

DEDICATED CLIMATE FUND

Recommendation

That the November 1, 2023, Financial and Corporate Services report FCS01782, be received for information.

Requested Council Action	Information only		
ConnectEdmonton's Guiding Principle	ConnectEdmonton Strategic Goals		
CONNECTED This unifies our work to achieve our strategic goals.	Climate Resilience		
City Plan Values	LIVE. PRESERVE.		
City Plan Big City Move(s)	A rebuildable city Greener as we grow	Relationship to Council's Strategic Priorities	Climate adaptation and energy transition Conditions for service success
Corporate Business Plan	Transforming for the future		
Council Policy, Program or Project Relationships	<ul style="list-style-type: none"> Edmonton Community Energy Transition Strategy Council Policy C627 - Climate Resilience Climate Resilient Edmonton: Adaptation Strategy and Action Plan 		
Related Council Discussions	<ul style="list-style-type: none"> November 14, 2022, Financial and Corporate Services report FCS01478, 2023-2026 Carbon Budget June 15, 2022, Urban Planning and Economy report UPE00604, Community Energy Transition Strategy - Annual Update 		

Previous Council/Committee Action

At the February 22/24, 2023, City Council meeting, the following motion passed:

That Administration provide a report with options for a Dedicated Climate Fund, including potential parameters and funding amounts in alignment with the Energy Transition Strategy.

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Executive Summary

- The Community Energy Transition Strategy established in 2021 aligns Edmonton's climate mitigation efforts to do Edmonton's part to limit average global warming to 1.5 degrees Celsius. This includes high-level targets of reducing its carbon emissions 35 per cent by 2025 (compared to 2005 levels), 50 per cent by 2030, and being a net zero community by 2050, as well as for the City of Edmonton to become a net zero corporation by 2040.
- Achieving the goals set out in the Energy Transition Strategy will require significant public and private investment at an accelerated pace from all three orders of government, the household sector and the business sector; it will also require greenhouse gas (GHG) reduction policies and regulations from the federal and provincial governments. The City does not have the fiscal capacity, nor the policy and regulatory levers, to transition Edmonton to a net zero community on its own initiative.
- To advance Energy Transition Strategy initiatives under the City's control that will contribute towards becoming a net-zero emissions community by 2050, funding of \$8.27 billion is required between 2024 and 2050 (the next 27 years).
 - Since achieving the goals will require investment from all three orders of government, Administration has applied an assumption that the City would fund one-third of the required investment and that the City would seek the remaining two-thirds in the form of grants resulting in a City funding requirement of \$2.76 billion between 2024-2050.
 - A total tax increase of 6.7 per cent over 10 years (2024-2033) would be required to increase the City's operating budget to \$170.8 million annually funding the requirement of \$2.76 billion from 2024-2050. In the 2023-2026 budget cycle, this requires a 0.8 per cent tax increase in 2024, a 0.7 per cent increase in 2025 and a 0.7 per cent increase in 2026. From 2027 to 2033, the annual increases are 0.45 to 0.8 per cent annually.
- These investments could advance Energy Transition Strategy initiatives within the City's control towards becoming a net zero emissions community by 2050, and could also provide the funding required to achieve the City's corporate carbon emission reduction targets by 2040.
- Estimating the funding required to address the carbon reduction targets requires Administration to make assumptions and build high level estimates. These estimates over a long term forecast period are subject to change given changing data sources and technologies as well as the economic, political and regulatory environments. As such the high level cost estimates are intended to provide an order of magnitude for a dedicated climate fund. Actual investments in future years may be different from the estimates included in this report.
- Some investments in energy transition are also likely to produce future budget savings (e.g., utility or fuel savings), which could be reallocated toward further energy efficiency projects and therefore reduce the dedicated tax increase for the climate fund required in future years.
- Funds for energy transition may become available from other orders of government over the next 27 years, which could be applied toward implementing the Energy Transition Strategy.

REPORT

The City has two strategies for advancing climate change action: the Energy Transition Strategy (to transition to a low-carbon future) and the Climate Resilience Adaptation Strategy (to prepare for a changing climate).

This report discusses a possible Dedicated Climate Fund, which focuses only on funding mechanisms for the Energy Transition Strategy because it requires transformational change on an accelerated timeline. Should a dedicated fund for the Energy Transition Strategy be advanced, Council will continue to see budget requests related to the Climate Resilience Adaptation Strategy. The Dedicated Climate Fund could be renamed to Dedicated Energy Transition Fund to provide further clarity.

The Energy Transition Strategy is the path forward for a low carbon city and is the City of Edmonton's climate change mitigation plan. The Energy Transition Strategy aims to reduce Edmonton's community net greenhouse gas (GHG) emissions 35 per cent by 2025 (compared to 2005 levels), 50 per cent by 2030, and reach carbon neutrality by 2050, as well as for the City of Edmonton to become a carbon neutral corporation by 2040.¹ The Strategy outlines four interconnected pathways required to meet Edmonton's energy transition and emissions reduction goals:

1. Renewable and Resilient Energy Transition
2. Emissions Neutral Buildings
3. Low Carbon City and Transportation
4. Carbon Capture and Nature Based Solutions

The energy transition is a complex community effort that will require leadership. Underlying all of these pathways is the foundation of climate solution leadership,² which recognizes the City will need to lead climate solutions in its service delivery and corporate management.

Meeting the carbon reduction targets set in the Energy Transition Strategy will require significant levels of private and public investment. In total, the Energy Transition Strategy requires approximately \$41.7 billion of public and private investment over the next 27 years (2024-2050). The Strategy is long-term, and these estimates will likely change over time as data sources and methodologies continue to be refined. The level of investment required to advance Strategy elements the City has control over, and can implement under its own initiative, is estimated to be approximately \$8.27 billion. If costs were distributed equally between the three orders of government, targeted City funding would be \$2.76 billion. A Dedicated Climate Fund can only address the City's contribution towards these larger emissions targets.

¹ An Intergovernmental Panel on Climate Change special report on the impacts of global warming identified that to limit warming to 1.5C, global CO₂ emissions need to decline by about 45 per cent by 2030, and reach net zero by around 2050.

² The Strategy is foundational on the City demonstrating climate solution leadership in its own decision making, actions and advocacy, with three goals: 1) the City aligns decision making with the international target of limiting global warming to 1.5C; 2) the City partners with and mobilizes communities and governments to meet carbon budget goals; and 3) the City establishes innovative and participatory financing tools.

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Energy Transition Strategy Pathways

The first Energy Transition Strategy pathway, *Renewable and Resilient Energy Transition*, allows Edmonton to consider where its energy comes from and the future energy markets it can lead. This pathway will see Edmonton supplied with 100 per cent emission neutral electricity and heating by 2050, and a complete build out of a citywide decarbonized district energy network by 2050. This pathway will also see 10 per cent of the electricity used in Edmonton generated locally by 2030. This pathway could achieve up to 36 per cent of the needed emission reductions.

The second pathway, *Emissions Neutral Buildings*, imagines a future with highly energy-efficient, healthy homes and buildings powered by renewable energy. This pathway will see the City administrating increasingly stringent energy codes in alignment with federal and provincial governments. Edmonton will undertake an unprecedented energy efficiency retrofit effort—over 350,000 residential buildings and over 11 million square feet of commercial space retrofitted for deep energy savings by 2050. This pathway could achieve up to 19 per cent of the needed emission reductions.

The third pathway, *Low Carbon City and Transportation*, builds on the transformative city building strategic goals outlined in The City Plan and efforts that are currently underway, such as the Blatchford development. This pathway will see Edmonton with communities that are carbon neutral by 2050, 50 per cent of growth occurring as infill development to a population of two million, and the complete build out of the active transportation network by 2030. This pathway will see 50 per cent of trips made by transit and active transportation by 2040, development and redevelopment that creates 15 minute communities with a nodes and corridor approach, and a city with a completed zero-emission vehicle charging network by 2030. This pathway will also see the City transition to a zero-emission fleet of vehicles and equipment. The pathway could achieve up to 28 per cent of the needed emission reductions.

The final pathway, *Carbon Capture and Nature Based Solutions*, imagines a future where Edmonton cost-effectively removes carbon from the atmosphere using innovative technology and nature-based solutions that cultivate a healthier city. This pathway sees Edmonton protecting and restoring significant ecosystems by 2030, and planting an additional two million trees by 2040. This pathway will see the City as an emission neutral corporation by 2040 and the community achieving net zero per person GHG emissions by 2050. The pathway could achieve up to 17 per cent of the needed emission reductions.

City of Edmonton Carbon Budget

The City's Carbon Budget outlines the available amount of GHG emissions permitted annually for Edmonton (both for the community and the City of Edmonton as a corporation) based on emission targets from 2022 to 2050 as established by the Community Energy Transition Strategy. It also outlines the carbon deficit, which is the gap between the annual forecast of GHG emissions and the emission targets. The following table summarizes the emissions forecast, targets and carbon deficit for the community to 2050. Based on the emissions forecast, Edmonton as a community will have an annual carbon deficit of 12.88 million tonnes CO₂e by 2050. This means

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that by 2050, when emissions are expected to be neutral with no net impact, the community will still have GHG emissions of 12.88 million tonnes CO₂e annually.

Community Carbon Target and Deficit

Annual tonnes CO ₂ e	2025	2030	2050
Community Emissions Target	11,800,000	9,100,000	0
Emissions Forecast ³	13,330,000	12,220,000	12,880,000
Carbon Deficit	(1,530,000)	(3,120,000)	(12,880,000)

The following table summarizes the emissions forecast, targets and carbon deficit for the corporation to 2040. Based on the emissions forecast, the City of Edmonton as a corporation will have an annual carbon deficit of 169,000 tonnes CO₂e by 2040. This means that by 2040 when the corporate emissions are expected to be neutral with no net impact, the City will still have GHG emissions of 169,000 tonnes CO₂e annually. Corporate emissions are regularly forecasted by the City.

Corporate Carbon Target and Carbon Deficit

Annual tonnes CO ₂ e	2040
Corporate Emissions Target	0
Emissions Forecast ⁴	169,000
Carbon Deficit	(169,000)

Funding Requirements Of Energy Transition Initiatives Within City Control

The Energy Transition Strategy is predicated on the community of Edmonton's ambition to live within a world that limits global average temperature warming to 1.5C,⁵ and includes high-level targets of becoming a net zero community by 2050, as well as for the City of Edmonton to become a net zero corporation by 2040. Achieving the 1.5C goal will require significant public and private investment at an accelerated pace from all three orders of government, the household sector and the business sector; it will also require GHG reduction policies and regulations from the federal and provincial governments.

In the 2023-2026 budget cycle, City Council approved \$376 million of new operating and capital spending associated with the Energy Transition Strategy (Attachment 1). Of this amount, \$38.9 million is for Renewable and Resilient Energy Transition (Pathway 1), \$53.0 million is for Emissions

³ The 'Business-as-Planned' Scenario from The City Plan has been adopted as the current state emissions forecast, which is the most recent 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.

⁴ The corporate emissions forecast includes the City's planned REC purchases and green electricity procurement, which eliminates the emissions generated by the City's corporate electricity use. The forecast does not assume growth in the City's transit, waste or vehicle fleet and assumes modern equivalent replacement of any vehicles reaching their end of life. This forecast also incorporates the cumulative impact of quantifiable 2023-2026 approved budget requests.

⁵ The Paris Agreement is a legally binding international treaty on climate change, with an overarching goal to hold "the increase in the global average temperature to well below 2C above pre-industrial levels" and pursue efforts "to limit the temperature increase to 1.5C above pre-industrial levels." The Agreement was adopted by 196 Parties at the UN Climate Change Conference (COP21) in Paris, France, on 12 December 2015.

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Neutral Buildings (Pathway 2), \$223.6 million is for Low Carbon City and Transportation (Pathway 3), and \$60.4 million is for Carbon Capture and Nature Based Solutions (Pathway 4). Descriptions of Action Areas within each pathway are found in Attachment 2.

In addition to the investments made in the 2023-2026 budget cycle, an estimated \$8.27 billion of additional funding is required over the 27-year period between 2024 and 2050 for the City to do its part to be a net-zero emissions community by 2050, with \$2.79 billion in operating requirements and \$5.48 billion in capital requirements. Details of these amounts are provided in Attachment 3. These investments will advance Energy Transition Strategy initiatives within the City's control, that it can implement on its own initiative. These investments will also enable elimination of the corporation's carbon deficit, allowing the City to become a carbon neutral corporation by 2040.

As the Energy Transition Strategy is time-sensitive, these operating and capital investments are generally required in the front and middle of the 27-year time horizon in order to meet the targets of becoming a net-zero community by 2050, as well as for the City of Edmonton to become a net-zero corporation by 2040. The majority of investments are needed before 2040.

The table below summarizes the operating and capital funding requirements of the Energy Transition Strategy Pathways. Of the \$8.27 billion total requirement, \$1.44 billion is required for Renewable and Resilient Energy Transition (Pathway 1), \$1.15 billion is required for Emissions Neutral Buildings (Pathway 2), \$3.92 billion is required for Low Carbon City and Transportation (Pathway 3) and \$1.76 billion is required for Carbon Capture and Nature Based Solutions (Pathway 4). Additional details can be found in Attachment 3.

Funding Requirements of Energy Transition Initiatives Within City's Control - Summary Table (\$000)

Pathway	Pathway Name	2024-30 ⁶	2031-40	2041-50	Total
1	Renewable and Resilient Energy Transition	\$139,200	\$612,800	\$691,800	\$1,443,800
2	Emissions Neutral Buildings	\$156,437	\$891,650	\$103,550	\$1,151,637
3	Low Carbon City and Transportation	\$680,632	\$2,578,074	\$662,672	\$3,921,378
4	Carbon Capture and Nature Based Solutions	\$235,967	\$826,489	\$693,000	\$1,755,456
	Total Energy Transition Strategy - City Controlled Initiatives <i>(Shared between Three Levels of Government)</i>	\$1,212,236	\$4,909,013	\$2,151,022	\$8,272,271
	City of Edmonton Required Funding <i>(1/3rd)</i>	\$404,079	\$1,636,338	\$717,007	\$2,757,424

The City does not have the fiscal capacity to generate \$8.27 billion of additional funding on its own initiative through property tax alone, nor does it have the legislative authority to levy alternative revenue tools. Given these factors, funding support from other orders of government will be required. Assuming a funding model where the federal government, provincial government and City fund an equal one-third share of this requirement, the City's funding requirements amount to \$2.76 billion between 2024-2050. This funding requirement ramps up

⁶ Funding requirements from 2024-26 are in addition to previously-approved funding over the 2023-26 budget cycle.

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annually from 2024 to 2039, and ramps down year-over-year after 2039. Additional details can be found in Attachment 3 and 5.

Dedicated Climate Fund

A Dedicated Climate Fund would allow the City to invest in Energy Transition Strategy initiatives that it has control over. It would provide a stable annual funding stream for the City to do its part towards community emissions targets, with the remainder of investments from federal and provincial governments, private investment and the household sector. Assuming the federal and provincial governments provide funding support for two-thirds of the \$8.27 billion, a Dedicated Climate Fund would also allow the City to meet its corporate emissions target (carbon neutrality by 2040).

If advanced by Council, a Dedicated Climate Fund would involve multi-year dedicated general property tax increases, where tax revenues are earmarked for operating and/or capital expenditures related to Edmonton's Energy Transition Strategy on an ongoing basis. The Neighbourhood Renewal Program dedicated funding is a similar type of funding mechanism. Dedicated tax increases can provide stable annual funding. The sufficiency of funding will depend on the expenditure requirements of the program being funded. From a municipal perspective tax levy is considered "own-source revenue," so is not subject to reduction or elimination by other orders of government, as is sometimes the case when federal or provincial policy objectives shift.

Funding the City's one-third share of the Energy Transition Strategy initiatives that are under the City's control requires \$2.76 billion in total funding between 2024 and 2050. This is an estimated total tax increase of 6.7 per cent over 10 years. By 2033, this funding strategy will generate \$170.8 million in annual ongoing tax levy funding. In the 2023-2026 budget cycle, this requires a 0.8 per cent tax increase in 2024, a 0.7 per cent increase in 2025 and a 0.7 per cent increase in 2026. From 2027 to 2033, the annual increases are 0.45 to 0.8 per cent.

10-Year Dedicated Tax Levy Increase For Climate Fund Strategy

	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Total
Required Tax Levy Increase	0.80%	0.70%	0.70%	0.60%	0.50%	0.45%	0.65%	0.70%	0.80%	0.80%	6.70%
Incremental Funding (\$000)	\$15,466	\$14,782	\$15,713	\$14,225	\$12,413	\$11,697	\$17,689	\$19,942	\$23,857	\$24,970	
Annual Ongoing Funding (\$000)	\$15,466	\$30,248	\$45,961	\$60,187	\$72,599	\$84,296	\$101,985	\$121,927	\$145,784	\$170,754	

When creating a Dedicated Climate Fund, the annual revenue potential is subject to the level of tax increase applied each year, as well as the number of consecutive years the funding strategy is implemented. For illustrative purposes, Attachment 4 provides scenarios for dedicated climate fund tax levy increases applied for 10 consecutive years, from 2024 to 2033.

Given the non-linear expenditure requirements of the Energy Transition Strategy, the dedicated tax levy increases for a climate fund will produce funding excesses and shortfalls at different times. Details of these cashflow timings are found in Attachment 5. Should this dedicated tax levy increase funding strategy be implemented, a reserve would also be required to manage these variable cash flows, with excess tax levy in initial years used to fund shortfalls in later years. There

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would also be excess tax levy freed up year-over-year after 2040, as annual funding requirements would ramp down, but annual tax revenues of \$170.8 million are generated on an ongoing basis. This is reflected in Attachment 5 as excess revenues available to the organization. Future Councils could reallocate those excess funds toward other priorities or reduce the tax levy requirement.

Other Potential Funding Options

Federal and Provincial Funding Support

The City is benefiting from a number of grants that are advancing the goals and targets of the Energy Transition Strategy. Some examples include:

- \$2.94 billion for LRT expansion (Valley Line West, Metro Line to Blatchford and Capital Line South Extension), funded through the federal Investing in Canada Infrastructure Program (ICIP) and Government of Alberta match funding;
- Support of up to 50 per cent of eligible project costs from the federal Zero Emission Transit Fund to build a new transit garage to enable the City's transition to a zero emission fleet and grow the bus network;
- \$8.7 million in federal support under the Active Transportation Fund;
- \$47.8 million from the federal 2 Billion Tree program to accelerate our Greener as We Grow tree planting program;
- \$23.7 million under the federal Smart Renewables and Electrification Pathways program to construct the next phase of the Blatchford District Energy Sharing System; and
- \$2.4 million from the federal Green Inclusive Community Buildings (GICB) program to undertake building retrofits work.

Moreover, the City also has pending applications for additional funding of \$27.4 million from the GICB for further building retrofits work, \$1 million under the federal Natural Infrastructure Fund for a River Valley Park Grasslands Restoration project, and a request of \$6.8 million from Emissions Reduction Alberta's Hydrogen Fleet Challenge to construct two deployable transitional hydrogen fuelling stations and to undertake an assessment of vehicle conversion technology pathways for heavy-duty municipal fleet. Administration is also currently evaluating potential candidate projects for the next call of the federal Low Carbon Economy Fund, which is expected to begin accepting applications in early 2024.

Administration will continue to actively pursue and leverage available funding opportunities. It is anticipated that within the life of the Energy Transition Strategy new grant programs for which the City may be eligible will continue to be rolled out, including the federal government's new Permanent Transit Fund that is slated to begin in 2026, and a new federal infrastructure program to replace the current Investing in Canada Plan that ends in 2028.

As directed by Council motion during the 2023-2026 Budget deliberations, the City is advancing efforts with the Federation of Canadian Municipalities to advocate to the federal government for a dedicated Climate Action Fund worth \$3.2 billion delivered directly to municipalities.

Accumulated Savings from Energy Efficiencies

Some of City Council's energy transition investments are expected to produce budget savings by reducing the City's operating expenditures in future years, including costs related to utilities and

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fuel. These include investments that improve corporate energy efficiency of the City-owned fleet of vehicles and facilities. Examples of initiatives that reduce energy usage include upgrades to lighting, heating and cooling systems, and improvements to building envelopes. Budget savings from the City's energy transition investments could be reallocated for further energy efficiencies. This funding strategy could involve establishing a reserve with accumulated savings over time held in the reserve until such time that those funds are drawn upon for new energy transition investments. Administration continues to research best practices related to estimation of savings, tracking and monitoring of savings, and establishment and use of a reserve to reinvest funds into future projects. Administration will return to Council in future years for further discussion.

OP12 Budget Reallocations

The 2023-2026 Operating Budget Amendment 12 (OP12) may yield budget savings that can be reallocated toward other Council priorities, including the Energy Transition Strategy and potentially offsetting the tax levy increase requirements estimated in this report.

Community Insight

The 2023 Climate Change and Energy Perception Report found that 74 per cent of respondents are concerned about climate change and think that we need to act now to address climate change. Furthermore, 43 per cent of respondents indicated they want the City to increase its efforts to address climate change, while 22 per cent indicated they want the City to maintain the efforts already being taken. Opinions are divided on a new measure this year: respondents are more likely to disagree with paying a tax levy to address climate change (45 per cent) than agree (34 per cent).

GBA+

Finding statements from GBA+ research for the City's Energy Transition Strategy include:

- Low-income people and families are disproportionately impacted by climate change because they lack the financial means to implement mitigation and adaptation measures in their homes and communities.
- Women, Indigenous, Black and other marginalized people and groups will experience the impacts of climate change more than non-marginalized people and groups as they may already be subject to socio-economic inequalities, and climate change can cause an increase in exposure and susceptibility to the adverse effects of climate change as well as decrease the ability to cope and recover from damages suffered.

The University of Alberta completed research⁷ to explore community vulnerability and resilience in Edmonton in 2021. Finding statements from this research include:

- Older adults are at higher risk from weather and air pollution events.

⁷ CitiesIPCC. "Climate Change, Older Adults And Immigrants: Exploring Community Vulnerability And Resilience. Final report," August 31, 2021

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- Social deprivation (limited interaction with society) and material deprivation (limited ability to afford goods and services) affect sensitivity to weather events and air pollution.

Actions to address these findings are outlined in the Energy Transition Strategy.

A dedicated climate fund would require a multi-year commitment to annual dedicated property tax increases. Residential and non-residential property owners are of a diverse socioeconomic background, with varying degrees of property tax tolerance. Annual dedicated property tax increases for a climate fund would put upward pressure on the property tax levy. This may financially strain some property owners, including those on fixed incomes or property owners undergoing financial hardship.

Attachments

1. Energy Transition Strategy - New Funding Approved in 2023-2026 Budget Cycle
2. Energy Transition Strategy Action Areas
3. Funding Requirements of Energy Transition Initiatives Within City Control - High Level Estimates
4. Forecast Scenarios of Annual Dedicated Tax Levy Increases
5. Dedicated Tax Levy Increase and Forecast of Cash Flows