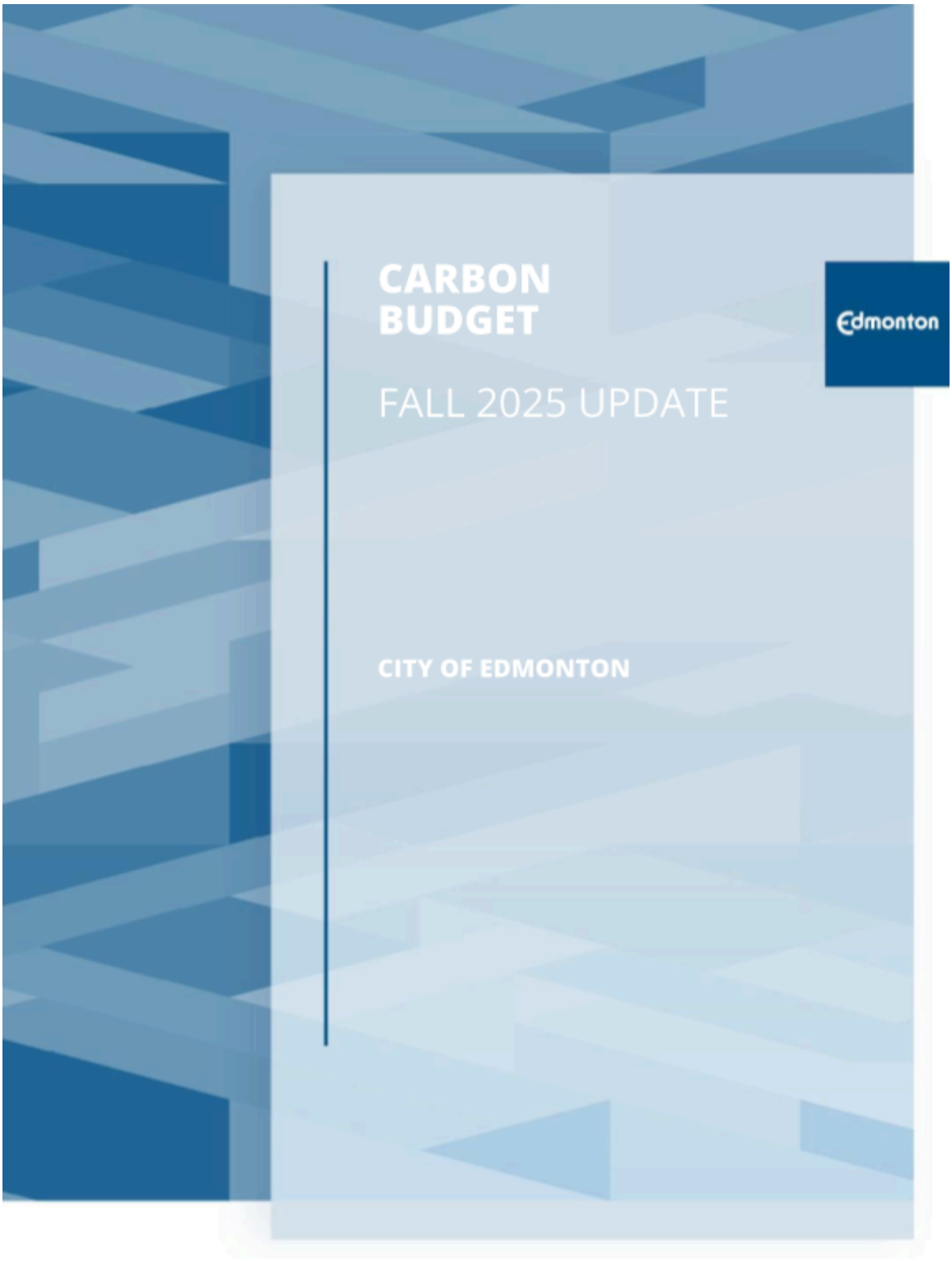

CARBON
BUDGET
FALL 2025 UPDATE
CITY OF EDMONTON

CARBON BUDGET IN BRIEF

Setting the Context

The City of Edmonton's community greenhouse gas (GHG) emission reduction targets are 35 per cent by 2025, 50 per cent by 2030 (both from 2005 baseline levels) and becoming a carbon neutral community by 2050[1].

The Community Energy Transition Strategy needs to stand on a foundation where the City of Edmonton demonstrates climate solution leadership in its own decision-making, actions and advocacy. The City of Edmonton is demonstrating climate solution leadership in several ways:

- Establishing the corporate target of becoming an emissions neutral corporation by 2040, a decade ahead of the community's target.
- The City's green electricity contract came into effect in 2024. The solar facility is currently providing approximately 20 per cent of the City's renewable energy and the wind facility which came online in September 2025 is expected to provide the other 80 per cent of the renewable energy, effectively transitioning all corporate electricity to green electricity.
- Adoption of City Policy C627 Climate Resilience Policy requires all new City-owned construction to be built to an emissions neutral standard, limiting emission increases while growing as an organization.
- Being one of the first municipalities to implement a carbon budget alongside financial budgets, to guide the organization and Council in understanding how the City's financial investment decisions impact the achievement of emission reduction targets.

On November 14, 2022, Council was presented with the City of Edmonton's first carbon budget in conjunction with the capital, operating and utility budgets to support Edmonton's transition to a low-carbon future.

[1] As presented in the Community Energy Transition Strategy

What is a Carbon Budget?

Carbon budgets measure the amount of carbon dioxide equivalents (CO2e) produced by a group — such as a company, household or community — to calculate how much emissions need to be reduced to achieve net-zero. Reaching net-zero means balancing the carbon released into the atmosphere with the amount removed from it.

Reaching net-zero emissions is necessary to limit rising temperatures to 1.5°C-2°C above pre-industrial levels. Scientific studies have shown increasing temperatures past the 1.5°C-2°C threshold means communities will continue to be significantly impacted by natural disasters like frequent severe weather events and declining biodiversity. The Canadian Prairies, including Edmonton, are one of the fastest warming regions in the world.

Extreme weather events due to the climate crisis are the second biggest risk affecting the world in the next two years, according to the World Economic Forum's Global Risks Report 2025[2], rising to the biggest risk over the coming 10 years. Human-caused climate change is already affecting many weather and climate extremes in every region across the globe.

The 2023 Intergovernmental Panel on Climate Change (IPCC) Synthesis Report[3] cautioned that GHG emissions will cause global warming to accelerate in the near future, likely reaching 1.5°C between 2030 and 2035. With current warming at approximately 1.1°C, existing climate policies are projected to lead to a 3.2°C increase by 2100. The report asserts with "very high confidence" that the dangers and negative effects of climate change will worsen as global warming intensifies. To stay under the 1.5°C threshold, emissions must be reduced by a minimum of 43 per cent by 2030 and at least 60 per cent by 2035, compared to 2019 levels. The current decade is crucial for achieving these reductions.

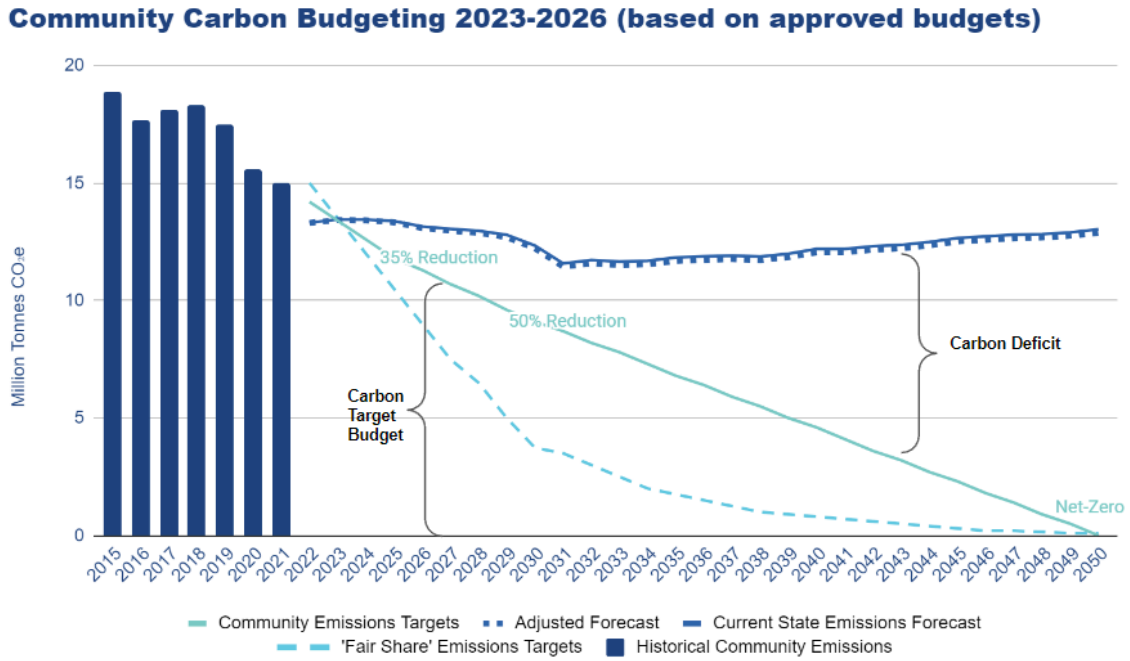
Many countries and regions including Canada, China and the EU – which are responsible for the majority of carbon emissions – have pledged to reach net zero emissions between 2050 and 2060.

The City of Edmonton's Carbon Budget

On November 14, 2022, Council was presented with the City of Edmonton's first carbon budget (Figure 1) in conjunction with the capital, operating and utility budgets to support Edmonton's transition to a low-carbon future.

[2] weforum.org/publications/global-risks-report-2025
[3] https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_FullVolume.pdf

Figure 1: Community Carbon Budget 2023-2026



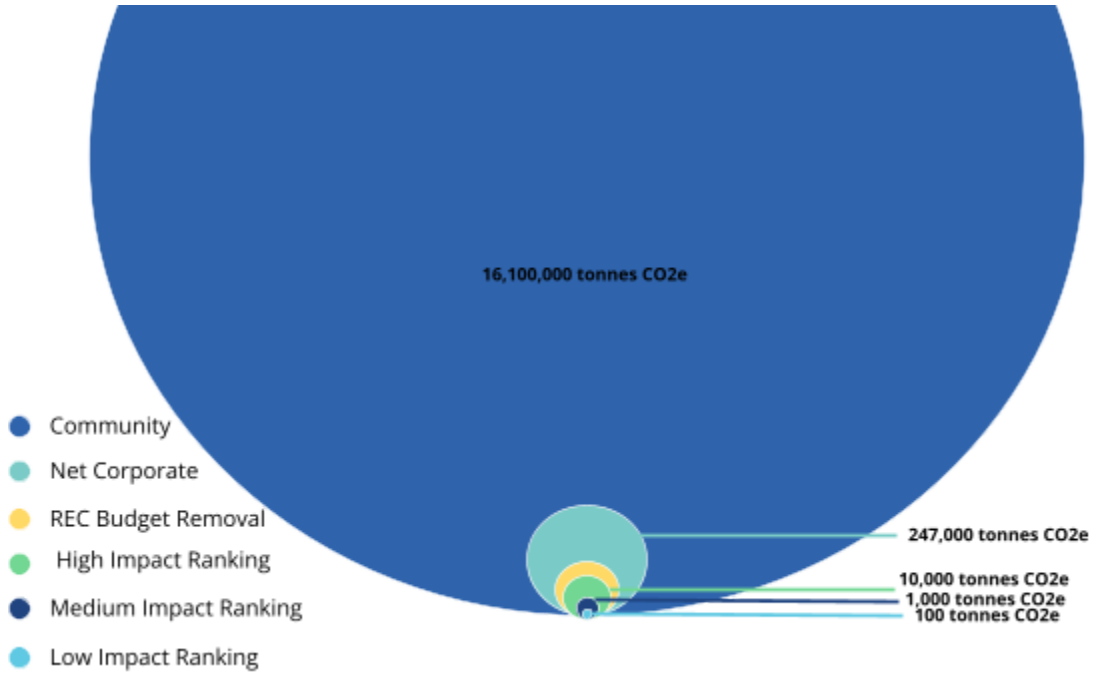
The carbon budget helps guide decision-making and actions by providing additional carbon emissions information for the City of Edmonton as a community and as a corporation. GHG emissions impacts for each budget request within the 2023-2026 capital, operating and utility budgets were available to inform financial investment decisions throughout the budget deliberation process. The carbon budget differs from the capital and operating budgets in that it is not deliberated or approved; rather it is presented for information to guide capital and operating budget decisions.

As part of the multi-year approach to budgeting, the Fall 2025 Carbon Budget Update provides the annual update to the 2023-2026 Carbon Budget. The carbon budget is presented every four years and updated every fall with the Supplemental Operating Budget Adjustment (SOBA) and Supplemental Capital Budget Adjustment (SCBA). The emission forecasts are also updated to include actual results from the prior year and potentially any other changes to future forecast emissions). This fall update also includes assessments from the spring 2025 capital budget adjustments approved by Council.

City Administration includes the assessments of potential GHG impacts for all proposed profiles being presented to council as an attachment to the spring SCBA. These GHG impacts are assessed both at the community level and at the corporate level.

Emissions impacts were calculated for GHGs and measured in carbon dioxide equivalents (CO2e), which includes carbon dioxide, methane, nitrous oxide and other GHGs. The direct and indirect emissions impacts were assessed for low (100 to 1,000 tonnes of CO2e), medium (1,000 to 10,000 tonnes of CO2e), or high (10,000 or more tonnes of CO2e) impacts. Any emissions impact that is below the low impact ranking was deemed immaterial. Professional judgment and subject matter expertise were used to evaluate and define the expected emissions impact levels. Figure 2 represents the impact thresholds compared to the corporate and community GHG footprints based on 2021 emissions. Note that corporate emissions are approximately two per cent of the total emissions from the community.

Figure 2: Qualitative Assessment - Impact Thresholds

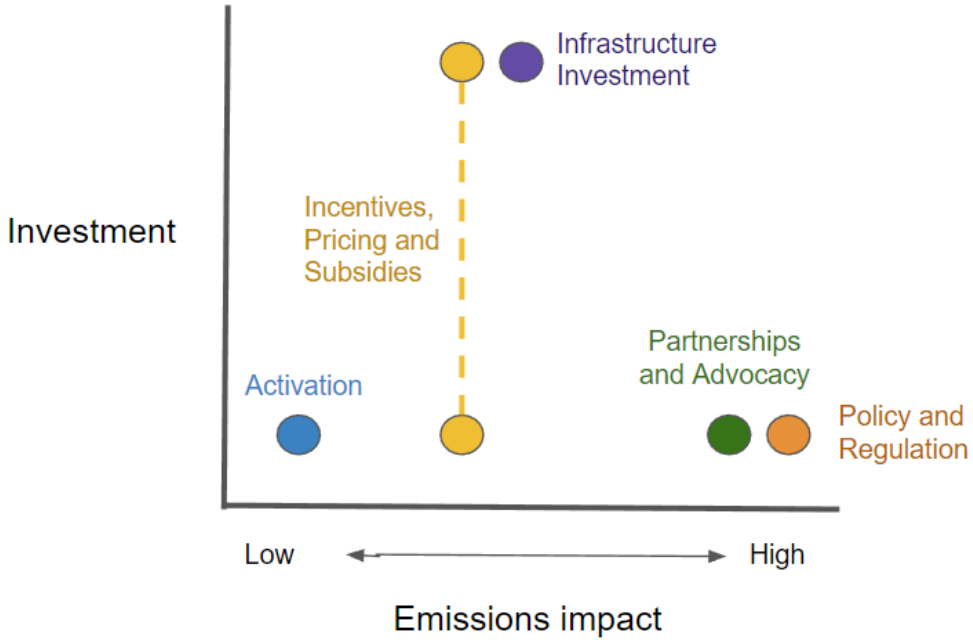


Climate action levers

Municipal funding is limited and needs to be used effectively to make the most of what is available. This includes consideration of what can be completed by other orders of government (such as rebates, which can be given out by federal or provincial governments) versus actions only the City can do.

While the carbon budget does not specifically identify which projects to invest in, Administration has identified emission impacts for the various levers of change to help inform where limited resources could be spent to make the biggest impacts. The scale of investment varies for the levers of change.

Figure 3: Scale of City Investment varies for Levers of Change



Activation is about providing awareness, filling knowledge gaps and building capacity to encourage and support energy transition outcomes. Activation has a relatively low financial investment and low impact on emissions reductions as it relies on individual behaviour to take action.

Incentives, Pricing and Subsidies include applying a premium to cost or a reduction in cost to support a shared outcome or influence behaviour. This can include offsetting the costs of services and amenities for certain user groups or types of activities, or applying charges and fees for users through available financial mechanisms. The financial investment for Incentives, Pricing and Subsidies ranges, and impact is low to medium, as this lever incentivizes but still relies on individual choices and behaviour.

Infrastructure Investment is about providing capital or operational investment in physical infrastructure, City assets, services and planning activities to activate and encourage specific energy transition outcomes. Infrastructure Investment has a high financial investment and medium impact, due to the magnitude of costs required for infrastructure upgrades and the operational emissions associated.

Partnerships and Advocacy require fostering relationships with private, community, institutional and not-for-profit entities to activate strategies, initiatives and actions to advance common goals, recognizing shared interests and aspirations. Partnerships and Advocacy are considered to be low financial investment, with a potentially high impact.

Policy and Regulation is a municipal planning instrument that can guide, direct, manage or shape how the City provides strategic direction for land, infrastructure or services to influence or change the behaviour of residents and markets or market groups. Policy and Regulation has low financial investment, and will have a high impact over time on reducing emissions for the areas the policy or regulation applies. Policy and regulation apply on a much broader scale than incentives, which is why the impact is higher.

Spring and Fall 2025 Carbon Budget Update Highlights

There are no items in the Fall 2025 SCBA, SOBA or utility budgets that significantly increase or reduce emissions.

While the City has direct control over corporate emissions, financial investment in corporate emission reductions alone is not enough. Municipal funding will have a limited impact to meet community emission targets. Climate change is a collective problem requiring collective action. Climate solution leadership through reduction of operational emissions is part of a much larger effort, one that involves policy development, collaboration and support from other orders of government, private investment and the actions of all Edmontonians to achieve the targets outlined in the Community Energy Transition Strategy.

The Fall 2024 Carbon Budget Update reported that Edmonton's per capita energy use had been reduced by 40 per cent, surpassing the 2030 energy efficiency target set in the Energy Transition Strategy. However, the 2005 baseline was recently recalculated as additional data has become available. As a result, the 2024 Community GHG Inventory shows that Edmonton has not yet reached the 2030 energy efficiency target. Energy use per capita continues to decline, and is currently 27 per cent below the 2005 baseline.

The 2023-2026 Carbon Budget makes it clear: further and continued action is needed to achieve community and corporate carbon emission targets. Overall, the impact of the proposed fall 2025 capital, operating and utility budget adjustments will have a negligible impact on current greenhouse gas (GHG) emission levels.

A large majority of the adjustments brought forward within the spring and fall supplemental capital budget adjustment process are Project Development and Delivery Model (PDDM) adjustments to transfer approved funding between composite and standalone capital

profiles. These transfers do not have an impact on the carbon budget unless funding for a project is increased or reduced resulting in scope changes.

Figure 4: 2025 Fall Budget Update - Community Carbon Budget 2023-2026

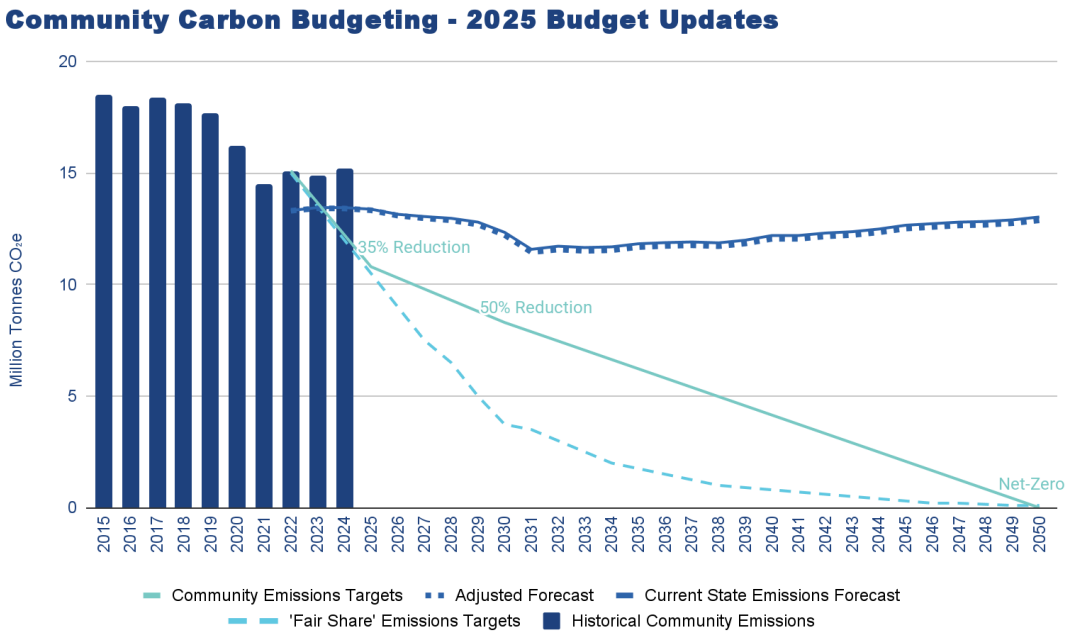
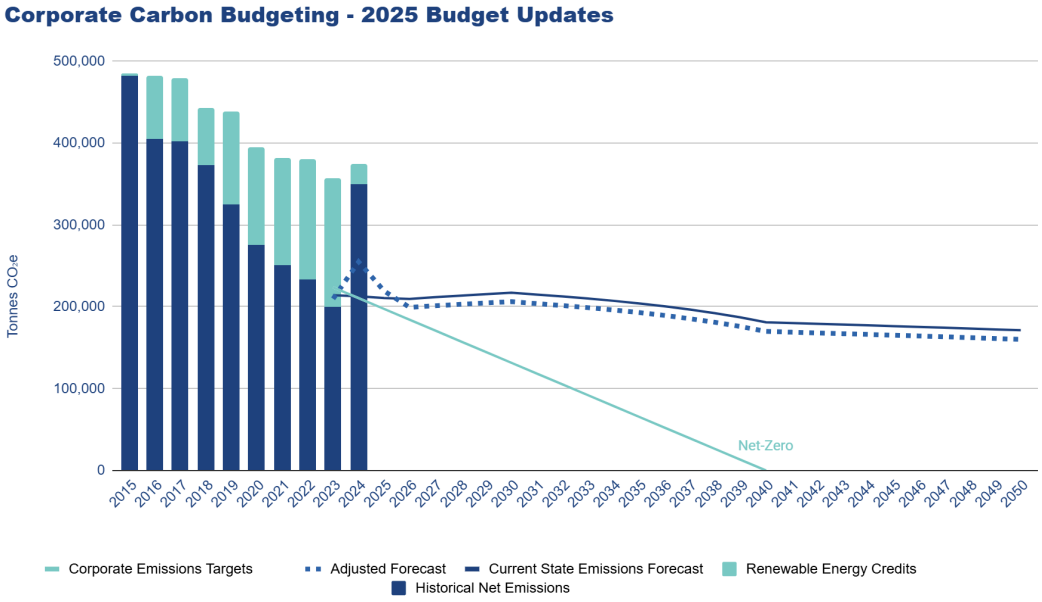


Figure 5: Corporate Carbon Budget 2023-2026



This update to the Corporate Carbon Budget also reflects the impact of a motion passed during the fall 2023 budget deliberations to reduce the operating expenditure budget for Renewable Energy Credits (RECs) by $3.3M for 2024 and 2025. This reduction is due to the solar and wind facilities not at full capacity during these years, with production commencing in April 2024 and September 2025, respectively. As a result, an estimated 191,540 tonnes will be added back to the corporate emissions forecast for 2024 and 2025. Starting in 2026, the wind and solar projects are expected to produce enough RECs on an annual basis to cover the civic operations' incremental electricity emissions until 2030. The City would then have RECs from 2026 to 2030 in excess of its electricity consumption and may choose to either sell them or use them to offset a portion of its natural gas emissions.

The delayed start of solar and wind energy production in April 2024 and September 2025, respectively, led to an increase in corporate emissions by 191,540 tonnes above the Corporate Carbon Budget. This amount is 6.5 times higher than the 'high impact' threshold defined in the Carbon Budget's assessment methodology.

Climate and Emission Trends

The 2023 Intergovernmental Panel on Climate Change (IPCC) Synthesis Report highlights, to date, emission reduction plans from around the world (formally called Nationally Determined Contributions) make it likely that warming will exceed 1.5 degrees Celsius between 2030 and 2052. Edmonton's 2024 GHG emission results show Edmonton is contributing to this warming.

In 2024, Edmonton's community emissions were 15.2 million tCO2e (a three per cent increase from 2023) and 12.8 tonnes per person (a three per cent decrease from 2023). Community emissions have decreased by nine per cent since the 2005 baseline, while per capita community emissions have decreased by 46 per cent since the 2005 baseline.

Based on annual emission reduction targets to reach the 2025 goal, Edmonton's community emissions were targeted to be 12.2 million tCO2e or less in 2024. This target was not met. To get back on track to meet the 2025 target, Edmonton's emissions need to be reduced to 10.8 million tCO2e (or less) in 2025, equal to 35 per cent below 2005 emissions or 29 per cent below 2024 emissions. The trend for this year indicates that this target will not be met and there are no current initiatives or actions that will allow the necessary reductions to meet the target.

The years when the community and corporate carbon budgets are expected to be depleted have not changed from the Fall 2024 Carbon Budget Update. The year when the community carbon budget is forecasted to be depleted is 2036, one year earlier than forecasted in the original 2023-2026 Carbon Budget (see Table 4). The corporate carbon budget is forecasted to be depleted in 2032, instead of 2033, as originally forecasted (see Table 7).

The COVID-19 pandemic saw significant reduction in economic activity related to pandemic responses; therefore, emissions estimated in 2020 and 2021 are not reflective of an emission reduction trend. It is important to note that the increases in emissions observed in recent years are primarily due to increases in energy use in sectors that were impacted by the pandemic, specifically buildings, industrial and transportation sectors. Although emissions have been increasing due to recovery from the pandemic, 2024 emissions remain 14 per cent below pre-pandemic levels in 2019.

If Edmonton's current emission trajectory continues, Edmonton's GHG reduction targets will not be achieved. Edmonton has already experienced the impacts of a changing climate caused by GHG emissions, seen in climate warming over time. Over the past 140 years, the city's average temperature has risen by 2.3°C, which is more than twice the global average increase over the same period. The City's 2025 report, Understanding Edmonton's Changing Climate[4], describes how Edmonton's climate has changed in clear and measurable ways. Temperatures have increased, snowfall patterns have changed and certain weather events are happening more often. The climate today is not the same one that earlier generations in the city experienced. This report draws on local weather records and scientific data to show how Edmonton's climate has already changed. It highlights real, observed changes that are already affecting daily life in the city, including transportation, infrastructure performance and health and safety during extreme weather.

The impacts of a changing climate affects the City of Edmonton as a corporation financially. City infrastructure has to be repaired after extreme weather events like wind storms or heat waves, and additional support is necessary for at-risk members of the community during these events. In 2023 the City spent $16 million on the Emergency Operations Centre's response to wildfires alone. In the long term, actions to reduce GHG

[4]edmonton.ca/sites/default/files/public-files/Understanding-Edmontons-Changing-Climate-2025.pdf

emissions will limit the funding required to address the impacts of extreme weather events.

Financial Pressures and Carbon Impacts

The Fall 2025 SOBA identifies proposed actions to mitigate structural budget variances. These have been evaluated for carbon impacts in Appendix A. These initiatives have no ability to impact greenhouse gas emissions. As the City looks for alternatives to address its significant financial pressures, further analysis will be necessary to assess the potential impacts of any proposed budget reduction measures on the carbon budget and the City's ability to meet emission reduction targets.

2025 CARBON BUDGET UPDATE

Overview

As part of the City's multi-year approach to budgeting, the Fall 2025 Carbon Budget Update provides the annual update to the 2023-2026 Carbon Budget. It presents changes and adjustments to the 2023-2026 Carbon Budget as well as updates to the forecasted emissions and previous years actual results. The Fall 2025 Carbon Budget Update is the final update to the 2023-2026 Carbon Budget. As part of the 2027-2030 budget cycle, a new four-year carbon budget will be introduced.

The City has completed a GHG impact assessment of each budget request to provide decision-makers with a holistic view of the GHG impacts in the capital and operating budget adjustments. Refer to Appendix A: Listing of Proposed Budget Adjustments and GHG Impacts for a complete listing of individual budget requests and associated qualitative and quantitative GHG emission impacts.

The 2023-2026 Carbon Budget supports the transition to a low-carbon city by measuring and reporting progress towards short term and long term goals. The intention is to enable Council and Administration to adjust strategies as necessary to achieve the targets outlined in the Community Energy Transition Strategy.

Just as the financial budgets are under pressure to fund the services the City provides, the Carbon Budget continues to deplete at a rate which will miss the targets the City has set for reaching net zero emissions by 2050 for the Community and 2040 for the Corporation.

A significant portion of grants from the other orders of government have a GHG component to them, and prioritizing this work allows the City of Edmonton to access funds that would otherwise not be available. For example, the City's Emissions Reduction Alberta application for the Alberta Zero-Emissions Fleet Fueling Project was successful in securing funding of $6.9 million. This will allow for Edmonton and municipalities in the Metro region to pilot hydrogen and diesel-hydrogen hybrid vehicle technologies, which could enable almost 400 tonnes of reductions. Funding supports the implementation of transitional fueling systems and analyzes vehicle performance by collecting, analyzing and reporting data, and providing recommendations and insights. This work will support commercialization strategies and the transition to a zero-emission fleet.

Lessons learned

Carbon budgeting is still relatively new to the City of Edmonton; training and corporate capacity building are ongoing. The City continues to find ways to integrate carbon budgeting into existing processes across the corporation. Some initiatives that are aligned closely with the Carbon Budget include the requirement to have Environment and Climate Review sections in all council reports, and the work being led by the Climate Task Force, such as the Corporate Climate Targets and the Decision Making Framework, which aims to incorporate climate impacts into decision making across the corporation.

As the next budget cycle approaches, the City is looking to improve on its existing Carbon Budgeting framework, using lessons learned since the first cycle and the latest developments in best practices.

2025 Carbon Budget Adjustments (Spring and Fall)

The following tables outline the capital, operating and utility budget adjustments with quantifiable community and corporate GHG emission impacts. Further details on approved budget requests, including those with unquantifiable impacts, are included in Appendix A: Listing of Budget Requests and GHG Impacts. There are no requests in the 2025 Utility Budget Adjustments that have GHG impacts.

Emission reductions (bracketed) are considered favourable and emission reducing. Positive emissions are unfavourable, increasing emissions compared to 2024 levels.

Table 1: Proposed Fall Budget Adjustments with Quantifiable GHG Emissions Impact

Name of Budget Request (Capital profile or Operating service package)	**2026 Quantified Emissions Impact (tonnes)** *Brackets indicates GHG Reductions*	**Community /Corporate /Both**	**Proposed 2024 Fall Budget Request ($000s)**
Facility: Service Support - Renewal (installation of solar canopy to power EV chargers and HVAC improvements at Westwood)	(68)	Corporate	1,800

The quantifiable impact of the proposed 2025 spring and fall budget adjustments will have a net positive impact on corporate emissions of approximately 68 tonnes of CO2e.

Not all budget requests have quantifiable impacts. There are numerous initiatives underway that contribute to achieving GHG reduction targets, but which lack available tools for measurement.

2025 Community Carbon Budget Update

Edmonton's 2024 Community GHG Inventory shows that GHG emissions are not decreasing over time and are not on track to meet the 2025, 2030 and 2050 emissions targets. In 2024, Edmonton's community emissions were 15.2 million tCO2e (a three per cent increase from 2023) and 12.8 tonnes per person (a three per cent decrease from 2023). Community emissions have decreased by nine per cent since the 2005 baseline while per capita community emissions have decreased by 46 per cent since the 2005 baseline.

Ignoring the impact of the COVID-19 pandemic on 2020 and 2021, emissions have been stable over the last four years and are not trending towards meeting the interim 2025 and 2030 targets.

Figure 6 shows Edmonton's actual versus forecast emission levels since the beginning of the 2023-26 budget cycle. Edmonton's actual emissions have remained above both forecasted and target values. Based on annual emission reduction targets to reach the 2025 goal, Edmonton's community emissions were targeted to be 12.2 million tCO2e or less in 2024; however, this target was not met. To get back on track to meet the 2025 target, Edmonton's emissions need to be reduced to 10.8 million tCO2e (or less) in 2025, equal to 35 per cent below 2005 emissions or 29 per cent below 2024 emissions. The trend for this year indicates that this target will not be met and there are no current initiatives or actions that will allow the necessary reductions to meet the target.

Figure 6: Community Carbon Budget 2025 Updates

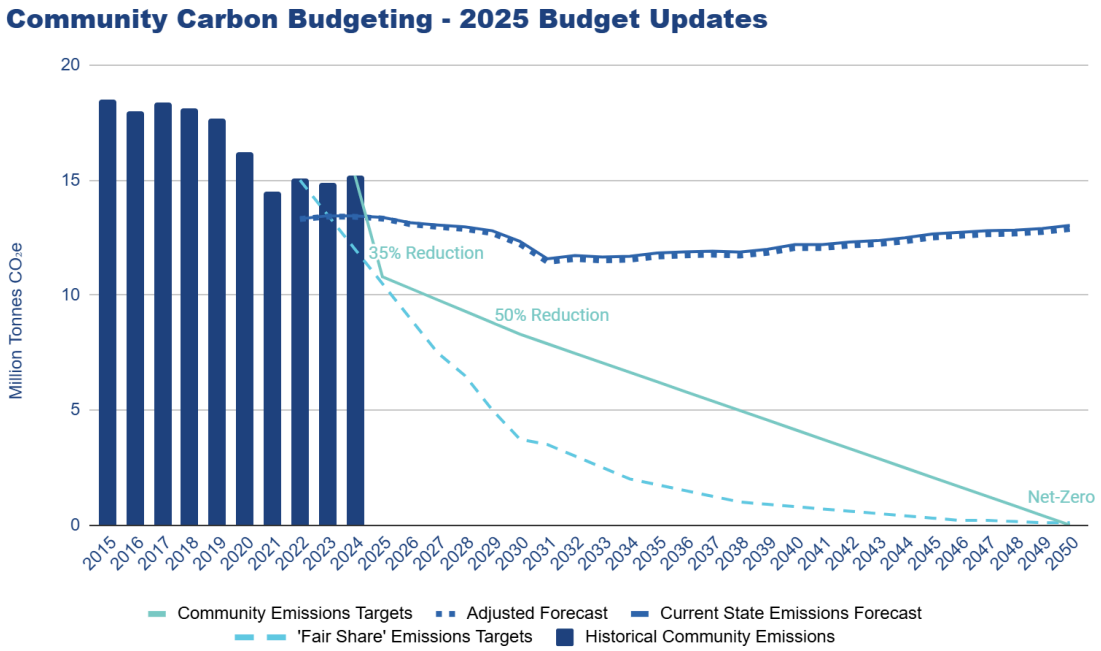


Table 2: Community Carbon Budget

	Carbon Budget 2025-2050 (Available GHG Emissions)	Year Carbon Budget is Depleted (Based on Adjusted Forecasts)
Community Carbon Budget *(targets that align with the Paris Agreement)*	133 million tonnes CO2e	2036*

** This is one year earlier than reported in the 2023-2026 Carbon Budget, this shift is due to the 2022 actual emissions being higher than forecasted.*

Although limited in its ability to meet the community and corporate GHG emission reduction targets strictly through municipal funding, the City has already taken steps to limit GHG emissions through various actions. The 2023-2026 approved capital, operating and utility budgets included funding for projects to reduce GHG emissions by an estimated 180,000 tonnes carbon dioxide equivalents (CO2e) over the four-year period for the community. The majority of these climate initiatives funded in the 2023-2026 budget cycle remain in the

carbon budget and have not been impacted significantly by the subsequent budget adjustments during the budget cycle.

As reported in the Climate Strategies Annual Implementation Update[5]. In 2023-24, the City launched several new initiatives to support the energy transition and build resilience to climate impacts. Highlights include:

- The Neighbouring for Climate program which encourages neighbours to act together to adapt their neighbourhoods to a changing climate while mitigating emissions.
- A permanent Clean Energy Improvement Program providing eligible property owners access to long term financing for energy efficiency and renewable energy upgrades.
- Solar rebates for multi-unit residential buildings.
- A new Zoning Bylaw that enables a more climate resilient city.
- Expansion of Edmonton's tree canopy through the Greener as We Grow Tree-Planting Program.
- Establishment of a Climate Task Force, which consists of senior leaders within Administration to accelerate climate action by integrating environmental considerations into City operations and culture.

Table 3: Community Carbon Deficit

Annual tonnes CO2e	2025	2030	2050
2023-2026 Carbon Budget Deficit (A)*	2,530,000	3,920,000	12,880,000
2023, 2024, and 2025 Budget Updates (B)	1,100	1,300	1,300**
2025 Updated Carbon Deficit (C) = (A + B)	2,530,000***	3,920,000***	12,880,000***

** The 2023-2026 Carbon Budget deficit has increased since it was last reported due to a recalculation of the 2005 baseline, and subsequent update of the 2025 and 2030 community targets.*

***Values presented in the table for GHG impacts of budget updates for 2050 are based on extrapolations and are subject to change.*

**** The 2024 and 2025 budget updates fall below the significance threshold for the community carbon budget, which is 10,000 tonnes. Therefore the resultant carbon deficit remains unchanged from the values reported in the 2023-2026 Carbon Budget. Emission changes below the significance threshold continue to be tracked internally, such that the cumulative impact of small changes is accounted for in future carbon budget updates.*

5 edmonton.ca/sites/default/files/public-files/ClimateStrategies-AnnualImplementationUpdate2024-Report.pdf

2023-2026 Focus

Tables 2 and 3 above focus on the community targets from the Community Energy Transition Strategy from 2022 to 2050. This section provides insight specifically for the 2023-2026 budget period and how the proposed budget requests impact the emissions forecast.

Table 4: 2023-2026 Community Carbon Targets and Deficit

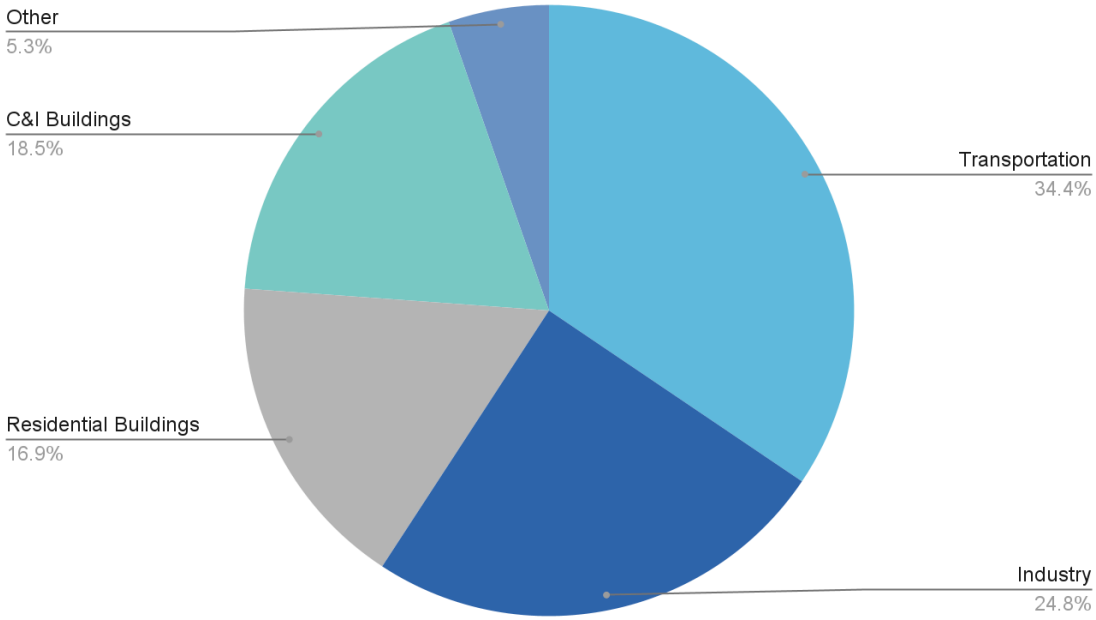
	GHG Emissions (thousand tonnes CO2e) 2023-2026
2023-2026 Carbon Budget Forecast (A)	53,250
2023, 2024 and 2025 Budget Updates (B)	4
Adjusted Carbon Budget(C) = (A + B)	*53,250**
Community Emissions Target (D)	47,000
Carbon Deficit (C - D)	6,250

**The 2024 and 2025 budget updates fall below the significance threshold for the community carbon budget, which is 10,000 tonnes. Therefore, the resultant carbon deficit remains unchanged from the values reporting in the 2023-2026 Carbon Budget. Emission changes below the significance threshold continue to be tracked by the City, such that the cumulative impact of small changes is accounted for in future carbon budget updates.*

Based on the current state emissions scenario and impacts quantified from the 2023-2026 Carbon Budget, the cumulative community emissions would be 53.25 million tonnes of CO2e over 2023-2026. The quantifiable impacts of the 2025 budget updates would decrease emissions by 68 tonnes. The 2025 budget update falls below the significance threshold for the community carbon budget, and so the carbon deficit remains unchanged. The carbon deficit is larger than previously reported due to a recalculation of the 2005 baseline.

Transportation emissions comprise the largest proportion (34 per cent) of the total community emissions with industry (25 per cent) and commercial buildings (19 per cent) being the next largest sources of emissions (See Figure 7).

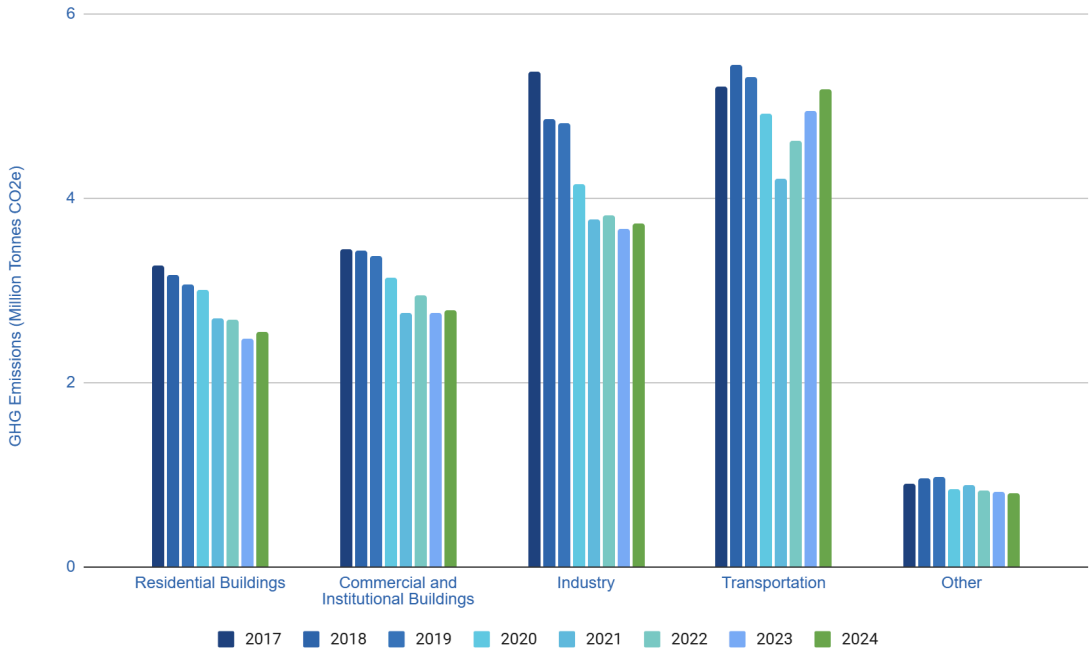
Figure 7: Edmonton's Community Greenhouse Gas Emissions - Sectoral Breakdown



Transportation emissions have remained relatively stable over time (other than the decrease in 2020-2022 attributable to the COVID-19 pandemic). Emissions from residential, commercial and institutional buildings (C&I), as well as industry, have decreased over time (See Figure 8).

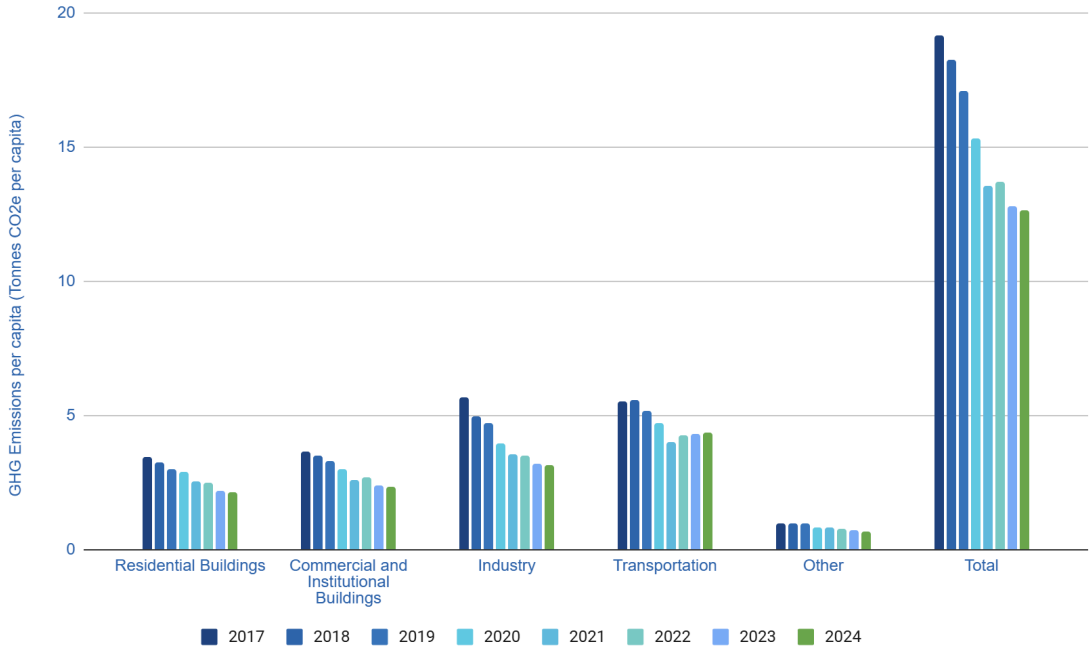
Building emissions, including residential and C&I, have been trending down in part due to the lower grid electricity intensity in Alberta, which is a result of reducing coal power and increasing renewable generation.

Figure 8: Edmonton Community GHG Emissions by Reporting Sector



As Edmonton's population has grown, per capita emissions have decreased in every category compared to 2017 (See Figure 9).

Figure 9: Edmonton Community GHG Emissions per Capita by Reporting Sector



2025 Corporate Carbon Budget Update

In contrast to the community carbon emissions, which are primarily dependent on policy, other orders of government and private investment, the City of Edmonton is able to have a direct impact on its corporate emissions with its investment decisions.

Figure 10 provides a summary of the preliminary annual corporate emission targets compared to the current state emissions. The corporate emissions target is to be net neutral by the year 2040, as indicated in the Community Energy Transition Strategy.

Although the City is close to achieving its corporate emissions reduction target over 2023-2026, more actions are required to achieve the emission reduction targets by 2040. The path to setting and achieving targets to become an emission-neutral corporation by 2040 is discussed in the Looking Forward section of the 2023-2026 Carbon Budget. This includes actions such as integrating climate resilience into the City's services and processes, prioritizing climate and energy transition considerations in decision-making and setting ambitious policy targets to accelerate the transition. They also include continuously seeking ways to reduce operational emissions through procuring low-carbon energy and carbon offsets, scaling up climate resilience retrofits and energy efficiency improvements in City facilities, and expanding solar photovoltaics and energy storage on its infrastructure. Additionally, the City is transitioning to a zero-emission fleet and equipment while exploring hydrogen infrastructure.

Figure 10: Corporate Carbon Budget 2023-2026

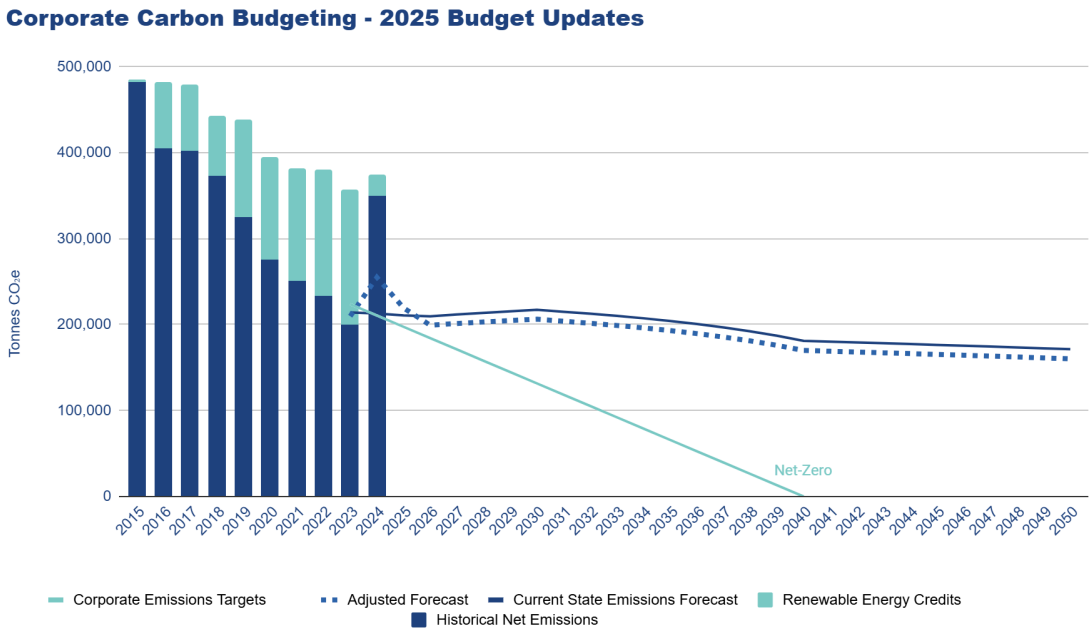


Table 5: Corporate Carbon Budget

	Carbon Budget 2025-2040 (Available GHG Emissions)	Year Carbon Budget is Depleted (Based on Adjusted Forecasts)
Corporate Carbon Budget	1.25 million tonnes CO2e	2032*

**This is one year earlier than reported in the 2023-2026 Carbon Budget. This shift is due to the 2022, 2023 and 2024 actual emissions being higher than forecasted.*

Table 6: Corporate Carbon Deficit

Annual tonnes CO2e	2040**
2023-2026 Carbon Budget Deficit (A)	169,000
2023, 2024 and 2025 Budget Update Impacts (B)*	1,000
2024 Budget Update Deficit (C) = (A + B)	170,000*

**The Corporate Carbon Budget significance threshold is 1,000 tonnes, and therefore the 2023 budget update impacts are rounded up to 1,000 tonnes and increase the reported deficit from the 2023-2026 carbon budget.*
***Values presented in the table for GHG impacts of approved budget requests for 2040 are based on extrapolations and are subject to change.*

Table 7: 2023-2026 Corporate Carbon Targets and Deficit

	GHG Emissions (thousands of tonnes) 2023-2026
2023-2026 Carbon Budget Forecast (A)	816
2023 and 2024 Budget Updates (B)	68
Adjusted Carbon Budget (C) = (A + B)	884
Preliminary Corporate Emissions Target (D)	816
Carbon Deficit (C - D)	68

Based on the forecasted current state emissions scenario (which includes the renewable electricity purchase) and impacts quantified from the 2023-2026 Carbon Budget, the 2023-2026 corporate emissions would be 816,000 tonnes of CO2e. The quantifiable impacts of the 2023 and 2024 budget updates would increase emissions by 68,000 tonnes, resulting in 884,000 tonnes CO2e of emissions between 2023-2026. This exceeds the preliminary corporate emissions targets of approximately 816,000 tonnes CO2e over the 2023-2026 time period, resulting in a carbon deficit of 68,000 tonnes.

In 2024, the City's net Corporate GHG emissions were 16 per cent below Edmonton's 2005 baseline emissions. The City saw a 75 per cent increase from 2023 net emissions levels, due to a lower amount of RECs being purchased. The City of Edmonton's corporate emissions make up approximately two per cent of the total emissions within the community.

The delayed start of solar and wind energy production in April 2024 and September 2025 respectively, led to an increase in corporate emissions by 191,540 tonnes above the Corporate Carbon Budget. This amount is 6.5 times higher than the 'high impact' threshold defined in the Carbon Budget's assessment methodology.

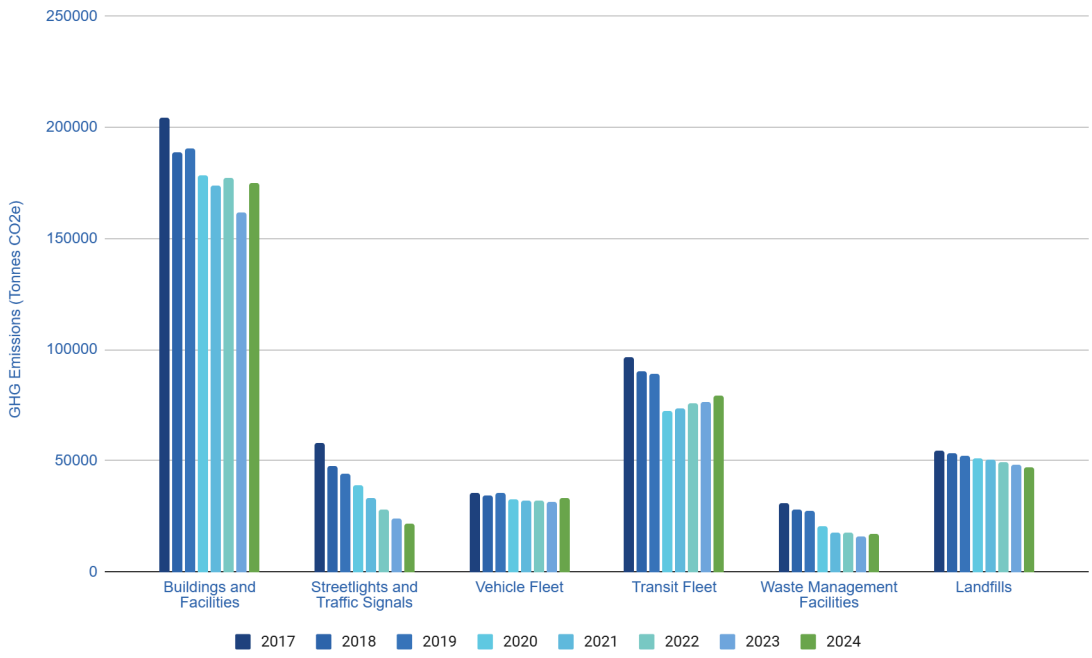
Starting in 2026, the wind and solar projects are expected to produce enough RECs on an annual basis to cover the civic operations' incremental electricity emissions until 2030. From 2026 to 2030 the City would then have RECs in excess of the City's electricity consumption and may choose to either sell them or use them to offset a portion or its natural gas emissions.

Net GHG emissions represents the overall balance of emissions produced and emissions removed from the atmosphere (through carbon storage from the urban forest) or emissions

avoided by purchasing renewable energy certificates. These reductions are both included in the 'Negative Emissions' illustrated in Figure 10.

The City's net GHG emissions have been decreasing over the last five years. These reductions have come from various sectors. Emissions from City of Edmonton buildings, transit fleet and streetlights have decreased, while emissions from the light duty fleet have remained relatively unchanged (see Figure 11).

Figure 11: Edmonton Corporate GHG Emissions by Reporting Sector



Offsets and credits are key instruments in achieving emission reductions. Emission offsets are generated by projects that have voluntarily reduced their greenhouse gas emissions and are verified by a third party in accordance with the Standard for Validation, Verification and Audit. Emission offset projects must meet the requirements in the Technology Innovation and Emissions Reduction (TIER) regulation, the Standard for Greenhouse Gas Emission Offset Project Developers, and a relevant Alberta-approved quantification protocol.

There are no scenarios to meet net zero goals in which offsets are not included.

Appendix A - Listing of Proposed Budget Adjustments and GHG Impacts

Spring 2025 Suplemental Capital Budget Adjustments

			Pathway								
Profile ID	Profile Name	CETS Action	1	2	3	4	2026 GHG Emissions Impacts (tonnes CO2e)	Enabling	Community /Corporate /Both	2023-2026 Budget Request ($000)	Description of GHG Impacts
Spring 2025 Supplemental Capital Budget Adjustments											
New Standalone Profiles Requesting Funding from Existing Approved Profiles											
SCBA-C-2025-00042	Fire Apparatus For New Station Growth Projects	☐			↑		Not Quantified		Both	4,360	This profile is for the acquisition of new fire trucks, which will increase Pathway 3 emissions. No enabling emissions impact. Direct emissions impact - Immaterial, associated with the use of the new fire trucks.

Fall 2025 Suplemental Capital Budget Adjustments

			Pathway								
Profile ID	Profile Name	CETS Action	1	2	3	4	2026 GHG Emissions Impacts (tonnes CO2e)	Enabling	Community /Corporate /Both	2023-2026 Budget Request ($000)	Description of GHG Impacts
Fall 2025 Suplemental Capital Budget Adjustments											
CM-13-0000	Facility: Service Support - Renewal	☑	↓	↓			-68	↓	Corporate	1,800	Installation of a solar canopy to power EV chargers and HVAC upgrades at an existing City facility. Direct emissions impact - Immaterial. The solar installation directly reduces Pathway 1 emissions. The HVAC upgrades directly reduce Pathway 2 emissions. Enabling emissions impact - Immaterial. Supporting the EV chargers enables a Pathway 3 reduction by enabling EV use.
25-25-9431	Windemere District Park	☐				↑	Not Quantified	?	Both	11,097	Project funding to proceed with site preparation of the Windemere District Park, including plans for site grading and planting grass and trees in the areas that have been identified for the Catholic school, and future recreation and transit facilities. The land is being converted from existing agricultural land use to maintained turf grass that will eventually contain a school site, recreational facility and transit site. As such, there will be a net loss in carbon sequestration due to disturbance of soil and conversation of land, along with the reduced carbon sequestration potential provided by turf grass.. Direct Impacts: Increase of Pathway 4 emission. magnitude of emisions is expected to immaterial Enabling Impacts:uncertain
25-61-3624	Growth Buses	☐					Not Quantified	↓	Both	25,223	Additional service hours from the 25 buses will increase the corporate GHG inventory by an estimated 1090 tCO2e. This increase is expected to be offset by a net reduction in automobile trips resulting from two factors: Service Transition: Transitioning the On-Demand Transit (ODT) services in those six rapidly growing neighborhoods to conventional fixed routes provides greater service certainty, which is expected to attract net new transit ridership over time. Service Expansion: Relocating the freed-up On-Demand service hours to new areas will encourage residents there to switch from driving to transit. The overall net increase in system ridership is anticipated to reduce automobile trips enough to balance the increase in corporate emissions from additional service hours from 25 new buses. Direct Emission: No impact of Pathway 3. the increase in corporate emission is expected to be offset by the decrease in community emission from net new transit riders swtiching from automobile use. Enabling Emission: As the the new areas serviced by ODT grow, they could eventually be transitioned to conventional fixed route services which will further increase the rate of transit use but that is not part of this budget request.

Fall 2025 Suplemental Capital Budget Adjustments

			Pathway								
Profile ID	Profile Name	CETS Action	1	2	3	4	2026 GHG Emissions Impacts (tonnes CO2e)	Enabling	Community /Corporate /Both	2023-2026 Budget Request ($000)	Description of GHG Impacts
CM-66-3600	Bus Fleet & Equipment Rehab & Replacement	☐			↓		Not Quantified		Both	1,245	Upgrading the bike racks across the ETS bus fleet to support a wider variety of bicycle types (i.e. children's bikes, e-bikes, winter bikes) will increase multi-modal trip options for Edmontonians. Improving integration between active modes and transit, particularly for first/last mile segment of the journey, will improve attractiveness of these modes and potentially increase both public transit and active modes use. Direct Impacts: Potential decrease of pathway 3 emission. Enabling Impacts: No impacts.
CM-66-3400	LRV Fleet & Equipment Renewal	☐			?		Not Quantified	↓	Both	1,123	The automated passenger counters on LRVs would enable a reliable count of LRT boardings and ridership. LRT ridership is included as a component of overall transit ridership, which is an important metric for transit service performance. This measurement is critical for understanding the level of transit service use, informing service planning, ensuring efficient service delivery, planning for future expansions and seeking partner funding support. Direct Emission: No direct impacts. Enabling Emission: An efficient operational service level will increase the reliability of the LRT system which in turn could increase the system use. The increased use of the LRT would potentially decrease the pathway 3 emission.
CM-70-0001	Fire Rescue Equipment Replacement	☐					Not Quantified	↓	Community	317	The use of drones to proactively mitigate wildlife risk by facilitating early detection of wildfire in City open spaces has the potential to reduce community level emission related to wildfire. However, there is a level of uncertainty around the number of wildfire starts that may occur as this is quite variable from year to year, though proactive detection enables a quick response that can potentially reduce the amount of area burned. Direct emissions: No impact anticipated to any pathway. Use of drones that are battery operated have immaterial impacts on GHG emissions Enabling emissions: Decrease in community impacts - proactive detection of wildfire enables a quick response that can potentially reduce the amount of area burned

Fall 2025 Suplemental Operating Budget Adjustments

Service Package Name	CETS Action	Pathway 1	Pathway 2	Pathway 3	Pathway 4	2026 GHG Emissions Impacts (tonnes CO2e)	Enabling	Community /Corporate /Both	2023-2026 Budget Request ($000)	Description of GHG Impacts
Fall 2025 Suplemental Operating Budget Adjustments										
Council Directed (unfunded)										
Commercial Vacancy Reduction Grant	☐					Not Quantified	↓	Community	300	The Commercial Vacancy Reduction Grant encourages private sector investment in vacant commercial properties and supports the cost of interior renovations to existing buildings. No direct emissions impact. Enabling emissions impacts - Immaterial. The interior renovations may include updates that improve the energy efficiency of the buildings, potentially enabling a Pathway 2 reduction. As the Grant encourages the use of existing buildings, it also potentially enables a Pathway 3 reduction by reducing vacancies and increasing the use of existing infrastructure compared to building new.
Commercial Redevelopment Grant	☐					Not Quantified	↓	Community	400	The Commercial Redevelopment Grant encourages high-quality commercial and mixed-use re-development in priority areas. No direct emissions impact. Enabling emissions impacts - Immaterial. This Grant enables Pathway 3 reductions by encouraging the density and livability of the priority areas.
Enhance Transit Safety and Security: Permanent Enhanced Cleaning	☐					Not Quantified	↓	Community	2,704	Improving the cleanliness of transit spaces does not directly impact GHG emissions; however, it enables GHG reductions by increasing attractiveness of the transit system. No direct emissions impact. Enabling emissions impact: Medium - in combination with the other transit safety and security profiles, associated with increasing attractiveness of transit system and promoting increased ridership.

Fall 2025 Suplemental Operating Budget Adjustments

Service Package Name	CETS Action	Pathway 1	Pathway 2	Pathway 3	Pathway 4	2026 GHG Emissions Impacts (tonnes CO2e)	Enabling	Community /Corporate /Both	2023-2026 Budget Request ($000)	Description of GHG Impacts
Enhance Transit Safety and Security: Transit Rider Support at Stations	☐					Not Quantified	↓	Community	1,923	The addition of Transit Safety Attendants does not directly impact GHG emissions; however, it enables GHG reductions by improving attractiveness, inclusivity and perceived safety of the transit system. No direct emissions impact. Enabling emissions impact: Medium - in combination with the other transit safety and security profiles, associated with increasing attractiveness of transit system and promoting increased ridership.
Transit Peace Officers Optimal Deployment Plan	☐			↑		Not Quantified	↓	Both	6,363	The addition of transit peace officers will directly increase operational emissions associated with new fleet vehicles; however, it enables GHG reductions by improving attractiveness and safety of the transit system. Direct emissions impact: Low - associated with the additional fleet vehicles. Enabling emissions impact: Medium - in combination with the other transit safety and security profiles, associated with increasing attractiveness of transit system and promoting increased ridership.
Traffic Signals Program	☐					Not Quantified	↓	Community	1,822	Rightsizing the operating resources required to maintain the City's traffic signal network will ensure the efficiencies of city's traffic signal system and upkeep of the system as needed. Direct Emissions: No direct impacts are expected. Enabiling Emissions: Resourcing will lead to efficiencies in managing traffic flow. The efficienct traffic flow would result better congestion management which in turn would decrease the GHG. However, level of reduction can't be estimated as the improvement would be on a continuous cycle.

Fall 2025 Suplemental Operating Budget Adjustments

Service Package Name	CETS Action	Pathway 1	Pathway 2	Pathway 3	Pathway 4	2026 GHG Emissions Impacts (tonnes CO2e)	Enabling	Community /Corporate /Both	2023-2026 Budget Request ($000)	Description of GHG Impacts
Improved Accessibility - Active Pathway Snow Removal and Sidewalk Repair	☐			↑		Not Quantified	↓	Both	7,828	Increased snow removal and sidewalk repair would directly increase operational emissions associated with increased equipment and fuel usage. However, the improved accessibility on active pathways would enable an emissions decrease by inducing/promoting active transportation and access to transit. Direct emissions impact: Low - associated with increased equipment and fuel usage. Enabling emissions impact: Low - associated with improved accessibility on active pathways and improved access to transit.
River Valley Trail Strategy	☐				?	Not Quantified	?	Both	483	This profile includes the development of a trail strategy to facilitate the establishment of a comprehensive trail network that supports year-round use of all trail types while protecting the ecological health of the river valley. While the development and eventual implementation of the trail strategy will help improve the ecological health of the river valley and ravine system by reducing environmental impacts through more effective management of the trail system, there is uncertainty around how this may affect Pathway 4 emissions. The current proliferation of user- generated natural tread trails will likely be offset by opportunities for trail restoration in some areas once a defined natural tread trail network has been established. Direct Impacts: Pathway 4 emission are uncertain Enabling Impacts: As these trails are primarily used for recreational purposes as opposed to active transportation, enabling emission are uncertain.

Fall 2025 Suplemental Operating Budget Adjustments

Service Package Name	CETS Action	Pathway 1	Pathway 2	Pathway 3	Pathway 4	2026 GHG Emissions Impacts (tonnes CO2e)	Enabling	Community /Corporate /Both	2023-2026 Budget Request ($000)	Description of GHG Impacts
Enoch Cree Nation Whitemud Drive Upgrades	☐			↓		Not Quantified	↑	Community	7,000	This road segment in this profile is one of the several other segements in the west Edmonton where road capacity for vehicular traffic will be added to address growth traffic congestion. Other sgements are primarily developer funded projects. With the completion of the all these projects, the traffic congestion in the area is expected to be reduced. The additoinal roadway capacity will increase the accessibility Direct Emissions: With additional road capacity, reduction in traffic congestion will decrease the pathway 3 emission. However, the reduction of pathway 3 emission exclusively for this segement can't be estimated. Enabiling Emissions: Additional road capacity could also induce additional vehicle use which would in turn increase GHG emissions.
Emergent Items										
DATS Service Level Enhancement	☐			↓		Not Quantified	↓	Community	2,995	The DATS (Dedicated Accessible Transit Service) is a critical transportation option for Edmontonians with physical or cognitive disabilities who cannot use regular transit. Without these additional DATS service hours, the council directed service level can't be maintained and a denied trip would force the rider to use a potential higher carbon option such as a private automobile or a taxi. Therefore, maintaining the service standard prevents an equivalent number of higher-emission alternatives. Direct Impacts: Pathway 3 emission will decrease. Enabling Impacts: Ensuring the availability and realiability of this critical service, could also potentially eliminate the otherwise induced automobile trips (e.g., additional automobile trips by a freind or family member to pick up or drop off the rider to his or her home). Furthermore, this action reinforces the City's commitment to the Accessibility Policy and guarantees equitable access to opportunities for all citizens.
Boards and Commissions (unfunded)										
No emissions relevant packages										
Impacts Managed Internally (ncluded in Proposed Fall SOBA)										
No emissions relevant packages										

GHG Impacts Guide

Budget requests for 2023-2026 received a qualitative assessment for greenhouse gas (GHG) emissions impacts. Where possible, a detailed quantification of GHG emissions related to each budget request was completed, with the exception of those related to transportation, which were quantified on a holistic basis. The order in which the budget requests are listed aligns to the order they are presented in each of the respective budgets. Below is an example assessment as listed in the appendix:

Profile/ Package/ Project Name	CETS Action	Pathway				2026 GHG Emissions (tonnes CO2e)	Enabling	Community /Corporate /Both	2023-2026 Budget Request ($000s)	Description of GHG Impacts
		1	2	3	4					
Three-stream Communal Collection	☑	-	-	↑	-	300	↓	Both	10,390	This profile increases Pathway #3 emissions due to new collection routes but is expected to enable emission reduction through waste reduction and increased diversion. No impacts for Pathway 1, 2 or 4 emissions. Direct Emissions Impact - Low: associated with the energy use of new recycling and organics collection vehicles. Enabling Emissions Impact - Medium: associated with waste reduction and increased diversion.

Below is an explanation of each field in the table.

Field	Description
Profile Name/Service Package Name	Name of budget request
CETS Action	Indicates if the budget request is an action identified in the Community Energy Transition Strategy.
Pathway	The assessment of direct impacts was completed in relation to the four pathways in the Community Energy Transition Strategy.
1	Pathway 1: Renewable and Resilient Energy Transition
2	Pathway 2: Emission Neutral Buildings
3	Pathway 3: Low-Carbon City and Transportation
4	Pathway 4: Nature-Based Solutions and Carbon Capture
2026 GHG Emissions Impacts (tonnes CO2e)	These are the annual GHG emissions impacts for 2026, the last year of the four-year budget cycle. Emissions are shown as of 2026 to reflect the emissions impact of investment decisions during this budget cycle. Emissions impacts are calculated for GHGs, and measured in tonnes of carbon dioxide equivalents (CO2e), which includes carbon dioxide, methane, nitrous oxide and other GHGs. 2026 was chosen as this is the final year in the budget cycle. In theory, most projects would be complete or near complete. Quantification has been completed for elements of projects where possible. In some cases, there will be more GHG impacts, but they are not quantifiable. • Negative (bracketed) emissions are favourable and emissions reducing, and positive emissions are unfavourable, increasing emissions compared to 2021 levels. • "0" indicates zero emissions impact due to the project being emissions neutral or the green electricity contract that will come into effect in 2024, effectively transitioning all corporate electricity to green electricity. • Not Quantified means that quantification was not completed for the project. This could either be because the project does not have GHG impacts, or it was not quantifiable for a variety of reasons (see "Projects Not Quantified" below for further details).
Enabling	Indicates if there is an indirect impact on emissions. Refers to the indirect emissions impact of a project. A project or initiative that would not have a direct impact on GHG emissions within a pathway, but rather support other work to be done to either increase or decrease emissions.

Community /Corporate /Both	Identifies if the GHG emissions impact is for the municipality of Edmonton (community), or the corporation (corporate), or both. All corporate impacts are included in the community impacts, as the City of Edmonton corporation is a part of the larger community. In certain cases, a project or initiative will have both corporate impacts and community impacts. For example, an LRT project would impact road traffic (community) and utility costs for the City of Edmonton (corporate). N/A indicates that there are no direct or indirect emissions impacts, so neither community nor corporate emissions are impacted.
2023-2026 Budget Request ($000s)	The total cumulative dollar value (in thousands of dollars) of the related budget request over the four years of the 2023-2026 operating, capital, or utility budget.
Description of GHG Impacts	Description of the GHG impacts, as well as magnitude of direct and enabling GHG impact (if any). The direct and enabling GHG emissions impacts were assessed for: • immaterial (<100 tonnes of CO2e), • low (100 to 1,000 tonnes of CO2e), • medium (1,000 to 10,000 tonnes of CO2e), • or high (10,000 or more tonnes of CO2e) impacts. The impacts are not necessarily directional. For example, there may be uncertain impacts that are considered medium because they could have increasing emissions impacts in the 1,000 to 10,000 tonnes of CO2e range and also have some impacts that are decreasing.

Greenhouse gas impacts have been evaluated qualitatively for direct and enabling (indirect) impacts to the four pathways in the Community Energy Transition Strategy.

Scoring has been revised since the development of the 2023-2026 Carbon Budget. Rather than comparing emissions impacts to the prior year, the assessment was updated to reflect impact to achieving overall carbon reduction targets, acknowledging that the carbon budget is depleted each year, and no change to emissions does have a negative impact to achieving overall carbon reduction targets. Scoring was also updated to distinguish when projects are actively contributing to emission increases or decreases, versus not reducing, as well as identifying when the project has no impact on a pathway because it does not have related emissions impacts.

The revised scoring adopts a “traffic light” approach, using green for decreases in emissions, yellow as a warning for instances when emissions are not decreasing and red for when emissions are increasing. Grey indicates that emissions cannot impact a project, and the black question mark indicates there are impacts but they are unknown.

Symbol	Description
	Decrease in emissions, which are favourable towards meeting emissions targets.
	Project is not changing emissions where there is the potential to reduce emissions, which does not contribute towards meeting emissions targets.
	Increase in emissions, which are unfavourable towards meeting targets.
	Project does not have the ability to impact emissions.
?	Uncertain impact at this time; may have both increasing and decreasing impacts with the overall impact being unknown, or the type of impact is unknown from the information available.

Projects Not Quantified

- GHG emissions impacts that were not quantified for various reasons, including:
  - Project is substantially complete prior to 2023, and emissions impacts will be included in future inventories (these projects will not be listed in the Appendix).
  - Projects that are in initial planning phases, where critical details required to quantify GHG impacts have yet to be defined. These include capital projects in the very early design phases.
  - Projects for which development details are expected to be informed in the future by public engagement and community input, such as land development profiles.
  - Projects or initiatives that will have GHG impacts, but at this stage are requesting funding for strategy and implementation development. At this time the impact of these projects are highly uncertain, and dependent on many distinct and discrete decisions that may not be clearly identified.
  - Projects that are replacing assets with modern equivalents, that may result in small emissions reductions but, to maintain conservativeness and not overstate the GHG impact, the reductions were not quantified.
  - Projects that were not quantified due to data and quantification limitations. In these instances, data is either unavailable or the means to quantify is not available at this time.
- The City of Edmonton has adopted City Policy C627 Climate Resilience Policy, which requires all new City-owned construction be built to an emissions neutral standard as of 2021. There are no GHG impacts associated with these projects.

Appendix B - Description of Assumption Categories

The development of the carbon budget required various assumptions that can be categorised as follows:

1. **General assumptions:** these are assumptions that were made to help clarify and define the overall process that was developed. This may also include assumptions on how to deal with different types of profiles such as composites, strategy related profiles and operating impacts of capital.
2. **Assumptions specific to PATHWAY 1: Renewable and Resilient Energy Transition**
3. **Assumptions specific to PATHWAY 2: Emission Neutral Buildings**
4. **Assumptions specific to PATHWAY 3: Low-Carbon City and Transportation**
5. **Assumptions specific to PATHWAY 4: Carbon Capture and Nature-Based Solutions**

General Assumptions	
Item	**Assumption**
General scope boundaries	The community and corporate GHG inventories help to set the scope of the type of operational emissions that are considered in evaluation of the budget. Different sectoral emissions sources are provided to help clarify scope decisions. **Community emissions align with the following sectors:** - Residential buildings - Agriculture, forestry and fishing activities - Manufacturing industries and construction - Non-specified sources - Commercial and institutional buildings and facilities - Energy industries - Fugitive emissions - On-road transportation - Transboundary transportation - Off-Road transportation - Aviation transportation - Rail Transportation - Waste - Agriculture, Forestry and Other Land Use - Industrial Processes and Product Uses **Corporate emissions align with the following sectors:** - Buildings and Other Facilities - Streetlights and Traffic Signals - Vehicle Fleet

General Assumptions	
	- Transit Fleet - Waste Management
Scope of Emissions included in carbon budgeting	The quantified carbon budget only includes Scope 1 (direct emissions) and Scope 2 emissions (electricity related emissions). The corporate GHG inventory includes those emissions sources that are directly within the operational control of the City. The community GHG inventory includes emissions sources within the City boundary.
Projects substantially completed prior to 2023	The carbon budget does not include GHG impact assessment for capital projects that were approved through previous capital budgets, that are substantially complete, with cash flow extending into 2023 and beyond. The GHG emissions of these projects will be incorporated into annual GHG emissions updates once they are in service.
Boards and Commissions	Capital profile requests for all Boards and Commissions have been assessed for GHG impacts. Operating service package requests for Boards and Commissions have not been assessed for GHG impacts, but will be incorporated into annual GHG emissions reporting if approved by City Council.
Emissions quantified by pathway	Pathway 1: relates to emissions associated with energy supply including Solar PV deployment, and capturing landfill gas for energy use Pathway 2: relates to emissions associated with energy use within buildings and facilities Pathway 3: relates to emissions from transportation and urban design including street lighting. Pathway 4: relates to emissions from land use change and sequestration from tree planting. This would also include any industrial carbon capture equipment if included.
Qualitative assessment benchmark	The comparison for the qualitative assessment of the pathway emissions is the 2021 emissions inventory.
Quantitative assessment benchmark (community current state emissions forecast)	For the community carbon budget, the “Business-as-Planned” scenario from Edmonton’s City Plan has been adopted as the current state emissions forecast, which reflects the most recent emissions forecast prepared for community emissions. This scenario assumes that growth occurs according to the City’s approved statutory land use plans and historical growth patterns prior to adoption of The City Plan. Therefore, the carbon budget impacts compared against the current state community emissions illustrate the progress towards carbon reductions as The City Plan is implemented.
Quantitative assessment benchmark (corporate current state emissions forecast)	The corporate current state emissions forecast does not assume growth in the City’s transit, waste or vehicle fleet, streetlighting electrical load and assumes modern equivalent replacement of any vehicles reaching their end of life. It assumes no new emissions producing facilities and decreasing emissions associated with the City's landfills.

General Assumptions	
Rounding	• All figures related to community emissions have been rounded to the nearest 10,000 tonnes. If less than 10,000 tonnes they will be presented as <10,000 tonnes. • All figures related to corporate emissions have been rounded to the nearest 1,000 tonnes. If less than 1,000 tonnes they will be presented as <1,000 tonnes. • Individual project quantifications are presented to the nearest 100 tonnes. If less than 100 tonnes they will be presented as <100 tonnes.
Materiality	Description of the GHG impacts, as well as magnitude of direct and enabling GHG impact (if any). The direct and enabling GHG emissions impacts were assessed for: • immaterial (<100 tonnes of CO2e), • low (100 to 1,000 tonnes of CO2e), • medium (1,000 to 10,000 tonnes of CO2e), • or high (10,000 or more tonnes of CO2e) impacts. The impacts are not necessarily directional. For example there may be uncertain impacts that are considered “medium” because they could have emissions impacts in the 1,000 to 10,000 tonnes of CO2e range increasing and also have some impacts that are decreasing.
City of Edmonton's green electricity procurement	The qualitative assessment does not consider the City of Edmonton's green electricity purchases as part of the evaluation. However, the quantitative calculation presented in the report does consider the City's green electricity purchases.
Operating impacts of capital (OIC)	Any related emissions from operations have been reported within capital GHG assessments.
Renewal (including fleet)	Renewal is considered to have no material emissions impact as this is not actively replaced with high energy efficiency equipment. In some cases there will be efficiency improvements due to modern equivalent standards, but these will not be quantified or evaluated. The general assumption is that renewal is considered business as usual, and any inherent efficiency improvements will be captured in future GHG inventories.
Quantification of capital project composites for the Neighbourhood Renewal Program and Energy Transition Strategy	The scope of work included within the Neighbourhood Renewal Program and the Energy Transition Strategy Implementation composite profiles is vast. Due to the quantification limitations discussed in the 2023-2026 Carbon Budget, only portions of these composite projects were quantified for GHG emissions impacts. Once considering the full scope of the projects, and as more details become known, the projects will have more GHG emissions impacts than the amount reported. • Neighbourhood renewal - only includes net impact of tree changes • Energy Transition Strategy Implementation composite - only includes estimate impact of Clean Energy Improvement Program
Profiles that involve enhancing data availability and use within the corporation	As per the foundation of the Community Energy Transition Strategy, data-driven decision making is critical to make informed decisions for energy use and emissions. Therefore, any profiles or packages that result in improved data gathering and use will decrease enabling emissions.

General Assumptions	
Pathway #1: Renewable and Resilient Energy Transition	
Item	**Assumption**
Interaction of City installation of solar PV and green electricity procurement	In 2026, the City will have emissions neutral electricity. While solar PV will lead to a decrease in electricity requirements from the grid, that electricity will already be emissions neutral as per the City's green electricity contract and will therefore have no net impact.
Quantification of Landfill Gas to Renewable Natural Gas	Quantification of GHG impacts are estimated to align with the City's GHG Inventory methodology rather than other measurements and estimates taken related to Alberta's Technology Emissions Innovation Regulation.
Pathway #2: Emission Neutral Buildings	
Item	**Assumption**
Emissions impacts of City buildings designed prior to 2021 (when City Policy C627 was adopted)	These buildings meet the previous City Policy C532 that had a requirement that buildings would be designed with 40 per cent lower emissions than energy code from 2011, but will still lead to an increase in emissions overall.
Solar PV generation in new City buildings that meet City Policy C627	Emissions associated with solar installations in new city owned buildings that adhere to City Policy C627 are included in the overall emissions neutrality of the building and are not broken out for quantification or qualifications. Pathway 1 emissions for any new City buildings adhering to City Policy C627 are ranked as 'no impact'.
Energy retrofits as part of renewal	Energy retrofits as a part of a facility renewal will be segregated into two pathways if the retrofit includes solar PV or other renewable systems. The emissions impact from the retrofit component will be reported as an emissions reduction within Pathway 2 and the solar component will be shown as a decrease for Pathway 1.
Retrofits to buildings that have not yet had any design or scoping work done	Retrofits to buildings that have not yet had any design or scoping work done, will not be going through construction this budget cycle and have no land use changes will not be quantified until the scope and energy study are completed.
Energy "Plug Use" (such as computers)	Energy "Plug Use" (such as computers) directly impact Pathway 2 emissions similar to other building systems.
Open City Technology (IT) impacts	It is assumed that all budget requests related to Open City and Technology do not increase server room requirements. If at any point additional server space is required, this would be brought forward as a new growth or renewal profile and emissions increases associated with this growth would be assessed at that time.
Impacts of increased construction	Emissions from construction activities are considered "embodied carbon"' and are not currently assessed within carbon budgeting. Future iterations of this work may consider these impacts.

General Assumptions	
New emissions neutral buildings	Growth buildings are assumed to adhere to City Policy C627 and therefore be designed to be emissions neutral with renewable energy production. This neutrality means these buildings will have no impact to Pathway 1 or 2 emissions. In situations where a new emissions neutral building is constructed to replace an existing facility, the potential decreased emissions from the decommissioned facility is not assumed unless the decommissioning cost is specifically included as part of the capital profile request.
Building retrofits with increased emissions listed as part of the Community Energy Transition Strategy	There are certain facilities that have not been operational for many years and will be undergoing retrofits that will improve energy efficiency, and therefore be in support of the Community Energy Transition Strategy's goals. However, there will also be a new overall emissions increase (low or immaterial) to the City because the buildings have not been operational for the last few years.
New park facilities	New park facilities (bathrooms, pavilions, etc.) are expected to consume energy for their operation and lead to increases in pathway 2 emissions.
Pathway #3: Low-Carbon City and Transportation	
Item	**Assumption**
Quantification of transportation related projects	Transportation-related budget requests were combined as a composite to estimate travel demand and the resultant impacts of greenhouse emissions for the entire transportation system, which is a more accurate approach to quantifying GHG impacts rather than on an individual project basis. To provide further perspective of the emissions impacts related to different transportation modes, the Transit, Road, and Active mode composites were evaluated separately and quantified for GHG emissions impacts.
Transit, road, and active transportation profiles	The direct emissions impacts of the transportation composite profiles were evaluated based on the changes in transportation system capacity and assumed use (e.g., increase or decrease capacity and use of each travel mode). For example, the direct impacts of a transit profile that expands transit capacity decrease pathway 3 emissions as the result of a shift of travel from personal vehicle use to transit. The decrease in automobile use results in decreased fuel consumption which in turn reduces pathway 3 emissions. Enabling emissions impacts of transportation composite profiles include the emissions impacts associated with potential induced travel on the respective mode, considering the population and employment growth patterns as a result of the investments. For example, considering future population growth a new transit investment increases transit accessibility which could stimulate the Transit Oriented Development (TOD) along the related transit corridor. The expected growth of population and TOD typically provide opportunities for residents living in TOD to access amenities within a short distance by either transit or active modes. This would enable reduced automobile dependency for the residents living in TOD, which in turn reduces the GHG emissions.

General Assumptions	
New and renewed parking lots and bike racks	New parking lots result in more personal vehicle trips. This would encourage driving and thus would increase pathway 3 emissions. New bike racks provide opportunities for safe/secure bike parking which would encourage more biking. This can shift driving trips to bike trips which would decrease pathway 3 emissions. Renewal work done to the active transportation network maintains current use, and considering future population growth this renewal enables emissions decreases. Renewal work done to parking lots maintains current use, and considering future population growth this renewal enables emissions increases.
Transportation safety related profiles	Enhancing and maintaining transportation safety can enable indirect emissions impacts and will likely reduce mobility/transportation-related emissions. Programs or initiatives (such as automated enforcement, safe crossing or neighbourhood speed limits) tend to increase speed compliance, encourage use of active travel modes and thus reduce GHG emissions impacts.
Bike paths and pedestrian paths (active network)	Any addition to active transportation capacity (sidewalks, trails, etc.) results in direct emissions reductions for pathway 3. Renewal work done to the active transportation network maintains current use and enables emissions reductions when considering future growth of the City.
Transit renewal	Transit renewal profiles maintain transit service levels, which enables emissions reductions when considering future growth of the City.
New transit garages	These facilities are emissions neutral facilities. The assets (LRV and buses) are not included in the direct impact assessment. These facilities enable significant emissions reductions associated with mass transit access and future emissions neutral vehicle storage and maintenance requirements.
Pathway #4: Carbon Capture and Nature-Based Solutions	
Item	**Assumption**
Quantification for natural asset impacts of City owned development projects	If there are projects that do not have a defined location or footprint, quantifications will not be completed as it is too early to provide an accurate assessment.
Soccer fields and open space turf	Soccer fields and open space turf do not support emissions sequestration and would be considered the equivalent of developed land.
Natural asset protection	The assumption is that natural areas would have been developed if not protected. Ongoing enabling emissions are associated with the lands' increased ability to sequester carbon over time.
Naturalization, greenery, vegetation, landscaping, and low impact development (LID)	Naturalization is considered to decrease pathway 4 emissions related to returning developed lands back to a natural state. Profiles including greenery, vegetation, landscaping and low impact development are not considered as decreases to pathway 4 due to these aspects not currently being included in the current quantification methodology.

General Assumptions	
Irrigation within capital profiles	Some capital projects include installation of irrigation. These were considered immaterial for assessment, although increased water use and the associated energy of processing and pumping water do exist.
Trees added through development processes	Only corporately owned trees will be calculated, in alignment with the current inventory. Trees that are planted by the City along the right of way for new development will be captured. Privately planted trees are not included.
Transition to or from farmland or turf	Natural asset transitions to or from farmland or turf were not calculated in the quantifications. Farmland and turf cause emissions both from the land use and from the operations that maintain them. The City's natural asset calculation tool currently includes a factor for farmland that includes both the operations and the land use. However, the scope of the GHG inventory only includes the natural asset land use, not the emissions from operations to maintain. Since the inventory and the tool used to calculate emissions impacts are not aligned, the tool could not be used for quantification purposes.

Appendix C - Key Terminology

Adaptation - Lowering the risks and negative impacts, and embracing potential opportunities associated with climate change so that communities and ecosystems are prepared to cope with new climate conditions.

Climate Resilience - The ability to prepare for, recover from and adapt to severe weather, ocean warming and acidification, extended periods of drought and extreme temperatures, and other deleterious effects of climate change.

Community Carbon Budget - The amount of GHG emissions permitted for the municipality of Edmonton based on emission targets over a period of time.

Community Carbon "Fair" Share Budget - The amount of GHG emissions permitted for the municipality of Edmonton, over a period of time, based on C40's methodology to assign a "fair" proportion of the global carbon budgets to C40 cities.

Corporate Carbon Budget - The amount of GHG emissions permitted from City-owned and operated assets and operations based on emission targets over a period of time.

Current State Emissions - The amount of GHG emissions inventory (emissions actuals for the years 2015 to 2021) plus the long term emission forecast amounts (for the years 2022 through to 2050).

Carbon Capture - A process where carbon dioxide (CO2) is separated (captured) from industrial and energy sources, and can be either stored and used to create a new product.

Carbon Deficit/Surplus - The annual difference between GHG emissions and the emission targets. A deficit implies that the current state emissions are greater than the target emissions. For future forecast purposes the deficit/(surplus) is measured against the forecasted emissions.

Carbon Neutral - A carbon neutral community or corporation is where the net per-person greenhouse gas emissions is zero. Carbon neutral energy is energy with net zero greenhouse gas emissions.

Decarbonization - The process of stopping or reducing the release of greenhouse gases into the atmosphere.

District Energy System - Local, centralized energy systems that produce and distribute thermal energy (heating and/or cooling) for customer use.

Embodied Carbon - The total of all GHG emissions that result from the manufacture and supply of construction products and materials, as well as the construction process itself.

Energy Model - A study that is done on a building to estimate the proposed energy use of a building after construction or a retrofit. These are the most accurate way to determine the emissions associated with new construction or a retrofit project.

Emission Targets - Desired levels of maximum annual GHG emissions based on a percentage reduction from the 2005 baseline year to achieve GHG emission goals.

Emissions Neutral/Emissions Neutral Building - An Emissions Neutral building is a building that is highly energy efficient and: a) uses only Renewable Energy for its operations on an annualized average basis (this may include either on or offsite generated Renewable Energy), OR b) produces and supplies onsite Renewable Energy in an amount sufficient to offset the annual greenhouse gas emissions associated with the energy consumed for its operations.

Enabling - Refers to the indirect emissions impact of a project. A project or initiative that would not have a direct impact on GHG emissions within a pathway, but rather support other work to be done to either increase or decrease emissions.

Energy Transition - A risk management approach designed to: (1) diversify a community's energy mix and reduce its dependence on fossil fuels, (2) reduce greenhouse gas emissions to levels that are consistent with limiting the long-term rise in the average global temperature to 2°C, (3) ensure energy delivery systems (for electricity and natural gas) are resilient and durable to the forces of climate change, (4) increase self-sufficiency with respect to its electrical power and heating needs and (5) position itself to participate in what is potentially the largest economic opportunity humankind has ever experienced

Green Electricity - Electricity that comes from natural sources such as sunlight, wind, rain, tides, plants, algae and geothermal heat. These energy resources are renewable, meaning they are naturally replenished.

Greenhouse Gas (GHG) - Gases such as carbon dioxide, methane and nitrogen oxide which actively contribute to the atmospheric greenhouse effect. GHGs also include gases generated through industrial processes.

Low-Carbon Energy - Energy that is produced using significantly lower amounts of carbon dioxide emissions than is emitted from fossil fuel energy.

Nature-Based Solutions - Actions to protect, sustainably use, manage and restore natural or modified ecosystems, which address societal challenges effectively and adaptively, providing human well-being and biodiversity benefits.

Emission reductions - emission reductions (or GHG removal) is the opposite of GHG emissions. Emission reductions refers to eliminating or reducing sources of emissions that currently exist or are expected to occur.

Net Zero - Net zero emissions are achieved when emissions of greenhouse gases are balanced by removals. Emissions should be reduced as close to zero as possible and remaining emissions would be balanced by an equivalent amount of carbon removal, through nature-based solutions or technology.

Renewable Energy - Energy that is obtained from natural resources that can be naturally replenished or renewed within a human lifespan. These resources include moving water, wind, biomass, solar, geothermal and ocean energy.

Renewable Natural Gas - Renewable source of methane gas (the primary component of natural gas) created through the breakdown of organic matter in the absence of oxygen. There are many different processes and waste types that can be used to produce renewable natural gas.

Sequestration - Capturing and storing greenhouse gases in natural assets such as plants and vegetation, which reduces the amount of greenhouse gases in the atmosphere.

Social cost of carbon - An estimate of the economic damages associated with a small increase in carbon dioxide emissions (conventionally one metric tonne).

Solar PV - Photovoltaic cells (also known as solar panels) are semiconductors made up of silicon atoms that convert the sun's energy into electricity.