

TransformTO 2022 Annual Report: Laying the Foundation for Net Zero

Date: April 19th, 2023

To: Infrastructure & Environment Committee

From: Executive Director, Environment & Climate

Wards: All

SUMMARY

The year 2022 can be viewed as an important foundational year for the Transform TO Net Zero Strategy's ('the Strategy') new net zero goal, building on the climate change mitigation work implemented to date by the City and its partners. Where 2021 set the stage for what should and must happen in reaching net zero through energy and emissions modelling, 2022 ground tested the realities, provided opportunities for cross-corporate partnerships and started work on priority actions with the intention to support their scaling. Toronto continues to be a leader in global climate action through initiatives such as building one of the world's largest waste energy transfer projects, enabling sustainable building practices through accelerated implementation of the Toronto Green Standard, being the first major North American city to introduce a carbon budget, and by having many actively engaged residents taking action.

This report provides an update on progress made in 2022 towards laying the groundwork for achieving the Strategy's greenhouse gas reduction targets and how Toronto's progress steers advancement on the five critical steps that underpin the Strategy's success. This report also provides information on the work underway with the TransformTO Short-Term Implementation Plan 2022-2025, the status of related Council directives, as well as progress made towards the 2030 sector goals. Finally, this report responds to a Council direction to provide a policy for how Divisions should refer to TransformTO Net Zero Strategy goals and targets in comments for public consultation processes and legal filings.

Toronto continues to be a leader in global climate action through initiatives such as building one of the world's largest waste energy transfer projects, enabling sustainable building practices through accelerated implementation of the Toronto Green Standard, being the first major North American city to introduce a carbon budget, and by having many actively engaged residents taking action.

Overall, 100 per cent of the 30 Short-term Implementation Plan actions and 97 per cent of the 40 Council directions adopted as part of the Strategy are either in progress or

complete. Many of these actions establish the tools and programs that allow net zero decisions and investments to be made now and going forward. Staff continue to develop programs and policies to support this transformational direction.

Moreover, accountability systems that clarify the roles where implementation support is critical have been put in place. In 2022, this included establishing an Accountability and Management Framework (2022.IE29.10) to guide the City's inclusive implementation of the Strategy. A Net Zero Climate Leadership Table (NZCLT) and an external Climate Advisory Group (CAG) are now in place to guide decisions and provide accountability for implementation.

To support and inform the above-mentioned accountability structure, Council will also be considering a framework to establish a carbon budget which will link climate actions with the annual financial budget process and provide more information on the expected impact of the City's actions to reduce GHG emissions and to better inform fiscal decision making.

The full financial impacts for the required investments to achieve the Council adopted 2025 and 2030 GHG reduction targets and ultimately getting to net zero by 2040 are still to be determined. Technical modelling estimates suggest that over the next thirty years, the total investment required by the entire community, that is, the City corporation, the business community, other levels of government, and individual residents, is \$145 billion. Annual investments between \$4-9 billion per year will be needed over the next 17 years, with most investments needed in the near term. This number includes the financial investments made by homeowners towards retrofitting an estimated 450,000 homes and buildings, or about 27,000 home retrofits each year until 2040, as well as individual purchases of 333,000 electric vehicles before 2030. These investments will need to be complemented by provincial government actions to support and maintain a clean and carbon-free provincial electricity grid.

Toronto's 2020 community-wide greenhouse gas inventory shows progress toward our targets. In 2020, Toronto's community-wide emissions were 14 megatonnes (MT) of carbon dioxide equivalents, or greenhouse gas emissions. This is 43 percent lower than in 1990, meaning that Toronto has exceeded its target of 30 per cent reductions community-wide by 2020. However, these reductions can largely be attributed to decreased transportation emissions in 2020 related to COVID-19 travel restrictions. As COVID-19 economic recovery efforts gain momentum, GHG emissions are expected to approach pre-pandemic levels. The latest data shows that Toronto's community-wide emissions must be nearly cut in half in the next seven years to meet the 2030 target.

Continued ambitious climate actions and programs will be critical to reaching the City's 2025 target of 45 per cent GHG emissions reduction from 1990 levels. Further, these efforts must be scaled up to reach Toronto's community-wide future targets of a 65 per cent reduction by 2030 and net zero by 2040.

The required scale and pace of change to achieve our shared climate targets is a shared responsibility with the community, financial institutions, businesses and other orders of government and will require new partnerships, funding models and financial mechanisms to make the needed investments.

RECOMMENDATIONS

The Executive Director, Environment & Climate recommends that:

1. City Council adopt the Corporate Policy on Submissions and Filings as contained in Attachment 4 to this report.

FINANCIAL IMPACT

This report has no financial impacts.

EQUITY IMPACT

This Strategy has the potential to have a significant positive equity impact, but only if multiple needs are addressed and implementation is done with equity at its core to maximize the co-benefits from climate action.

Locally, the impacts of climate change will be felt by everyone, but some will feel its impacts more than others. The outcomes of the delivery of climate action can improve equity, economic prosperity, resilience and health. Inaction, on the other hand, has the potential to negatively impact many vulnerable populations in Toronto.

The Strategy is in the process of developing equity indicators where possible and report on them regularly. Subsequent progress reports will endeavour to include more detailed analysis about the impacts of climate actions on equity deserving groups.

DECISION HISTORY

On January 30th, 2023, Infrastructure and Environment Committee adopted “Net Zero Actions Update” (2023.IE1.11), and in its decision:

1. Directed the City Manager to report back to the March 20, 2023, meeting of the Infrastructure and Environment Committee with a confirmed date for the delivery of all reports required by Item IE26.16 "TransformTO Critical Steps for Net Zero by 2040" that have not yet been delivered.
2. Directed the Deputy City Manager, Corporate Services to report back to the March 20, 2023, meeting of Infrastructure and Environment Committee on agreements that have been entered into under Recommendations 5 and 8 in Item 26.16 "TransformTO Critical Steps for Net Zero by 2040", and on progress on any other agreements that are planned for 2023.

4. Directed the Executive Director, Environment and Climate, to report back to the March 20, 2023, meeting of Infrastructure and Environment Committee on the status of every other action item contained in Item IE26.16.

(<https://secure.toronto.ca/council/agenda-item.do?item=2023.IE1.11>)

On May 11, 2022, City Council adopted the report, Accountability and Management Framework for the TransformTO Net Zero Strategy, (2022.IE29.10) and provided a reporting schedule for the TransformTO Net Zero Strategy. The Framework identified that a TransformTO Net Zero Strategy progress report will be provided to the Infrastructure & Environment Committee in the first quarter of 2023. This report will:

- Identify cross-Corporate progress in 2022 on implementing the 30 actions of the TransformTO Net Zero Strategy Short-term Implementation Plan 2022-2025;
- Include the latest findings from the GHG Inventory, indicating progress towards the community-wide 2025 and 2030 GHG targets and the 2040 net zero target;
- Summarize key activities to date from the CAG.

(<https://www.toronto.ca/legdocs/mmis/2022/ie/bgrd/backgroundfile-224381.pdf>)

On December 15, 2021, City Council adopted the report, TransformTO - Critical Steps for Net Zero by 2040 (2021.IE26.16). In adopting that report, City Council endorsed the TransformTO Net Zero Strategy on climate, including the TransformTO Short-Term Implementation Plan 2022-2025. City Council adopted the community-wide target of net zero greenhouse gas emissions by 2040 and interim targets.

(<https://secure.toronto.ca/council/agenda-item.do?item=2021.IE26.16>)

COMMENTS

Council adopted the TransformTO Net Zero Strategy (the 'Strategy') in December 2021 (IE26.16) with the aim of creating a future Toronto that is zero-carbon, equitable, healthy, prosperous and resilient. In doing so, it set an ambitious target of net zero greenhouse gas (GHG) emissions community-wide by 2040 and an interim target to cut current emissions in half by 2030.

Approximately five percent of GHG emissions are the direct responsibility of, and under the direct control of, the City of Toronto government which primarily includes City-owned buildings and vehicle fleets. To successfully address the other ninety-five per cent of emissions, all levels of government, the private sector, the non-profit sector and individual residents will together have to dedicate resources to achieve community-wide climate targets. A "whole of city" approach is needed to transform our city in an unprecedented way and on an accelerated timeline.

The scale of investment required cannot be overstated. Achieving net zero will require that by 2040 over 476,000 homes and buildings be retrofitted. Annually, this will mean that approximately 27,000 home energy retrofits will need to be completed at an average investment of over \$100,000 each. Achieving a net zero city will also require a zero-emission transportation sector. The City has a target for 30 per cent of registered vehicles to be electric by 2030. As of 2022, of the one million registered vehicles in

Toronto, only 1.7 per cent are fully electric. These examples demonstrate the magnitude of effort needed across all of society in order to achieve a net zero future.

Collaboratively addressing the resource and policy gaps in a timely manner is also critical. As time passes, opportunities to avoid “lock in” of carbon emissions from city systems are being missed. This means that each new home or building that installs a fossil fuel heating system today is committing to contributing emissions for the lifespan of that equipment or to costly replacements later. Achieving the targets set out in the Strategy will require new means of delivery. Decision-making will need to be reoriented so that the net zero choice becomes the best choice now and in the future.

Net zero targets and results from the 2020 sector-based greenhouse gas inventory

Toronto's community-wide GHG reduction targets, from 1990 levels, are:

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- 30 per cent by 2020
- 45 per cent by 2025
- 65 per cent by 2030
- net zero by 2040

City Council has set more ambitious targets for corporate-wide emissions – 65 per cent emissions reductions below 2008 levels by 2030.

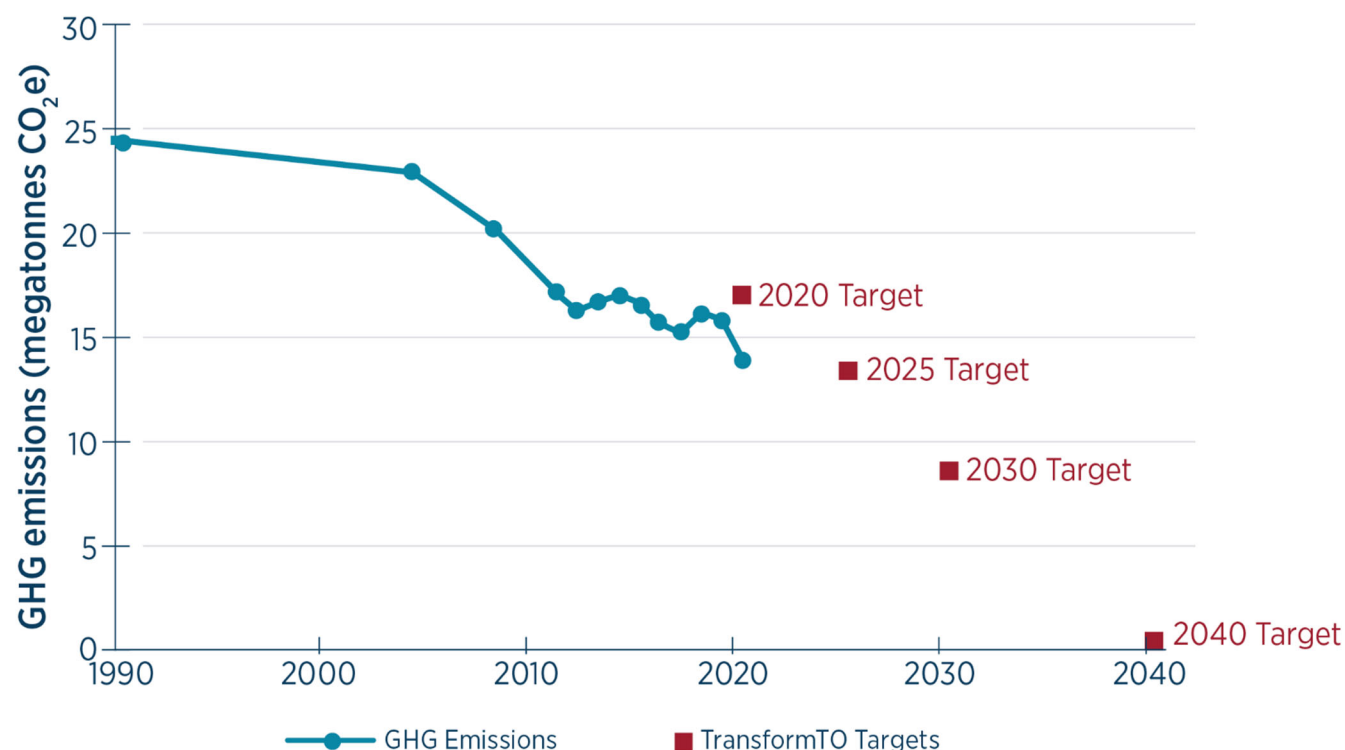
Toronto's Community-Wide 2020 Emissions

Toronto produces an annual GHG inventory to track and monitor progress on climate action. In 2020¹, Toronto's community-wide GHG emissions were 14 megatonnes (MT) equivalent of carbon dioxide equivalent (CO₂e), which is 43 per cent lower than 1990 levels, which means that Toronto has exceeded its milestone 2020 target.

Community-wide emissions from the building, transportation, and waste sectors have decreased by nearly 13 per cent compared to 2019 when Toronto emitted 16 MT CO₂e. As expected, decreased transportation activities were the main contributor to the city's emissions reduction, as many Toronto residents were required to either work or learn from home due to COVID-19 pandemic measures.

¹ The City relies on Environment Canada's National Inventory Report (NIR) as a primary source of its emission factors which is necessary in calculating GHG emissions (please refer to the 2020 Sector-Based Greenhouse Gas Emissions Inventory for more information). Typically, Environment Canada releases the NIR two years after a given calendar year (i.e., the 2020 emission factors were released in 2022).

Figure 1- Toronto's Community-Wide GHG emissions and Council-approved GHG emissions targets



Although Figure 1 shows that community-wide emissions have decreased since 1990, emissions have not appreciably decreased in over the past decade. Further, Table 1 below shows that Toronto still needs to cut its emissions by roughly 5.4 MT to meet the 2030 target of a 65 per cent emissions reduction below 1990 levels.

Table 1: Council adopted GHG emissions targets and 2020 status

Year	GHG reduction target from 1990 baseline	GHG emissions absolute target (MT CO ₂ e)	Progress as of 2020
2020	30 per cent	17.3 MT	The City exceeded its 2020 GHG reduction target. In 2020, Toronto's community-wide emissions were 14 MT, which is 43 per cent lower than in 1990.
2025	45 per cent	13.6 MT	To be determined.
2030	65 per cent	8.6 MT	Toronto must reduce annual emissions by about 5.3 MT community-wide within 10 years to meet the 2030 target.
2040	Net zero	Net zero	14 MT must be eliminated to meet the 2040 target.

Figure 2 Toronto's Community-wide Greenhouse Gas Emissions

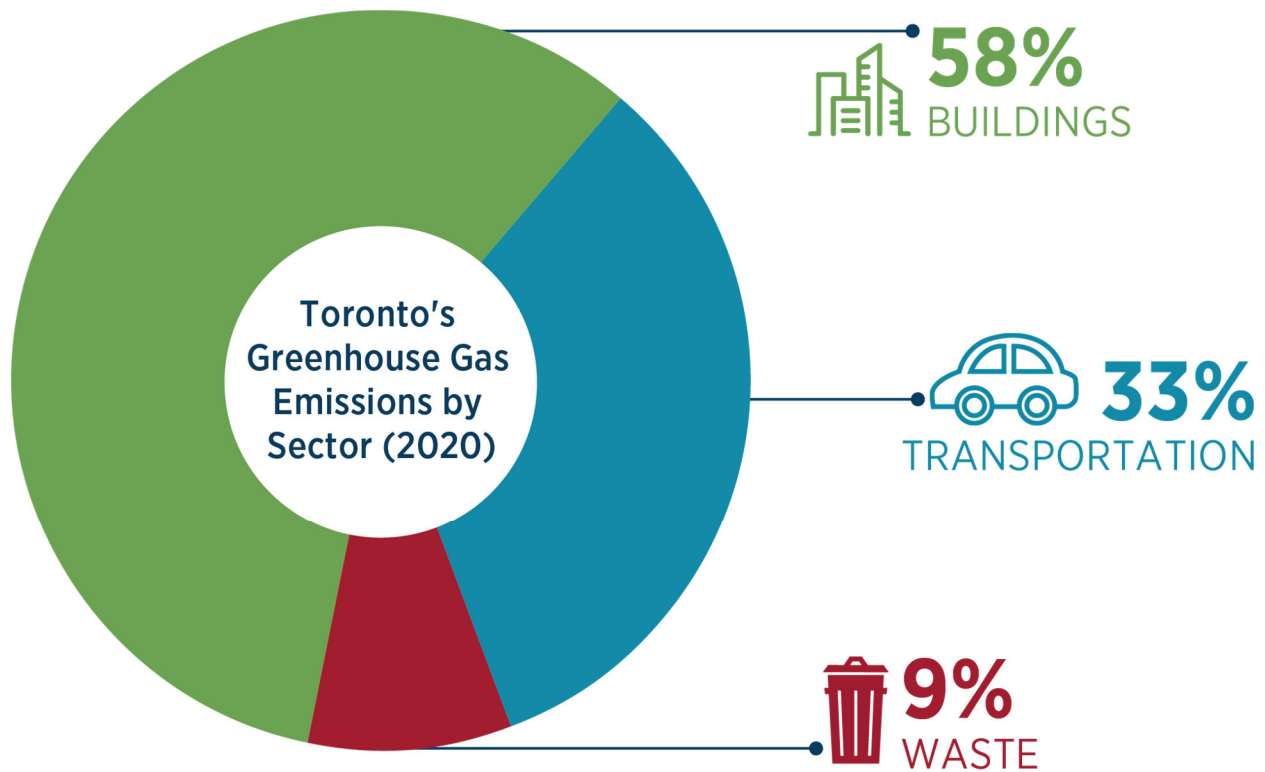


Figure 2 shows the year-over-year breakdown of community-wide GHG emissions by sector. Buildings sector emissions continue to be the primary source of GHG emissions in Toronto and in 2020, are 58 per cent of community-wide emissions, increasing by two per cent over 2019. Fossil gas (also known as natural gas), used mostly for space and water heating is by far, the largest source of buildings sector emissions accounting for 54 per cent of all community-wide emissions.

Transportation sector emissions were the second largest source of community-wide GHG emissions in Toronto, totalling 33 per cent of community-wide emissions (a small decrease from 35 per cent in 2019). Gasoline used in passenger cars and trucks accounted for 25 per cent of community-wide emissions.

Waste sector emissions, primarily from landfills, comprised roughly nine per cent of community-wide emissions.

The City of Toronto's corporate emissions, or local government emissions, decreased by roughly 15 per cent compared to 2019 and continued to account for about five per cent of community-wide emissions.

More information is available in the City's [2020 Sector-based Greenhouse Gas \(GHG\) Emissions Inventory](#), available at www.toronto.ca/transformto.

Progress on Critical Steps

In the TransformTO Net Zero Strategy, staff identified ways the City can use its influence to regulate, advocate and facilitate rapid transformation. Recognizing the need to scale rapidly and to clearly focus efforts on key actions, the TransformTO Net Zero Strategy identified five critical steps needed to reach future GHG reduction targets.

Work is progressing in each of these critical steps:

1. Demonstrate carbon accountability locally and globally by establishing a carbon budget

In the Carbon Accountability: Institutionalizing governance, a Carbon Budget and an Offset Credits Policy report, Council will consider a plan to create a Carbon Accountability governance system – effectively, a system to institutionalize the what, when, who and how of TransformTO Net Zero Strategy implementation.

The Carbon Accountability system would support actions across the City government to reduce GHG emissions in the community and from the City's own operations (aka, "Corporate emissions"). This will increase value for money and facilitate deeper engagement by Council, residents and stakeholders on the City's implementation of the Net Zero Strategy. It will also support the City's commitment to lead by example by reducing Corporate emissions even further and faster than community emissions.

First, Toronto's Municipal Code would be amended to add a Climate Goals & Governance chapter that: (i) defines the emissions budgets consistent with an equitable approach to achieving Council's adopted greenhouse gas reduction targets, and (ii) prescribes related planning, reporting, and prioritization processes that ensure transparency and accountability of implementation.

Second, a policy for buying and selling carbon offset credits that is aligned with leading scientific and governance guidance for a credible net zero approach will be introduced. Jurisdictions around the world are innovating on accountability and governance for net zero. This is the next necessary step in moving from ambitious strategy to ambitious implementation.

Third, City staff will institutionalize an annual Carbon Budget process to identify and prioritize impactful spending to reduce greenhouse gas emissions, with initial steps in the 2024 budget cycle, pursuant to Council's direction ([2021.IE26.16](#), #14). As a result, the 2024 budget will feature improved data on the greenhouse gas reduction impact and financial implications of City's greenhouse gas reduction actions.

Pending Council's decision, these changes would institutionalize progress in reducing GHG emissions and establish the City of Toronto as a climate governance leader through enhanced transparency and accountability. Taking the steps to be accountable for net zero climate action - year in and year out until 2040 - will further institutionalize climate action into the cultural DNA of the City of Toronto.

2. Accelerate a rapid and significant reduction in fossil gas (natural gas) use

Fossil gas used in buildings for water and space heating represents over half of Toronto's community-wide greenhouse gas emissions. To realize a net-zero future, The Strategy accelerates the switch towards clean electricity as the primary fuel source for the buildings sector, while at the same time avoiding carbon-intensive investments in new developments and shifting energy use in existing homes and buildings.

Considerable work is underway to implement strategies tailored to segments of the buildings and fossil gas displacement and energy transfer, among them are as follows:

For New Development

For new construction, the Toronto Green Standard (TGS) progressively shifts new development toward Toronto's net zero emission targets, through approaches including increased energy efficiency and electrification of building heating. TGS Version 4 came into effect for new planning applications in May 2022 and includes requirements for energy and emissions caps for new builds above standards set out in the Ontario Building Code. Accelerated timelines now require any new building development applications to be net zero emissions in 2028 so that by 2030, all new buildings will be operating at this standard.

For Existing Homes

The Net Zero Existing Buildings Strategy, a strategy which targets all building types and owners in Toronto, envisions improving building enclosures while shifting energy use in existing buildings from fossil fuel heating systems to efficient heat pumps powered by a low carbon provincial electricity grid. The City continues to deliver programs that accelerate this transformation and support early adopters in retrofitting their homes and buildings.

For example, in 2022 with funding from NRCan, the City launched the Deep Retrofit Challenge program offering grants of up to \$500,000 for multi-unit residential and mid-tier commercial office sectors which received 14 applications. This challenge is serving as a catalyst that accelerates deep energy retrofits and demonstrates how large emission reductions can be achieved in Toronto.

Also in 2022, with funding from the Federation of Canadian Municipalities (FCM), the enhanced Home Energy Loan Program (HELP) offered zero-interest financing to support homeowners in overcoming the high, upfront cost barrier for home energy retrofits. The HELP program received 1,228 applications in 2022, a significant increase over previous years, as well as over 51,000 unique visitors to BetterHomesTo.ca, the City's website that provides residential retrofit guidance, and over 21,000 unique visitors to the HELP page on Toronto.ca. Staff continue to explore options to raise capital from external sources in order to scale the program in order to meet growing demand and ensure long term sustainability of HELP.

As directed by City Council in 2022, City staff continue to advocate to other levels of government to ensure TransformTO Net Zero goals are recognized in energy planning in buildings. This work calls for regulatory changes, energy conservation, new clean central and distributed generation, and investment in resilient transmission and distribution systems to ensure a smooth and efficient transition from fossil gas to

sufficient, affordable, zero-carbon electricity for space heating, water heating, and transportation.

Fossil gas displacement and energy transfer

The City is also facilitating the use of wastewater energy transfer technology as a low-carbon emission heating and cooling solution for buildings. This system can eliminate or reduce the requirement to burn natural gas in order to operate conventional mechanical equipment by using the heat generated in City's sewer system as a source of renewable energy. In 2022, the City facilitated the decarbonization of 90 per cent of University Health Network's campus at Bathurst and Dundas by enabling the use of energy from city sewers.

Large developments such as the Wastewater Energy Program in partnership with Toronto Water, has the potential for reducing 200,000 tonnes CO₂e emissions annually by displacing natural gas used to heat buildings.

3. Establish performance requirements for existing buildings

Buildings are the largest source of community-wide GHG emissions in Toronto today, accounting for 58 per cent of total emissions. The emissions come from burning of fossil fuels, primarily fossil gas, used for space and water heating. To reach net zero emissions by 2040, fossil gas must be eliminated as a fuel as much as possible by switching to cleaner energy sources, mostly through the installation of electric heat pumps, as well as ensuring the provincial electricity grid is as low-carbon as possible which implies the inclusion of larger shares of renewable generation.

The Net Zero Existing Buildings Strategy provides a pathway for owners of all homes and buildings in Toronto to decarbonize their buildings, with support from the City of Toronto. The Net Zero Existing Buildings Strategy includes a pathway for an eventual requirement for building owners in Toronto to annually [report and disclose](#) their building's greenhouse gas emissions performance to improve building owners' and the City's understanding of the performance of Toronto's homes and buildings.

The City continues to encourage voluntary reporting of performance data for all buildings, including participants in City programs supporting retrofits, as well as commercial and multi-unit residential buildings below 50,000 sq. ft. which are currently not subject to reporting requirements under the Province of Ontario's Energy & Water Reporting and Benchmarking (EWRB) regulation (O. Reg. 506/18).

The EWRB regulation has required that buildings over 100,000 square feet report energy and water use annually and will require buildings 50,000 square feet and larger to report starting in 2023. The reported data is used for building performance benchmarking which is the process of tracking a building's energy and water use over time. This allows for the building's performance to be measured against its past performance as well as the performance of similar buildings. Benchmarking is one of the first steps towards improving building efficiency.

The Net Zero Existing Buildings Strategy actions also include establishing greenhouse gas emissions performance requirements for buildings to gradually require owners to make performance improvements. The approach will be designed in ways that allow flexibility and sector-specific challenges. These requirements will provide clear targets and timelines on the net zero by 2040 pathway to give the building sector the clarity and certainty needed to make the right investments and decisions.

Emissions performance requirements are a well-established approach to drive performance improvements and are used in numerous other jurisdictions. Staff are currently exploring the regulatory and legislative approach required for implementation of mandatory greenhouse gas emission performance requirements for buildings and will report back to Council later in 2023.

4. Increase access to low carbon transportation options, including walking, biking, public transit and electric vehicles

On-road transportation accounts for about 33 per cent of the community-wide GHG emissions in Toronto today, with most of these emissions coming from passenger cars and trucks. Gasoline powered cars and trucks, alone, accounted for 25 per cent of all community-wide emissions in 2020. Achieving Toronto's community-wide GHG emissions reduction targets will require us to reduce fossil fuels by shifting to more sustainable modes of transportation, by supporting walking, cycling, public transit and electric vehicles.

Work to support a transition to a zero emission transportation system is underway. The City continues to invest in providing a low carbon transportation system and to provide additional infrastructure for active transportation. Below are some examples of progress made in 2022 to advance this work.

Walking and Cycling

The City is advancing its Cycling Network Plan and Missing Sidewalk Link programs to provide opportunities for safe and zero emissions cycling and walking. The Cycling Network Plan's 2022-2024 Near-Term Implementation Program proposes approximately 100 centreline km of new bikeways, as well as upgrades to existing routes and studies for future implementation.

In 2022, approximately 18 km of bikeways were constructed, with additional 17 km of bikeways under-construction. As of January 2023, approximately 660 centreline km of the Cycling Network Plan has been installed. In 2022, the City constructed 1.05 km of new sidewalks.

Public Transit

In 2022, TTC ridership experienced a substantial recovery rising from 37 per cent of pre-pandemic levels system-wide in January to 69 per cent in December. However, the continuation of work-from-home and hybrid work arrangements are constraining further ridership recovery. TTC continues to align service levels to changes in customer demand.

In 2022, staff completed Phase 2 of RapidTO: bus & streetcar priority. A report on the findings of Phase 2 will be presented to Executive Committee and City Council in 2023.

Electric Vehicles

In 2022, the City continued to implement the Electric Vehicle (EV) Strategy which aims to achieve an interim 2030 community-wide target that 30 per cent of registered vehicles in Toronto are electric.

Access to charging is a necessary condition for EV adoption and is the primary focus of the City's EV related work. Tens of thousands of publicly accessible EV charging stations will need to be rolled out before 2030. Both City and non-City actors (businesses, commercial properties, gas stations, school boards, public sector organizations, NGOs) will need to contribute to building a robust network for public EV charging boosting the confidence of residents to purchase EVs.

To help meet EV charging needs, the City, working with Toronto Hydro and Toronto Parking Authority, has installed 47 on-street publicly accessible EV charging stations to date, many of which are in residential permit parking areas; an additional 50 on-street charging stations will be installed this year, mostly at pay-and-display parking spaces as directed by City Council.

The Toronto Parking Authority, with support from Toronto Hydro, is also deploying public EV charging in Green P parking facilities, with more than 100 charging ports installed to date and an additional 175 planned for installation this year. Nearby residents can use both on-street and off street pay and display ports to meet their charging needs and the TPA has enacted a rate structure that incentivizes overnight charging geared towards residents. Based on current plans, more than 650 charging ports will be deployed by the end of 2024 at on-street parking spaces and in Green P parking facilities thus increasing residential charging opportunities close to one's home. This is currently, the most expedient and safest way to meet on-street residential charging needs.

To help ensure that public EV charging is available where and when it is needed as EV uptake increases and to support this uptake, the City is currently developing a long-term Public EV Charging Plan that will be brought to City Council in Q4 2023. It is expected that many more opportunities in neighbourhoods will be identified for residential charging through this planning process e.g., school parking lots, community and public library parking lots.

5. Increase local renewable energy to contribute to a resilient, carbon-free grid

A carbon-free electricity generation system in Ontario is critical to a net zero future. However, the emissions intensity of Ontario's electricity grid is expected to increase in the near-term as more generation will come from fossil-based sources (i.e., fossil/natural gas). For Toronto to get to net zero, the grid needs to be carbon free. The backbone of a net zero Toronto must be an emissions free electricity grid that both delivers more energy to address the demands of increased electrification of buildings and vehicle combined with greater resilience to extreme weather.

Throughout 2022, staff have continued to work with Toronto Hydro as well as residents and businesses to advance this work. As requested by City Council, Toronto Hydro has established 'Climate Advisory Services' to assist its customers on increased electrification to displace fossil fuel use in buildings and transportation, in line with Toronto Hydro's Climate Action Plan and TransformTO. City staff have been working with Toronto Hydro to support its Climate Action Plan including creating a Memorandum of Understanding (MOU), related to Toronto Hydro's Climate Advisory Services, which sets how the City and Toronto Hydro will enhance existing coordination and collaboration on implementation planning, communications to customers, roles and responsibilities to achieve electrification at scale.

The City has also continued to increase opportunities for local renewable generation to be located within the City's boundary with partnerships and zero emissions large developments. The City has also demonstrated an ability to leverage City assets for climate action through programs such as SolarTO and wastewater energy transfer projects.

Residents and business are seeing the benefit of installing local renewables and uptake in City programs has been increasing. Since the launch of the SolarTO map, a self-serve solar potential and business cases for homeowners, the City has seen over 900 users having completed inquiries in 2022.

2023 Priorities & Upcoming Reports

As part of the TransformTO Net Zero Report, City Council adopted 40 Council directions. In total, the City Council decision includes 102 items, including all sub-directions. A full list of all Council directions and their status are included in Attachment 2.

While pursuing work on implementation of all 30 short-term implementation actions and responding to all Council directions, staff continue to prioritize and steer action toward the five critical steps described above.

Throughout 2022, staff have also been working to ensure appropriate accountability and management frameworks are in place to enable successful implementation. In May 2022, staff brought forward a TransformTO Accountability and Management Framework, which outlined the creation of two advisory groups and management processes that will guide the City's inclusive implementation of the Net Zero Strategy. Throughout fall of 2022, both a Climate Advisory Group, made up of 26 community members, and a TransformTO Climate Leadership Table made up of senior City staff, have been established. These groups will continue to ensure clear accountability and effective management of Net Zero Strategy implementation.

Implementation continues to be a community-wide effort, with work underway across multiple divisions, agencies, and corporations. Detailed reports outlining recommendations for bylaws, policies, and new programs will be brought back to City Council for consideration as required. A list of all reports requested and upcoming reports from the TransformTO Net Zero Strategy report ([2021.IE26.16](#)) are found in Attachment 3 and a list of agreements entered into and planned in Attachment 5.

Leading by Example - City Operations

One role that the City can play immediately is showing leadership by providing an example of what can be done now, demonstrating success, and sharing lessons learned. The City of Toronto is taking a lead by reducing GHG emissions from its own operations. This has resulted in ongoing work to decarbonize the City's own buildings, vehicles, waste, procurement, decision-making processes, and other practices along the path to net zero.

The City of Toronto has set a corporate greenhouse gas emissions to reduce GHG emissions from City operations by 65 per cent over 2008 base year. In 2020, corporate emissions were 0.63 MT, which was about five per cent of Toronto's community-wide emissions. The City's corporate emissions decreased by nearly 15 per cent from 2019 but remained a stable share of community-wide emissions between 2019 and 2020. Transportation emissions were the largest source of emissions at roughly 0.25 MT, followed by social housing, and City facilities and buildings at 0.18 MT and 0.12 MT, respectively.

Additional details on corporate emissions can be found in the [2020 sector-based Greenhouse Gas Emissions Inventory](#) available at www.toronto.ca/transformto.

The City is taking action to tackle Toronto's corporate emissions through established programs and major policy achievement such as the Corporate Real Estate Management Net Zero Carbon Plan for City-owned buildings, application of the Toronto Green Standard for City buildings, enhancing sustainable procurement policies, and greening City and TTC fleets. Leveraging City assets and demonstrating how the City is leading innovative initiatives to green its own operations is key to achieving community-wide climate goals.

For example, in 2022, construction began on what will be the City of Toronto's first Net Zero energy and emissions community recreation facility, the North East Scarborough Community and Child Care Centre. The building's leading-edge design uses innovative strategies to eliminate the use of fossil fuels, reduce overall energy consumption and incorporate on-site renewable energy systems. It will be 100 per cent electricity powered through a mix of solar photovoltaic panels on its roof and facade, as well as a parking lot canopy. Going forward, all new community recreation facility builds will be net zero.

The TTC operates one of the largest zero-emission bus fleet in North America, with 60 battery electric buses in operation and 255 "latest generation" hybrid-electric buses with limited EV mode capability. The TTC has committed to procuring only zero emissions propulsion technology from 2024 onwards and the Green Bus Program is tracking toward completion three years ahead of the 2040 target. This switch to battery electric buses is providing many benefits including fuel savings of \$40,000 per year per bus and an estimated 25 percent in maintenance cost savings, while also resulting in reduced noise and improved local air quality. In 2022, TTC signed an agreement with PowerON Energy Solutions LP, for the delivery, maintenance and operation of electrification infrastructure needed to transition the TTC's fleet and facilities to zero-emissions.

The City, working with Enbridge Gas Inc., has installed infrastructure at the Dufferin Solid Waste Management Services Facility that allows it to create renewable natural gas (RNG) from Green Bin organics. The new equipment enables the City to take the raw biogas produced from processing Green Bin organics, turn it into RNG and inject it into the natural gas grid for use by the City. The RNG produced will be blended with the natural gas that the City buys to create a lower-carbon fuel blend that will be used across the organization to power vehicles and heat City-owned facilities, allowing for a reduction in GHG emissions across the organization. The production of RNG from biogas has the environmental benefit of closing the carbon loop by capturing the biogas produced (as opposed to flaring/burning), upgrading the biogas to RNG pipeline quality, and then using it to displace a fossil fuel with renewable green fuel.

Additional examples of work underway and description of progress towards the Leading by Example Short Term Actions can be found in Attachment 1.

Reference to TransformTO Targets in Public Consultations and Legal Filings

Direction 4 of Council's Net Zero decision (2021.IE26.16) requires the creation of a plan for how Divisions should refer to TransformTO Net Zero Strategy goals and targets ("TTO NZ goals and targets") in comments for public consultation processes and legal filings.

Staff in the Environment & Climate Division have worked with Legal Services to create a written policy to satisfy this direction. The policy requires City staff preparing comments or filings to consider the relevance of TTO NZ goals and targets according to a specified relevance test. If relevant, City staff must refer to the goals and targets and explain how the subject of the comments or filings impacts their achievement, in the context of the climate emergency and need for immediate and significant action to reduce GHG emissions.

The purpose of the policy is to ensure that decision-makers outside the City are always aware of the TTO NZ goals and targets and their importance in a given context. For example, if the comments or legal filings relate to natural gas consumption, they should note that reducing natural gas consumption was identified as a "critical step" in the TransformTO Net Zero Strategy, as well as the energy-related goals and targets. Following the policy will lead to a consistent message from City staff on the importance of Toronto's net zero push when engaging externally.

Staff recommend that Council adopt this policy, a copy of which is attached to this report in Attachment 4.

Key Challenges to Achieving Targets

In certain areas the City of Toronto has direct control and ability to make decisions that lead to emission reductions, such as through purchasing electric buses for TTC fleet or energy conservation measure through building operations. In other areas, City Council

has limited levers to enable, regulate, and support low-carbon actions and impact emission reductions community-wide.

No municipal government has the legislative tools or fiscal capacity to achieve ambitious targets on its own. Almost all of the key actions in the Strategy require additional approval, authority, or action from other levels of government to enable our success. For example, Toronto will require affordable, zero-emission electricity in sufficient supply to accommodate the necessary electrification of homes and transportation but does not have authority to make decisions about the provincially supplied energy sector.

Corporate emissions from City operations represent only 5 per cent of total city-wide emissions. This includes municipally owned facilities such as offices, community centres, social housing, City fleets such as the TTC, and other things like waste processing, water supply and treatment. While there are corporate plans and investments underway to green City operations, municipal government only has direct control over a small fraction of total emissions. This underscores the role of residents, business and civil society, and the supports needed from all levels of government, to enable adoption of sustainable practices towards decarbonization which will be the main driver of bringing the other 95 per cent of Toronto's community-wide emissions to net-zero.

The City has indirect influence to impact these other 95 per cent of emissions. In some areas, the City can provide the required infrastructure and supports that enable the community to make low-carbon choices. This includes things like building bike lanes or providing electric vehicle charging on City property. This might also include financing or other incentives for home energy retrofits or enforcing the Toronto Green Standard for new development.

In other areas, the City has limited influence. For instance, Toronto relies on multiple regional and provincial infrastructures such as the electricity grid or transportation networks. Similarly, individual consumers make personal choices about consumption and behaviours. In these instances, Toronto continues to advocate to other levels of government and provide supports and public education as much as possible to ensure low carbon choices are easy and affordable.

In all these cases, evidence shows that incremental action is not enough to put the City on its net-zero trajectory, there is a need for rapid and scaled-up investment and action in existing and new community-facing programs, accelerated policy implementation, enhanced coordination, and dedicated funding contributions from senior levels of government to meet City Council's climate ambition.

The good news is that Toronto remains a leader in delivering climate action and has built a foundation for accelerated action to take place in the coming years. Accelerated action and partnerships across all levels is required in order to achieve our collective targets and realize the benefits of reducing emissions.

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ATTACHMENTS

- Attachment 1 - Progress on 30 Short-Term Actions Implementation Plan 2022-2025
- Attachment 2 - Progress on Responding to Recommendations from 2021.IE26.16
- Attachment 3 - Update on reports requested from the TransformTO Net Zero Strategy
- Attachment 4 - Corporate Policy on Submissions and Filings
- Attachment 5 - Update on Agreements Entered & Planned