

Council and residents have a clear picture of the fixed emissions budget and can track the rate at which actual emissions are depleting the budget, as well as whether projected future emissions will remain within the budget

- Highlights the importance of not delaying action

Delayed action essentially “spends” more of the emissions budget now and leaves fewer options for future years

- Can be sub-divided into Corporate sector “allocations” to enhance accountability

Division/Agency heads will be responsible for proactively planning how to remain within their emission budget allocations (i.e. providing services within a limited emissions budget, just as they already plan for how to provide services within a limited financial budget), while Council will be responsible for granting the funds and authority necessary to remain within allocations

- Allows for GHG progress tracking in context of the annual financial budget process

By quantifying (wherever possible) the expected GHG reduction impact of City-led action in the financial budget, and using a process to identify and prioritize new or accelerated GHG reduction actions, the City’s current actions to achieve net zero emissions can be aggregated each year into a “carbon budget” proposal for Council and residents to review and scrutinize

Communication and analysis around the carbon budget must acknowledge the reality that the City is only one actor, with limits on its ability to influence or control emissions. There is a risk that defining a carbon budget can create a public expectation that the City unilaterally can or will act to keep community emissions within the budget. However, making careful use of the new modelling tools being procured by E&C can turn this into an opportunity by teasing out the relative impacts of current or possible City-led actions on future GHG emissions, versus the actions of other levels of government and prevailing socio-economic trends. The results should help clarify what GHG reductions the City could actually deliver and/or support.

Key standards and processes for a carbon accountability governance system are proposed to be codified in a new Climate Change Goals and Governance chapter of Toronto’s Municipal Code. This functions as a public commitment of the processes the City will follow in planning for and managing GHG emission reduction actions. Mechanisms that trigger staff reports on possible remedial actions when actual or projected gaps in progress toward Council-adopted community or corporate GHG reduction goals are identified would also be codified.

In sum, a best-in-class carbon accountability system will institutionalize the what, when, who and how of TransformTO Net Zero Strategy implementation.

Four-Part System That Builds on Existing Foundations

The proposed Carbon Accountability system reflects a more purposeful approach for implementing the TransformTO Net Zero Strategy that builds on existing foundations through four main parts:

Part 1 is about setting the total emissions budgets for community and corporate-level emissions – based on Council’s already-adopted GHG reduction targets – across the five-year periods from now until the 2040 net zero deadline.

Part 2 is about creating planning and reporting processes that run on multi-year cycles and can fully leverage the emissions budgets as longer-term planning and accountability tools. The City’s processes for making plans to meet multi-year emission budgets, reporting, and mechanisms for remedial reports can be written into the Municipal Code to enhance certainty.

Distinctions will be made between the City’s corporate emissions budget and the community emissions budget, to clearly distinguish the different opportunities and challenges.

Part 3 is about creating an annual process to identify and prioritize impactful GHG reduction actions in the City’s annual financial budget process. This includes producing accessible public reporting that allows Council and residents to easily monitor and track whether emission reduction progress is consistent with emissions budgets and Toronto’s milestone year GHG reduction targets.

Part 4 is about defining the City’s policy toward the purchase and/or sale of carbon offset credits for the net zero era. Integrating insights from scientific and governance sources, a new Corporate policy will clearly define the City’s approach to the “net” part of net zero and provide a model approach for other cities to follow.

E&C is leading the work to develop the governance and reporting structure that will underpin Toronto’s Carbon Accountability system. This work will efficiently build upon Toronto’s existing strong foundations by:

- Leveraging the data generated by E&C’s annual Sector-based Greenhouse Gas Emissions Inventory for Toronto and the unique emissions modelling tools that are currently in-development for use by City staff;
- Integrating the new bodies created to guide Net Zero implementation, namely the internal Net Zero Climate Leadership Table and the external Climate Advisory Group;
- Deepening existing efforts to analyze GHG reduction actions in the annual financial budget process.

The fact that the City's Sector-based Greenhouse Gas Emissions Inventory reports retrospectively on emissions with a two-year lag time⁵ does not pose a problem. The City of Oslo also has a two-year lag time for their inventory reporting and yet has been using a carbon accountability approach for years. Oslo's annual "climate budget" reports look backward using the two-year lag inventory as the official record of the City's emissions and whether it has achieved targets.. However, the climate budget reports also look forward and project the impact of planned and new GHG reduction actions on the city's ability to meet its future targets. This process of analyzing both past accounts and future budget projections is similar to how cities already deal with financial flows.

Learning from Leading Authorities and Jurisdictional Approaches

The last year has seen a groundswell in authoritative guidance on the governance elements of a credible net zero approach:

- In June 2022, the United Nations Race to Zero campaign, to which the City of Toronto is a signatory, updated its participant criteria to more clearly define what achieving "net zero" means and the acceptable approaches, including with regard to offsets. Toronto is subject to these criteria as of June 2023.
- In November 2022, the United Nations High Level Expert Group on the Net Zero Emissions Commitments of Non-State Entities released a seminal report *Integrity Matters: Net Zero Commitments by Businesses, Financial Institutions, Cities and Regions*. This report sets out ten practical recommendations to bring integrity, transparency and accountability to net zero by establishing clear standards and criteria for cities to follow. Topics covered include governance approaches and net zero-aligned approaches to offsets.
- Also in November 2022, the International Standards Organization released the Net Zero Guidelines to provide a global basis for harmonizing, understanding, and planning for net zero for cities and other actors.

The Environment & Climate Division reviewed each of these developments and has taken steps to ensure the Carbon Accountability system proposal is consistent with the authoritative guidance provided in them.

Environment & Climate has also reviewed how other cities and governments are tackling these governance issues in practice.

The Canadian Climate Institute conducted a review and analysis of jurisdictional approaches to carbon accountability regimes⁶ and found the six core elements:

1. Formalizing climate governance structures and processes

⁵ This is due to the two-year lag time by which the Government of Canada releases official emission factors in annual National Inventory Reports. Those emission factors are used for calculations in Toronto's Sector-based Greenhouse Gas Emissions Inventory.

⁶ Canadian Climate Institute, "[Marking the Way: How Legislating Climate Milestones Clarifies Pathways to Long-Term Goals](#)" (June 2020).

2. Clearly defining roles and responsibilities
3. Establishing interim emissions reduction milestones
4. Producing action plans to meet milestones
5. Requiring monitoring and reporting
6. Broadening the scope beyond reducing emissions⁷

The Carbon Accountability governance system proposed in this report fully addresses elements 1-5 and provides a basis on which element 6 can be tackled as capacity to do so scales up.

The most advanced systems exist in Europe. At the national level, the UK national government is in its fifteenth year of using a carbon budget framework to govern its climate action. At the city level, the City of Oslo is in its seventh year of implementing annual "climate budgets". Oslo's climate budgets are essentially a governance tool to drive implementation of the city's climate action strategy. Each annual climate budget identifies:

- A summary of the city's target, historical emissions sources, and GHG inventory;
- The business as planned emissions projection;
- The GHG reductions needed for that budget cycle to align with overall targets;
- Measures with quantifiable emissions reductions;
- Measures for the budget cycle with non-quantifiable emissions reductions;
- Whether there is a gap between the measures and the emission reduction targets;
- Responsible departments;
- Cost of the measures; and
- Activities for the budget cycle that lay the foundation for future emission reductions.

Since beginning with annual climate budgets, Oslo has seen significant emission reductions despite a fast-growing population while also identifying gaps that must be addressed to meet ambitious GHG reduction targets (95% reduction in local emissions by 2030). Oslo's finance department has taken responsibility for administration of the climate budget process, with other city departments and agencies that lead development and implementation of particular measures (e.g. providing incentives for zero emission vans) providing ideas for new actions and data for reporting, while the climate change department assists with estimating the resulting GHG reduction impacts. Oslo's efforts have also benefitted from sustained political consensus on climate action and substantial funding for local action.

Throughout 2022 E&C staff were involved in a knowledge sharing pilot led by C40 Cities and Oslo on the Oslo climate budget model. The key lessons from the pilot have been adapted for Toronto's circumstances and integrated into the Carbon Accountability system.

⁷ The full table explaining the six elements and the best practices in their implementation is attached as Appendix "A". Or see online: [Table 1: Elements of Climate Accountability Frameworks and Best Practices in their Implementation](#)

In Canada, recent federal climate accountability legislation commits Canada to net zero and sets out the required planning, reporting and consultation processes that will ground the federal approach.⁸ In late 2022, the City of Edmonton⁹ published its first “carbon budget” attempting, where possible, to estimate the GHG emissions of all budget proposals to inform a prioritization process within the city’s existing fiscal budget processes.

Clarifying the "net" of net zero

A best-in-class net zero governance system involves clarifying how offset credits can - and cannot - validly contribute to achieving net zero emissions. An offset credit is a credit equaling one metric tonne of emission reduction or carbon removal (measured in terms of carbon dioxide-equivalent) that can be transacted between two parties. In theory, an offset credit allows for an organization to compensate for its own emissions by paying for emission reductions outside the organization.

The Carbon Accountability system includes a new policy to align the governance of Corporate purchase or sale of offset credits with the net zero commitment. This policy will cut through the clutter and help make the City a leader in net zero governance at the municipal level.

The Offset Credits Policy attached to this report would clarify:

- the type of offset credits that can be purchased to balance any Corporate residual emissions that remain by 2040 and subsequent years;
- the priority of reducing emissions from Corporate sources (buildings, fleet and waste) to achieve milestone GHG reduction targets before 2040, exclusive of offset sales or purchases;
 - offset credits could only be generated and sold by the Corporation if doing so does not require a corresponding adjustment to the GHG inventory of Corporate emission sources;¹⁰
- the estimated total cost, and cost per tonne of carbon dioxide equivalent, to balance any residual emissions in 2040 and subsequent years, the latter of which provides a price metric against which the business case for emission reduction projects can be measured (a tonne of emissions not eliminated is a tonne that must eventually be balanced for net zero); and

⁸ [Canadian Net-Zero Emissions Accountability Act](#), SC 2021, c 22

⁹ Edmonton, “[Carbon Budget 2023-2026](#)” (Nov 14, 2022)

¹⁰ This policy does not prohibit Solid Waste Management Service (SWMS) from selling the energy produced by its renewable natural gas projects. If SWMS opts to sell the energy produced from these projects externally, it is permitted to sell the offset credits and any other related environmental attributes along with it because this requires no corresponding adjustment to the accounting of Corporate emission sources. If the energy produced is consumed by the City, however, SWMS is not permitted to sell offset credits related to that usage externally because this requires a corresponding adjustment to the accounting of Corporate emission sources.

- the centralized administrative structure for purchasing offsets on behalf of the Corporation, to ensure best practices are followed.

The need for clear policy in this area has been identified as key to a credible net zero approach by the UN Race to Zero campaign, the UN High Level Expert Group on the Net Zero Emissions Commitments of Non-State Entities, and the ISO in its Net Zero Guidelines.

The "net" part of net zero arises if there are still GHG emissions occurring in 2040 or any subsequent year (these emissions are known as "residual emissions"). The leading science shows that to halt climate change any residual emissions must be balanced out by removing an equivalent amount of carbon dioxide from the atmosphere and stored in a stable form.¹¹ In short, one tonne of GHG emitted into the atmosphere can only be balanced by one tonne of GHG taken out of the atmosphere and stored.

Residual emissions must be balanced out "like-for-like". This means that the amount of carbon dioxide removed from the atmosphere, and the duration over which it is stored, are equal to the warming impact and timescale of the residual GHG emission being balanced. For example, burning fossil fuels for energy in Corporate buildings or fleet vehicles releases carbon dioxide into the atmosphere that will have a warming effect for centuries to millennia. Like-for-like balancing requires removing the same amount of carbon dioxide from the atmosphere and storing it in a permanent form (e.g. centuries to millennia) through activities like injecting it underground into a stable geologic formation, or mineralizing it into a solid carbonate block. Carbon dioxide can also be removed from the atmosphere and stored for the short-term (e.g. decades) through activities like growing new forests (afforestation) and regrowing forests that have been logged (reforestation). These methods make up the vast majority of current carbon removal activities.¹² However, carbon storage through natural processes is less permanent and more subject to reversal - a forest can burn, be destroyed by pests or be logged by people. For this reason, carbon removal with long-term storage required to balance emissions of carbon dioxide from burning fossil fuels.¹³

The act of removing carbon dioxide from the atmosphere and storing it can generate an offset credit for carbon removal.

However, the vast majority of carbon offsets available for purchase are not based on carbon removals, but rather on activities that purport to have avoided or reduced the emission of GHGs into the atmosphere somewhere else in the world. For example, an offset project may claim to have avoided emissions from deforestation by protecting certain land. Less commonly, emissions from a point source could be reduced, e.g. through carbon capture and storage at an industrial facility burning fossil fuels.

The only offset credits that are valid for claiming net zero status in 2040 are those for carbon removal with sufficient storage. Offset credits for avoided or reduced emissions are **not** capable of supporting a net zero claim because they do not cause the *removal*

¹¹ Myles Allen et al., "[The Oxford Principles for Net Zero Aligned Carbon Offsetting](#)" (September 2020).

¹² Stephen M Smith et al., "[The State of Carbon Dioxide Removal: 1st Edition](#)" (Jan 2023).

¹³ See definition of "net zero" in UN Race to Zero, "[Expert Lexicon](#)" (June 2022).

and storage of carbon from the atmosphere that is fundamental to the science of balancing residual emissions. In any event, offset credits for avoided emissions have inherent integrity concerns that expose purchasers to the risk of "greenwashing" claims that can cause reputational harm.¹⁴

The supply of offset credits for carbon removal is currently limited but technology is rapidly developing. The limited supply means prices will be high until the industry matures and supply becomes more abundant closer to 2050. Projections of an offset market where cities and companies with net zero commitments rely on offset credits for carbon removal to balance residual emissions suggest the price in 2040 could be approximately \$150 - \$250 per tonne, in USD.¹⁵ Additionally, carbon removal will need to make efficient use of available net zero energy sources and carbon storage must not cause negative social or environmental effects, both of which may impact price.

The science is clear that an organization seeking to achieve net zero emissions must confirm its primary objective is to reduce and, if feasible, completely eliminate emissions from sources under its control rather than rely on current or future purchases of offsets. The IPCC recently confirmed "[t]here is a **rapidly closing window of opportunity** to secure a livable and sustainable future for all" and "the level of **greenhouse gas emission reductions this decade** largely determine whether warming can be limited to 1.5°C or 2°C."¹⁶

The scientific principles relevant to net zero aligned offsetting have been integrated into the UN Race to Zero campaign,¹⁷ the recommendations of the UN High Level Expert Group on the Net Zero Emissions Commitments of Non-State Entities,¹⁸ and the ISO's Net Zero Guidelines.¹⁹

In accordance with the best science and governance guidance, the Offset Credits Policy sets out that the City's primary objective in pursuing net zero from Corporate emission sources is to reduce emissions from those sources, rather than rely on offsets. It clarifies that any residual emissions from Corporate emission sources could only be balanced out by offset credits for carbon removal, which are likely to be more costly

¹⁴ Akshat Rathi, Natasha White, Demetrios Pogkas, "[Junk Carbon Offsets Are What Make These Big Companies 'Carbon Neutral'](#)" *Bloomberg* (Nov 20, 2022);

Patrick Greenfield, "[Revealed: more than 90% of rainforest carbon offsets by biggest certifier are worthless, analysis shows](#)" *The Guardian* (Jan 18, 2023).

¹⁵ Ernst & Young, Net Zero Centre analysis "[Essential, expensive and evolving: The outlook for carbon credits and offsets](#)" (May 30, 2022); BloombergNEF, "[Five Need-to-Knows About the Future of Voluntary Carbon Offset Markets](#)" (January 26, 2023).

¹⁶ Intergovernmental Panel on Climate Change, "[Synthesis Report of the IPCC Sixth Assessment Report \(AR6\)](#)" (March 2023), at B.5 and C.1 (emphasis added).

¹⁷ *Net zero* is defined as being achieved when a city's residual GHG emissions are balanced "by like-for-like removals (e.g. permanent removals for fossil carbon emissions) exclusively claimed" by that city.

¹⁸ A city is considered *net zero* in its operations when "it has achieved its long-term net zero target with any residual emissions neutralised by permanent greenhouse gas removals according to reports verified by a credible, independent third party based on publicly available data."

¹⁹ A city's net zero plan should "exclusively use removals (including removal-based offsets) to counterbalance residual emissions at net zero" and "ensure that removals used to counterbalance residual emissions are sufficiently long-term to maintain the net zero balance".

than simply eliminating emissions from Corporate sources (e.g. through electrifying energy use in Corporate buildings and fleet vehicles). In practice, this policy will focus Corporate action on near-term emission reductions while confirming that any residual emissions that have not been eliminated by 2040 would be balanced by offset credits for carbon removal, in line with net zero science.

The City's existing [Carbon Credit Policy](#) only applies to the potential sale of carbon credits and it predates the City's commitment to achieving net zero emissions. The Offset Credits Policy would ensure that Corporate projects reduce GHGs. The City currently has **no** policy governing the potential purchase of offset credits. The proposed policy would fill this gap.

Institutionalizing Carbon Accountability in Practice

Parts 1 & 2: Codified Emissions Budgets and Planning & Reporting Cycles

How it works:

- Emission budgets based on existing Council-adopted GHG reduction targets for community and corporate emissions are set for the 5-year periods of 2026-30, 2031-35 and 2036-40, and codified in a new "Climate Change Goals and Governance" chapter of the Toronto Municipal Code.
- Specified plans and reports are required and delivered on regular timelines to demonstrate to Council and the public how emissions will be reduced to stay within those budgets, and related financial impacts on costs and revenues.
 - Plans and reports include quantified GHG reduction estimates, where feasible,²⁰ for each of the main actions that make up the TransformTO Net Zero Strategy
- Mechanisms are codified to ensure that City staff identify and report on how to address gaps in progress - before the window of opportunity closes.
- The Corporate emissions budget is sub-divided it into Corporate sector "allocations" for Corporate buildings and Corporate fleets to enhance accountability
 - Planning and reporting cycles for managing emissions budgets in these sectors is standardized for each 5-year emission budget period

Benefits:

- Council and the public have "process certainty" on how the City will drive its implementation of the TransformTO Net Zero Strategy
- Staff understand the outcomes and processes they will be held accountable to

²⁰ The ability to estimate emission reductions of a City-led action depends on multiple factors including but not limited to the nature of the action, data availability, data quality, methodological constraints, and resourcing.

NOTE: Attached with this report is a copy of the proposed wording for the bill to be brought forward to codify the new Climate Change Goals and Governance chapter in the Toronto Municipal Code. The required processes and reports of Parts 1, 2 and 3 of the Carbon Accountability System can be seen in the text of that chapter.

Part 3: Annual "Carbon Budget" Prioritization Process & Report

How it works:

- A new annual "carbon budget" prioritization and reporting process operates alongside the existing financial budget process:
 - City Manager & CFO issues direction to Divisions, Agencies and Corporations on key areas for new or accelerated GHG reduction actions
 - Divisions, Agencies and Corporations review direction and come up with ideas, supported by E&C and FPD to develop provisional estimates of GHG reduction and financial impact
 - City Manager & CFO run a prioritization screen of GHG reduction actions that could be included in next year's budget
 - Divisions, Agencies and Corporations continue work on prioritized actions, supported by E&C and FPD to refine estimates of GHG reduction and financial impact
 - E&C and FPD release the "Carbon Budget Report" to synthesize the GHG impact and budgetary cost and revenue impacts of each new or accelerated GHG reduction action, as well as existing GHG reduction actions that are being continued
 - GHG reduction actions are voted on by Council as part of Division, Agency and Corporate budget proposals
 - Every Carbon Budget Report that immediately follows a municipal election will be an enhanced report for the new Council, including information on the status of progress towards climate goals, actions and investments needed to address any gaps in progress, and requests for confirmation of continued or enhanced support for the actions and investments

Benefits:

- The goal of the annual prioritization process can create a virtuous cycle of Divisions, Agencies and Corporations coming forward with ideas for GHG reduction actions;

- The prioritization process leading to the annual Carbon Budget Report will ensure Council and residents are provided with information on the GHG and financial impact of those actions in the context of budget approval
- The prioritization process draws on best practices from other advanced municipal jurisdictions, including Oslo and Edmonton, where the finance departments lead on implementing the annual prioritization and budget review process

NOTE: Attached with this report is a copy of the proposed wording for the bill to be brought forward to codify the new Climate Change Goals and Governance chapter in the Toronto Municipal Code. The required processes and reports of Parts 1, 2 and 3 of the Carbon Accountability System can be seen in the text of that chapter.

NOTE: Per Council Direction #12 from the Net Zero decision ([2021.IE26.16](#)), staff in E&C and FPD have been preparing to start implementing Part 3 for the 2024 budget cycle. Certain dependencies could affect the ability to fully implement, including delays integrating enabling changes in the City's capital budget software (CAPTOR), lack of data to estimate GHG emission reductions from City-led actions, lack of familiarity with new processes. Lessons from the 2024 budget cycle will be applied to future budget cycles as the process is expected to be iterative.

Part 4: Offset credits policy

How it works:

- An updated policy to enable a credible and science-based approach to net zero - clarifies an approach to offsets aligned with net zero context (which differs from existing policy which aligned with prior, less ambitious GHG reduction goals)
- Applies to: (i) Corporate purchases of offset credits to balance Corporate residual emissions; and (ii) Corporate sales of offset credits
 - Does not apply to community emissions because committing to balance residual emissions of private households and businesses could be prohibitively expensive and lessen incentives for households and businesses to reduce emissions prior to 2040
- Sets a golden rule for purchases: Prioritize emission reductions and, if necessary, only purchase offset credits for carbon removal for purposes of claiming net zero emissions in 2040 and subsequent years
 - E&C will centralize purchases and be responsible for market evaluation and reporting
- Sets a golden rule for sales: No sales of offsets from projects that reduce GHG emissions in the Corporate inventory unless: (i) no adjustment to Corporate GHG inventory required (we need to keep reductions on our emissions balance sheet to achieve targets)

- The Toronto Green Standard v4 as it applies to City Agency, Corporation and Division-Owned Facilities is being separately amended to align with the overall Corporate Offset Credits Policy

Benefits:

- Fills a gap in the TransformTO Net Zero Strategy with official policy regarding offset credits
- Makes clear that not all offset credits are functionally equivalent in a net zero emissions context
- Strategic: the projected cost (\$) of offset credit per tonne of carbon removal = cost (\$) of delayed/insufficient action to reduce a tonne of Corporate GHG emissions
- Reduces risk that the Corporation will purchase offset credits that turn out to be invalid for making a net zero emissions claim
- Reduces risk that the Corporation will sell offset credits in a way that makes it harder to achieve Council-adopted GHG reduction goals
- Demonstrates leadership in governance of our ambitious climate action

NOTE: A copy of the proposed Offset Credits Policy is attached with this report

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ATTACHMENTS

Attachment A: Climate Change Goals and Governance chapter for Toronto's Municipal Code

Attachment B: Offset Credits Policy