

COMMUNITY ENERGY TRANSITION STRATEGY - ANNUAL UPDATE

RECOMMENDATION

That the June 15, 2022, Urban Planning and Economy report UPE00604, be received for information.

Report Purpose

Information only.

Council is being informed of work underway and required in the Community Energy Transition Strategy to meet Council approved emissions reductions targets aligned with The City Plan.

Previous Council/Committee Action

At the April 19/21, 2021, City Council meeting the following motion passed:

3. That Administration, in the annual reporting on the implementation of the revised Energy Transition Strategy (as articulated in Attachment 1 of the April 12, 2021, Urban Form and Corporate Strategic Development report UFCSD00209)

- a. identify annual emissions reductions needed to achieve the targets outlined in the strategy (a 35% reduction in community emissions by 2025 and 50% reduction in community emission by 2030 from 2005 levels),
- b. identify “negative emissions” needed to stay within the community carbon budget; identify progress towards achieving those targets and the carbon budget, and
- c. identify any corresponding corrective actions that should return through the appropriate budget discussions at Council.

Executive Summary

- The City’s Community Energy Transition Strategy is a bold plan that includes more than 100 actions with various impact levels and funding requirements. Administration continues to be committed to implementing this plan.
- Climate change is increasing in intensity around the world and impacts in Edmonton will continue to be felt and will impact Edmonton’s economic future, if deliberative and thoughtful actions are not continued.

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- Investments by all levels of government have had a significant impact on emissions. For example, the rapid phase out of coal in the electricity sector and the purchase of Renewable Energy Credits.
- Transportation emissions continue to be a large contributor to climate change, and the pandemic has proven that fewer trips can have a significant impact on emissions.
- Ongoing and complete implementation of the Energy Transition Strategy is required to meet its targets. \$1.2 billion of (currently unfunded) public funding is needed over the next four years for urgent, scaled up action. A targeted City funding share is one-third or \$100 million annually. Various initiatives will be brought forward for consideration during 2023-2026 budget deliberations.
- To remain informed and assess progress towards a low carbon future, the City is implementing a Carbon Accounting Framework to integrate greenhouse gas reductions into the City budgeting and prioritization processes.
- The climate solutions approach will need to be bold and creative. This includes looking at partnerships differently, leading on climate change solutions within the corporation differently, and building community climate resilience differently.

REPORT

Background

ConnectEdmonton sets the direction for our future and outlines where we need to change today to realize our vision for Edmonton in 2050. ConnectEdmonton's goal of Climate Resilience includes a city transitioning to a low-carbon future. The City Plan's vision for our future city outlines Big City Moves that point the way as we deliberately change our city to welcome one million more on our journey towards a population of two million. The Energy Transition Strategy outlines how we achieve the transformational change to a low carbon city as outlined in ConnectEdmonton and The City Plan on an accelerated and more aggressive timeline.

Climate change is no longer a future problem and urgent action is needed today. City Council declared a climate emergency on August 27, 2019, to reaffirm their commitment to making Edmonton a climate resilient city, and to accelerate Edmonton's actions to do our part to contribute to limiting average global warming to 1.5°C, in alignment with the Paris Agreement targets. A study specific to Edmonton has found that without action, climate change could cause Edmonton to experience direct annual costs (such as damage from extreme weather events) of approximately \$1.0 billion by the 2050s, and \$4.1 billion by the 2080s (Attachment 1). The energy transition also represents a once in a lifetime opportunity to create a new era of economic growth in the region. The approval of the revised Community Energy Transition Strategy ([Edmonton's Community Energy Transition Strategy and Action Plan](#)) in April 2021 was an important step in this critical decade for action. The strategy is Edmonton's boldest energy transition plan to date, and includes more than 100 actions with various impact levels and funding requirements. Further direction and funding will determine which actions are taken and the pace of implementation.

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Energy Transition Targets

The Energy Transition Strategy has targets to reduce emissions 35 per cent by 2025, 50 per cent by 2030 and reach carbon neutrality by 2050. Council further directed Administration to develop annual targets until 2030. Administration has used the 2025 and 2030 targets approved in the Energy Transition Strategy and Climate Resilience Policy (C627) as the goal posts for establishing annual targets. This sets an annual reduction trajectory of an average of minus seven per cent in emissions annually until 2025 and an average reduction of five per cent in emissions annually from 2026-2030 (Attachment 2). It will take multiple years of data to establish and understand reduction trends as results in any single year may not reflect long-term trends.

The Energy Transition Strategy's targets were established to align with the Paris Agreement and limiting global warming to 1.5°C. In addition, a local "fair share" carbon budget was originally calculated. Emission reduction targets are one part of achieving a local carbon budget. Achieving Edmonton's "fair share" local carbon budget requires going further than reduction targets and finding ways to also remove emissions from the atmosphere (i.e. negative emissions). Council also directed Administration to identify "negative emissions" needed to stay within the local carbon budget. In order to stay within the local fair share carbon budget, an additional 23 megatonnes (Mt) of negative emissions are needed from 2021-2030 (Attachment 2).

Progress

Edmonton has one of the highest per person GHG emissions rates in the world, with 2020 total emissions of 15.7 million tonnes carbon dioxide equivalent (CO₂e). Edmonton's high levels of greenhouse gas emissions are in part due to Alberta's electricity sector, which is more greenhouse gas intensive than any other province, as well as increasing emissions from transportation and buildings. Over the last three years, emissions have declined on average by about five per cent annually (Attachment 3). This reduction is due in part to the rapid phase out of coal in the electricity sector. The COVID-19 pandemic also contributed, significantly changing many daily lives, including fewer overall vehicle trips and less energy usage in commercial buildings.

As Edmonton begins to emerge from the COVID-19 pandemic, these reductions are not expected to be sustained. Some projections indicate that GHG emissions may even increase during this recovery. The pandemic has shown that significant reductions are possible in a short period of time. To achieve the energy transition goals, continued and rapid scaling up of low carbon solutions, across a broad range of sectors, will be required.

Edmonton has started this transformational journey and the City of Edmonton has made progress in launching a series of actions. The Energy Transition Strategy's ten-year action plan has 105 actions with varying degrees of complexity, greenhouse gas reduction possibility and funding requirements. The first phase of implementation (2021-2022) is focused on "Connecting". Connecting the level of ambition with a plan to achieve that ambition, connecting with the network of stakeholders, partners and collaborators who will make this transition a reality; connecting the plan with regional, provincial and federal initiatives; and finally connecting the ambition to the financial resources needed for Phase 2 of implementation. The actions in 2021-2022 focused on building the foundation to implement and scale up further accelerated and

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transformative climate actions. There are 60 actions that were identified to begin in the 2021-2022 timeframe. Approximately 90 per cent of these actions have commenced.

While progress has been made, there is still more to do. Phase 2 of implementation (2023-2030) is “Accelerating”, which requires rapid and significant scaling up of climate action. This will need to be done quickly and strategically, in order to create a large emissions reduction impact and economic prosperity by catalyzing and creating a new era of low carbon energy economic growth in the region and by creating local jobs in a just and equitable way. This phase includes actions that will transform the city and economy in the coming decades. The Accelerating phase builds on work initiated in the Connecting phase to further accelerate Edmonton’s climate response and begin the transformational change required to meet the 2050 goal.

This is a critical decade in the energy transition, and so too are the actions of this phase. Implementation of the Energy Transition Strategy will require a significant level of investment from all sectors. A series of significant policy interventions and implementation funding is required to continue, and to accelerate progress.

Implementing the Energy Transition Strategy and Action Plan

\$1.2 billion of public funding (currently unfunded) is needed over the next four years (or \$300 million annually) for urgent, scaled up action. This level of investment is significantly higher than the City of Edmonton can realistically manage alone. A targeted City funding share is one-third or \$100 million annually, with the remaining \$200 million annually shared by provincial and federal governments. Implementation will require using multiple levers of change. Key corrective actions are outlined in Attachment 4 and are summarized below.

Take a Bolder, Strategic Approach to Partnership and Advocacy

In order to reduce 50 per cent of emissions by 2030 and reach carbon neutrality by 2050, partnership and advocacy are critically important. Now is the time to build new partnerships with other orders of government, industry, regional partners, institutions, communities, businesses, residents and academia and to find new ways to deliver action. As well, it will be necessary to advocate for funding, regulatory changes and bolder action. To make significant impacts, Edmonton will need to advocate for new collaborative approaches such as a national climate strategy for Big Cities, and for a Big City Chief Administrative Officer (CAO) Climate Action table.

This also includes:

- Accelerating efforts to embed a just and equitable approach into climate action
- Developing an advocacy and partnership strategy - this includes activating collaborations with city building partners such as economic development agencies, municipalities, utilities, institutions, as well as various community agencies. This will also include strategic advocacy to the provincial and federal governments and other key implementers.

Increasing the City of Edmonton’s Climate Solution Leadership

The City of Edmonton monitors greenhouse gas emission trends primarily in two ways: 1) emissions from the community; and 2) emissions from the City of Edmonton corporation. The

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City of Edmonton's corporate emissions make up about two per cent of the total emissions within the community. There are also two types of carbon neutrality targets: 1) targets for the community and; 2) targets for the corporation. The timing for these targets differ. The Energy Transition Strategy calls for a carbon neutral community by 2050 and a carbon neutral corporation by 2040. The target of becoming a carbon neutral corporation is a decade ahead of the community's target, as a way for the City of Edmonton to demonstrate climate solution leadership. The work going forward requires embedding climate action across the organization and into decision making. This will include developing new decision making processes, investing in climate action, monitoring, data and new tools, so decision makers are provided with the information they need. This also requires advancing climate action (energy transition and adaptation) in an integrated manner. Transitioning to a Carbon Neutral corporation by 2040 would include:

- Embedding climate resilience into City services and processes (i.e. procurement, financial investments and others). Work has begun, including implementing a Carbon Accounting Framework to integrate greenhouse gas reductions into the City budgeting and prioritization processes
- Using new decision making processes and tools which prioritize climate and energy transition considerations
- Procuring low carbon energy and carbon offsets
- Scaling up climate resilience retrofits for City facilities and energy efficiency improvements to assets
- Scaling up solar photovoltaic on City infrastructure
- Accelerating the City's transition to zero emission fleet and equipment, including fleet charging/fueling infrastructure
- Establishing an Internal Climate Action Leadership Task Force

Activating Climate Resilient Urban Development

Decisions made today about how Edmonton is designed and built, its transportation systems, infrastructure and energy will set the course for its future climate resilience. Transitioning to a low carbon city and transportation includes:

- **Increasing Zero-Emission Transportation** - Complete build out of a city-wide active transportation network; expansion of public and mass transit network; advancement of a city-wide zero-emissions charging network; pilot low emissions zone/corridor.
- **Accelerating Emission Neutral Buildings** - Expand and scale up retrofit incentives including full implementation of the Clean Energy Improvement Program; provide development incentives to build better than Code; support initiatives to alleviate home energy poverty and increase energy efficiency in affordable buildings; and support emission neutral building capacity in the industry.
- **Accelerating Low Carbon Urban Development** - Zoning bylaw renewal that allows for increased density; financing tools and incentives to advance priority growth areas; climate

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resilient urban planning starting with District Planning; and accelerating efforts to support neighbourhoods and communities to advance climate action.

- **Advancing Low Carbon Energy Planning** - Partnering to implement the District Energy strategy to advance district and major node district energy systems; advocating for the supply of low carbon energy (eg. piloting a hydrogen heated neighbourhood); and supporting the acceleration of regional carbon capture storage and utilization technologies.
- **Accelerating Nature Based Solutions** - Community investment in natural carbon storage, including conservation offsets; implementing nature-based climate solutions efforts (restoration, conservation, naturalization and daylighting); accelerating tree planting, including applying to the Federal Government's 2 Billion Tree Fund; and developing and implementing a nature-based solutions and urban restoration plan so every community's connection to nature is strengthened.

Budget/Financial Implications

Edmonton's vision is achievable, but will require significant public and private investment of approximately \$42 billion over the next 30 years. Due to the urgency to act, there is a higher front-end investment of approximately \$24 billion, or an average of \$2.4 billion per year required for accelerated climate action over the next decade. Significant investment increases from the private sector and all orders of government will be required. The transition must be a collective effort that can only be achieved by catalyzing innovation through partnerships with government, industry, regional partners, institutions, communities, businesses, residents and academia. The majority of the required investment will need to come from these partnerships. Work continues with these key stakeholders.

The Energy Transition Strategy takes the position that to overcome a range of barriers, all orders of government may need to "de-risk" and catalyze the necessary private investment by funding up to 15 per cent of the total investment needed. The level of public municipal investment to catalyze private investment, and for local infrastructure, is estimated to be approximately \$300 million annually, or \$1.2 billion over the next four years. The targeted City funding share is anticipated to be one-third or \$100 million annually.

The majority of new funding requirements for the City funding share in the 10-year Action Plan are staged to be included as part of the 2023-2026 and 2027-2030 integrated financial and carbon budget cycles. As these investment opportunities advance and become actionable, they will be brought forward for consideration during 2023-2026 operating and capital budget deliberations. These initiatives will reside in various capital and operating programs throughout the City, and will need to be weighed against other competing civic priorities vying for limited funds.

Due to the significant capital funding challenges, and forecasted tax increases before considering the investments required for the Energy Transition Strategy, Council will need to make difficult decisions on allocation of limited funding to advance priorities to help meet the City's goals and objectives.

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COMMUNITY INSIGHT

Edmontonians continue to ask for climate action. The 2021 [Climate Change and Energy Perception Report](#) found that 75 per cent of respondents agree climate change is a concern, and 77 per cent of respondents are saying that we need to act now. These survey results indicate that Edmontonians want the City to take action on climate change.

Additionally, through The City Plan engagement and the work to update the Energy Transition Strategy, Edmontonians shared their excitement and desires for a low carbon future. However there is no consensus on actions, approaches and timing. Administration has also heard from stakeholders that there will be difficult tradeoffs which come with this transition and create challenges for decision makers.

Successful implementation and mobilizing community action will require continued partnership with residents and industry. This work is dynamic in nature, requiring ongoing engagement during implementation. Further opportunities for collaboration will be identified and provided to Edmontonians during implementation. It will also be critical that Administration continues to listen and learn from partners.

GBA+

The Energy Transition Strategy has 15 goals, 36 strategies and more than 100 actions. There are specific actions related to the just and equitable transition. Examples include engaging in ongoing dialogue with Memorandum of Understanding partners on ownership and participation opportunities of Indigenous Peoples in the energy transition, establishing a working group to inform a just and equitable framework that can be applied to climate change decisions, and applying Gender Based Analysis Plus (GBA+) when developing energy transition policies and programs. The findings from the GBA+ process for each action would vary, however general research was completed about climate change and marginalized groups that will likely be applicable to most, if not all, of the actions outlined in the strategy. Finding statements from this research include:

- Low-income people and families are disproportionately impacted by climate change because they lack the financial capacity 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.
- If the team working on implementing the actions outlined in the strategy is not diverse, it is more likely that perspectives may be missed. This may negatively impact people whose perspectives have unintentionally not been considered.

In addition, the University of Alberta completed research on Climate Change, Older Adults and Immigrants to explore community vulnerability and resilience in Edmonton. Finding statements from this research include:

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- Older adults are at risk from weather and air pollution events.
- Social deprivation (limited interaction with society) and material deprivation (limited ability to afford goods and services) affect sensitivity to weather events and air pollution.

The equity measures planned to address the above findings are listed below:

- The Energy Transition Strategy includes an action to apply a GBA+ lens when developing energy transition policies and programs, and as such, a GBA+ process will be integrated into the implementation of the actions outlined in the strategy.
- Ensure that when implementing the various actions outlined in the strategy the City is implementing them to be inclusive of women and other marginalized groups.
- Ensure that the teams working on implementing the various actions (internal and external teams) are diverse so more perspectives are included in the implementation.

ATTACHMENTS

1. Cost of Climate Change
2. Annual Targets and Negative Emissions
3. Greenhouse Gas Emission Trends
4. Energy Transition Strategy Corrective Actions