

The Regional Municipality of York

Committee of the Whole
Environmental Services
June 10, 2021

Report of the Commissioner of Environmental Services

2020 Corporate Energy Report

1. Recommendations

1. Council continue advocating with the Province for Ontario's electricity to be supplied from emission free sources.
2. The Regional Chair send a letter to York Region Members of Provincial Parliament and the Ontario Minister of Energy, Northern Development and Mines in response to the Independent Electricity System Operator's December 2020 Annual Planning Outlook requesting that its outstanding Long-Term Energy Plan be updated and give strong preference to zero-emission sources of electricity supply.

2. Summary

This report is developed annually to communicate corporate energy consumption, greenhouse gas emissions and progress made toward targets detailed in York Region's [Energy Conservation and Demand Management Plan](#). This update provides a summary of emissions, consumption and costs from Regional operations in 2020, including operational changes during the COVID-19 pandemic.

Key Points:

- Staff continued to advance long-term energy and greenhouse gas emissions reduction strategies during the pandemic
- Corporate greenhouse gas emissions fell by 17% to 66,695 tonnes compared to 2019, mainly driven by reduced transit and fleet vehicle fuel consumption and temporary operational changes due to the pandemic
- Corporate energy costs fell by 15% or \$7.5 million from lower gasoline and diesel fuel expenditures
- Virtual meetings, paper-based processes moving to digital, etc. employed during the pandemic provided opportunities to examine new alternatives towards increased conservation in the post-pandemic work environment

3. Background

The Region's annual Corporate Energy Report has been prepared since 2006 to report on efforts made by staff to reduce carbon emissions and share progress towards targets set in York Region's Energy Conservation and Demand Management Plan. Energy Conservation and Demand Management Plan emissions reduction strategies are aligned with and contribute to corporate mitigation actions detailed in the draft Climate Change Action Plan.

Consistent efforts by all departments and early investments in energy conservation have resulted in innovative solutions to curb corporate greenhouse gas emissions growth. Given continued population growth of 1.3% per year, emissions since 2014 (excluding 2020 due to the pandemic) have remained relatively constant. Electrified fleet strategies, draft sustainable buildings policy and standards, as well as building system upgrades are some of the innovations employed by the Region toward meeting its greenhouse gas emissions targets.

4. Analysis

COVID-19 PANDEMIC INFLUENCES ON ENERGY CONSUMPTION AND EMISSIONS

2020 was a milestone year for corporate emissions and the pandemic heavily skewed outcome by dropping corporate emissions to levels targeted for 2029

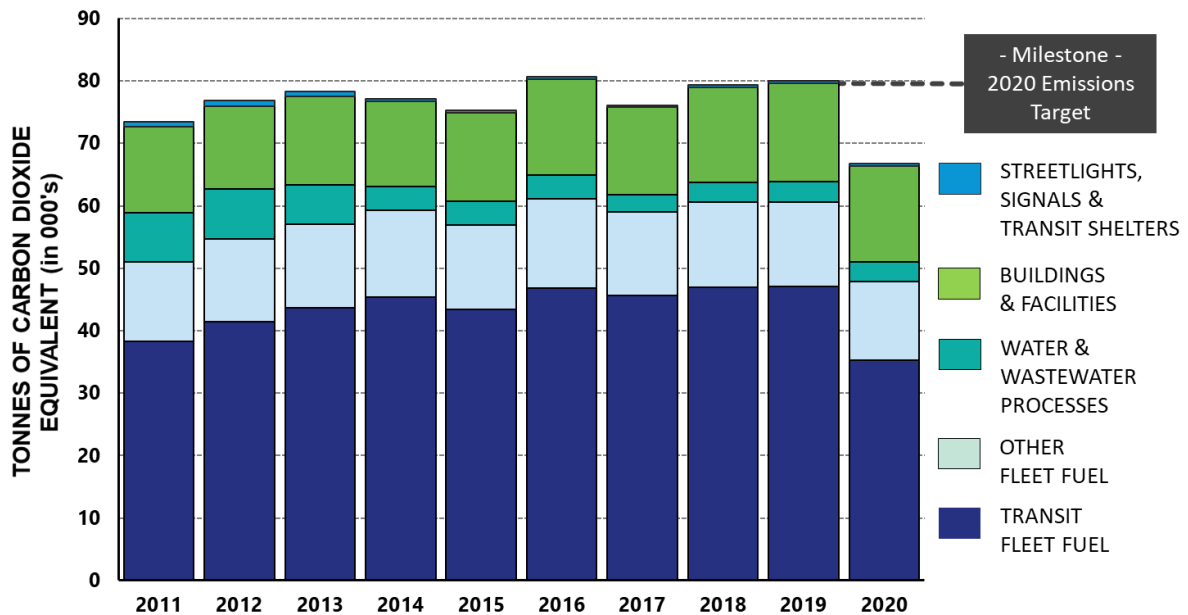
York Region's 2019 Energy Conservation and Demand Management Plan set interim greenhouse gas emission milestones to measure progress toward Vision 2051 goals. Corporate emissions reported in previous years indicated that the Region was on track to meet its 2020 milestone target of 79,900 tonnes. However, changes to service delivery in response to the pandemic dropped emissions to 66,695 tonnes which is 17% below the milestone target and equivalent to targets set for 2029.

In early 2020, administration buildings operated at increased ventilation and air filtration rates but were occupied by fewer staff to accommodate public health guidelines, resulting in negligible changes in energy use. Little change in energy consumption to provide water and wastewater service delivery was found throughout 2020.

Emission reductions in 2020 were almost exclusively from reduced transit and non-transit vehicle fuel consumption. Transit ridership fell by 60%, which resulted in reductions to transit services. It is anticipated that transit emissions will increase as ridership returns to pre-pandemic levels. Conducting business virtually reduced employee travel, which lowered non-transit fleet emissions. As the Region formalizes post-pandemic plans regarding telework, vehicle emissions for in-person meetings will be monitored to strike a balance with new virtual meeting practices that developed throughout the pandemic.

Staff continue to monitor impacts of the pandemic and capture opportunities to become more efficient in post-pandemic service delivery. Figure 1 illustrates pandemic impacts on annual corporate emissions compared to the ten-year trend.

Figure 1
2011 to 2020 Corporate Emissions



Latest Federal report indicates greenhouse gas emission from Ontario’s electricity supply have increased by 50%, which undermine Regional efforts to reduce emissions

The National Inventory Report is Canada’s official report on greenhouse gas emissions and accounts for energy sources used to generate Ontario’s electricity. Based on the report, Ontario’s increased reliance on natural gas generation to meet demand has increased electricity emissions by 50% in 2020. Accordingly, York Region’s emissions related to electricity use increased by 1,400 tonnes, equivalent to annual emissions from 290 passenger vehicles. Increased electricity emissions counteract advances in emission reductions from initiatives such as introduction of electric buses. Emissions due to electricity generation are outside Region’s control and influence Regional emissions. Energy conservation and efficiency reduce our consumption and remain the most effective solutions to minimize impacts associated with Provincial sources of energy and electricity generation.

Ontario’s upcoming plans for increased natural gas generated electricity will impact emission reduction achievements from the past decade

The Province plans to refurbish nine nuclear reactors at the Bruce and Darlington nuclear facilities over the next 12 years and decommission the Pickering nuclear power plant starting 2024. In response to this reduction in future nuclear generation, Ontario is planning to increase reliance on natural gas generation to meet electricity demand. Replacing lost nuclear generation (zero-emission) with natural gas generation will increase greenhouse gas emissions related to electricity consumption. Regional plans and strategies driven by Vision 2051 rely on Ontario’s clean electricity to power fleet and facilities.

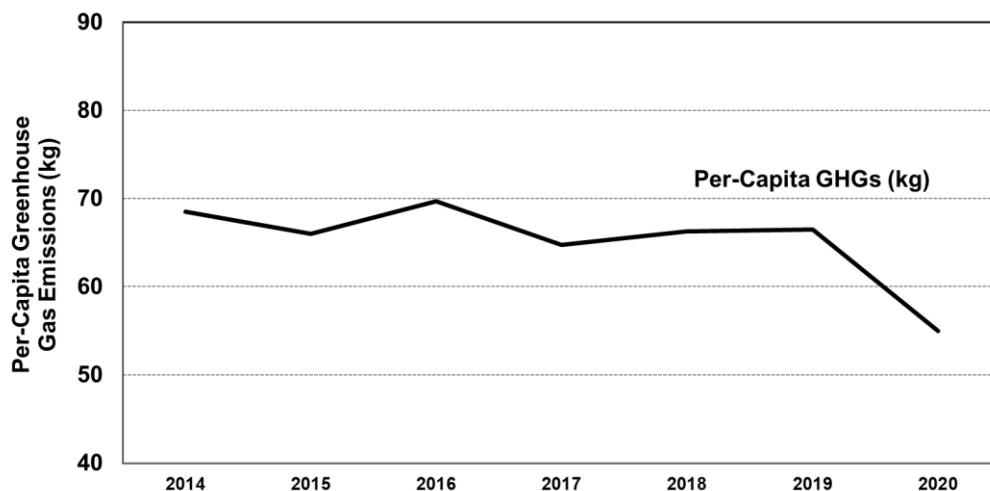
Zero-emission alternatives to natural gas generation are available, including electricity imports from Hydro Quebec and investments in energy conservation. Council resolutions calling on the Province to sustain Ontario’s environmental leadership with emissions free electricity have been passed by 16 Ontario municipalities including King, Toronto, Mississauga, Brampton, Hamilton, Burlington, Windsor, Guelph and 45 independent organizations.

Zero-emission electricity in Ontario supports long-term plans to dramatically reduce greenhouse gas emissions from municipal service delivery such as water and wastewater and electrification of transit and other fleet vehicles. The recommendation for the Regional Chair to send the Minister of Energy, Northern Development and Mines a letter on this matter will reinforce York Region’s position that Ontario’s municipalities rely on zero-emissions electricity supply to meet long-term greenhouse gas targets.

Given minimal population growth and operational changes due to the COVID-19 pandemic, per capita emissions fell by 17% in 2020

As shown in Figure 2 per capita emissions fell by 17% in 2020 to 55 kilograms per resident. York Region’s response to the pandemic, mostly in reduced transit services, resulted in overall consumption and emission reductions.

Figure 2
2020 per Capita Corporate Emissions Trend



2020 ACCOMPLISHMENTS

All departments have contributed to long-term emissions reduction strategies during the pandemic

Efforts have been made by all departments, despite the pandemic, to identify opportunities to conserve energy in support of the Energy Conservation and Demand Management Plan’s corporate emission targets. Initiatives such as switching to fully electric vehicles and LED

lighting upgrades produce immediate and measurable reductions in greenhouse gas emissions while other initiatives, such as reducing garage temperatures, energy audits and building systems upgrades are being monitored for quantification of savings. Table 1 highlights strategies across the corporation to reduce greenhouse gas emissions in 2020.

Table 1

2020 Greenhouse Gas Reduction Accomplishments

Initiatives (Service Area)

Transit Storage Garages (Transportation Services / Corporate Services)

Garage temperatures at 55 Orlando Avenue and 8300 Keele Street have been decreased from 16°C to 12°C to conserve natural gas consumed to condition storage spaces.

In line with the Region's draft Sustainable Buildings Policy, the expansion project at 55 Orlando in Richmond Hill has been designed to achieve superior levels of energy and emissions performance. The design will use heat recovery and high efficiency equipment to minimize emissions from natural gas combustion and includes flexibility for fuel switching into the future to enable net-zero operations.

Transit and Corporate Fleet Electrification Plans (Transportation Services)

Transportation Services completed its [Transit and Corporate Fleet Electrification Plan](#) which was presented and approved by Council in 2020. This strategy defined the plan for fleet electrification and reinforced commitments to greenhouse gas reduction in the coming years.

Electric Transit Bus Pilot (Transportation Services)

The battery electric bus pilot started in June 2020. Six buses operating on two Newmarket routes are testing suitability of an electric transit fleet for future service delivery. Transportation Services plans to report interim results to Council in Q3 2021. Six additional battery electric transit buses have been approved for purchase in support of the Region's pilot in 2021.

Hybrid Police Cruisers (York Regional Police)

York Regional Police has integrated 40 hybrid Police interceptor utility vehicles into its fleet. Measured fuel savings of 35% have been achieved compared to standard police cruisers. An additional 40 hybrid interceptor utility vehicles are planned for 2021.

Police Facilities Upgrades (York Regional Police)

In 2020, York Region Police upgraded equipment, including building automation systems and LED lighting at various facilities across the Region.

Initiatives (Service Area)

Social Housing Energy Audits (Community and Health Services)

Five-year energy audit program was established for affordable housing facilities with all housing providers across the Region. Energy audits were completed in 16 buildings for 14 housing providers in 2020.

Administrative Centre Lighting Upgrade (Corporate Services / Environmental Services)

Retrofitted 3,500 fixtures at Administrative Centre with light emitting diode (LED) alternatives resulting in improved lighting conditions and a 50% reduction in corresponding electricity consumption. Government incentives of \$15,000 contributed to a three-year payback on invested capital.

Solar Photovoltaic Monitoring Program (Environmental Services)

Enhanced asset monitoring and tracking process to ensure peak performance across Regional solar photovoltaic systems. Generated \$160,000 in revenue for the Region through the production of emissions free electricity and contributed to one of the cleanest electricity grids in North America.

Energy Procurement Savings (Environmental Services)

Natural gas and electricity procurement strategies led to annual savings of over \$1 million in 2020.

Department efforts to meet Energy Conservation and Demand Management Plan targets have been tracked and monitored since 2015

Staff continue to track emissions generated by key lines of business and monitor multi-year impacts resulting from conservation initiatives. Attachment 1 illustrates 2020 per capita emissions breakdown by department. Attachment 2 illustrates percentage changes in emissions over time compared to the Energy Conservation and Demand Management Plan 2014 baseline. Continuous monitoring enables staff to focus efforts on specific lines of business to maximize results.

OPPORTUNITIES TO REDUCE ENERGY COSTS AND EMISSION REDUCTIONS

Staff continue to build long-term emission reduction strategies during the COVID-19 pandemic and into the future

The pandemic required an immediate response to protect community health and safety. In some cases, this drove a need for service delivery while working from home and more broadly, accelerated adoption of tools such as online collaboration and digital solutions unlike any period in the past. Virtual meetings, electronic documents and digital signatures are examples of some of the innovative strategies employed.

Throughout the pandemic, staff continued to advance long-term energy and greenhouse gas emissions reduction strategies. It is worth noting that efforts such as those listed in Table 1 were overshadowed by short-term but impactful changes in operations during the pandemic, resulting in significant emission reductions in 2020. As planning turns toward post-pandemic operations, data indicates that enhancements to traditional service delivery models can fundamentally influence corporate greenhouse gas emissions.

Virtual meetings have demonstrated that services can be delivered without exclusively relying on face to face meetings that typically require travel by automobile. Remote work is another strategy York Region can employ to deliver services while minimizing need for additional office space construction. Sustained optimization of services can demonstrate Regional leadership in combating climate change. Staff are evaluating opportunities to integrate initiatives implemented during the pandemic to reduce greenhouse gas emissions in the post-pandemic work environment.

17150 Yonge Street provides the opportunity to conserve through consolidation of multiple buildings into one

York Region's newest building, located at 17150 Yonge Street in Newmarket, achieved substantial completion in March 2020 marking the point at which associated utility bills fall under Regional reporting. Corresponding energy consumption increased Regional electricity and natural gas consumption by 3% and 2% respectively. Once fully operational, the Region will have an opportunity to offset these increases by closing existing satellite offices and relocating staff to this central location. Going forward, consolidation at this single location will facilitate management of energy consumption and corresponding emissions.

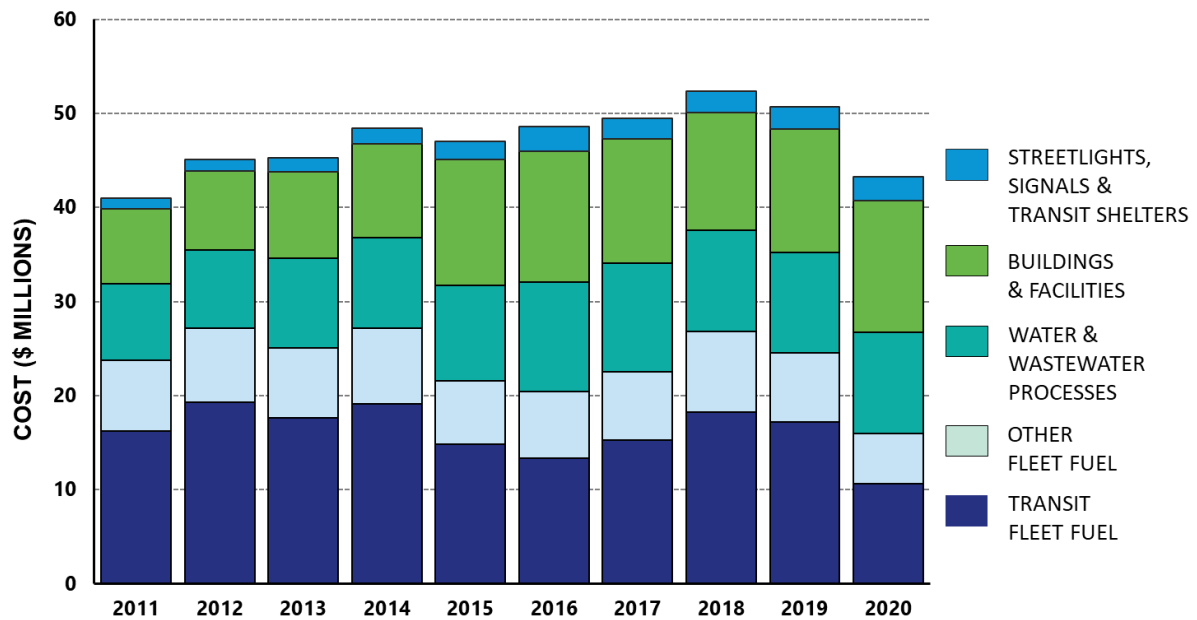
York Region demonstrates environmental leadership by applying a climate change lens to procurement for long-term waste management contract

Staff continue to examine opportunities to influence the marketplace through strategic procurements. In 2021, Waste staff will issue a procurement to secure long-term source separated organics processing capacity. For York Region's Procurement of Organic Waste Transportation and Processing Services 25% of the selection criteria is based on greenhouse gas emission performance. This initiative demonstrates York Region's application of a climate change lens and promotes a balanced approach to green procurement leadership.

5. Financial

Total energy costs for Regional operations in 2020 were \$43.2 million, a drop of \$7.5 million from 2019. Savings resulted from lower fuel consumption and lower diesel and gasoline prices. Provincial electricity price reduction programs during the pandemic were directed at residential customers and had little to no impact on York Region's electricity prices. Figure 3 below summarizes the trend in Regional energy costs since 2011.

Figure 3
2011 to 2020 Corporate Energy Costs



Proposed changes to the Federal Carbon Pricing system will add \$9.7 million to Regional purchases of natural gas, gasoline and diesel fuel by 2030

In December 2020, the Federal government proposed changes to the Federal Greenhouse Gas Carbon Pricing system that would increase the price limit for carbon from \$50 per tonne in 2022 to \$170 per tonne by 2030. Based on forecasted Regional fuel consumption, purchases of fossil fuels will cost an additional \$9.7 million in 2030. This is equal to 52% of the combined cost of gasoline, diesel fuel and natural gas purchased in 2020, reinforcing the importance of energy conservation initiatives in the coming years.

Electricity and natural gas procurement strategies have saved the Region \$3.3 million over the past three years

In [May 2020](#), staff reported to Council on natural gas procurement strategies which saved a total \$229,000 since 2017. In the same period, electricity procurement strategies for the Region’s five largest facilities saved an additional \$3.1 million. Staff continue to work toward strategies such as active demand management to conserve energy and capitalize on purchasing opportunities to further reduce costs.

Gaining deeper insights into energy conservation spending across Regional programs

The Corporate Climate Change and Energy Conservation team is responsible for driving initiatives defined in the Region’s Energy Conservation and Demand Management Plan. The current 10-year capital budget for projects directly led by the team is \$22.9 M. Initiatives to deliver energy conservation and greenhouse gas emission reductions are carried out by teams across all program areas delivered by the Region. Staff continue to examine internal

reporting opportunities to bring more clarity to the total expenditures across the Region to implement energy conservation related projects.

6. Local Impact

York Region's corporate emissions are four per cent of total community emissions

Though York Region's contribution compared to overall community emissions is small (approximately 4%), staff recognize the importance of their role in leading emission reduction initiatives with the goal of achieving a sustainable future and bolster replication of similar initiatives within the community. Staff continue to collaborate with local municipalities to exchange information, including fleet electrification, share best practices and initiatives towards reducing energy consumption and greenhouse gas emissions.

7. Conclusion

In 2020, York Region's corporate energy emissions dropped 17% to 66,695 tonnes due to temporary but necessary operational changes to combat the spread of the COVID-19 pandemic. Corresponding costs fell by \$7.5 million or 15% to \$43.2 million compared to 2019.

Emissions and expenditures are expected to rise in a post-pandemic Region but not necessarily to their pre-pandemic levels. Strategies and technologies employed over the past year have proven to be effective in reducing emissions while meeting and in some cases exceeding service delivery. Staff have begun the process of evaluating which strategies can be operationalized in a post-pandemic work environment.

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

Recommended by:



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Commissioner of Environmental Services

Approved for Submission:



Bruce Macgregor

Chief Administrative Officer

May 21, 2021

Attachments (2)

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