
2024 BUDGET BRIEFING NOTE

Carbon Budget Baseline

Introduction:

- This briefing note is the first note to Council under a new “Carbon Accountability”¹ system of tracking and reporting on the greenhouse gas (GHG) impact of the City’s annual budget proposals – both capital and operating.
- This note focuses on the *impact* of City-led GHG reduction “actions” (i.e., projects and programs) on Toronto’s progress toward Council-adopted GHG reduction goals, and the budget proposed for such actions.
- This note establishes a baseline by providing information on GHG reductions enabled through the annual budget process and, in doing so, serves as an initial step for the annual Carbon Budget prioritization process under the new Carbon Accountability system.² It also identifies areas requiring further development or refinement in subsequent years, including leverage of newly procured emissions modelling tools. The ongoing progress will aid in prioritizing impactful actions to reduce GHGs within the annual budget process.
- Three perspectives are offered on the impact of 2024 budget proposals:
 - First, an estimate of GHG reduction potential for each key City-led action (where possible), an assessment of that action’s alignment with the future emission scenarios (previously established in TransformTO emissions modelling and corresponding target setting), and the associated capital *and* operating budgets;
 - The scope includes GHG reduction actions led by City Divisions, Agencies and Corporations, excluding Toronto Hydro;
 - Second, a scenario analysis showing the current and expected “emissions gaps” that must be closed for Toronto to be on track for net zero emissions by 2040 – this helps clarify the overall challenge facing the City; and
 - Third, fossil fuel dependencies in the City’s operating and capital budget proposals are being tracked for the first time – these dependencies must be addressed as Toronto progresses toward the net zero deadline of 2040.

¹ [2023.IE3.4](#), see Staff Report “*Carbon Accountability: Institutionalizing Governance, a Carbon Budget and an Offset Credits Policy*”

² See [Climate Goals and Governance, Municipal Code Ch. 669](#), § 669-2.3. “Carbon Accountability”, Part. F “Identifying and Prioritizing GHG Reduction Actions - Annual Carbon Budget”.

- Current information on investments to increase climate resilience is not at the same stage of maturity as information on investments to reduce GHG emissions. Future considerations may expand the approach used to understand the impact of investments in GHG reductions to encompass climate resilience and climate risk vulnerability.

Key Points:

GHG reduction

- The 2024 Staff Prepared Capital and Operating Budget contains City-led GHG reduction actions contributing to an estimated reduction potential of approximately 73,889 t CO₂e in 2024. For some actions that are expected to reduce emissions, a specific quantified estimate is currently unavailable due to data limitations, project-level analysis limitations, or the nature of the action (e.g. educational programming).
- Several key actions outlined in the budget serve as groundwork for future GHG reductions, which will be realized only once projects and programs are fully implemented. Appendix A provides estimates for 2024 GHG reductions at the project and program levels.
- The GHG reduction actions identified involve a planned capital investment of \$1,486.35 million³ and an operational budget of \$63.36 million. Subsequent analyses of budget impacts on GHG emissions reductions will emphasize additional (new or enhanced) actions.
- Scenario analysis: Current progress in reducing actual emissions and most City-led GHG reduction actions within the 2024 budget align with the Business as Planned (“BAP”) emissions scenario rather than the more ambitious Net Zero by 2040 (“NZ40”) scenario.
- To close this “emissions gap” and move towards the more ambitious target, the City must introduce and advocate for transformative GHG reduction actions that go beyond the current BAP trajectory including:
 - initiatives led by the City like Emissions Performance Standards for buildings,⁴ and
 - leadership from the Provincial and Federal governments to provide long-term financial and regulatory certainty, such as with electric vehicle sales mandates.
- Solely relying on the City’s efforts cannot close the emissions gap. Additionally, private businesses and households need to align their investment and spending with a net zero future.

³ This reflects total investments in tagged capital projects including spending on components of projects that do not reduce GHG emissions but are nevertheless necessary to realizing climate positive outcomes of an initiative.

⁴ [2023.IE9.5](#), see Staff Report “*Proposed Building Emissions Performance Reporting By-Law*”; see also [2023.EX7.1](#), Council Direction 12.

- Fossil fuel dependencies: The 2024 Staff Prepared Operating Budget contains \$48.17 million for the purchase of fossil fuels (i.e. fossil natural gas, gasoline, and diesel) for use in City operations.
- Estimated emissions from the projected consumption of fossil fuels in 2024 is 338,650 t CO_{2e}.
- The 2024 Staff Prepared Capital budget also contains \$826.02 million in capital spending tagged as “fossil fuel reliant projects” (i.e., equipment like natural gas boilers and internal combustion engine vehicles).
 - While some continued funding of such equipment and infrastructure is necessary during the short to medium as alternatives scale-up, the TransformTO Net Zero Strategy recognizes the importance of reducing such expenditures progressively to avoid either the “lock in” of future emissions from continued reliance on fossil fuels or the need to replace “stranded” fossil fuel reliant equipment and other assets before the end of useful life.

Increasing climate resilience

- The 2024 Staff Prepared Capital Budgets contain projects that have been identified by program areas as having one or more components that contribute to increasing climate resilience in Toronto with a planned capital investment of \$1,401.80 million.⁵
- As part of a renewed focus on coordinated climate resilience planning in 2024, the City is gathering information to support a refined understanding of the overall costs and benefits of climate resilience work carried out by divisions.

External dependencies

- Dedicated financial support and regulatory leadership from higher orders of government is critical for municipalities to take serious action on climate change. For example, this encompasses a renewed and expanded version of the Canada Greener Homes Grant, incentivizing residents to improve home energy efficiency and switching from fossil natural gas for heating to electric heat pumps, and specifically supporting equity deserving and low to medium income residents. Additionally, provincial support for TTC operations will maximize ridership potential. Regulatory support including a strong and enduring Federal *Clean Electricity Regulations*, currently in draft form, to require a net zero electricity grid in Ontario by 2035 is critical. Similarly, the Federal zero emission vehicle sales mandate regulations will ensure increasing availability of electric vehicles in Ontario.
- Economic forces, such as lower inflation and interest rates, reliable supply chains and a deepening pool of labour in critical sectors are vital for facilitating the significant capital investments necessary for net zero developments and rapid retrofitting of Toronto’s building stock.

⁵ This reflects total investments in tagged projects including spending on components of projects that do not increase climate resilience but are nevertheless necessary to realizing climate positive outcomes of an initiative.

Precision on Climate spending

- City staff are continuously improving the process for tracking climate-aligned spending. Nevertheless, separating the incremental 'climate' portion from total project costs remains challenging. The primary emphasis will be on measuring outcomes in terms of GHG reductions.
- Capital projects may be tagged as both reducing GHGs and increasing climate resilience, leading to the total capital investment in these projects being less than the sum of each category when combined.

Next steps for Carbon Accountability:

- After Council approval of the 2024 Budget, the Environment & Climate Division ("E&C") will subsequently report to Council and the public in Q2 2024 through the annual TransformTO Progress Report. The report will highlight the GHG reduction impact of the approved budget, as well as updates on implementation of the Net Zero Short-term Implementation Plan, the City's work on ensuring climate resilience and the first annual Carbon Budget prioritization process and multi-year emissions budget planning processes under the new Carbon Accountability system.⁶

2024 Budget for GHG reduction actions:

Table 1 below presents the aggregate budget amounts, estimated GHG reduction, and alignment with emissions scenarios for City-led GHG reduction actions. These actions encompass projects and programs that reduce GHGs within the buildings, transportation, and waste sectors, covering both the community and corporation. For reference, corporate emissions from City of Toronto operations comprise approximately 5% of community emissions.

⁶ See [Climate Goals and Governance, Municipal Code Ch. 669](#), § 669-2.3. "Carbon Accountability", Part. F "Identifying and Prioritizing GHG Reduction Actions - Annual Carbon Budget".

Table 1: 2024 Budget for GHG Reduction Actions

	Sector	Capital ⁷ (\$ millions)		Operating (\$ millions)	2024 GHG Reduction (est.) (t CO ₂ e)	Emissions Scenario alignment ⁸
		2024 Capital Budget	Capital Plan 2024 – 2033	2024 Operating Budget		
COMMUNITY	Buildings	137.90	615.80	7.03	16,724	BAP
	Transportation	555.70	2,954.28	9.21	7,063	
CORPORATE	Buildings	498.64	5,894.16	4.87	10,200	BAP
	Transportation	188.12	1,620.36	0.77	19,911	
COMMUNITY / CORPORATE	Waste	105.99	1,820.11	35.13	19,991	BAP
CROSS- SECTOR	-	-	-	6.35	-	
TOTAL		1,486.35	12,904.72	63.36	73,889	BAP

See “Appendix A – GHG reduction actions” for the budget amounts, estimated GHG reduction, and emissions scenario alignment for individual City-led GHG reduction actions (projects and programs).

Scenario analysis:

Appendix A to this briefing note provides new detail on the estimated impact of specific City-led GHG reduction actions. However, gauging overall progress toward the GHG reduction goals set by Council requires balancing project- and program-level analysis with scenario analysis.

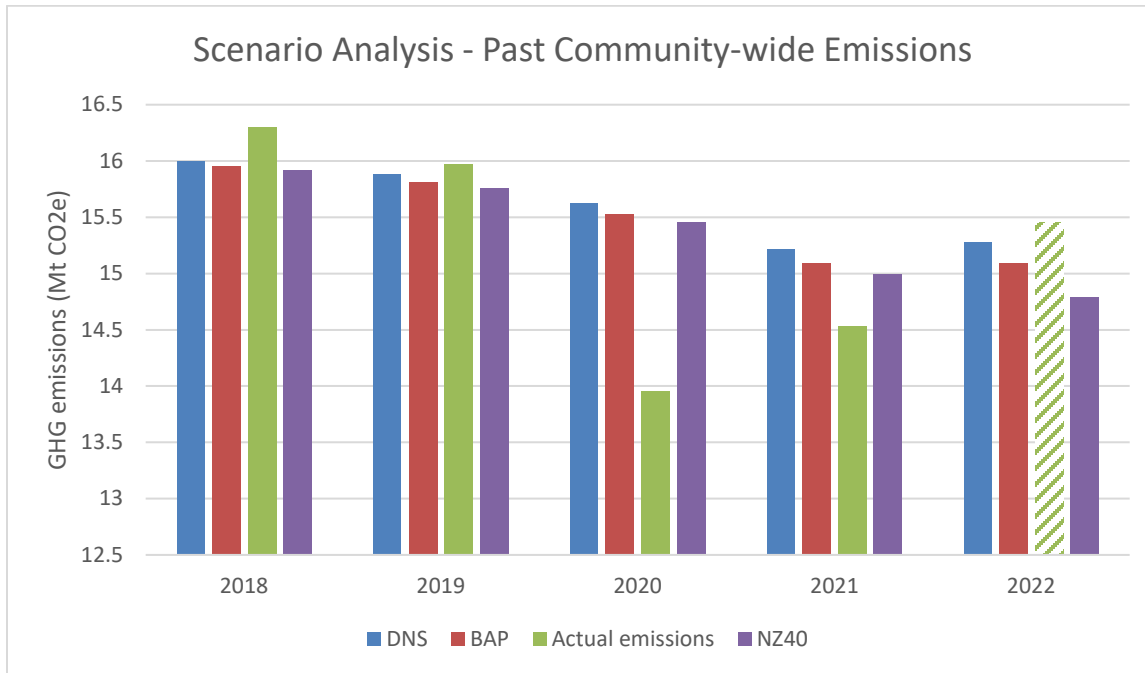
Modelling for the TransformTO Net Zero Strategy outlined several emissions scenarios based on factors including actions taken by the City, as well as technological and market factors. The scenarios included the Do Nothing Scenario (“DNS”), Business as Planned (“BAP”) reflecting the most likely emissions path based on planned actions as of 2019/20, and Net Zero by 2040 (“NZ40”) reflecting a path to net zero emissions by 2040.

Looking backward, Toronto’s actual emissions reported in the City’s annual Sector-Based GHG Inventory tracked above all scenarios in the pre-pandemic years. Emissions then dipped significantly in 2020 and 2021 largely due to the COVID

⁷ Note that capital projects may be tagged as both reducing GHGs and increasing climate resilience, meaning total capital investment in projects tagged as reducing GHGs and increasing climate resilience adds up to less than the sum of each category added together.

⁸ Current emissions trends at the community and corporate levels were compared to the scenarios modelled for the TransformTO Net Zero Strategy: Do Nothing Scenario (“DNS”), Business as Planned (“BAP”), and Net Zero by 2040 (“NZ40”).

pandemic. If Toronto's 2022 emissions rebound from pandemic-lows at the rate seen in The Atmospheric Fund's recent inventory for 2022,⁹ they would continue the pre-pandemic trend of tracking above all modelled scenarios. This suggests the City is at risk of falling short of the BAP trajectory, when it needs to be accelerating toward the NZ40 trajectory.



Looking forward, E&C staff have assessed whether the progress of most City-led GHG reduction actions in the 2024 budget corresponds to the Business as Planned (“BAP”) emissions scenario, rather than the more ambitious Net Zero by 2040 (“NZ40”) scenario. Of the GHG reduction actions that could be assessed for scenario alignment, the majority were found to most closely align with BAP. Several actions that align with NZ40 are future focused and are not expected to reduce emissions from current sources in 2024 (e.g., emissions from future new developments will be significantly lower because of the accelerated Toronto Green Standard provisions requiring net zero designs). In other words, while various long-planned City-led actions will, in future, reduce emissions more significantly, current emission reductions are expected to align more with those expected in the BAP scenario.

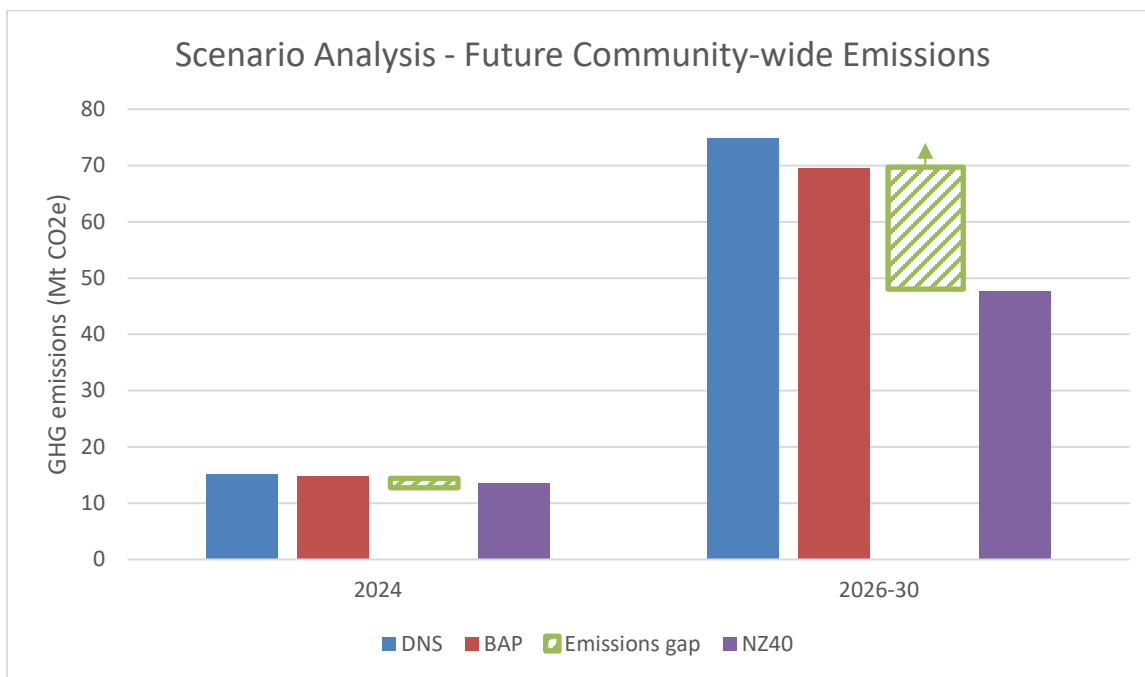
If the City's emission trajectory for the rest of this decade tracks more closely to the BAP scenario than the NZ40 scenario, this creates an “emissions gap” for the City to address via continued and accelerated implementation of the TransformTO Net Zero Strategy. GHG reduction actions that are *additional* to the BAP scenario, rather than merely aligned with the BAP scenario, will be required. Failing to address the emissions gap before it grows larger risks the City's progress toward TransformTO goals. It also

⁹ The Atmospheric Fund, “[Carbon Emissions Inventory Report \(2022\)](#)”, showing Toronto's emissions for 2022 from TAF's inventory at 96.5% of 2019 levels from TAF's inventory.

implies greater costs and potential stranded fossil fuel-reliant assets down the road if sharp emission reductions are required to make up for lost time.

For 2024, the emissions gap between the BAP and NZ40 scenarios would be 1,161,000 t CO₂e. The GHG reduction actions identified in this briefing note are estimated to have an approximate total impact of 73,889 t CO₂e. However, most of these reductions would not be *additional* to the BAP and therefore do not address the emissions gap.

Over the years 2026-30 which will be covered by the next Net Zero Strategy Short-term Implementation Plan, the cumulative emissions gap would grow to 21,891,000 t CO₂e. New or accelerated City-led GHG reduction actions that go beyond the BAP scenario are needed to help address this gap. Federal and Provincial action will also be critical.



Game changers do exist. A transformative example to decarbonize the buildings sector is the introduction of a Building Emission Performance Standards (“EPS”) by-law, the development of which is being led by E&C as part of the Net Zero Existing Buildings Strategy implementation. An EPS by-law would address Toronto’s largest source of emissions by requiring broad-based and significant emission reduction action across all buildings in Toronto, and would be implemented alongside the provision of financial and other support from the City and other levels of government. If implemented beginning in the latter half of this decade, the Building Emission Performance Standards could lead to a significant reduction in buildings sector emissions, with the ultimate scale of reductions depending on whether Ontario develops a zero-emissions electricity grid in the 2030s. The 2024 Staff Prepared Operating Budget for Environment & Climate Division contains \$0.9 million for continued development of EPS and an implementation plan for consideration by City Council later in 2024.

Note that Environment & Climate Division is updating the modelled emission scenarios in 2024 to account for any new planned actions, as well as actual emissions and actual policy implementation since the last round of modelling. Once completed, the new scenarios will inform future reporting on progress toward the TransformTO Net Zero Strategy emission goals and options for acceleration.

Fossil Fuel Dependencies:

The Net Zero Strategy shows that Toronto must drastically reduce its reliance on fossil fuels to achieve net zero emissions. Specifically, the use of fossil natural gas for heating buildings and gasoline and diesel for powering vehicles must be displaced in favour of clean electricity and other low carbon fuels.

Responding to this reality and prior Council direction, E&C staff, in coordination with Financial Planning Division staff, have collected data on the estimated consumption and GHG emissions of fossil fuel products for use in City operations, namely fossil natural gas, diesel, and gasoline. Staff have also collected operational budget earmarked for these fuels.

E&C also developed a definition and criteria for Divisions, Agencies and Corporations to use in identifying “fossil fuel reliant projects” in their 2024 capital budget proposals. Equipment like natural gas boilers and internal combustion engine vehicles are assets that rely on fossil fuels over their lifecycles.

While some continued funding of such equipment and infrastructure is necessary as alternatives scale-up in the short to medium term, the TransformTO Net Zero Strategy recognizes that such spending effectively “locks in” future emissions from continued fossil fuel use. In certain cases, assets are properly tagged both as a GHG reduction project *and* a fossil fuel reliant project (e.g., diesel hybrid buses), or as a climate resilience project *and* a fossil fuel reliant project (e.g., diesel backup power generator).

Tracking the City’s direct reliance and expenditures on fossil fuels (fossil natural gas, gasoline, and diesel) and on fossil fuel reliant projects provides another perspective on whether the City is moving toward a net zero future at the pace required. As we progress toward the interim milestone years of 2025, 2030 and ultimately net zero by 2040, consumption and spending in these areas should decline significantly.

Table 2 below sets out the 2024 budgeted utility dollar amounts, estimated consumption by volume (based on previous year consumption) and resulting GHG emissions for all City divisions (excluding leased sites).

Table 2: 2024 Budget for Fossil Fuels

Emissions Sector	Fossil fuel	2024 Operating Budget (\$ millions)	Consumption estimate	2024 GHG emissions estimate (t CO₂e)
Buildings	Fossil natural gas	20.64	48,165,864 m ³	93,079
	Fossil natural gas via steam for district heat	5.25	3,303,196 m ³	6,383
Transportation	Diesel	11.94	82,066,099 l	203,683
	Gasoline	8.94	13,443,099 l	29,168
	Fossil natural gas	1.40	3,279,036 m ³	6,337

Table 3 below sets out the budgeted amounts for all fossil fuel reliant projects tagged by Divisions, Agencies and Corporations in their 2024 Capital Budget and ten-year Capital Plans

Table 3: Capital Investment in Fossil Fuel Reliant Projects

Division/Agency	Capital (\$ millions)	
	2024	10-yr Capital Plan 2024 – 2033
Children's Services	10.81	101.22
Corporate Real Estate Management	4.77	58.44
Environment & Climate	34.25	293.60
Fire Services	0.64	16.59
Fleet Services	117.62	1,362.30
Parks, Forestry & Recreation	70.74	508.77
Solid Waste Management Services	1.36	2.72
Toronto & Region Conservation Authority	1.01	10.12
Toronto Housing Corporation	189.42	1,798.80
Toronto Paramedic Services	24.00	123.25
Toronto Police Service	17.18	129.32
Toronto Public Library	10.90	149.25
Toronto Shelter and Support Services	27.10	615.44

Division/Agency	Capital (\$ millions)	
Toronto Transit Commission	183.48	200.28
Wastewater Program	121.06	2,996.19
Water Program	11.70	244.15
Total	826.02	8,610.42

E&C staff reviewed a selection of the fossil fuel reliant projects tagged by Divisions and note that:

- The most common projects include components for natural gas-fired heating equipment and internal combustion engine vehicles.
- 60 projects representing \$662.66 million in capital spending in 2024 are categorized as both GHG reduction projects *and* fossil fuel reliant projects. For example, the TTC’s final procurement of diesel hybrid-electric buses before switching to procurement of only fully electric buses from 2025 onward.
- 63 projects representing \$625.54 million in capital spending in 2024 are Climate resilience projects *and* fossil fuel reliant projects. For example, diesel backup power generators for community buildings.
- Staff will review the implementation of fossil fuel dependency tracking for the 2024 budget and include any process refinements for the 2025 budget.

Capital Investment in Climate Resilience

Table 4 below shows the capital investments for increasing climate resilience as tagged by Divisions, Agencies and Corporations in their 2024 Staff Prepared Capital Budget and ten-year Capital Plans.

Table 4: Capital Investment in Climate Resilience

Division/Agency	Capital (\$ millions)	
	2024	10-yr Capital Plan 2024 – 2033
Children’s Services	4.22	68.39
Corporate Real Estate Management	95.49	725.91
Economic Development & Culture	2.51	7.61
Environment & Climate	34.25	293.60
Fire Services	3.69	19.64
Fleet Services	121.33	1,358.11
Housing Secretariat	28.03	399.37

Division/Agency	Capital (\$ millions)	
Parks, Forestry & Recreation	78.64	1,758.62
Solid Waste Management Services	4.36	59.96
TO Live	0.40	7.33
Toronto & Region Conservation Authority	20.73	203.91
Toronto Housing Corporation	189.42	1,798.80
Toronto Paramedic Services	23.15	122.40
Toronto Parking Authority	4.67	32.03
Toronto Police Service	39.06	345.62
Toronto Public Library	19.31	354.45
Toronto Shelter and Support Services	34.78	658.07
Toronto Transit Commission	22.89	120.01
Toronto Zoo	30.42	149.11
Transit Expansion	40.00	56.10
Transportation Services	163.08	1,426.68
Wastewater Program	347.47	5,976.18
Water Program	14.49	344.62
Waterfront Revitalization Initiative	79.44	87.27
Total	1,401.80	16,373.77

Key City-led Climate resilience actions continue to include:

- Toronto Water's investments in carrying out the Basement Flooding Protection Program, Wet Weather Flow Master Plan, and stream restoration and erosion control activities;
- Waterfront Revitalization investments in the Port Lands Flood Protection project;
- Toronto and Region Conservation Authority's investments in management and control of erosion, watershed improvements and waterfront development work; and
- Parks, Forestry and Recreation Division's investments in park development, providing new and improved green space for recreational and natural purposes.

Financial Support & External Dependencies:

The City's ability to fully realize emission reductions from projects and programs in the 2024 Budget depends in part on financial support and external factors such as those below.

- Financial support from other levels of government, particularly:
 - A renewed and expanded version of the Canada Greener Homes Grant, incentivizing residents to improve home energy efficiency and switching from fossil natural gas for heating to electric heat pumps, and specifically supporting equity deserving and low to medium income residents.
 - Full funding for the pending Canada Green Buildings Strategy.
 - Continued provincial support for TTC operations to maximize ridership potential.
 - Funding for expanding transit and securing regular operations.
 - Funding for electric vehicle (EV) charging infrastructure to support broad uptake.
- A strong and enduring Federal *Clean Electricity Regulations*, currently in draft form, to require a net zero electricity grid in Ontario by 2035.
 - Ontario is currently executing a procurement for up to 1,500 megawatts (MW) of gas-fired power generation for the grid, including from a 50 MW capacity expansion of the Portlands Energy Centre in Toronto. Adding more gas-fired power generation increases grid emissions, thereby limiting the emission reduction potential of EVs and buildings with electric heat pumps.
- Continued Federal commitment to achieving 100% new light-duty zero-emission vehicles sales by 2035 (as well as interim targets), and appropriate financial support for purchasers.
- General market forces conducive to the significant capital work required for building net zero new developments and rapidly retrofitting Toronto's building stock – this includes lower and stable inflation, reliable supply chains, and a deepening pool of labour in key areas.

Next Steps

- Following Council approval of the 2024 Budget, the Environment & Climate Division plans to present to Council and the public in Q2 2024 through the annual TransformTO Progress Report on the GHG reduction impact of the approved budget, as well as updates on implementation of the Net Zero Short-term Implementation Plan, the City's work on ensuring climate resilience, and the first annual Carbon Budget prioritization process and multi-year emissions budget planning processes under the new Carbon Accountability system.¹⁰

¹⁰ See [Climate Goals and Governance, Municipal Code Ch. 669](#), § 669-2.3. "Carbon Accountability", Part. F "Identifying and Prioritizing GHG Reduction Actions - Annual Carbon Budget".

Attachments:

Appendix A – GHG Reduction Actions in the Prepared Budget

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