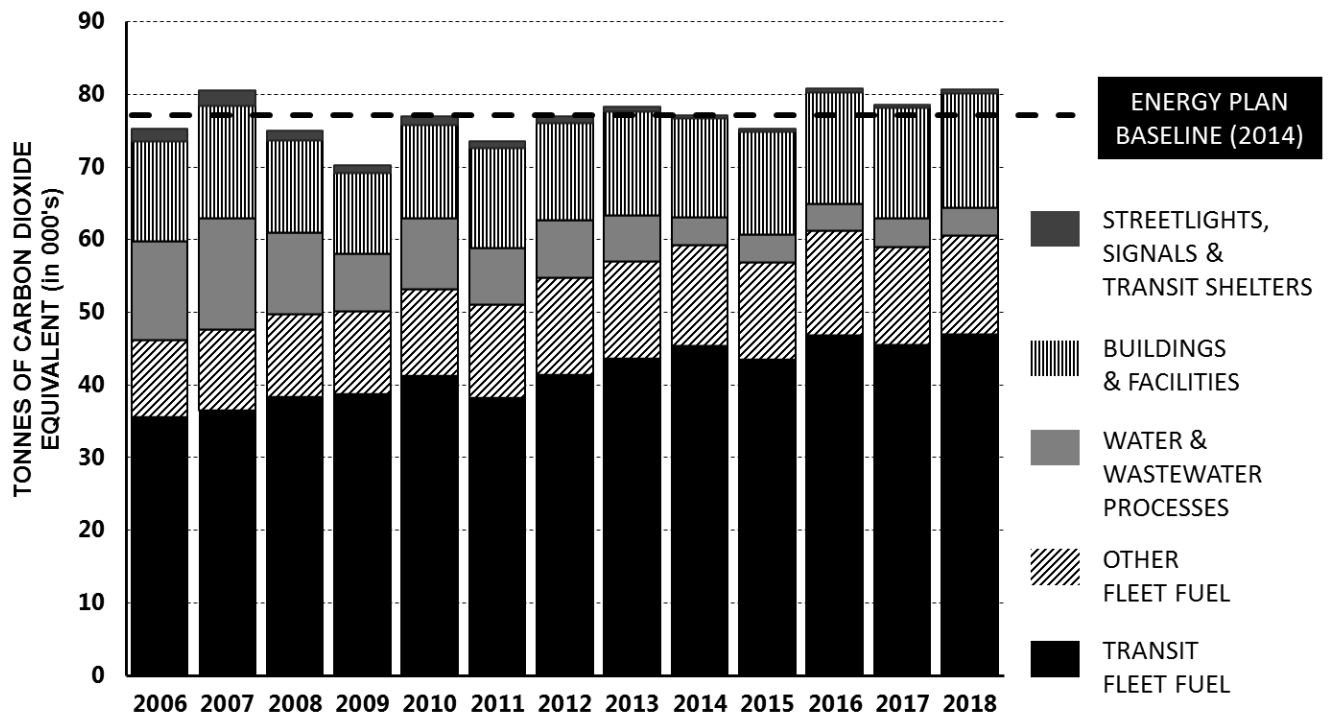
The Corporate Energy Report is not legislatively required, but has been prepared annually for Council since 2006 and has become the primary tool that tracks annual progress toward the Region's achievement of its greenhouse gas emissions targets.

4. Analysis

Corporate emissions increased by 2.7 per cent in 2018 to support population growth and increased demand for Transit service

Total corporate emissions in 2018 were 80,635 tonnes; an increase of 2.7 per cent or 2,100 tonnes compared to 2017 emissions. Increased consumption of diesel fuel by transit buses and natural gas for buildings are the primary drivers for the 2018 emissions increase. Natural gas consumption increased in large part due to a colder heating season in 2018. Diesel fuel consumption increased in 2018 with the need for additional transit buses and service hours to accommodate increased ridership demands on routes connected to the Line 1 subway extension. Figure 1 illustrates the corporate emissions trend since 2006.

Figure 1
2006 to 2018 Corporate Emissions*



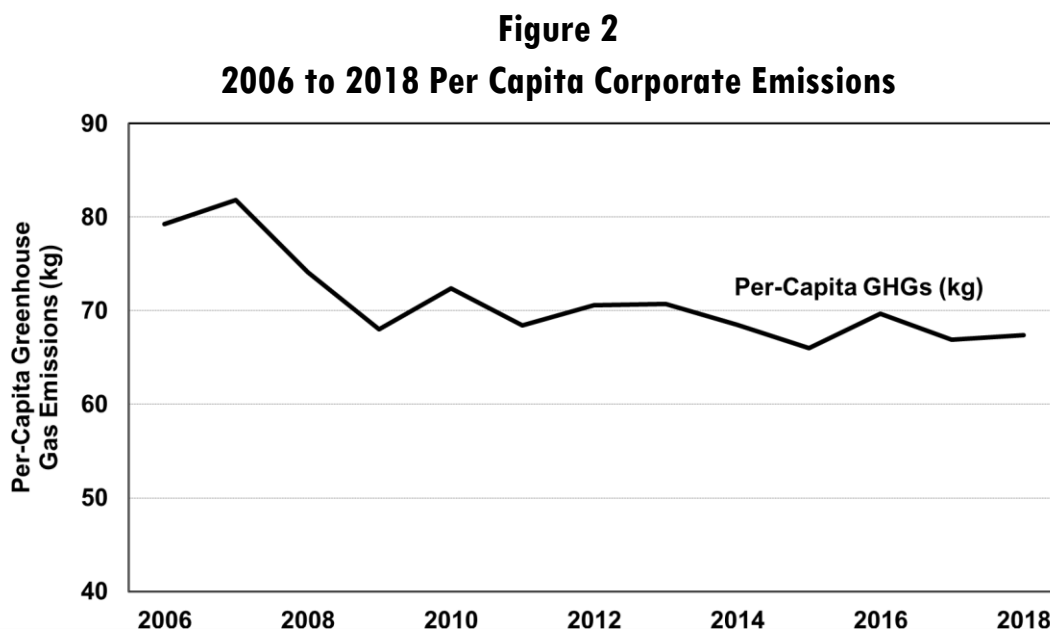
* Greenhouse gas emissions have been restated in the graph using the National Inventory Report data to more accurately calculate emissions for electricity

A summary of per capita energy use by core service is presented in Attachments 1 and 2. Per capita emissions from each core service, with the exception of Transportation Services, are trending down. An increase in transit bus emissions, which is driving the upward trend in Transportation Services, is a positive because they are offset by an avoidance of emissions from single occupant vehicle use and their associated traffic congestion.

Corporate Emissions have remained relatively flat since 2006 while population growth and demand for services have increased

Despite population growth, corporate emissions have remained relatively flat since 2006 as a result of conservation efforts by staff and the removal of coal-fired emissions from Ontario's electricity generation. Corporate emissions are forecasted to grow until 2023 as a result of increases in buildings, fleet vehicles, transit service, water and wastewater infrastructure identified in Regional plans and strategies. A concerted effort from all departments to conserve energy will limit forecasted emissions growth.

In comparison to total corporate emissions, per capita emissions have fallen over the same period due to population growth outpacing emissions growth. Since 2006, the Region's population has grown by 26 per cent compared to corporate emissions growth of 7 per cent. Figure 2 illustrates the trend in per capita emissions since 2006.



Decreasing per capita emissions are consistent with the Region's 2019 to 2023 Strategic Plan approved by Council in [February 2019](#). However, reductions in absolute emissions are key to reversing the cumulative impact that greenhouse gases are having on the global environment. Table 1 highlights accomplishments from across the corporation to reduce greenhouse gas emissions in 2018.

Table 1
2018 Greenhouse Gas Reduction Accomplishments

Initiatives	Service Area
<p>Sustainable Building Certifications</p> <p>Forest Stewardship and Education Centre earned Living Building Challenge Certification</p> <p>York Regional Police training facility (70 Bales) earned LEED® Silver certification</p> <p>Three paramedic response stations built to achieve LEED® Silver certification</p>	<p>Corporate Services / York Regional Police / Environmental Services</p>
<p>Solar Photovoltaic Generation</p> <p>Installed an additional 16 new arrays at a cost of \$550,000 with a forecasted payback period of 10 years. Total annual solar generation from the Region's 21 arrays is estimated to be 437 MWh which is enough to power 45 average sized homes for a year. Annual revenue is forecasted to be \$150,000 per year.</p>	<p>Environmental Services</p>
<p>Sustainable Building Policy</p> <p>Sustainable Building Policy revised to align with Vision 2051 aspirational goals. The policy is being piloted until 2024 to ensure market readiness and data driven decision making.</p>	<p>Corporate Services / Environmental Services</p>
<p>Hybrid Ambulance Technologies</p> <p>Installed hybrid-electric drivetrains on two ambulances, which reduced fuel consumption by 7,900 litres of gasoline per year.</p> <p>Installed anti-idle technologies on 77 per cent of the Region's ambulance fleet which conserves 55,000 litres of gasoline per year.</p>	<p>Community & Health Services</p>
<p>Electric Vehicle Charging Station Policy</p> <p>Electric Vehicle Charging Station Policy and process approved to guide the installation and management of electric vehicle charging stations, and support increased electric vehicle adoption by staff, the public and Regional fleet.</p>	<p>All Regional Departments</p>

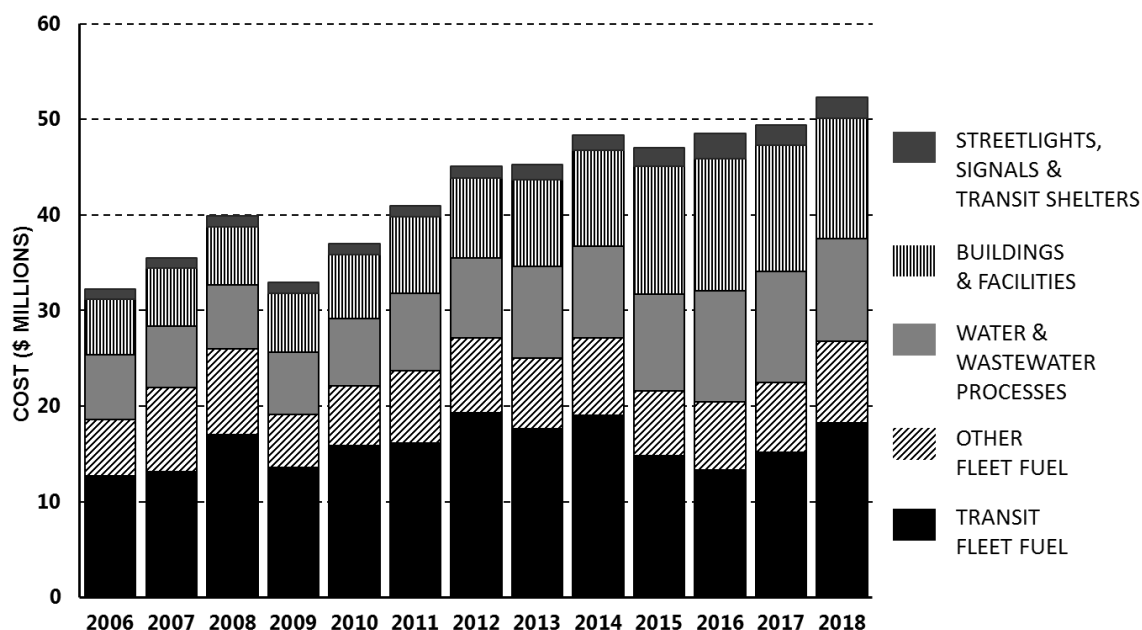
Initiatives	Service Area
<p>Hybrid-Electric Vehicles</p> <p>Fleet telematics hardware installed on 40 fleet vehicles is helping to identify opportunities to integrate plug-in hybrid vehicles into the corporate fleet. Twelve plug-in hybrid electric vehicles already in the corporate fleet are emitting 50 per cent fewer emissions as compared to their conventional counterparts.</p>	<p>Transportation Services / Environmental Services</p>
<p>Electric Transit Bus Pilot</p> <p>Council approved the purchase of six battery electric transit buses to be piloted on two Newmarket routes. A zero-emission transit system has the potential to reduce corporate emissions by 50 per cent.</p>	<p>Transportation Services</p>
<p>Building Energy Audits and Pilots</p> <p>Piloted a central heating management system at Evergreen Terrace that reduced energy cost and consumption by 18 per cent. Simple payback on the project is eight years.</p> <p>Conducted energy audits on 17 buildings to identify process improvements and/or asset renewal priorities to reduce energy use.</p>	<p>Housing York Inc.</p>
<p>2019 Energy Conservation and Demand Management Plan Update</p> <p>Completed the update to the Energy Plan which proposes initiatives that have the potential to reduce 2051 corporate emissions by 60 per cent below the 2014 emissions baseline</p>	<p>All Regional Departments</p>

5. Financial

Compared to 2017, corporate energy costs in 2018 have increased by six per cent

Total energy costs for Regional operations increased by \$2.87 million compared to 2017; a six per cent increase totalling \$52.3 million. Figure 3 summarizes the trend in Regional energy costs since 2006.

Figure 3
2006 to 2018 Regional Energy Costs



Diesel and gasoline costs increased by \$4.3 million as a result of increased prices and fuel consumption

The retail price of fossil fuels increased in 2018 with a strengthening of oil prices and the Provincial Cap and Trade legislation. In 2018, the Region’s total cost of diesel and gasoline increased by \$4.3 million, a 19 percent increase compared to 2017. Of this, 17 percent was due to increased prices of diesel and gasoline and a further two percent was attributed to higher fuel consumption. Natural gas was also impacted by the Cap and Trade legislation and increased consumption, but these increases were offset by the preferential prices achieved through the Region’s natural gas procurement strategy.

The *Cap and Trade Cancellation Act, 2018* ended the provincial program in November 2018, but has been replaced with a Greenhouse Gas Carbon Pricing system that will have the same impact on the price of fossil fuels. Effective April 1, 2019, the price of carbon emissions is \$20 per tonne, increasing by \$10 per year until it reaches \$50 per tonne in 2022. Table 2 forecasts the potential impact the carbon pricing system will have on Regional operating budgets.

Table 2
Forecasted Federal Carbon Price Impact on Regional Operating Budgets

Fuel	2019* (\$20/tonne)	2020 (\$30/tonne)	2021 (\$40/tonne)	2022 (\$50/tonne)
Natural Gas	\$240,000	\$430,000	\$600,000	\$740,000
Gasoline	\$180,000	\$360,000	\$480,000	\$600,000
Diesel Fuel	\$700,000	\$1,410,000	\$1,840,000	\$2,320,000
Total	\$1,120,000	\$2,200,000	\$2,920,000	\$3,660,000
Annual Increase To Utility Budget† (%)	2.1%	4.2%	5.6%	6.8%

* 2019 cost based on April 1, 2019 program start date

† Based on York Region's 2018 fuel cost

The decreasing cost of evolving technologies and application of the Green Energy Reserve Fund is anticipated to partially compensate for pressures left from the cancellation of Provincial funding for energy efficiency projects

Also impacted by the cancellation of Cap and Trade is Provincial funding for energy conservation initiatives like the Municipal Greenhouse Gas Challenge fund program and the Feed-In Tariff programs. The direct impact to the Region was cancellation of a 500 kW solar photovoltaic project and loss of funding for the electric transit bus pilot. In the short-term, the Region is adapting to recent reductions in provincial conservation incentives and funding by looking into Federal funding programs. Staff remain optimistic that in the longer-term, provincial funding may once again become available based on the impacts of climate change.

Environmental Services and Corporate Finance are collaborating and will seek Council approval on ways to apply the Innovation Fund and the Green Energy Reserve Fund towards investments in energy efficiency projects that will use operational cost savings to repay the initial investments. Key to achieving sustained energy and emissions reduction outcomes is the application of sound business case analysis. Before projects are considered through the Region's annual budget process, all projects will be required to achieve a positive financial result using valuation methods that demonstrate financial and environmental benefits.

6. Local Impact

The Region continues to collaborate with local municipalities to exchange information, share best practices, and compare initiatives towards reducing energy consumption and

greenhouse gas emissions. An example of this collaboration is the development of the Electric Vehicle Charging Station Policy. The Regional Community Energy Plan is being developed in collaboration with local municipalities and supports efforts to quantify their local environmental impact from service delivery.

7. Conclusion

In 2018, Regional energy consumption totalled \$52.3 million and produced 80,635 tonnes of greenhouse gas emissions. On a per capita basis this is equivalent to 67.4 kilograms of greenhouse gas emissions for each York Region resident. In 2018, staff continued to work towards the achievement of Vision 2051 by developing the 2019 Energy Conservation and Demand Management Plan. Continuous improvements are required to achieve the Region's Vision 2051 aspirational goal of net-zero carbon emissions by 2051. The 2019 Energy Conservation and Demand Management Plan charts a pragmatic course for the Region to move toward its net-zero emissions target. The potential for changes to federal and provincial legislation, funding opportunities, technological advances, and service demands over future decades will unlock opportunities to strengthen York Region's ability to reach these goals.

For more information on this report, please contact Dave Szeptycki at 1-877-464-9675 ext. 75723. Accessible formats or communication supports are available upon request.

Recommended by: **Erin Mahoney, M. Eng.**
Commissioner of Environmental Services

Approved for Submission: **Bruce Macgregor**
Chief Administrative Officer

May 30, 2019
Attachments (2)
#9351856