

Revised Community Energy Transition Strategy

Final Strategy, Action Plan and Policy

Recommendation

That Executive Committee recommend to City Council:

1. That the Community Energy Transition Strategy and Action Plan, as set out in Attachment 1 of the April 12, 2021, Urban Form and Corporate Strategic Development report UFCSD00209, be approved, as the City of Edmonton's climate change mitigation plan.
2. That the Climate Resilience Policy C627, as set out in Attachment 7, be approved.
3. That Edmonton's Community Energy Transition Strategy Policy C585 and Sustainable Building Policy C532, be repealed.

Previous Council/Committee Action

At the November 30, 2020, Executive Committee meeting, the following motion was passed:

That Administration provide an update to Committee on the Corporate Climate Leaders Program and any progress made on Goal #3 of the Climate Resilient Edmonton: Adaptation and Action Plan, as part of the 1.5 report to be presented on March 22, 2021.

Executive Summary

This report provides an overview of the revised Community Energy Transition Strategy and Action Plan that were updated based on previous Council and Committee direction. The revised Energy Transition Strategy supports the goals in ConnectEdmonton and The City Plan and is built from a robust engagement approach. However, achieving the path outlined in the Energy Transition Strategy will require additional bold action on an accelerated time frame. Edmonton's vision is achievable, but will require significant levels of public and private investment in the region of approximately \$42 billion over the next 30 years. The City of Edmonton's investment share may require \$100 million annually plus additional capital costs for new City of Edmonton buildings of up to 15 percent in project capital costs beginning in the 2023-2026 budget cycle. This private and public investment will catalyze an economic growth opportunity for the region and increase investment in local infrastructure. A funding approach with potential tools is included in this report. The strategy and action

plan are being brought forward for adoption by a resolution of Council as the City's Climate Change Mitigation Plan (the "Mitigation Plan"), as per the requirements under the City of Edmonton Charter Regulation. A new Climate Resilience Policy is also being brought forward for approval that updates, integrates and replaces Edmonton's Community Energy Transition Policy C585 and the Sustainable Building Policy C532.

This report also provides a response to the November 30, 2020, motion requesting an update on the Corporate Climate Leaders Program and progress made on Goal #3 of Climate Resilient Edmonton: Adaptation Strategy and Action Plan.

Report

Albertans and Edmontonians have a proud history of being some of the best energy innovators in the world. This expertise has led to growth and economic prosperity. The energy innovators in our province have supplied the global markets with energy products for the last 50 years, and are positioned to supply the new energy products the global markets are demanding for the next 50 years.

Responding to changing global markets and conditions will present opportunities and challenges. Globally, it is expected that tens of trillions of dollars will be invested in the energy transition. Edmonton businesses and industry could market, support and sell its energy transition expertise to this growing global demand. There are emerging business opportunities that could attract new talent dedicated to technology innovation, and support the growth and diversification of our economy while contributing to meeting climate and energy goals. Harnessing these opportunities will require a focused effort as well as significant investment and upfront funding.

Energy Transition - Supporting ConnectEdmonton and The City Plan Implementation

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. At the August 27, 2019, City Council meeting a motion was passed to revise the Community Energy Transition Strategy and bring back a ten year year action plan to achieve a level of ambition aligned with a 1.5 degree global average temperature increase, as well as a funding strategy and the implementation of a carbon accounting system. 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.

The Energy Transition Strategy is a key city building initiative and supports The City Plan implementation but moves further and faster on some policies and directions. The strategy signifies the city's transition to a new energy economy and a low carbon city. The transition will also provide economic development and job diversification. To achieve these outcomes in the next 30 years will require bold, future-focused and ambitious risk taking in a just and equitable way. There are transformative, innovative changes taking place in the energy industry. Edmonton has an opportunity to capitalize and diversify the economy through new investments within emerging industries in the energy and innovation sectors and benefit from well established companies that are transforming their businesses.

Updated Strategy and Action Plan

The updated Energy Transition Strategy and ten year action plan (see Attachment 1) are about accelerated and transformational change. The updated strategy aligns to the Reimagine Guiding Principles of Be Bold, Be Brave, Be Agile and Be Smart. The implementation approach, using multiple levers of change, will need to be agile and smart. The action plan outlines actions over the next 10 years that will put Edmonton on a trajectory to achieve overall targets. The action plan includes categories that can help Council identify priorities (ie. "Big Wins") and actions that could be accelerated more easily (ie. "Quick Wins"). Central to implementation of the strategy is ensuring that the transition is just and equitable and contributes to prosperous outcomes for all.

Within the strategy, PATHWAYS are areas of transformative action. They are interconnected, and all of them are required to meet Edmonton's energy transition goals. The Pathways are:

- Renewable and Resilient Energy Transition
- Emissions Neutral Buildings
- Low Carbon City and Transportation
- Carbon Capture and Nature Based Solutions

Underlying all of these pathways is the FOUNDATION of Climate Solution Leadership which recognizes that the City will need to lead if it wants the business community and residents to participate in the transition. City Administration will also monitor programs that the provincial and federal governments implement that support energy transition including the federal carbon tax and continue to advocate to other levels of government for further support.

Building on Energy Transition Work to Date

Edmonton has already started down the transformative pathways noted in the previous section. Several initiatives have been underway since the first comprehensive strategy was adopted by City Council five years ago including:

- The City Plan was the first municipal development plan in Canada to include a carbon budget, limiting the amount of greenhouse gases that can be emitted
- Development of Blatchford, planned to be a carbon-neutral community for 30,000 residents that uses 100% renewable energy
- Extension of Edmonton's LRT network and Edmonton Transit Services deployment of its first battery-electric buses into service, and single largest purchase of electric buses (40) in Canadian history
- Development of protected bike lanes in the downtown core and expansion of the bike network to connect beyond the core
- Adoption of Edmonton's Electric Vehicle Strategy and roll out of electric vehicle charging facilities
- Approval and funding of the Downtown District Energy System
- Launch of Change Buildings for Climate: Building Energy Retrofit Accelerator (BERA), a program that provides rebates for energy efficiency retrofits on commercial buildings 10,000 sq ft and larger
- Community activation programs that include outreach, energy benchmarking, as well as building retrofit, solar and EV charging incentives (see Attachment 2)
- The Corporate Climate Leaders program and implementation of Climate Resilient Edmonton: Adaptation Strategy and Action Plan (see Attachment 3).

These initiatives are some examples of the many energy transition efforts already underway across the community and are the types of initiatives that need to be scaled up and accelerated in the coming decade. Canada Infrastructure Bank's Zero Emission Bus Program (see April 12, 2021, City Operations report CO00366) outlines opportunities for funding the additional cost of purchasing electric buses to replace retiring diesel units with a low interest loan and repayments based on operational cost savings of electric buses compared to conventional diesel buses.

Implementation Approach

The updated Energy Transition Strategy requires a smart and agile implementation approach in partnership with Edmontonians and a range of community and industry partners. A transition, by its very nature, requires different actions at different points in time. While the approach to achieving greenhouse gas emissions targets requires multiple actions, not every action is required immediately or forever, and the solutions must respond to the challenge of new fiscal constraints. Though the majority of climate actions have a positive return on investment, they do impose an upfront cost, and it will not be feasible or realistic for those costs to be borne all at once. The implementation approach identifies that initiatives or decisions will have a design life, that is the period of time the initiative or service is needed and is relevant. To be agile and dynamic a monitoring process is needed to determine when a change in approach is required.

The implementation approach includes four elements:

- Levers of Change - aligned with and expanded upon those identified in The City Plan
- Implementation Gates - aligned with the Capital Project Development and Delivery approach, using different “gates” to establish formal checkpoint reviews with Council
- Prioritization - aligned with the integrated Financial and Carbon budget processes (see Attachment 4).
- Thresholds - signals in the market transformation to be monitored to determine when to implement an action, when to change or modify Administration's approach, or when to stop an action.

Carbon Accounting and Budgeting

The City of Edmonton established a local carbon budget of 135 megatonnes between 2020 and 2050. Local carbon budgets are an emerging field of work, and the thinking, precision and methodologies will continue to be refined based on new knowledge and improved scientific understanding. In order to remain informed and assess progress over this period, the City will require a new management and accounting approach to integrate greenhouse gas reductions into City budgeting and prioritization processes. The City is evaluating the resource requirement necessary to establish, monitor and report against a Carbon Budget.

Budget and Financial Information

COVID-19 has impacted residents, businesses and the City and COVID-19 will impact the energy transition. A smart and responsive funding approach for the transition is needed to catalyze investment and help recover from the current economic and COVID-19 health crisis. There will be global market opportunities for cities and organizations that are ready for them, as many national COVID-19 recovery plans are being linked to a transition to a more climate resilient future. Edmonton's Economic Action Plan (see April 12, 2021, Urban Form and Corporate Strategic Development report UFCSD00208) outlines opportunities for Edmonton to support and grow clean technologies sectors.

Edmonton's vision is achievable, but will require significant levels of public and private investment of approximately \$42 billion over the next 30 years. The transition is a collective effort that can only be achieved by catalyzing innovation through partnerships with other orders of government, industry, regional partners, institutions, communities, businesses, residents and academia. The majority of the needed investment will need to come from these partnerships.

Smart municipal investment is also needed to achieve not only transition, but, at the same time, other City Plan goals. It is estimated that the City of Edmonton's

investment share may require \$100 million annually, as well as up to an additional 15% in project capital costs for new City of Edmonton buildings. This investment will fund programs and incentives to mobilize private investment (\$25 million annually) and fund local infrastructure (\$75 million annually), such as the complete build out of the active transportation network and new and expanded bus facilities that will support an electrified and growing transit fleet. Both new and expanded facilities are required to address the storage and maintenance of a growing fleet that includes electric buses.

Ongoing prioritization and trade-off discussions will be needed - Administration's approach to this prioritization is identified in Attachment 1 beginning on page 39. The majority of new funding requirements for 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. These initiatives and funding requirements will be presented for debate and approval through the strategy's gated implementation approach and Council will be required to consider funding as part of the budget process. Financing Edmonton's share of the public investment will require challenging trade-off and prioritization discussions and innovative funding approaches. Additional details on funding approaches and conventional and emerging funding tools are provided in Attachment 5. Attachment 6 provides an overview of the federal and provincial funding landscape.

Climate Resilience Policy

In alignment with the updated strategy and the City's new policy framework, Administration identified opportunities to update and reduce the number of existing climate policies. This involves:

- Repealing the following two existing policies: Edmonton's Community Energy Transition Strategy Policy C585 and Sustainable Building Policy C532
- Adopting an integrated Climate Resilience Policy (see Attachment 7) that includes integration of climate adaptation planning and the requirement for City buildings to be constructed to emission neutral buildings standard (which is a significant performance increase from the current policy level). This policy change may have a financial implication of up to an additional 15% in project capital costs for buildings, beginning in the 2023-2026 budget cycle, and there are expected operational cost savings over the lifecycle of the asset.
- Developing corresponding Administrative Procedures to detail the new construction, retrofit and operational performance criteria that was previously included in the Sustainable Building Policy.

The integrated Climate Resilience Policy commits to immediately and urgently:

1. Act to be a carbon neutral community by 2050 through Energy Transition to help limit global warming to 1.5 degrees Celsius;
2. Act to adapt, prepare for and respond to a changing climate; and
3. Lead climate solutions in service delivery and corporate management.

Policy governance will be required, for decisions that could conflict with other City Plan outcomes or that have significant unfunded financial implications.

Legal Implications

Section 615.4(1) of the City of Edmonton Charter requires the City to establish and make publicly available a Mitigation Plan for the purpose of addressing and mitigating the effects of climate change. Subsections 615.4(4) and (9) require that the City establish its first Mitigation Plan on or before December 31, 2020 and it be adopted by a resolution of the Municipal Council. On November 16, 2020, the City applied for an extension of this deadline until June 30, 2021.

Public Engagement

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. At the same time, Administration heard from stakeholders that there will be difficult tradeoffs that come with this transition, which will create challenges for decision makers. Twenty-eight events took place to listen to Edmontonians, including targeted stakeholders with diverse expertise, and the City's Indigenous Memorandum of Understanding Partners. Over 850 conversations took place and over 2,600 written comments were shared (see Attachment 8).

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

Corporate Outcomes and Performance Management

Corporate Outcome(s): Edmonton is an environmentally sustainable and resilient city			
Outcome(s)	Measure(s)	Result(s)	Target(s)
Advance a thriving, resilient, sustainable economy and environment	Community greenhouse gas emissions	17,216,193 tonnes of carbon dioxide equivalents (2019). A decrease of 5.6% percent below 2005	35 percent below 2005 levels (11,871,000 tonnes of CO ₂ e by 2035)

Risk Assessment

Risk Element	Risk Description	Likelihood	Impact	Risk Score (with current mitigations)	Current Mitigations	Potential Future Mitigations
Legal/Regulatory	Approval of the Climate Change Mitigation Plan ensures we meet the extension requested of June 30, 2021.	1 - rare	2 - moderate	2 - low	Strategy and action plan have been developed to fulfill charter requirements.	
Political Influences	There is the potential that new provincial government legislation, policies or future directions can influence the advancement of any City climate change implementation plans.	3 - possible	3 - major	9 - medium	Monitoring policy and funding changes.	Advocating or adjusting implementation.

Attachments

1. Edmonton's Community Energy Transition Strategy and Action Plan
2. Current Energy Transition Community Programs
3. Update on the Corporate Climate Leaders Program and Progress on Goals #3 of Climate Resilient Edmonton: Adaptation Strategy and Action Plan
4. Integrated Financial and Carbon Budgeting
5. Funding Approach
6. Federal and Provincial Grant Funding Landscape
7. Council Policy - Climate Resilience
8. Climate Resilience and Our Future City: What We are Hearing: Climate - The City Plan

Others Reviewing this Report

- M. Persson, Chief Financial Officer and Deputy City Manager, Financial and Corporate Services
- C. Owen, Deputy City Manager, Communications and Engagement
- G. Cebryk, Deputy City Manager, City Operations

- A. Laughlin, Deputy City Manager, Integrated Infrastructure Services
- K. Armstrong, Deputy City Manager, Employee Services
- R. Smyth, Deputy City Manager, Citizen Services
- K. Fallis-Howell, Acting City Solicitor

EDMONTON'S COMMUNITY ENERGY TRANSITION STRATEGY & ACTION PLAN

Edmonton

A photograph of the Edmonton skyline, featuring the Peace Tower and other modern buildings, overlaid with a semi-transparent blue filter. The text is centered in white, bold, uppercase letters.

ALBERTANS AND EDMONTONIANS HAVE A PROUD HISTORY OF BEING SOME OF THE BEST ENERGY INNOVATORS IN THE WORLD. THE UPDATE OF EDMONTON'S COMMUNITY ENERGY TRANSITION IS AN OPPORTUNITY TO RE-IMAGINE OUR CITY AND THE ENERGY MARKETS WE WILL LEAD. THE ENERGY TRANSITION REPRESENTS A ONCE IN A LIFE-TIME OPPORTUNITY TO CREATE A NEW ERA OF ECONOMIC GROWTH IN THE REGION. THIS IS OUR NEXT GREAT OPPORTUNITY.



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INDIGENOUS ACKNOWLEDGEMENT

The lands on which Edmonton sits and the North Saskatchewan River that runs through it have been the sites of natural abundance, ceremony and culture, travel and rest, relationship building, making and trading for Indigenous peoples since time immemorial.

Edmonton is located within Treaty 6 Territory and within the Métis homelands and Métis Nation of Alberta Region 4. We acknowledge this land as the traditional territories of many First Nations such as the Nehiyaw (Cree), Denesuliné (Dene), Nakota Sioux (Stoney), Anishinaabe (Saulteaux) and Niitsitapi (Blackfoot).

The city of Edmonton owes its strength and vibrancy to these lands and the diverse Indigenous peoples whose ancestors' footsteps have marked this territory as well as settlers from around the world who continue to be welcomed here and call Edmonton home.

Together we call upon all our collective honoured traditions and spirits to work in building a great city for today and future generations. We would like to thank the Indigenous communities who participated in the strategy update engagement sessions. The contributions provided were greatly appreciated and it is hoped that the ideas, comments and input shared are reflected here.

FOREWARD FROM THE ENERGY TRANSITION CLIMATE RESILIENCE COMMITTEE

We are incredibly proud of how far the City of Edmonton's climate policy has come since the Energy Transition Advisory Committee was formed in 2015. City Administration has worked hard to implement the original Community Energy Transition Strategy through energy retrofit and solar energy programs, expanding electric vehicle and bike infrastructure and the procurement of green electricity for municipal operations. In 2018, the City hosted the Intergovernmental Panel on Climate Change's (IPCC) Cities Conference and created the Edmonton Declaration. Endorsed by more than 4,500 North American municipalities, the Declaration committed Edmonton to action to meet the Paris Agreement and the 1.5°C goal. In 2019, City Council declared a climate emergency and directed City Administration to update Edmonton's Community Energy Transition Strategy to align our action with Edmonton's ambition to live within a 1.5°C world.

To address the urgency of the climate crisis and materially reduce our carbon footprint to protect against the worst impacts of climate change, we must redefine and reclaim our city as a leader in climate and energy. This is the key to solving the triple threat of climate, COVID-19 and the economy. The world is recognizing that Environmental, Social and Governance (ESG) criteria will determine the leaders and laggards of a prosperous, just and equitable world. Getting this right will be what brings investment into our city and inspires the next generation of Edmontonians.

We are proud to stand behind Edmonton's Community Energy Transition Strategy & Action Plan. The plan is strategic, well-thought out and ambitious. It will establish Edmonton as a leader on climate action and adaptation while placing people at the centre of the transition. The Edmonton imagined here is not only net zero, but also healthier, with more active citizens, closer communities and a vibrant, prosperous economy. As you read this strategy, we hope you feel inspired by our City's plan for energy transition, resilience, adaptation and innovation as a leading northern city. We hope too that you feel inspired to join us in the crucial next steps to implement the plan and transform our city.

This plan is our call to action, for the City, our committee and Edmontonians. We must all do the work to turn this vision into a reality and that work must start today. We hope you'll join us.

Sincerely,

Camille Jasper-Fabiyi
Co-Chair Energy Transition Climate Resilience Committee
Shafraaz Kaba
Co-Chair Energy Transition Climate Resilience Committee

**THE EDMONTON
IMAGINED HERE
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EXECUTIVE SUMMARY

The update of Edmonton's Community Energy Transition is an opportunity to re-imagine our city and the energy markets we will lead. The energy transition represents a once in a life-time opportunity to create a new era of economic growth in the region. This will require transformational change at an unprecedented rate.

Globally, it is expected that tens of trillions of dollars will be invested in the transition. Edmonton businesses and industry could market, support and sell its energy transition expertise to this growing global demand. This is our next great opportunity, and is a key component of Edmonton Economic Action Plan which offers a roadmap to build a vibrant, inclusive, and sustainable economy.

The transition is unfolding in front of our eyes. Over the last few years, leading companies in our region have invested in innovative projects that have created our global competitive advantage. Suncor has recently announced a new cogeneration facility that will help green Alberta's electrical grid and avoid the equivalent emissions of 550,000 passenger vehicles per year. They have also announced the Forty Mile Wind Project, which will provide the equivalent of 100,000 homes' electricity use per year. The region is now home to the world's largest CO₂ pipeline and a significant carbon capture and storage facility. The region is also home to the first-of-its-kind hydrogen blending project.


There are emerging businesses in bitumen beyond combustion, lithium refinement, smart grid, low carbon hydrogen for heavy transportation and heating, building automation, energy efficiency and green buildings. Edmonton is well-situated to be the place for manufacturing, distribution and construction. This will attract new talent dedicated to technology innovation, create, grow and diversify our economy and contribute to meeting climate and energy goals.

Albertans and Edmontonians have a proud history of being some of the best energy innovators in the world. This expertise has led to growth and economic prosperity. We have responded to and supplied the global markets with our energy products for the last 50 years, and we can respond to and supply the energy products the global markets are demanding for the next 50 years.

To further catalyze this growth, we propose four interconnected pathways which are built on a foundation of climate solution leadership. The pathways represent bold and brave actions, and are grounded in the principles of prosperity, just and equitable, urgent and dynamic, collaborative and transformative. The interconnected pathways are:

- ▶ A **Renewable and Resilient Energy Transition** that attracts the next generation of energy innovators to the region while transitioning Edmonton to 100% decarbonized energy.
- ▶ A **Low Carbon City and Transportation** that continues to build on the transformative city building efforts outlined in The City Plan and those that are currently underway such as the Blatchford carbon neutral development.
- ▶ **Emission Neutral Buildings** that are highly energy efficient, powered by renewable energy, and create a thriving energy efficiency industry.
- ▶ **Carbon Capture and Nature Based Solutions** that catalyze innovative technology and efforts to make a greener and healthier city.

These pathways will require a smart and agile implementation approach. As with many transitions there are built-in tensions and difficult trade-off decisions. The Energy Transition Strategy and Action Plan will need to use the right levers of change at the right time to achieve prosperity in a just and equitable way and to achieve significant GHG reductions. Transformational change is achievable, but there will be many challenges and opportunities during this transition.

A blue-tinted photograph of the Edmonton skyline, featuring several high-rise buildings and a bridge over a river. The image is used as a background for the text.

**THE ENERGY
TRANSITION IS THE
PATH FORWARD FOR
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CLIMATE RESILIENCE

Our climate is already changing, both globally and locally. It is affecting our weather, economy, environment and health. There is international recognition that climate change is an urgent threat and that global pursuits are needed to reduce greenhouse gas emissions and limit global warming. Historical climate records show that the world is warming, and at unprecedented rates. These climate records also indicate that Edmonton is warming at a faster rate than the global average. Action needs to be taken locally, as well as globally, to limit further greenhouse gases being emitted into our atmosphere.

While climate change efforts are underway at national and provincial levels, cities are often leaders in climate change action. Cities around the world are taking two approaches to addressing climate change. Mitigation refers to actions taken to reduce greenhouse gas emissions, whereas adaptation refers to actions taken to prepare for impacts of climate change, thereby reducing the negative effect. Edmonton's strategic plan, ConnectEdmonton includes a goal of Climate Resilience which includes both mitigation and adaptation outcomes. The City of Edmonton's *Climate Resilient Edmonton: Adaptation Strategy and Action Plan*, is the path forward for adapting to a changing climate.

Decisions made today about how we design and build our city, transportation systems, infrastructure and energy will set the course for our future greenhouse gas emissions. Steps to build this future are already being taken. There are exciting leaders globally, nationally, provincially and locally.

The voices and actions in the community are inspiring. There are leaders in the business and entrepreneur community, academic community, maker community, in our community leagues and advocates, as well as the countless individuals taking climate actions everyday. The time to act is now. Edmontonians see the challenge and opportunities and are working to find solutions and contribute to the discussions and actions that create the path forward.

Edmonton's Community Energy Transition Strategy and Action Plan, presented here, is the path forward for a low carbon city and is the City of Edmonton's climate change mitigation plan under section 615.4 of the City Charter. The City of Edmonton is taking a dynamic approach to the Community Energy Transition Strategy and Action Plan, reviewing these strategic documents every five years and updating as needed to stay relevant and to meet City Charter requirements.

**DECISIONS MADE TODAY ABOUT HOW WE
DESIGN AND BUILD OUR CITY, TRANSPORTATION
SYSTEMS, INFRASTRUCTURE AND ENERGY
WILL SET THE COURSE FOR OUR FUTURE
GREENHOUSE GAS EMISSIONS.**

OUR STARTING POINT

Our starting point has changed. We are entering a new era of economic growth at the same time that a global pandemic has emerged. This new starting point has become our greatest opportunity.

The COVID-19 pandemic has presented health, economic, and social challenges that have impacted economies worldwide in an unprecedented way. Heading into the pandemic, the Edmonton economy was still recovering from the 2015/16 recession. As a result of the pandemic, Edmonton's economy is estimated to have contracted by 6.4% in 2020. A return to pre-COVID levels of output is not expected until around 2022. The pandemic and its impact on the Edmonton economy has not only introduced a significant setback to our recovery but has the potential to redefine normalised behaviour. Public health measures that were introduced to contain the spread of the virus have reduced business activity and affected household consumption, including travel and the use of public spaces. The pandemic and its impact on the Edmonton economy has not only introduced a significant setback to our recovery but has the potential to redefine everyday habits. Public health measures that were introduced to contain the spread of the virus have reduced business activity and affected household consumption, including travel and the use of public spaces. It is unknown at this time whether these impacts will be temporary and if so, when behaviour will return to pre-COVID levels.

This global economic shock is impacting employment and investment across all sectors, including energy. The demand for energy has been impacted by the pandemic, reduced energy demand globally in 2020 (relative to 2019), and a sharp pullback in global energy investment. The International Energy Agency identified governments have a unique opportunity today to boost economic growth, create millions of new jobs and put global greenhouse gas emissions into structural decline through a sustainable recovery for the energy sector.¹ If done correctly, the energy transition can help Edmonton recover from the COVID public health and economic crisis, and put our city in a stronger position into the future. However, this will require a transformational change; one that will be difficult.

The global economy is changing. **We are entering a new era of economic growth.** Moving forward, Edmonton is entering a phase of slow economic recovery and a lower medium-term growth. This will mean that the City will need to explore new economic recovery mechanisms for Edmonton's economic recovery that test the bounds of its existing monetary and fiscal policy. This can be driven by the interaction between rapid technological innovation, sustainable infrastructure investment, and increased resource productivity.² The Paris Agreement was adopted by nearly every nation and these commitments and targets have set a clear signal to the market on the inevitability and pace needed for the global energy transition. This will define the global economy of the 21st century.³ Over the coming decades, **the national plans under the Paris Agreement represent tens of trillions of dollars in investment**⁴ and leading companies and investors are creating a new competitive race.

The businesses who can deliver the innovation and solutions will seize the international markets who are looking for solutions. The demand exists and will only grow. Canada's clean technology developers and adopters are well positioned to compete and win in this global market.⁵ In Canada clean technology contributed \$26.7 billion (2016) to GDP, and has an annual growth rate of 3.4% per year since 2007. The Government of Canada has a goal that clean technology is one of Canada's top five exporting industries and that by 2025 clean technology's contribution to GDP will grow to \$80 billion.⁶ The federal government has plans to make Canada the most competitive jurisdiction in the world for clean technology companies. This is an economic growth opportunity that is recognized by Canada's industry leaders. Nearly fifty of Canada's major business leaders recognize this as the country's competitive advantage and in an open letter encouraged governments to lead a collaborative and bold economic recovery that builds on the strengths of our existing economy and talent to capture the growth markets of the future.⁷

OUR STARTING POINT CONT'D

Edmonton's Economy 2.0 – the story unfolding before our eyes

Our local economy is changing. The Energy industry will continue to be a critical and fundamental structural platform for our economy. There are transformative, innovative changes taking place in industry that are addressing climate resilience. Edmonton has an opportunity to capitalize and diversify the economy through new investments within emerging industries in the energy and innovation sectors and benefit from well established companies that are transforming their businesses.

Many companies – globally, in Alberta and the Edmonton metro region – are transforming their businesses to capitalize on, respond to and provide leadership to energy transition and climate challenges. Making the transition to a low carbon economy is challenging but many companies in the private sector are finding new ways of responding and leading to achieve positive climate outcomes while creating new economic opportunities.

Right here in the Edmonton Metropolitan Region, Suncor has recently announced a new cogeneration facility that will help green Alberta's electrical grid and avoid the equivalent emissions of 550,000 passenger vehicles per year. They have also announced the Forty Mile Wind Project, which will provide the equivalent of 100,000 homes' electricity use per year. Adding to all that, the completion of Canada's electric highway, with EV charging stations at our Petro-Canada stations from coast to coast. Suncor is embedding sustainability as a value driver in day to day business decisions.

There are emerging businesses in bitumen beyond combustion, including lithium refinement, smart grid, low carbon hydrogen for heavy transportation and heating, building automation, energy efficiency and green buildings, which Edmonton is situated to support by way of manufacturing, distribution and construction. This has the potential to attract new talent dedicated to technology innovation, and create, grow and diversify our economy

and contribute to meeting climate and energy goals. As well, this presents an opportunity for retraining displaced workers in other industries.

In recent years key projects in the region have given us a competitive advantage to supply global markets with the energy services and products the world is now demanding. The region is home to the world's largest CO₂ pipeline and a significant carbon capture and storage facility. Also the first-of-its-kind hydrogen blending project is being advanced in the region.

We are home to a young, well-educated, talented workforce and we have demonstrated innovation and a strong tradition of research and development with respect to cutting edge technologies. In 2016, Edmonton's green energy economy was responsible for generating \$3.59 billion in gross output, \$1.79 billion in gross domestic product (GDP), and employed approximately 14,669 direct jobs, equal to 2.0% of the region's workforce.⁸ Our value chain has strengths that span all elements including: design, engineering and technical services, construction and manufacturing, operations, and broader ecosystem supports. Edmonton's economy 2.0 has been unfolding before our eyes.

Edmonton's Energy Transition – the story is already in progress

Our efforts towards becoming an energy sustainable and climate-resilient city began in earnest in 2013. That year, a Citizens' Panel on Edmonton's Energy and Climate Challenges provided City Council with the recommendation that the City of Edmonton take the measures needed to become a low carbon city by 2050. As a result, Edmonton's Community Energy Transition Strategy was developed to outline how we could collectively make Edmonton into a sustainable energy city. The Strategy was unanimously approved by City Council in 2015, and was designed to accelerate Edmonton along a low carbon pathway by taking direct and indirect actions to reduce greenhouse gas (GHG) emissions and increase renewable energy and energy efficiency across all sectors.

OUR STARTING POINT CONT'D

Over the last five years, with oversight of City Council (through an established Council initiative) and the advice of the Energy Transition Climate Resilience Committee, the City of Edmonton has implemented various programs and initiatives including:

- ▶ Adoption of Edmonton's Electric Vehicle Strategy and roll out of electric vehicle charging facilities
- ▶ Development of protected bike lanes in the downtown core
- ▶ Extension of Edmonton's LRT network and Edmonton Transit Services deployment of its first battery-electric buses into service, and single largest purchase of electric buses (40) in Canadian history
- ▶ Ongoing development of Blatchford – planned to be a carbon-neutral community for 30,000 residents that uses 100% renewable energy
- ▶ Approval and funding of the Downtown District Energy System
- ▶ Launch of Change Homes for Climate: Residential Solar Program that offers a rebate to install rooftop solar and the launch of an online solar potential map
- ▶ Launch of Change Homes for Climate: Home Energy Plan Program that offers a rebate for EnerGuide evaluations and the launch of an online home energy map
- ▶ Launch Change Homes for Climate: Home Energy Retrofit Accelerator (HERA), a program that offers rebates to homeowners for energy efficiency retrofit investments.
- ▶ Launch of Change Buildings for Climate: Building Energy Retrofit Accelerator (BERA), a program that provides rebates for energy efficiency retrofits on commercial buildings 10,000 sq ft and larger
- ▶ Launch of Change Mobility for Climate: A program that provides rebates for electric vehicle charging infrastructure
- ▶ Launch of Building Energy Benchmarking Program, a rebate for a voluntary program that invites Edmonton's large commercial, institutional, industrial, and multi-family buildings to submit their energy performance data to the City for benchmarking and disclosure purposes – the first program of its kind to be hosted by a municipality in Canada
- ▶ Launch of Corporate Climate Leaders Program, where Edmonton corporations come together to analyze their own carbon footprints, create a reduction plan, and report their progress towards targets in a public forum so successes and challenges can be shared with their peers
- ▶ Launch of a community Eco-City Grant Program to support the community to take action to reduce GHG emissions
- ▶ Launch of CitiesIPCC Legacy Research Grant Program which provides research grants to advance knowledge on how Edmonton can become an energy sustainable and climate resilient city.
- ▶ Launch of Green Leagues Program to provide support to the Edmonton Federation of Community Leagues
- ▶ Launch of Change for Climate Community Outreach and Engagement Program, a community outreach program that encourages climate action through activities including public events, newsletters and video storytelling
- ▶ Awarded FCM GMF funding (loan/grant) to support a Clean Energy Improvement Program pilot scale initiative for residential and commercial energy efficiency / renewable energy retrofit financing.

These programs are just examples of the many energy transition efforts underway across the community.

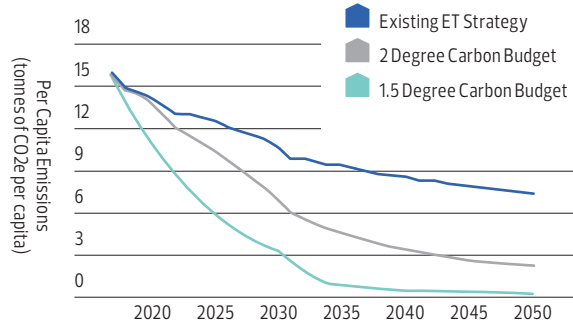
BACKGROUND — GETTING TO 1.5

Since Edmonton's Community Energy Transition Strategy was first developed key events have accelerated the global energy transition.

- ▶ **The Paris Agreement was adopted by nearly every nation.** The agreement commits nations to limit the rise of global average temperatures well below 2 degrees Celsius and to pursue efforts to limit the temperature increase even further, to 1.5 degrees Celsius. This **requires an unprecedented reduction in greenhouse gas emissions.**
- ▶ An Intergovernmental Panel on Climate Change special report on the impacts of global warming of 1.5 degree Celsius identified that to limit warming to 1.5 degrees, global CO₂ emissions need to decline by about 45% by 2030, reaching net zero around 2050.

In order to build on and update the existing Energy Transition Strategy to reflect ambitious 1.5 degree targets, and to align it with the City's long term vision as outlined in ConnectEdmonton and The City Plan, technical analysis was undertaken. ConnectEdmonton's Goal for Climate Resilience states: Edmonton is a city transitioning to a low-carbon future, has clean air and water and is adapting to a changing climate. To understand what the transition to a low-carbon future looks like, a local carbon budget was calculated. Local carbon budgets are "bleeding edge" work, and the thinking, precision and methodologies around this field of work will continue to be

Figure 1 Edmonton's Local Carbon Budget Trajectory



refined based on new knowledge and improved scientific understanding. The carbon budget shows "how far and how fast" we have to move in terms of emission reductions, and the magnitude of change required. Meeting Edmonton's local carbon budget requires rapid reduction of greenhouse gas emissions and carbon neutrality by 2050.

The technical work also identified that there is no single measure (or even a handful of measures) that can reduce emissions to levels to align with Edmonton's local carbon budget. The work identified that a suite of actions across different sectors are required, and the magnitude of emissions reductions in any one measure are relatively small, but collectively can achieve deep reduction targets.

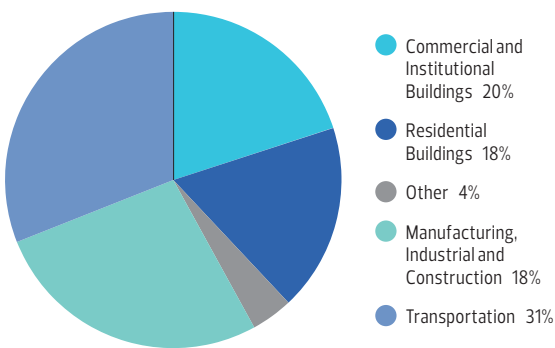
BACKGROUND – GETTING TO 1.5 CONT'D

From a greenhouse gas emission perspective, Edmonton is in a challenging starting point. Edmonton's exceptional growth rate over the last decade has meant total GHG emissions have increased, though the average per person emissions have decreased. Despite this progress, Edmonton still has one of the highest per capita greenhouse gas emissions levels in the world (18 tonnes/person). The four major sources of greenhouse gas emissions in Edmonton are:

- Transportation – 31% of Edmonton's total emissions;
- Manufacturing, industry and construction – 27%;
- Commercial and institutional buildings – 20%; and
- Residential buildings – 18%.

The remaining emissions come from agriculture, forestry, waste and waste water treatment, and fugitive and non-specified sources. Edmonton's river valley and urban forest capture approximately 1% of the city's emissions.

Figure 2 Edmonton's GHG Emissions by Sector

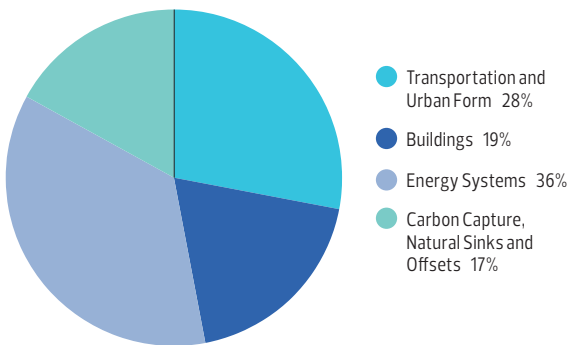


The work to update the strategy identified that with rapid and significant actions, Edmonton's emissions could be reduced by up to 83%. The three major reduction areas are:

- Transportation and Urban Planning – up to 28% of needed reduction;
- Energy Systems – up to 36%; and
- Buildings – up to 19%.

A gap of up to 17% of needed reductions remains, and will need to be addressed by actively removing carbon from the atmosphere through carbon capture technology, nature based solutions or purchasing offsets.

Figure 3 Emission Reduction Profile



Work was undertaken to understand Edmonton's role in this accelerated transition, including: jurisdictional scans, best practices review, review of "Paris compliant" municipal plans, developing technical and policy discussion papers, and seeking advice and feedback from technical experts. In addition, public and targeted engagement took place including 28 events (community drop in events, public workshops, stakeholder workshops, a Climate Action Youth Policy Jam, committee meetings and webinars) which led to over 850 conversations and 2,600 written comments. This engagement helped us understand where Edmontonians want the community energy transition to be in the next 30 years and the types of actions they wish to see.

BACKGROUND — GETTING TO 1.5 CONT'D

Also, since Edmonton's Community Energy Transition Strategy was first developed,

- ▶ The leadership of the **Edmonton Declaration** has **signaled** that we are **open for business and investment** in the future energy market.
- ▶ Numerous City of Edmonton climate actions programs have been launched **demonstrating the City's willingness to act and invest in this area.**
- ▶ Climate Resilient Edmonton: Adaptation Strategy and Action Plan, the companion document to this strategy, was developed. The strategy identifies climate change impact projections for Edmonton, if global greenhouse gas emissions reductions are not taken. That strategy also identifies the local impacts of climate change, such as damages and disruption from extreme weather events, adverse health effects, and direct and indirect lost productivity and services. These projected impacts could lower Edmonton's GDP by \$3.2 billion and \$7.4 billion annually by the 2050s and 2080s (respectively), and could increase the number of physical and mental health incidents by 22,000 episodes annually by the 2050s.

Building on and updating the Energy Transition Strategy in a bold, brave, agile and smart manner, is needed to embrace an incredible economic opportunity and respond to a changing world.

**WE COMMIT TO
AND CALL UPON
ALL NATIONAL,
STATE AND LOCAL
GOVERNMENTS
TO FORMALLY
RECOGNIZE THE
IMMEDIATE AND
URGENT NEED FOR
ACTION THAT WILL
LIMIT GLOBAL
WARMING TO 1.5°C**

EDMONTON DECLARATION, 2018

STRATEGIC ALIGNMENT AND STRATEGY STRUCTURE

The Energy Transition Strategy and Action Plan fall under ConnectEdmonton and The City Plan, and provide further details on how goals and outcomes in those strategic documents, related to energy and climate, will be achieved.

ConnectEdmonton sets the direction for our future and outlines where we need to change today to realize our vision for Edmonton in 2050. ConnectEdmonton is about transformational change and has four goals: Climate Resilience, Regional Prosperity, Urban Places and Healthy City.

The City Plan sets the strategic direction for the way Edmonton grows, its land use, its mobility systems, open spaces, employment and social networks, generally touching on most aspects of life in Edmonton.

The Energy Transition Strategy and Action Plan outline how we achieve the transformational change to a low carbon city as outlined in ConnectEdmonton and City Plan.



STRATEGY STRUCTURE

The Energy Transition Strategy and Action Plan have:

5 STRATEGIC PRINCIPLES

Guide how the Energy Transition Strategy and Action Plan will be advanced and implemented. Following ConnectEdmonton's guiding principle of being connected, the energy transition strategic principles ensure that we make strategically consistent choices as we work to achieve our goals.

4 PATHWAYS

Areas of transformative action. Pathways are interconnected and they are all needed to achieve Edmonton's low carbon future. Each Pathway has goals, strategies and actions.

1 FOUNDATION

The commitment to "climate solution leadership" is the foundation on which the Energy Transition Strategy and 1.5 Climate Action Plan is built.

15 GOALS

Set out what needs to be achieved in Edmonton. The goals are long term outcomes aligned to Council's vision.

36 STRATEGIES

Approaches needed to achieve the goals. The strategies represent the overall action that is required to achieve emissions reduction goals, even if specific actions are modified during implementation due to changing contexts such as emerging technologies.

1 ACTION PLAN

The tactics that will put Edmonton on a trajectory to achieve overall targets.

THE PATH FORWARD

Through ConnectEdmonton and the City Plan, the community has shared their desire and excitement for a low carbon future. ConnectEdmonton is about transformational change and the four goals, including Climate Resilience, require action and change to achieve our vision. Transformational change poses many challenges and opportunities. Edmonton's vision is achievable, but it will not be easy.

Four bold and transformative pathways have been developed to reach Edmonton's Climate Resilience goal of a low carbon city:

- Renewable and Resilient Energy Transition
- Low Carbon City and Transportation
- Emission Neutral Buildings
- Nature Based Solutions and Carbon Capture

Pathways are areas of transformative action. The four pathways are interconnected and they are all needed to achieve Edmonton's low carbon future. Each pathway has goals that set out what needs to be achieved for a low carbon, prosperous and just and equitable future. The pathways reflect the four main reduction opportunities for Edmonton.

Each Pathway will require different levels of investment, that will depend on the tools, actions or approaches that the City can use to enact change and achieve specific outcomes. These tools are referred to as Levers of Change.

Achieving transformational change means setting ambitious **Targets**. The following targets reflect a community wide accelerated energy transition journey. We are just starting to accelerate our journey, and like any journey we will have to regularly reflect on our progress and adjust our plans as needed to successfully reach our goals and targets.

2025

Reducing community-based net greenhouse gas emissions by 35% (compared to 2005 levels)

2030

Reducing community-based net greenhouse gas emissions by 50% (compared to 2005 levels)

Reduce energy consumption by 35% per person by 2030 (compared to 2005 levels)

Generate 10% of Edmonton's electricity locally

2050

Achieving net zero per person GHG emissions

Milestones illustrate how a pathway advances until 2050. Milestones represent significant initiatives aligned with meeting the pathway goals. Each pathway will require multiple initiatives, some small and some large. Milestones illustrate the transition to 2050, however the Action Plan focuses on actions for the coming decade. The pathways require targets to achieve the strategy's goals and the transition's milestones.

PATHWAY #1 RENEWABLE AND RESILIENT ENERGY TRANSITION

This pathway allows us to re-imagine where our energy comes from and the future energy markets we can lead.

This pathway will see Edmonton supplied with **100% emission neutral electricity and heating by 2050** and a complete build out of a **city-wide decarbonized district energy network by 2050**. This pathway will see 10% of the electricity used in Edmonton generated locally by 2030. This pathway will build on our current strengths and innovation to develop the next generation of energy jobs, small business opportunities and products the global market is beginning to demand. This pathway will see the Edmonton Metropolitan Region **attract and incubate 50 next generation energy companies by 2030 with diverse ownership (ie. women, Indigenous, minority owned)**. This pathway could achieve up to 36% of the needed emission reductions and would require approximately an average \$860 million in annual public and private investment over the next 30 years. The level of public investment required will depend on the Levers of Change that are applied to achieve this pathway.

The Opportunity: Edmonton and Alberta are home to the world's best energy innovators and we can use our strengths to lead this transition. We have competitive advantages, including the ability to produce near zero-emission hydrogen at a lower cost than virtually any other jurisdiction in the world.⁹

The Challenge: A part of our economy and identity are tied to the fossil fuel industry. Factors in the global energy market are changing and global energy systems are going through a rapid transition. These changes will cause economic and social challenges in our region and province. As we work to diversify, making ourselves more resilient and attractive, there will not be consensus in the community on this transition. As with many transitions there are built-in tensions. There will be enthusiasm from the next wave of energy entrepreneurs, and there will be others who are experiencing various "stages of grief" (ie. denial, anger, etc.). This transition will be a challenging time in which to govern.

MILESTONES – UP TO 36% CO₂ REDUCTIONS

2020	2030	2040	2050
Attract and incubate next generation energy companies	Increasing manufacturing, distribution and construction		
Plan and establish district energy network	Expand district energy network	Completed and decarbonized energy network	
Increasing local renewable installations and decarbonizing of the grid		100% emission neutral electricity and heating	



PATHWAY #1 RENEWABLE AND RESILIENT ENERGY TRANSITION CONT'D

PATHWAY #1: RENEWABLE AND RESILIENT ENERGY TRANSITION

Goal: Edmonton is a thriving city powered by low carbon energy

Strategy 1: Support regional employment through local renewable energy and storage systems.

Strategy 2: Promote the development of community renewable energy projects and the expansion of a renewable district energy network.

Strategy 3: Support and advocate for and support the supply and purchasing of low carbon energy.

Strategy 4: Support opportunities for all Edmontonians to participate in Edmonton's energy transition.

Goal: Edmonton is a hub for low carbon energy innovation and investment

Strategy 5: Support new collaborations with utilities, alternative energy suppliers, post-secondary institutions, businesses and regional partners to advance the low carbon energy market and industries.

Strategy 6: Support the attraction of investment and technology start-ups that build on the region's energy resources and innovation strengths.

Strategy 7: Support the expansion of Edmonton's partnership ecosystem to build and support green economy employment and promote strategies to market regional clean technology products and services.

Goal: Edmonton uses waste as a resource

Strategy 8: Promote the production of zero emission energy and resources from waste while minimizing emissions.

Big Win Actions

- ▶ City wide district energy network
- ▶ Hydrogen heated neighbourhood pilot
- ▶ Scaling-up local renewable electricity installations through expanded incentives
- ▶ Group/ Aggregated renewable energy purchasing
- ▶ 100% renewable energy for Civic Operations

PATHWAY #2 EMISSION NEUTRAL BUILDINGS

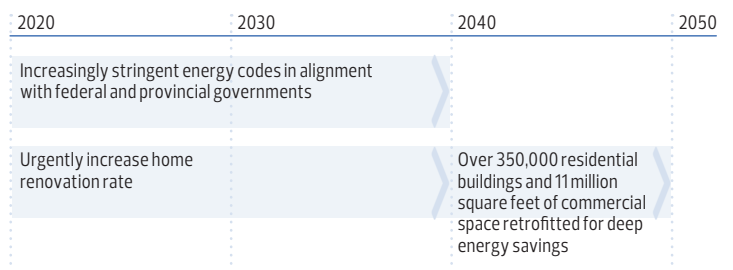
This pathway imagines a future with highly energy efficient, healthy homes and buildings, powered by renewable energy.

This pathway will see Edmonton administering **increasingly stringent energy codes in alignment with federal and provincial governments**. This pathway will see Edmonton 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 effort could create a thriving retrofit industry and significant local job opportunities. This pathway could achieve up to 19% of the needed emission reductions and would require approximately an average \$180 million in annual public and private investment over the next 30 years. The level of public investment required will depend on the Levers of Change that are applied to achieve this pathway.

The Opportunity: An emission neutral building is one that is highly energy efficient and uses only renewable energy. Edmonton is home to significant expertise in sustainable building practices and green building technologies. It is home to the highest number of net-zero residential buildings in Canada. Construction and engineering is a key sector of Edmonton's economy. We have the expertise and innovative building technologies the world will need. The homes built in Edmonton today are more energy efficient than homes built a decade ago. The strategy imagines a future where homes in the coming decade will be even more comfortable, energy efficient, and resilient as well as having lower energy costs than the homes we have today. This pathway also imagines an unprecedented energy efficiency retrofit effort (over 350,000 residential buildings) that could create a thriving retrofit industry and significant local job opportunities.

The Challenge: Edmonton is consistently ranked as one of the most affordable cities in Canada. However, there are roughly 74,000 energy poor households in Edmonton, meaning the household is unable to maintain 'adequate' (ie. a level of energy consumption in the home necessary to meet basic health and well-being needs) access to energy services at a reasonable cost. Inefficient buildings have higher energy costs which can be especially challenging for lower-income homes. Not only are housing conditions and long term affordability a challenge, but the higher upfront costs to building an emission neutral building or the ability to access funding to complete a retrofit will be a challenge. Some members of the development industry have expressed concerns about affordability implications and their capacity to meet increasingly stringent building regulations. Retrofitting efforts will require equity and community needs considerations.

MILESTONES – UP TO 19% CO₂ REDUCTIONS



PATHWAY #2 EMISSION NEUTRAL BUILDINGS CONT'D

PATHWAY #2: EMISSION NEUTRAL BUILDINGS

Goal: The buildings that Edmontonians live, work and play in are emission neutral and improve personal wellness

Strategy 9: Support the acceleration of emission neutral buildings.

Strategy 10: Support residential, commercial and institutional property owners to reduce overall energy use and utility costs through retrofits and energy efficiency improvements.

Strategy 11: Support low embodied carbon buildings and infrastructure

Goal: Eliminate energy poverty

Strategy 12: Promote programs to alleviate energy poverty and increase energy efficiency in affordable buildings

Goal: Catalyze the local green building and energy efficiency industry

Strategy 13: Support the attraction and expansion of opportunities for green building technology, products and services

Big Win Actions

- ▶ Accelerated and Expanded Building Retrofit Program
- ▶ Home Renovation program to address energy poverty
- ▶ Emissions neutral building standard for new City of Edmonton buildings

PATHWAY #3 LOW CARBON CITY AND TRANSPORTATION

This pathway continues to build on the transformative city building efforts outlined in The City Plan and those that are currently underway such as the Blatchford carbon neutral development.

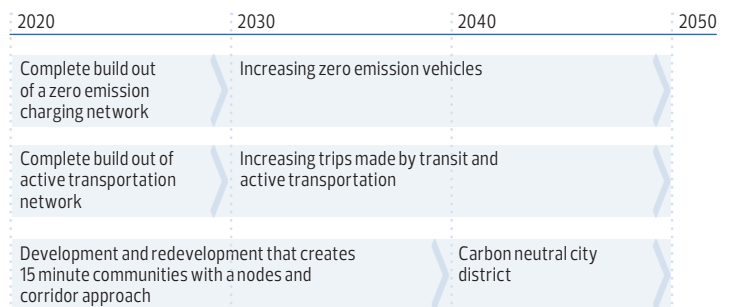
This pathway will see Edmonton with **city districts that are carbon neutral by 2050, 50% of growth occurring as infill development, and the complete build out of the active transportation network by 2030.** This pathway helps create the city that is attractive to top global employers by providing the lifestyle their employees are looking for. This pathway will see **50% 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 could achieve up to 28% of the needed emission reductions and would require an approximate average of \$45 million in annual public and private investment over the next 30 years, with a \$1.2 billion in local infrastructure investment required over the next 10 years. The level of public investment required will depend on the Levers of Change that are applied to achieve this pathway.

The Opportunity: The way a city is designed and built has a direct impact on how people get around, connect and experience their city. Observations from 27 major urban centers across North America showed that cities with higher levels of energy efficiency, reduced GHG intensity, higher rates of “green” buildings, greater availability of sustainable transport options tend to have: higher rates of employment; higher GDP per capita; lower rates of violent crimes; higher levels of educational attainment; lower levels of perceived stress among residents (improved mental health); a greater sense of community; and higher levels of investment in new commercial and institutional buildings. Edmonton has a lot of potential to be designed and re-built to connect us to each other, to our communities and to our local businesses. We can

have a city that helps each of us save money on the ways we move around, while also reducing the amount of time we spend driving, ultimately helping to create a healthier lifestyle. We can have a city that is attractive to top global employers by providing the lifestyle their employees are looking for. Urban planning practices are changing, and Edmonton has already shown bold transformative leadership in developments such as Blatchford. Continuing to catalyze those bold and transformative urban planning decisions across Edmonton and implementing The City Plan will help to create a vibrant and thriving low carbon city.

The Challenge: Many growing cities, particularly in North America, have been designed to prioritize the car. We are currently a city with “big city” commutes, wide and multi-lane roads and big surface parking lots that are missing pedestrian and cycling connections. Transforming to a city with accessible and easy multi-modal transportation choices, where people do not have to travel far to meet their daily needs, and where our increased density will help accommodate a larger population within our existing boundaries will not be simple, easy or cheap.

MILESTONES – UP TO 28% CO₂ REDUCTIONS



PATHWAY #3 LOW CARBON CITY AND TRANSPORTATION CONT'D

PATHWAY #3: LOW CARBON CITY AND TRANSPORTATION

Goal: Edmonton is planned, designed and built to be a vibrant carbon neutral city

Strategy 14: Ensure sustainable urban planning practices to become a carbon neutral city.

Strategy 15: Ensure low carbon districts with complete and compact communities

Strategy 16: Support initiatives that allow all Edmontonians to have access to the benefits and opportunities of a vibrant low carbon city

Goal: Safe and accessible zero emission mobility

Strategy 17: Ensure a safe, accessible, and comfortable active transportation system that enhances walking and cycling.

Strategy 18: Ensure the establishment and expansion of a zero emissions public transit system that is safe, convenient, reliable and connected across the Edmonton region.

Strategy 19: Support the transition to electric and other zero emission vehicles.

Strategy 20: Support the changing transportation system needs of a low carbon city.

Goal: Edmontonians reduce consumption based emissions by supporting local businesses

Strategy 21: Promote a circular economy that reduces consumption based carbon emissions.

Strategy 22: Support a low carbon resilient food system.

Big Win Actions

- ▶ City Plan implementation
- ▶ City-wide active transportation network
- ▶ City-wide zero emission charging network
- ▶ Zero Emission transit system and fleet

PATHWAY #4 CARBON CAPTURE AND NATURE BASED SOLUTIONS

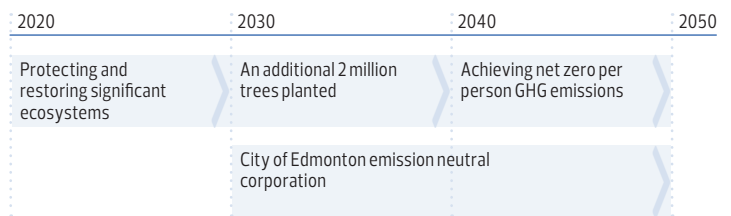
This pathway imagines a future where we cost effectively remove carbon from the atmosphere using innovative technology and nature based solutions that cultivate a healthier city.

This pathway sees Edmonton **protecting and restoring significant ecosystems by 2030 and planting an additional 2 million trees by 2040**. This pathway helps support attractive, healthy urban places and carbon sequestration. The technology solutions under this pathway can grow prosperity in the region by using our carbon capture technology and infrastructure competitive advantage to attract and grow investment and jobs. This pathway will see the **City of Edmonton is an emission neutral corporation by 2040**. This pathway sees Edmonton **achieving net zero per person GHG emissions by 2050**. This pathway addresses the gap of up to 17% of the needed emission reductions and would require approximately an average \$50 million in annual public and private investment over the next 30 years. The level of public investment required will depend on the Levers of Change that are applied to achieve this pathway.

The Opportunity: To limit global warming to 1.5°C, actions that actively remove carbon from the atmosphere are needed. These actions include nature based solutions (such as planting more trees and protecting existing carbon sinks) and technological options (such as using carbon capture equipment). Nature based solutions help support attractive, healthy urban places and carbon capture technology can grow prosperity in our region. The Edmonton Metro region is home to state of the art CO₂ carbon capture and storage technology and infrastructure, such as the world's largest capacity CO₂ pipeline and a significant carbon capture and storage facility. This is our competitive advantage and these strengths position the region to attract and grow carbon capture investment and jobs.

The Challenge: Even with decisive and bold climate action, up to 17% of the reductions needed in Edmonton will have to come by removing carbon from the atmosphere or offsetting emissions. There are uncertainties in this pathway including the amount of "negative" emissions needed. This will depend on the amount of reductions that different actions achieve, and the level of action taken by other levels of government, businesses and the community. There are also uncertainties in the feasibility, scalability and impact of carbon capture measures.

MILESTONES – UP TO 17% CO₂ REDUCTIONS



PATHWAY #4 CARBON CAPTURE AND NATURE BASED SOLUTIONS CONT'D

PATHWAY #4: CARBON CAPTURE AND NATURE BASED SOLUTIONS

Goal: Edmonton is full of nature, to support healthy people, emissions reductions, communities and carbon sequestration

Strategy 23: Promote investment in natural carbon storage and sinks such as tree planting, ecosystem conservation and restoration.

Strategy 24: Promote the acceleration of nature based solutions to achieve climate resilience goals.

Goal: Expand carbon technology investment/opportunities and business in the Edmonton Metropolitan region

Strategy 25: Support the acceleration of the development and deployment of carbon capture and storage and utilization technologies.

Goal: Edmonton cares for future generations by offsetting remaining emissions

Strategy 26: Support and track community, institutional and business offset purchases.

Big Win Actions

- Accelerated tree planting campaign
- Expanded and accelerated conservation and restoration of urban ecosystems
- Conservation Offset Program
- Expanded CO2 infrastructure



FOUNDATION: CLIMATE SOLUTION LEADERSHIP

The energy transition is a complex community effort that will require leadership. The strategy needs to stand on a foundation where the City of Edmonton demonstrates climate solution leadership in our own decision making, actions and advocacy.

FOUNDATION: CLIMATE SOLUTION LEADERSHIP

Goal: The City of Edmonton aligns decision making with the international target of limiting global warming to 1.5°C

Strategy 27: Use a local carbon budget and carbon accounting system to inform decisions and monitor progress towards goals.

Strategy 28: Embed low carbon goals into its plans, policies and standards.

Strategy 29: Create an internal task force and continues working with the external Council advisory committee to lead Edmonton to be a carbon neutral city.

Goal: The City of Edmonton partners with and mobilizes communities and governments to meet carbon budget goals

Strategy 30: Advance a climate action framework for government collaboration.

Strategy 31: Work with other municipalities and regional associations to advance a collaborative approach for climate action in the Edmonton Metropolitan Region.

Strategy 32: Work with international collaborators to support the Edmonton Declaration and the IPCC Cities and Climate Change Science research agenda.

Strategy 33: Continue to inform, work with and mobilize the community to take action on climate change via Change for Climate and Corporate Climate Leaders programs, among others.

Goal: The City of Edmonton establishes innovative and participatory financing tools

Strategy 34: Align investment decisions with low carbon goals

Strategy 35: Access and create innovative and participatory funding mechanisms to support private green investments

Strategy 36: Develop a just and equitable working group and framework for energy transition programs.

Big Win Actions

- Carbon Neutral Corporation
- Integrated Carbon and Financial Accounting
- Clean Energy Improvement Financing Program

THE APPROACH

In order to activate the changes identified in the Energy Transition Strategy, two complementary approaches are needed. The first is an approach to accelerate efforts. The second is a smart and agile implementation approach. These approaches, and the development of the strategy are guided by a series of strategic principles.

The **Strategic Principles** ground how the Energy Transition Strategy and 1.5 Climate Action Plan will be advanced and implemented.

The **Acceleration Approach** reflects the level of ambition and action needed over the next 30 years.

The **Implementation Approach** reflects how that ambition will be realized.

STRATEGIC PRINCIPLES

The update and implementation of the Energy Transition Strategy is guided by the following strategic principles:

Just and Equitable

- ▶ We will lead Edmonton through a just and equitable energy transition, fostering a good quality of life for all Edmontonians, leaving no one behind.
- ▶ We are not only serving those today, but we are serving those who come after us by taking action and not deferring action to future generations.
- ▶ Environmental protection and sustainability will be integral to the energy transition.

Prosperous

- ▶ This energy transition will be an economic development and job diversification transition, equipping Edmontonians to be resilient to changing economies.

Urgent and Dynamic

- ▶ We work towards achieving increasingly urgent and ambitious climate action and find ways to accelerate our energy transition efforts.
- ▶ We will learn from others to accelerate and prioritize our own actions and we will use a dynamic steering and flexible approach to respond to evolving knowledge and technologies, allowing us to leverage and accelerate efforts.

Transformative

- ▶ Edmonton's energy transition will be a re-imagining of our city; departing from a business-as-usual approach to transform into a low carbon community.
- ▶ We will lead by example in our decisions, services, projects, procurement, infrastructure and actions. Every decision is a climate change decision.

Collaborative

- ▶ Transitioning to a low carbon city is a collective effort, and we will connect and collaborate with other governments, regional partners, institutions, communities, businesses, academia, and global partners for accelerated action.
- ▶ We will approach this challenge in a holistic and integrated way. The Pathways are integrated with each other, with other climate actions and with City processes.

THE APPROACH CONT'D

REGIONAL PARTNERSHIP

There are a number of actions within the energy transition strategy that could be implemented on a regional or sub-regional basis through collaboration with regional partners. This includes opportunities to integrate actions into existing and developing regional and sub-regional initiatives, plans and strategies. The City of Edmonton is committed to working with regional partners to find shared goals around the transition that will support common approaches and prosperity in the region. The conversations and partnerships on energy transition are beginning to emerge and will continue to develop in the coming years.

Actions outlined in the 1.5 Climate Change Action Plan can be classified under three general categories as it relates to the Edmonton metropolitan region:

- (1) actions that the City is doing that could, at the right time, be expanded or scaled up to include other municipalities so as to increase the reach and impact of a City program or initiative (i. e. incentive programs, group/aggregated purchasing of renewable energy ; partnerships to scale up nature based solutions) ;
- (2) actions within established voluntary regional or sub-regional frameworks, as well as new voluntary collaborative initiatives that could be initiated jointly with willing municipal partners (i.e. waste to energy initiative, hydrogen production and distribution network expansion, common regulation or policy approaches; planning for the needs of CO2 infrastructure (CO2 pipelines, CCU/S corridors, etc.); and

- (3) actions that would apply to plans and associated policies that are required under the Municipal Government Act or regulation (i.e. updating the Edmonton Metropolitan Region Board (EMRB) Growth Plan or actions on waste management that support the EMRB's Metropolitan Region Servicing Plan).

Additional direct dialogue with neighbours and at regional tables is needed following City Council's approval of the action plan to determine areas of common ground and focus for possible future collaboration among municipalities in the Edmonton Metropolitan Region.

ACCELERATION APPROACH

Irreversible climate change is already happening, and impacts are being felt around the world. The window to act in order to avoid the most damaging effects is quickly closing, requiring accelerated efforts to reduce greenhouse gas emissions. There is an urgency to deliver on climate change mitigation actions. This urgency is balanced with an understanding that significant action will continue to be required for decades beyond the ten year action plan. The transformational impacts of some of the actions initiated in the next decade may not be evident until several years after their inception. The acceleration approach has three phases:



THE APPROACH CONT'D

PHASE 1: CONNECTING (2020–2022)

The first phase of accelerated action is **Connecting**. This phase connects our level of ambition with a plan to achieve that ambition, by updating the current Energy Transition Strategy and developing the Action Plan. The Action Plan sets Edmonton on the path to do our part in limiting average global warming to 1.5°C. This phase connects the need for more urgent action to current initiatives, by accelerating initiatives (where possible), and launching new budgeted initiatives. This phase connects the network of businesses, institutions, academia, community groups and residents who will collectively make this energy transition happen. This phase connects our plan with regional, provincial and federal initiatives. Finally, this phase connects our ambition to the financial resources needed for Phase 2 of acceleration. Phase 1 includes building the foundation to implement and scale up further accelerated and transformative climate actions, and connecting climate action to other transformative initiatives underway. In this phase transformational decisions will begin, the impacts of which will be evident in the decades to come.

PHASE 2: ACCELERATING (2023–2030)

The second phase of accelerated action is **Accelerating**. This phase requires rapid and significant scaling up of existing programs, as well as the launch of several new initiatives, actions, programs and services. This will need to be done quickly and strategically, in order to create a large emissions reduction impact and economic prosperity in a just and equitable way. This phase includes actions that will transform our city and economy in the coming decades. The Accelerating phase of the 10 year 1.5 Climate Action Plan builds on work initiated in the Connecting phase to further accelerate Edmonton's climate response and begin the transformational change required to meet our 2050 goal. This is a critical decade in the energy transition, and so too are the actions of this phase.

PHASE 3: TRANSFORMING (2031–2050)

The third phase of accelerated action is **Transforming**. This phase builds off the rapid and significant scaling up during Phase 2. This phase sees the outcome of earlier transformational decisions that are changing our city: our energy systems, the way we move around, and the buildings in which we live, work and play. While the actions taken in the previous phases will initiate and enable this transformational change, ongoing transformational actions will be needed, in order to achieve carbon neutrality or net zero emissions.

IMPLEMENTATION APPROACH

The Energy Transition Strategy and Action Plan require an agile and smart implementation approach. This means knowing if, and what type of, an initiative is needed and knowing when government action is no longer required, or at least not required in the same way.

While the approach to achieving our greenhouse gas emissions targets requires multiple actions, not every action is required immediately or forever, and the solutions must respond to the challenge of new fiscal constraints. Though the majority of climate actions have a positive return on investment, they do impose an upfront cost, and it may not be feasible or realistic for those costs to be borne all at once.

Not only do we need to know when to enter into an action, we also need to know when to exit, stop, or change an action. Market transformation may reach a point when government intervention would no longer be required. Monitoring and review, as well as regular check-ins with City Council, will be required in order to implement effectively and in an accelerated manner.

THE APPROACH CONT'D

The proposed implementation approach:

- ▶ aligns with the City of Edmonton's Capital Project Development and Delivery approach, but includes an additional "monitoring" element that is not typical for infrastructure projects,
- ▶ provides a flexible overall framework to guide the management of the broad range of energy transition initiatives (ie. policy, infrastructure, etc.),
- ▶ ensures effective and efficient use of public funds,
- ▶ includes formal checkpoint reviews during different phases of the approach, and
- ▶ includes exceptions to allow for accelerated action to meet energy transition goals and targets where opportunities emerge.

KEY ELEMENTS OF THE IMPLEMENTATION APPROACH

The proposed implementation approach has four key elements:

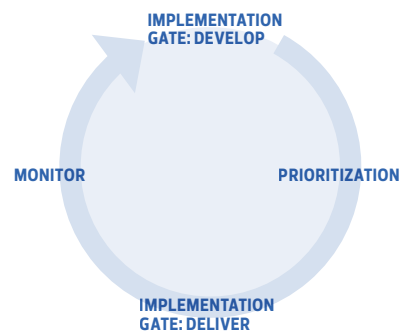
Levers of Change – are tools, actions or approaches that the City can use to enact change and achieve specific outcomes. The different outcomes of the strategy will require different actions, and the action might change at different times.

Implementation Gates – provide communication, check-in and approval opportunities as initiatives move through a development to delivery process. The gates are aligned with decision points (ie. What lever of change? Should the initiative be altered, proceed or be delayed? etc.).

Prioritization – part of the implementation gate process will include prioritization. Once it has been determined actions need to be taken, and how those actions should be delivered, prioritization will be conducted based on the carbon accounting framework and budget processes.

Thresholds and Monitoring – are the signals to be monitored to determine when to implement an action, when to change or modify our approach, or when to stop doing an action.

Figure 4 Energy Transition Implementation Approach



LEVERS OF CHANGE

The City Plan identifies levers of change that are tools, actions or approaches that the City can use to enact change and achieve specific outcomes. These levers are how the City can bring about a market transition and can be applied to the energy transition.

The City Plan identifies four levers of change: Partnership and Advocacy; Incentives, Pricing and Subsidies; Infrastructure Investment; and Policy and Regulation. Levers of change may need to be applied to varying degrees to achieve an Energy Transition outcome. In some cases, multiple levers will need to be used at the same time.

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.

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 off-setting 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 APPROACH CONT'D

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.

Policy and Regulation is a municipal planning instrument that can guide, direct, manage or shape how we provide strategic direction for land, infrastructure or services to influence or change the behaviour of residents and markets or market groups.

The four levers of change the City Plan identifies, are expanded to include a fifth lever in the Energy Transition context:

Activation is about providing awareness, filling knowledge gaps, and building capacity to encourage and support energy transition outcomes.

IMPLEMENTATION GATES

Implementation gates are a structured check-in and approval process that allows decision makers to set initial direction on priorities, and refine the initiative (if needed) prior to delivery. The implementation gate framework can be applied to a broad range of initiatives (ie. policy, infrastructure, etc.) and has an "exceptions process" for certain initiatives.

Implementation gates help to phase in distinct pieces of work related to the life-cycle of an initiative. Many initiatives or decisions will have a design life (ie. the period of time the initiative or service is needed and is relevant). At each gate there is a formal checkpoint review on whether or not to proceed to the next gate, or if adjustments are needed. This gated approach helps ensure that the right lever(s) of change is being implemented at the right time.

The gated implementation approach consists of three phases:

Develop – During this phase actions will be co-designed with stakeholders. The initiatives that will enter the "Develop" phase will be based on Council identified priorities through the City's long-term capital investment plan and Priority Based Budgeting (PBB) process. During this phase, planning and design decisions will be made, and the specific **Levers of Change** will be selected. A composite fund will support the work during this phase.

Deliver – During this phase, the developed actions and initiatives will be presented to Council for **Prioritization** through the carbon accounting framework and budgeting processes. During this phase operating and/or Capital funding requirements will be identified. Those initiatives that are funded by Council will be delivered (ie. the infrastructure would be constructed, services launched for residents or businesses, policy enacted, etc.).

Monitor – A monitoring and evaluation framework will be developed to track the signals that will determine when to modify an initiative approach, or when to exit the service, program or action.

EXCEPTIONS

Similar to the City of Edmonton's Capital Project Development and Delivery approach, the following exceptions to the gated implementation approach are proposed: i) low risk initiatives; and ii) initiatives that meet criteria for acceleration.

Low risk initiatives, in the Energy Transition Strategy context, are those that maintain a composite budget profile or can be integrated into existing City programs and services with minimum re-alignment or without additional resources.

THE APPROACH CONT'D

Acceleration criteria are the basis for when an initiative will not need to follow the gated approach. This acceleration criteria include:

- ▶ Opportunities to leverage external funding;
- ▶ Opportunities for delivery at significantly reduced costs; or
- ▶ Council directed priority projects.

PRIORITIZATION

Once actions have been vetted through the implementation gates process, prioritization of the actions based on an integrated carbon and overall capital and operating budget.

Similar to a financial budget, a **Carbon Budget** includes revenues (annual emission limit), expenses (emissions) and deficits/surpluses (annual emission limit minus emissions). The Carbon Budget aligns with decision-making frameworks used by local governments for capital and operating budgets, frameworks in which investments, costs and benefits are assessed over multiple years and often involve trade-offs between early action and deferred spending. When combined with effective monitoring of emissions, the Carbon Budget also provides a framework for reporting progress on a consistent basis from year-to-year.

Central to the success of Carbon Budgeting is a **Carbon Accounting Framework** to support the quantitative tracking and management of greenhouse gas emissions throughout the community. The accounting framework must contain the periodic emission inventories that provide the most accurate reading of overall progress toward achieving the level of emissions specified in the Carbon Budget. It must also support the quantification of the expected and actual emission impacts of the City's policies, practices and spending decisions, as well as the community emission impacts of initiatives of households, firms, utilities and other levels of government.

THRESHOLDS AND MONITORING

Many initiatives or decisions will have a design life (ie. the period of time the initiative or service is needed and is relevant). To understand when an initiative or service has reached the end of its design life, various indicators will need to be tracked. This will require thresholds and signals to be defined.

Signals can be thought of as indicators. The signals will need to be reliable, comparable, and understandable. Signals can be economic, social, and/or energy market related. There may be signals that are specific to certain initiatives and there may be signals that apply to a suite of initiatives.

Thresholds are the point at which the effects of the initiative are observed. Reaching a threshold does not mean we have achieved the overall target, but it is the point where progress towards or deviation from the outcome is becoming evident. Once a defined threshold is reached, a decision point will be triggered. This decision point can be to plan an exit for the service/initiative or direction to re-enter into the Design and Deliver implementation gate process to identify the next approach to take (ie. Does the initiative need to be modified? Is a different lever of change required? Is the initiative still required?).



REPORTING

To track progress towards the overall targets and goals in each path, indicators and measures will be established and monitored for City initiatives or actions contemplated by the Charter.

This will include, but may not be limited to, public reporting on:

- ▶ greenhouse gas emission levels of City-owned buildings, facilities and fleets of vehicles
- ▶ initiatives, actions and progress to: improve energy efficiency of City-owned buildings, facilities and fleet of vehicles; develop and encourage the development of renewable electricity; mitigate the effects of climate change
- ▶ how the City has taken greenhouse gas emissions into account in decision making, and
- ▶ Progress of programs designed to support the community transition.

To ensure Edmontonians are kept informed on Edmonton's progress regular public reporting and communication of results will be conducted. Annual reporting led by City of Edmonton Administration will report on both qualitative and quantitative indicators to demonstrate the progress of the Energy Transition Strategy, including any assessed trends. Reporting will be through:

- ▶ Annual Implementation Progress Report to Council that will be shared on the City of Edmonton's website.
- ▶ Energy transition strategy performance updates related to ConnectEdmonton Indicators (specifically: Community Greenhouse Gases, Energy Use, and Renewable Electricity Generation) and City Plan's low carbon city targets (specifically: Achieve total community-wide carbon budget of 135 megatonnes Two million new urban trees planted Net per-person GHG emissions are Zero) will be regularly communicated through reports and the City's open data platform.
- ▶ Council and Committee Reports relating to Charter requirements, including the initiatives and actions indicated above, will be clearly identified and will be retained on the publicly accessible City of Edmonton website.

TAKING ACTION

Successful implementation and mobilizing community action will require continued engagement with residents and implementation partners. This work is collaborative and dynamic in nature, requiring ongoing engagement during implementation. Further engagement opportunities will be identified and provided to Edmontonians during implementation. The conversations are just beginning on how we achieve our ambitious goals. Though the approach to engagement may differ for various initiatives, it is clear all voices and actors are needed to achieve a prosperous, just and equitable energy transition.

The energy transition is a key part of Edmonton's and Alberta's future. This work will position us to respond to changing global markets, while creating prosperity, economic diversity, and supporting Edmontonians in a just and equitable way. This work is transformative in nature. This updated strategy takes action to the next level where Edmonton's long term goals can be achieved.



DEFINITIONS

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.

Bitumen Beyond Combustion Initiatives that convert bitumen constituents into high-value non-fuel products.

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 Neutral A carbon neutral community is a community where the net per-person greenhouse gas emissions is zero.

Carbon Offset A reduction in emissions of carbon dioxide or greenhouse gases made in order to compensate for or to offset an emission made elsewhere.

Climate The average weather over a long period of time – several decades, centuries or millennia.

Climate Change Mitigation Plan A plan for the purpose of addressing and mitigating the effects of climate change as required by section 615.4 of the City Charter.

CO₂E / Carbon Dioxide Equivalent A standard unit for measuring carbon footprints. The idea is to express the impact of each different greenhouse gas in terms of the amount of CO₂ that would create the same amount of warming.

Energy Although more technical definitions exist, in this strategy the term “energy” refers to the full range of energy sources we rely on to meet our wants and needs. It includes both renewable and non-renewable energy sources.

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

Emission Neutral Building An emission neutral building is one that is highly energy efficient and uses only renewable energy for its operations, OR produces and supplies onsite renewable energy in an amount sufficient to offset the annual greenhouse gas emissions associated with its operations.

Energy Efficiency This term refers to how effectively energy is being used for a given purpose. For example, providing a similar (or better) level of service with less energy consumption on a per unit basis is considered an improvement in energy efficiency.

Energy Poverty Energy poverty refers to the inability of a household to maintain ‘adequate’ access to energy services at reasonable cost. By adequate, we mean a level of energy consumption in the home necessary to meet basic health and well-being needs.

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



DEFINITIONS CONT'D

Green Energy Green energy 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.

Green Technology Green technology has a sustainability focus and can be related to: renewable power supply and alternative energy, energy storage and grid infrastructure; green buildings and energy efficiency; and green transportation.

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

Low Carbon City A city that has a minimal output of greenhouse gases into the environment biosphere

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

Market Transformation A four stage approach including (1) awareness and education, (2) capacity building, (3) incentives and (4) regulations and competitive market mechanisms) designed to achieve a specific market outcome.

Mitigation Efforts that slow climate change by reducing or preventing the release of greenhouse gases to the atmosphere.

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.

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 comes from resources which are naturally replenished on a human timescale such as sunlight, wind, rain, tides, waves and geothermal heat

Smart Grid A Smart Grid uses technology and equipment to enable two way communication on the electrical grid (between the energy producer and customer) to respond to changing demand.

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

15 Minute Districts Geographic areas of the city where Edmontonians can meet as many of their daily needs as possible within approximately 15 minutes from work or home by bike, bus or foot.



REFERENCES

- 1 International Energy Agency (2020) World Energy Outlook Special Report – Sustainable Recovery
- 3 The Global Commission on the Economy and Climate (2018) Unlocking the Inclusive Growth Story of the 21st Century: Accelerating Climate Action in Urgent Times.
- 3,4 We Mean Business (2016) The Paris Agreement What It Means For Business
- 5 Government of Canada, Clean Growth Hub
- 6 Canada's Economic Strategy Tables (2018) The Innovation and Competitiveness Imperative: Seizing Opportunities for Growth Report of Canada's Economic Strategy Tables: Clean Technology
- 7 Maclean's (June 29, 2020) Industry leaders call for bold green recovery in open letter
- 8 The Delphi Group (2019) Edmonton's Green Energy Economy Summary Report
- 9 Edmonton Global (September 1, 2020) ATCO to Build Alberta's First Hydrogen Blending Project with ERA Support



**THE ENERGY
TRANSITION IS
A KEY PART OF
EDMONTON'S AND
ALBERTA'S FUTURE.
THIS WORK WILL
POSITION US
TO RESPOND
TO CHANGING
GLOBAL MARKETS,
WHILE CREATING
PROSPERITY,
ECONOMIC
DIVERSITY, AND
SUPPORTING
EDMONTONIANS
IN A JUST AND
EQUITABLE WAY.**

An aerial photograph of a steel truss bridge spanning a river, surrounded by dense green trees and a forested hillside. The image is overlaid with a semi-transparent blue gradient that fades from the top left towards the bottom right. The text 'ACTION PLAN' is centered in the middle of the image in a large, white, bold, sans-serif font.

ACTION PLAN

The Action Plan will be advanced through Implementation Gates. During the "Deliver" phase of the gated implementation approach, developed actions and initiatives will be presented to Council for Prioritization through the integrated financial and carbon accounting framework and priority based budgeting processes.

During this phase operating and/or capital funding requirements will be identified. Initiatives identified for delivery in 2021-2022 timeframe will be delivered as per current funding levels. Those initiatives that receive funding in the 2023-2026 and 2027-2030 budget cycles will be delivered.

PATHWAY 1: RENEWABLE AND RESILIENT ENERGY TRANSITION

ACTION	IMPLEMENTATION INITIATED	GHG REDUCTION POTENTIAL	COE FUNDING REQUIREMENTS	BIG WINS	QUICK WINS	FEDERAL/PROVINCIAL FUNDING
1.1. Engage in ongoing dialogue with Memorandum of Understanding partners on ownership and participation opportunities of Indigenous Peoples in the energy transition. City Plan Policy Intention 3.1.1: Support the ability of First Nations, Métis and Inuit peoples to celebrate, grow and flourish.	2021-2022		\$			
1.2. Advocate for a low cost and low carbon energy supply for Edmontonians and businesses. City Plan Policy Intention 1.4.1 Support Edmontonians' transition to a low carbon future in their daily lives & 3.4.2 Support innovation and private investment in climate-resilient industries and businesses.	2021-2022		\$			
1.3. Implement regulatory and policy changes to enable renewable energy access to support wide-spread adoption on appropriate land uses. City Plan Policy Intention 1.4.1 Support Edmontonians' transition to a low carbon future in their daily lives; Direction 1.4.1.3 Facilitate the use of local renewable energy.	2021-2022		\$		●	
1.4. Increase and expand the existing Solar Incentive Rebate Program. City Plan Policy Intention 1.4.1 Support Edmontonians' transition to a low carbon future in their daily lives & 3.4.2 Support innovation and private investment in climate-resilient industries and businesses.	2021-2022		\$\$\$	●		Desired
1.5. Provide incentives for battery storage for green power systems. City Plan Policy Intention 1.4.1 Support Edmontonians' transition to a low carbon future in their daily lives & 3.4.2 Support innovation and private investment in climate-resilient industries and businesses.	2023-2026		\$\$			Desired
1.6. Support group/aggregated purchasing of renewable energy (i.e. electricity and gas). City Plan Policy Intention 1.4.1 Support Edmontonians' transition to a low carbon future in their daily lives; Direction 1.4.1.5 Provide supports for residents, organizations and businesses to reduce energy use and greenhouse gas emissions and adapt to climate change.	2023-2026		\$	●		
1.7. Support community, cooperative and Indigenous owned renewable energy projects. City Plan Policy Intention 1.4.1 Support Edmontonians' transition to a low carbon future in their daily lives; Direction 1.4.1.5 Provide supports for residents, organizations and businesses to reduce energy use and greenhouse gas emissions and adapt to climate change.	2023-2026		\$			Desired
1.8. Advance regional initiatives for future energy systems (i.e. geothermal, hydrogen, waste-to-energy, fusion, etc.), supply chains and infrastructure including the scale up/expansion of the hydrogen production and distribution network. City Plan Policy Intention 3.4.2 Support innovation and private investment in climate-resilient industries and businesses and 6.4.1 Promote economic development opportunities to support energy transition.	2021-2022		\$		●	
1.9. Advance regional initiatives and attract investment and technology start-ups that build on the region's energy resources and innovation strengths, such as innovation related to bitumen-beyond-combustion industries (such as carbon fibres, plastics and polymers), lithium refinement and manufacturing industries and artificial intelligence for smart grid and building automation, including battery storage. City Plan Policy Intention 3.4.2 Support innovation and private investment in climate-resilient industries and businesses and 6.4.1 Promote economic development opportunities to support energy transition.	2023-2026		\$			Desired
1.10. Collaborate with utilities for a neighbourhood scale hydrogen heating pilot. City Plan Policy Intention 1.4.1 Support Edmontonians' transition to a low carbon future in their daily lives & 6.4.1 Promote economic development opportunities to support energy transition; Direction: 6.4.1.2 Partner with businesses and organizations testing and implementing new-to-Edmonton solutions and technologies that support increased climate resilience.	2023-2026		\$	●		

Early Successes

- ▶ Approval and funding of the Downtown District Energy System
- ▶ Launch of Change Homes for Climate: Residential Solar Program that offers a rebate to install rooftop solar and is complemented by an online solar potential map.
- ▶ Installation of solar PV systems on:
 - Meadow's Fire Station
 - Queen Elizabeth Pool
 - Davies Garage
 - Jasper Place Fire Hall
 - Blatchford Energy One
 - 12 additional facilities planned in 2021
- ▶ 200 kilowatts of building-integrated PVs were installed as part of the Edmonton Convention Centre's atrium glazing replacement project.
- ▶ The Enerkem Alberta Biofuels waste-to-biofuel operation is the world's first commercial-scale facility designed to turn household garbage into biofuels and renewable chemicals. Located at the Edmonton Waste Management Centre, it was designed to process 100,000 tonnes per year of municipal, solid waste and turn it into 38 million litres of biofuel.

LEGEND

- High Impact (replaces carbon intensive energy and is scalable)
- Moderate Impact (reduces emissions)
- Enabling Impact (does not directly reduce GHG emissions, but enables low carbon city outcomes)
- \$\$\$ High Funding Requirements (>\$20,000,000)
- \$\$ Moderate Funding Requirements (\$1,000,000 - \$20,000,000)
- \$ Low Funding Requirements (<\$1,000,000)

Big Wins: Actions that have potential to significantly reduce greenhouse gas emissions while also supporting other Big Moves in The City Plan

Quick Wins: Actions that are easier to implement and support multiple City Plan targets

Federal/Provincial Funding: Actions that "require" funding to advance, or actions where funding is "desired" to scale and accelerate

PATHWAY 1: RENEWABLE AND RESILIENT ENERGY TRANSITION CONT'D

ACTION	IMPLEMENTATION INITIATED	GHG REDUCTION POTENTIAL	COE FUNDING REQUIREMENTS	BIG WINS	QUICK WINS	FEDERAL/PROVINCIAL FUNDING
1.11. Advance licenses and partnerships through Advanced Energy Research Facility to continue to drive innovation in bioenergy and renewable resource areas. City Plan Policy Intention 3.4.2 Support innovation and private investment in climate-resilient industries and businesses; Direction: 3.4.2.1 Prioritize climate-related research, industry, technology and businesses through partnerships, programs, processes and grants.	2021-2022		\$			
1.12. Market and promote local clean tech products, projects and services and provide support programs for connecting local business to opportunities in the low carbon economy with regional economic development partners (e.g. Edmonton Global). City Plan Policy Intention 6.4.1 Promote economic development opportunities to support energy transition; Direction: 6.4.1.2 Partner with businesses and organizations testing and implementing new-to-Edmonton solutions and technologies that support increased climate resilience.	2023-2026		\$			
1.13. The City of Edmonton leads by example by purchasing 100% renewable electricity for civic operations. City Plan Policy Intention 2.4.2 Ensure public buildings and infrastructure are sustainable and resilient	2021-2022		\$\$		●	
1.14. The City leads by example by installing renewable energy systems on municipal buildings as outlined in an updated Civic Operations GHG Management Plan. City Plan Policy Intention 2.4.1 Ensure public buildings and infrastructure are sustainable and resilient	2021-2022		\$\$			Desired
1.15. Develop a district heating and cooling energy network strategy, identifying potential primary district energy nodes. City Plan Policy Intention 2.4.2 Ensure public buildings and infrastructure are sustainable and resilient; Direction 2.4.2.2 Enable green energy generation and distribution systems.	2021-2022		\$			
1.16. Begin development of the first two primary district energy nodes in Blatchford and Downtown. City Plan Policy Intention 2.4.2 Ensure public buildings and infrastructure are sustainable and resilient; Direction 2.4.2.2 Enable green energy generation and distribution systems.	2021-2022		\$\$\$	●		Desired
1.17. Further expand the district energy network into primary district energy nodes through facilitation of mutually beneficial partnerships between industry, communities and the City that re-risks private investment. City Plan Policy Intention 2.4.2 Ensure public buildings and infrastructure are sustainable and resilient; Direction 2.4.2.2 Enable green energy generation and distribution systems.	2023-2026		\$\$\$	●		Desired
1.18. Collaborate with district energy system owners and operators to advance low carbon energy sources for the systems. City Plan Policy Intention 2.4.2 Ensure public buildings and infrastructure are sustainable and resilient; Direction 2.4.2.2 Enable green energy generation and distribution systems.	2023-2026		\$			
1.19. Maximize the production of renewable energy from waste and implement and expand organics capture and processing and alternate processing methods for non-organic feedstock City Plan Policy Intention 1.4.1 Support Edmontonians' transition to a low carbon future in their daily lives; Direction 1.4.1.4 Avoid waste at its source, improve diversion rates and reuse and recover resources	2023-2026		\$\$			
1.20. Develop waste reduction and materials recovery roadmaps that aim to minimize emissions. City Plan Policy Intention 1.4.1 Support Edmontonians' transition to a low carbon future in their daily lives; Direction 1.4.1.4 Avoid waste at its source, improve diversion rates and reuse and recover resources	2023-2026		\$			

LEGEND

- High Impact (replaces carbon intensive energy and is scalable)
- Moderate Impact (reduces emissions)
- Enabling Impact (does not directly reduce GHG emissions, but enables low carbon city outcomes)
- \$\$\$ High Funding Requirements (>\$20,000,000)
- \$\$ Moderate Funding Requirements (\$1,000,000 - \$20,000,000)
- \$ Low Funding Requirements (<\$1,000,000)

Big Wins: Actions that have potential to significantly reduce greenhouse gas emissions while also supporting other Big Moves in The City Plan

Quick Wins: Actions that are easier to implement and support multiple City Plan targets

Federal/Provincial Funding: Actions that "require" funding to advance, or actions where funding is "desired" to scale and accelerate

PATHWAY 2: EMISSION NEUTRAL BUILDINGS

ACTION	IMPLEMENTATION INITIATED	GHG REDUCTION POTENTIAL	COE FUNDING REQUIREMENTS	BIG WINS	QUICK WINS	FEDERAL/PROVINCIAL FUNDING
<p>2.1. Establish an industry advisory group for ongoing advice and recommendations for advancing the emission neutral building pathway. City Plan Policy Intention 2.4.1 Support ecological function and energy efficiency of Edmonton's built environment; Direction 2.4.1.3 Pursue emissions-neutral and net-positive infrastructure, buildings and neighbourhoods</p>	2021-2022		\$			
<p>2.2. Provide incentives for new construction to build above Building Code. Incentives will be performance based and increase as follows: 2022 Tier 1; 2025 Tier 2; and 2028 Tier 3. The industry advisory group will provide ongoing advice on the incentives. City Plan Policy Intention 2.4.1 Support ecological function and energy efficiency of Edmonton's built environment; Direction 2.4.1.3 Pursue emissions-neutral and net-positive infrastructure, buildings and neighbourhoods and City Plan Policy Intention 1.4.1 Support Edmontonians' transition to a low carbon future in their daily lives; Direction 1.4.1.5 Provide supports for residents, organizations and businesses to reduce energy use and greenhouse gas emissions and adapt to climate change.</p>	2023-2026	■	\$		●	
<p>2.3. Establish an Emission Neutral Building Knowledge Exchange collaborative platform/hub that includes working with collaborators, such as post secondary institutes, on training. City Plan Policy Intention 1.4.1 Support Edmontonians' transition to a low carbon future in their daily lives; Direction 1.4.1.5 Provide supports for residents, organizations and businesses to reduce energy use and greenhouse gas emissions and adapt to climate change.</p>	2021-2022		\$		●	
<p>2.4. Develop a Cost Sharing Database for information on emission neutral building costs. City Plan Policy Intention 1.4.1 Support Edmontonians' transition to a low carbon future in their daily lives; Direction 1.4.1.5 Provide supports for residents, organizations and businesses to reduce energy use and greenhouse gas emissions and adapt to climate change.</p>	2023-2026		\$			
<p>2.5. Continue the Building Blocks information and discussion series to support learning and discussions on high performance buildings, and industry best practices. City Plan Policy Intention 1.4.1 Support Edmontonians' transition to a low carbon future in their daily lives; Direction 1.4.1.5 Provide supports for residents, organizations and businesses to reduce energy use and greenhouse gas emissions and adapt to climate change.</p>	2021-2022		\$			
<p>2.6. Include emission neutral building information in City of Edmonton newsletters for regular communication and expand Change for Climate consumer and tenant resources to include resources on life-cycle costs and other benefits of emission neutral buildings City Plan Policy Intention 1.4.1 Support Edmontonians' transition to a low carbon future in their daily lives; Direction 1.4.1.5 Provide supports for residents, organizations and businesses to reduce energy use and greenhouse gas emissions and adapt to climate change.</p>	2021-2022		\$			
<p>2.7. Accelerate and expand existing building retrofit programs to provide incentives to improve energy efficiency in existing homes and commercial buildings. City Plan Policy Intention 2.4.1 Support ecological function and energy efficiency of Edmonton's built environment; Direction 2.4.1.3 Pursue emissions-neutral and net-positive infrastructure, buildings and neighbourhoods and City Plan Policy Intention 1.4.1 Support Edmontonians' transition to a low carbon future in their daily lives; Direction 1.4.1.5 Provide supports for residents, organizations and businesses to reduce energy use and greenhouse gas emissions and adapt to climate change.</p>	2021-2022	■	\$\$\$	●		Desired
<p>2.8. Continue offering voluntary energy labelling and disclosure programs that include financial and non-financial incentives. City Plan Policy Intention 1.4.1 Support Edmontonians' transition to a low carbon future in their daily lives; Direction 1.4.1.5 Provide supports for residents, organizations and businesses to reduce energy use and greenhouse gas emissions and adapt to climate change.</p>	2021-2022		\$			
<p>2.9. Explore mandatory energy benchmarking, disclosure, and labelling bylaws. City Plan Policy Intention 1.4.1 Support Edmontonians' transition to a low carbon future in their daily lives; Direction 1.4.1.5 Provide supports for residents, organizations and businesses to reduce energy use and greenhouse gas emissions and adapt to climate change.</p>	2027-2030		\$			
<p>2.10. Collaborate with energy utility companies to develop market-wide, electronic access to energy consumption data for all buildings. City Plan Policy Intention 1.4.1 Support Edmontonians' transition to a low carbon future in their daily lives; Direction 1.4.1.5 Provide supports for residents, organizations and businesses to reduce energy use and greenhouse gas emissions and adapt to climate change.</p>	2023-2026		\$			
<p>2.11. Encourage voluntary reporting of embodied carbon emissions in new construction. City Plan Policy Intention 2.4.1 Support ecological function and energy efficiency of Edmonton's built environment; Direction 2.4.1.3 Pursue emissions-neutral and net-positive infrastructure, buildings and neighbourhoods</p>	2027-2030		\$			

Early Successes

- ▶ Launch of Change Homes for Climate's voluntary home energy labelling program that offers rebates for EnerGuide home energy evaluations. The corresponding EnerGuide labels are shared publicly on Edmonton's Home Energy Map.
- ▶ Launch of Change Homes for Climate: Home Energy Retrofit Accelerator, a program that offers rebates to homeowners for energy efficiency retrofit investments.
- ▶ Launch of Change Buildings for Climate: Building Energy Retrofit Accelerator, a program that provides rebates for energy efficiency retrofits on commercial buildings 10,000 sq ft and larger.
- ▶ Launch of Building Energy Benchmarking Program, a voluntary program that invites Edmonton's large commercial, institutional, industrial and multi-family buildings to submit their energy performance data to the City for benchmarking and disclosure purposes - the first program of its kind to be hosted by a municipality in Canada.
- ▶ 120 City of Edmonton buildings (all buildings eligible for participation) disclosing their energy performance. 5 city of Edmonton buildings BOMA Best certified, with an additional 15 in the certification process.

LEGEND

- High Impact (replaces carbon intensive energy and is scalable)
- Moderate Impact (reduces emissions)
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- \$\$\$ High Funding Requirements (>\$20,000,000)
- \$\$ Moderate Funding Requirements (\$1,000,000 - \$20,000,000)
- \$ Low Funding Requirements (<\$1,000,000)

Big Wins: Actions that have potential to significantly reduce greenhouse gas emissions while also supporting other Big Moves in The City Plan

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PATHWAY 2: EMISSION NEUTRAL BUILDINGS CONT'D

ACTION	IMPLEMENTATION INITIATED	GHG REDUCTION POTENTIAL	COE FUNDING REQUIREMENTS	BIG WINS	QUICK WINS	FEDERAL/ PROVINCIAL FUNDING
<p>2.12. Continue to apply energy efficiency criteria as part of the affordable housing grant program, and establish incentives for energy efficient/emission neutral affordable housing, reducing energy costs and increasing total affordability. City Plan Policy Intention 2.4.1 Support ecological function and energy efficiency of Edmonton's built environment & 1.3.3 Support the elimination of poverty, its root causes and disparity in Edmonton's communities.</p>	2021-2022	High Impact	\$			
<p>2.13. Pilot a home renovation program designed to address energy poverty and implement income-based programs to help residents living in energy poverty make their homes more energy efficient, access renewable energy and realize benefits of energy transition. City Plan Policy Intention 2.4.1 Support ecological function and energy efficiency of Edmonton's built environment & 1.3.3 Support the elimination of poverty, its root causes and disparity in Edmonton's communities.</p>	2021-2022	High Impact	\$\$	●		Desired
<p>2.14. Forecast, track and report on energy poverty while collaborating with existing poverty reduction initiatives to lessen energy burden in Edmonton. City Plan Policy Intention 1.3.3 Support the elimination of poverty, its root causes and disparity in Edmonton's communities.</p>	2023-2026	Enabling Impact	\$			
<p>2.15. Support, retain and grow green technology and service businesses in the region that are locally owned and controlled by diverse groups, and market and promote local green building expertise, innovation, technologies, products and services with regional economic development partners. City Plan Policy Intention 6.4.1 Promote economic development opportunities to support energy transition & 3.4.2 Support innovation and private investment in climate-resilient industries and businesses; Direction: 3.4.2.1 Prioritize climate-related research, industry, technology and businesses through partnerships, programs, processes and grants.</p>	2023-2026	Enabling Impact	\$			Desired
<p>2.16. The City leads by example by setting an emission neutral building standard for new City buildings. City Plan Policy Intention 2.4.1 Ensure public buildings and infrastructure are sustainable and resilient</p>	2021-2022	High Impact	\$		●	Desired
<p>2.17. The City leads by example by retrofitting municipal buildings as outlined in an updated Civic Operations GHG Management Plan. City Plan Policy Intention 2.4.1 Ensure public buildings and infrastructure are sustainable and resilient</p>	2023-2026	High Impact	\$\$\$	●		Required
<p>2.18. The City leads by example by reporting and disclosing the energy performance of City-owned buildings. City Plan Policy Intention 2.4.1 Ensure public buildings and infrastructure are sustainable and resilient</p>	2021-2022	Enabling Impact	\$			
<p>2.19. The City leads by example by implementing embodied carbon disclosure into procurement processes of building materials and products. City Plan Policy Intention 2.4.1 Ensure public buildings and infrastructure are sustainable and resilient</p>	2023-2026	High Impact	\$		●	

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PATHWAY 3: LOW CARBON CITY AND TRANSPORTATION

ACTION	IMPLEMENTATION INITIATED	GHG REDUCTION POTENTIAL	COE FUNDING REQUIREMENTS	BIG WINS	QUICK WINS	FEDERAL/PROVINCIAL FUNDING
3.1. Implement City Plan and the Growth Management Framework policy directions and intentions related to climate change mitigation City Plan Policy Intention 1.4.1 Support Edmontonians' transition to a low carbon future in their daily lives; City Plan Policy Intention 2.2.1 Promote compact, mixed use development with districts that supports equitable access to employment, education and amenities; City Plan Policy Intention 2.2.3 Ensure that walkable and attractive mixed use development occurs at nodes and along corridors in a manner that is integrated with accessible mass transit; City Plan Policy Intention 2.3.1 Promote opportunities to accommodate growth through the compact development of new and existing neighborhoods; City Plan Policy Intention 2.4.1 Support ecological function and energy efficiency of Edmonton's built environment; City Plan Policy Intention 2.4.1 Ensure public buildings and infrastructure are sustainable and resilient	2021-2022		\$\$	●		
3.2. Implement regulatory and policy changes to enable sustainable and resilient development; City Plan Policy Intention 2.4.1 Support ecological function and energy efficiency of Edmonton's built environment; City Plan Policy Intention 2.4.1 Ensure public buildings and infrastructure are sustainable and resilient	2023-2026		\$		●	
3.3. Update Design and Construction Standards with sustainable and resilient elements; City Plan Policy Intention 2.4.1 Support ecological function and energy efficiency of Edmonton's built environment; City Plan Policy Intention 2.4.1 Ensure public buildings and infrastructure are sustainable and resilient	2021-2022		\$			
3.4. Create district plans that enable low carbon and climate resilient communities City Plan Policy Intention 2.2.1 Promote compact, mixed use development with districts that supports equitable access to employment, education and amenities; City Plan Policy Intention 2.2.3 Ensure that walkable and attractive mixed use development occurs at nodes and along corridors in a manner that is integrated with accessible mass transit; City Plan Policy Intention 4.2.1 Ensure that transportation investment supports urban intensification and diversification	2021-2022		\$			
3.5. Develop a process for considering emissions targets, climate change mitigation and adaptation, and protection of critical land uses such as agriculture and natural areas, as part of the land development application reviews; City Plan Policy Intention 2.4.1 Support ecological function and energy efficiency of Edmonton's built environment	2023-2026		\$			
3.6. Apply greenhouse gas emissions mitigations and sustainability and resilient elements to urban renewal projects and urban redevelopment; City Plan Policy Intention 2.4.1 Support ecological function and energy efficiency of Edmonton's built environment	2021-2022		\$		●	
3.7. Identify and begin planning for potential car free or low emissions zones or corridors in combination with active transportation and public realm improvements; City Plan Policy Intention 2.2.3 Ensure that walkable and attractive mixed use development occurs at nodes and along corridors in a manner that is integrated with accessible mass transit;	2023-2026		\$			
3.8. Accelerate Edmonton's EV-Readiness by supporting the installation of public EV charging infrastructure, and providing EV charging incentives; City Plan Policy Intention 4.4.1 Support a low-carbon mobility system	2021-2022		\$\$	●		Desired
3.9. Support zero emission vehicles via designated driving lanes, priority parking, or other measures; City Plan Policy Intention 4.4.1 Support a low-carbon mobility system	2027-2030		\$			
3.10. Collaborate and explore opportunities for utilization of hydrogen in the goods movement sector, including piloting a hydrogen fuel bus retrofit project with post secondary institutions; City Plan Policy Intention 4.4.1 Support a low-carbon mobility system	2023-2026		\$			Desired
3.11. Monitor and plan for the advancement of disruptive transportation technology City Plan Policy Intention 4.1.1 Support inviting and inclusive transportation options for Edmontonians of all ages, abilities and incomes	2021-2022		\$			
3.12. Support car, ride, bike and other micro-mobility sharing programs City Plan Policy Intention 4.1.1 Support inviting and inclusive transportation options for Edmontonians of all ages, abilities and incomes	2023-2026		\$			
3.13. Identify parking management strategies that enable better access by active, transit or shared modes of transportation; City Plan Policy Intention 1.4.1 Support Edmontonians' transition to a low carbon future in their daily lives	2023-2026		\$			
3.14. Identify and prioritize opportunities to reallocate road right of way to transit and active transportation City Plan Policy Intention 4.2.1 Ensure that transportation investment supports urban intensification and diversification	2023-2026		\$			

Early Successes

- Approval of the City Plan, the first municipal development plan in Canada to include a carbon budget, limiting the amount of greenhouse gases that can be emitted.
- Development of Blatchford, planned to be a carbon-neutral community for 30,000 residents that uses 100% renewable energy.
- Extension of Edmonton's LRT network and Edmonton Transit Services deployment of its first battery-electric buses into service, and single largest purchase of electric buses (40) in Canadian history
- Development of protected bike lanes in the downtown core and expansion of the bike network to connect beyond the core
- Adoption of Edmonton's Electric Vehicle Strategy and roll out of publicly accessible electric vehicle charging facilities
- Launch of Change Mobility for Climate: Edmonton's Electric Vehicle Charger program which provides incentives for investment in low GHG emission transportation options
- Energy performance clauses are considered for all sales and incorporated in most City property sale agreements.
- LED street light conversion program has replaced 60% of streetlights on collector and arterial roadways with LED lights. Over 9,000 lights have been converted to LED at LRT stations.

LEGEND

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PATHWAY 3: LOW CARBON CITY AND TRANSPORTATION CONT'D

ACTION	IMPLEMENTATION INITIATED	GHG REDUCTION POTENTIAL	COE FUNDING REQUIREMENTS	BIG WINS	QUICK WINS	FEDERAL/PROVINCIAL FUNDING
3.15. Develop an urban freight strategy that includes a focus on reducing emissions. City Plan Policy Intention 4.3.1 Ensure that the mobility system enables the efficient movement of people and goods within Edmonton and the Metropolitan Region	2027-2030		\$			
3.16. Create a Just and Equitable Transition Initiative for equity seeking groups that identifies challenges, solutions and participation opportunities City Plan Policy Intention 3.1.2 Support equity among the diverse communities that contribute to Edmonton's sense of place, wellness and identity	2023-2026		\$			
3.17. Support social connections in neighborhoods and communities through climate action. City Plan Policy Intention 3.4.1 Support Edmontonians in building individual and community capacity to take action on climate change	2023-2026		\$			
3.18. The City promotes the benefits of buying low carbon, local through its Change for Climate Program City Plan Policy Intention 1.4.1 Support Edmontonians' transition to a low carbon future in their daily lives; City Plan Policy Intention 3.4.2 Support innovation and private investment in climate resilient industries and businesses	2021-2022		\$			
3.19. The City develops a circular economy strategy that includes creating sharing platforms and enhancing Edmonton's sharing economy City Plan Policy Intention 1.4.1 Support Edmontonians' transition to a low carbon future in their daily lives	2023-2026		\$			
3.20. The City enhances the connection of businesses and industries to facilitate resource/waste sharing, including for local agricultural growers to identify waste heat locations that could be used to fuel operations City Plan Policy Intention 3.4.2 Support innovation and private investment in climate resilient industries and businesses	2023-2026		\$			
3.21. In partnership with the region, protect agricultural lands from further fragmentation and conversion to other land uses; City Plan Policy Intention 5.3.1 Support the conservation of agricultural land to reduce its loss and fragmentation and contribute to economic development and resilience of the food system	2021-2022		\$			
3.22. Promote urban agricultural activities and local farmers markets on appropriate land uses; City Plan Policy Intention 2.2.2 Ensure affordable housing and local food options to support social equity and meet the needs of all Edmontonians	2021-2022		\$			
3.23. Develop food waste reduction supports that includes a focus on redistribution of food to people in need; City Plan Policy Intention 2.2.2 Ensure affordable housing and local food options to support social equity and meet the needs of all Edmontonians	2021-2022		\$			
3.24. Promote further value-added agriculture facilities to reduce carbon footprint and improve food security; City Plan Policy Intention 2.2.2 Ensure affordable housing and local food options to support social equity and meet the needs of all Edmontonians	2023-2026		\$			
3.25. Further grow and improve Edmonton's walking and cycling infrastructure as per City Plan City Plan Policy Intention 4.1.1 Support inviting and inclusive transportation options for Edmontonians of all ages, abilities and incomes; City Plan Policy Intention 4.2.3 Ensure active transportation networks serve a variety of purposes including recreation, commuting, commerce and fun	2021-2022	High Impact	\$\$\$	●		Required
3.26. Develop a City-led transportation marketing program to support personalized low emission transportation plans City Plan Policy Intention 1.4.1 Support Edmontonians' transition to a low carbon future in their daily lives; City Plan Policy Intention 4.4.1 Support a low-carbon mobility system	2027-2030	Moderate Impact	\$			
3.27. Implement the Mass Transit network City Plan Policy Intention 4.1.1 Support inviting and inclusive transportation options for Edmontonians of all ages, abilities and incomes; City Plan Policy Intention 4.2.1 Ensure that transportation investment supports urban intensification and diversification	2021-2022	Moderate Impact	\$\$\$	●		Required
3.28. Implement the redesign of the transit system with a focus on increasing ridership through increased reliability and service improvements City Plan Policy Intention 4.1.1 Support inviting and inclusive transportation options for Edmontonians of all ages, abilities and incomes; City Plan Policy Intention 4.2.2 Ensure a mobility system where people can move seamlessly from one travel option to another to conveniently fulfill their daily needs	2021-2022	Moderate Impact	\$			

LEGEND

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PATHWAY 3: LOW CARBON CITY AND TRANSPORTATION CONT'D

ACTION	IMPLEMENTATION INITIATED	GHG REDUCTION POTENTIAL	COE FUNDING REQUIREMENTS	BIG WINS	QUICK WINS	FEDERAL/PROVINCIAL FUNDING
3.29. The City transitions the bus fleet and mass transit technologies to electric or alternative zero emissions fuel, including upgrading and building facilities/garages to accommodate electric or zero emissions fuel transit fleet; City Plan Policy Intention 4.4.1 Support a low-carbon mobility system	2021-2022	High Impact	\$\$\$	●		Desired
3.30. The City transitions its vehicles and motorized equipment with zero emissions models, including upgrading facilities and installing fleet charging infrastructure requirements; City Plan Policy Intention 4.4.1 Support a low-carbon mobility system	2023-2026	High Impact	\$\$			
3.31. The City develops alternative work strategies (i.e., telework strategies) for its staff City Plan Policy Intention 1.4.1 Support Edmontonians' transition to a low carbon future in their daily lives	2021-2022	Moderate Impact	\$		●	
3.32. Replace street lighting and traffic signal technology through the LED retrofit and replacement programs. City Plan Policy Intention 2.4.1 Support ecological function and energy efficiency of Edmonton's built environment;	2021-2022	High Impact	\$\$			
3.33. Develop a food production policy for City of Edmonton owned property and public space City Plan Policy Intention 2.2.2 Ensure affordable housing and local food options to support social equity and meet the needs of all Edmontonians	2023-2026	Enabling Impact	\$			

LEGEND

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\$\$\$ High Funding Requirements (>\$20,000,000)

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PATHWAY 4: CARBON CAPTURE AND NATURE BASED SOLUTION

ACTION	IMPLEMENTATION INITIATED	GHG REDUCTION POTENTIAL	COE FUNDING REQUIREMENTS	BIG WINS	QUICK WINS	FEDERAL/PROVINCIAL FUNDING
4.1. Accelerate work, including the expansion of the volunteer tree planting program, to plant an additional 2 million trees and protect the health of the existing canopy. City Plan Policy Intention 2.4.1 Support ecological function and energy efficiency of Edmonton's built environment	2021-2022	High Impact	\$\$	●		Required
4.2. Expand green infrastructure such as low impact development, naturalized and restoration areas, and green space, in existing and new developments. City Plan Policy Intention 2.4.1 Support ecological function and energy efficiency of Edmonton's built environment; City Plan Policy Intention 2.4.2 Ensure public buildings and infrastructure are sustainable and resilient	2021-2022	High Impact	\$\$		●	
4.3. Conserve and restore key carbon sequestration ecosystems and natural assets such as river valley, parkland, ravine, riparian areas, wetlands, natural forests, shrublands, and grasslands. City Plan Policy Intention 5.1.1 Ensure protection, enhancement and opportunities for access to open space and the river valley and ravine system; City Plan Policy Intention 5.1.2 Promote the conservation and restoration of natural systems to improve ecological connectivity and reduce habitat fragmentation; City Plan Policy Intention 1.4.2 Ensure Edmonton's air, land and water are safe and clean	2023-2026	High Impact	\$\$	●		Desired
4.4. Develop a conservation offset program based on the mitigation hierarchy framework. City Plan Policy Intention 1.4.2 Ensure Edmonton's air, land and water are safe and clean; Direction 1.4.2.1 Protect, restore, maintain and enhance a system of conserved natural areas within a functioning and interconnected ecological network.	2023-2026	High Impact	\$	●		
4.5. Establish a nature based solutions framework and program for the City of Edmonton that includes integrating nature based solutions into applicable planning documents, based on the International Union for Conservation of Nature Global Standard for Nature Based Solutions. City Plan Policy Intention 5.4.1 Ensure the safety and security of Edmonton's water supply, food systems, infrastructure and natural systems to support long-term resilience to flooding, droughts and extreme weather events; City Plan Policy Intention 1.4.2 Ensure Edmonton's air, land and water are safe and clean	2021-2022	Enabling Impact	\$			
4.6. Undertake a natural asset and infrastructure inventory and valuation assessment that includes an assessment of greenhouse gas sources and sinks and implementation of associated monitoring requirements. City Plan Policy Intention 5.3.3 Ensure consideration of full lifecycle costs and benefits when maintaining and renewing public infrastructure	2021-2022	Enabling Impact	\$			
4.7. Support research and collaborations to scale up nature based solutions. City Plan Policy Intention 5.4.1 Ensure the safety and security of Edmonton's water supply, food systems, infrastructure and natural systems to support long-term resilience to flooding, droughts and extreme weather events; City Plan Policy Intention 1.4.2 Ensure Edmonton's air, land and water are safe and clean	2023-2026	Enabling Impact	\$			
4.8. Identify opportunities for reallocating public spaces to allow for naturalization and restoration. City Plan Policy Intention 2.4.1 Support ecological function and energy efficiency of Edmonton's built environment; City Plan Policy Intention 5.1.1 Ensure protection, enhancement and opportunities for access to open space and the river valley and ravine system	2023-2026	Enabling Impact	\$			
4.9. Plan with regional partners for the needs of CO2 infrastructure (CO2 pipelines, CCU/S corridors, etc.) in a way that minimizes ecological impacts and promote carbon capture economic development opportunities City Plan Policy Intention 3.4.2 Support innovation and private investment in climate resilient industries and businesses and Ensure that development occurs in an orderly and safe manner to protect public health and the environment.	2021-2022	Enabling Impact	\$	●		
4.10. Identify an approach that mobilizes and tracks the voluntary carbon offsets purchased in the community. City Plan Policy Intention 1.4.1 Support Edmontonians' transition to a low carbon future in their daily lives	2023-2026	Enabling Impact	\$			
4.11. The City leads by example by launching the "first buyer" of low carbon and carbon captured products initiative. City Plan Policy Intention 3.4.2 Support innovation and private investment in climate resilient industries and businesses	2023-2026	High Impact	\$\$		●	
4.12. Continue to monitor offset efforts by other orders of government and explore pathways to offset community emissions/reach carbon neutrality. City Plan Policy Intention 1.4.1 Support Edmontonians' transition to a low carbon future in their daily lives	2021-2022	Enabling Impact	\$			
4.13. The City leads by example by updating the Civic Operations GHG Management Plan to include a pathway for offsetting residual emissions from municipal operations. City Plan Policy Intention 6.4.2 Ensure Edmonton plans and implements climate change mitigation, adaptation and resilience	2021-2022	High Impact	\$\$		●	

Early Successes

- ▶ Development and launch of Edmonton's Urban Primary Vegetation and Land Inventory that can be used to track how municipal greenhouse gas emission levels are being impacted by land use change, among other applications.
- ▶ 49+ hectares of turf area in Edmonton naturalized.
- ▶ 560+ hectares of priority natural areas secured.
- ▶ Development of the Ribbon of Green strategy that will support and sustain an interconnected river valley system.
- ▶ Purchasing Renewable Energy Credits to offset approximately 65% of the City of Edmonton's carbon emissions associated with its electricity use

LEGEND

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FOUNDATION: CLIMATE SOLUTION LEADERSHIP

ACTION	IMPLEMENTATION INITIATED	GHG REDUCTION POTENTIAL	COE FUNDING REQUIREMENTS	BIG WINS	QUICK WINS	FEDERAL/PROVINCIAL FUNDING
5.1. The City monitors and reports on the community's carbon budget and implements an integrated carbon and financial accounting framework into operating and capital budgeting decisions and priority setting. <small>City Plan Policy Intention 5.3.3 Ensure consideration of full lifecycle costs and benefits when maintaining and renewing public infrastructure</small>	2021-2022		\$	●		
5.2. The City transitions Climate Related Financial Disclosures into annual reports. <small>City Plan Policy Intention 5.3.3 Ensure consideration of full lifecycle costs and benefits when maintaining and renewing public infrastructure</small>	2021-2022		\$			
5.3. The City continues and improves monitoring of: i) corporate and community greenhouse gas emissions through both production and consumption based inventories, and ii) implementation of actions; and integrates energy transition targets and measures into the Enterprise Performance Management system. <small>City Plan Policy Intention 6.4.2 Ensure Edmonton plans and implements climate change mitigation, adaptation and resilience</small>	2021-2022		\$		●	
5.4. The City updates the Civic Operations GHG Management Plan to align with the updated Energy Transition Strategy outcomes. <small>City Plan Policy Intention 6.4.2 Ensure Edmonton plans and implements climate change mitigation, adaptation and resilience</small>	2021-2022		\$			
5.5. The City introduces an internal Carbon Reduction Cost Saving Program in which business areas reduce their emissions. This could be done through employee mode shift, utility savings from energy efficiency, workspace reduction, reduced printing, reduced waste, etc. <small>City Plan Policy Intention 3.4.1 Support Edmontonians in building individual and community capacity to take action on climate change</small>	2023-2026		\$			
5.6. The City aligns its policies and standards related to planning, development, construction, and procurement/supply chain with the goal of climate resilience. <small>City Plan Policy Intention 6.4.2 Ensure Edmonton plans and implements climate change mitigation, adaptation and resilience; City Plan Policy Intention 2.4.2 Ensure public buildings and infrastructure are sustainable and resilient</small>	2021-2022		\$			
5.7. The City establishes an internal Climate Action Leadership Task Force to support accelerated and focussed climate action. <small>City Plan Policy Intention 6.4.2 Ensure Edmonton plans and implements climate change mitigation, adaptation and resilience</small>	2021-2022		\$			
5.8. The Energy Transition and Climate Resilience Committee continues to advise City Council. <small>City Plan Policy Intention 6.4.2 Ensure Edmonton plans and implements climate change mitigation, adaptation and resilience</small>	2021-2022		\$			
5.9. The City advocates to, collaborates with, leverages and aligns with new government opportunities for bold climate action, standards, funding and additional powers. <small>City Plan Policy Intention 6.4.2 Ensure Edmonton plans and implements climate change mitigation, adaptation and resilience</small>	2021-2022		\$			
5.10. Advance climate change initiatives in collaboration with other municipalities in the Edmonton Region. <small>City Plan Policy Intention 2.4.2 Ensure public buildings and infrastructure are sustainable and resilient</small>	2021-2022		\$			
5.11. The City continues advancing the Edmonton Declaration, which has been endorsed by thousands of municipalities from around North America. <small>City Plan Policy Intention 6.4.2 Ensure Edmonton plans and implements climate change mitigation, adaptation and resilience</small>	2021-2022		\$			
5.12. The City continues implementation of the CitiesIPCC Legacy Research Grant Program to help advance the global research agenda on Cities and Climate Change science and help advance knowledge about how Edmonton can become an energy sustainable and climate resilient city. <small>City Plan Policy Intention 6.4.2 Ensure Edmonton plans and implements climate change mitigation, adaptation and resilience</small>	2021-2022		\$			
5.13. Collaborate with Climate Innovation Fund on initiatives to develop green economy solutions for Edmonton's carbon emission challenges. <small>City Plan Policy Intention 3.4.2 Support innovation and private investment in climate resilient industries and partnerships</small>	2021-2022		\$\$		●	Required
5.14. The City continues education, social marketing and outreach initiatives focused on communicating the solutions for taking action on climate change and supporting growing grassroots movements. <small>City Plan Policy Intention 3.4.1 Support Edmontonians in building individual and community capacity to take action on climate change</small>	2021-2022		\$			

Early Successes

- ▶ Local carbon budget calculated.
- ▶ Since the late 1990s, the City has calculated both Edmonton's community GHG emissions and corporate emissions.
- ▶ Edmonton hosted the first ever IPCC City and Climate Change Conference aimed to inspire the next frontier of research focused on the science of cities and climate change. This created:
 - The CitiesIPCC Legacy Research Grant Program which helps Edmonton to contribute to the Global Research and Action Agenda on Cities and Climate Change Science (Research Agenda),
 - The Edmonton Declaration, which has been endorsed by thousands of municipalities from around North America
- ▶ The creation of the Climate Innovation Fund, with \$22 million in funding from the federal government.
- ▶ Launch of Corporate Climate Leaders Program, where Edmonton corporations come together to analyze their own carbon footprints, create a reduction plan, and report their progress towards targets in a public forum so successes and challenges can be shared with their peers. The program includes 57 organizations, from large oil and gas companies to small, home-grown Edmonton businesses, all working to understand their emissions and taking action to reduce their carbon footprint.
- ▶ Awarded FCM GMF funding (loan/grant) to support a Clean Energy Improvement Program pilot that introduces an innovative financing tool that allows Edmonton residents and businesses to obtain affordable financing with a repayment mechanism that is built into the property tax system.
- ▶ Sustainable Procurement Policy includes environmental requirements to address climate resilience. The corresponding procedure prompts City buyers to consider the environment when making purchasing decisions

LEGEND

- High Impact (replaces carbon intensive energy and is scalable)
- Moderate Impact (reduces emissions)
- Enabling Impact (does not directly reduce GHG emissions, but enables low carbon city outcomes)
- \$\$\$ High Funding Requirements (>\$20,000,000)
- \$\$ Moderate Funding Requirements (\$1,000,000 – \$20,000,000)
- \$ Low Funding Requirements (<\$1,000,000)

Big Wins: Actions that have potential to significantly reduce greenhouse gas emissions while also supporting other Big Moves in The City Plan

Quick Wins: Actions that are easier to implement and support multiple City Plan targets

Federal/Provincial Funding: Actions that "require" funding to advance, or actions where funding is "desired" to scale and accelerate

FOUNDATION: CLIMATE SOLUTION LEADERSHIP CONT'D

ACTION	IMPLEMENTATION INITIATED	GHG REDUCTION POTENTIAL	COE FUNDING REQUIREMENTS	BIG WINS	QUICK WINS	FEDERAL/ PROVINCIAL FUNDING
<p>5.15. The City expands programs that work with businesses, communities and residents to collectively reduce Edmonton's greenhouse gas emissions, and support post-secondary institutions on research and preparing a low carbon workforce. This includes various programs such as Change for Climate and Corporate Climate Leaders Program. City Plan Policy Intention 3.4.1 Support Edmontonians in building individual and community capacity to take action on climate change</p>	2021-2022		\$			
<p>5.16. The City continues with its internal Energy Efficiency Revolving Fund and explores expanding it to include an emissions reduction innovation revolving fund, City Plan Policy Intention 3.4.2 Support innovation and private investment in climate resilient industries and partnerships</p>	2021-2022		\$			
<p>5.17. The City hosts a pilot Clean Energy Improvement Program (CEIP), which provides residential and commercial property owners with access to long-term financing for energy efficiency upgrades and/or renewable energy installations. Repayment is made via the property tax system. Explore if the program can include new construction. City Plan Policy Intention 3.4.1 Support Edmontonians in building individual and community capacity to take action on climate change</p>	2021-2022		\$\$	●		Required
<p>5.18. The City establishes a working group to inform a just & equitable framework that can be applied to decisions made when mitigating and responding to climate change. City Plan Policy Intention 3.1.2 Support equity among the diverse communities that contribute to Edmonton's sense of place, wellness and identity</p>	2023-2026		\$			
<p>5.19. The City applies Gender Based Analysis Plus (GBA+) when developing energy transition policies and programs (an analytical process that looks at how people of different identities might experience initiatives differently). City Plan Policy Intention 3.1.2 Support equity among the diverse communities that contribute to Edmonton's sense of place, wellness and identity</p>	2023-2026		\$			
<p>5.20. Develop and implement financing tools and incentives to advance priority growth areas as part of the growth management framework to support compact and efficient built form. City Plan Policy Intention 2.4.2 Ensure public buildings and infrastructure are sustainable and resilient</p>	2021-2022		\$			

LEGEND

- High Impact (replaces carbon intensive energy and is scalable)
- Moderate Impact (reduces emissions)
- Enabling Impact (does not directly reduce GHG emissions, but enables low carbon city outcomes)
- \$\$\$ High Funding Requirements (>\$20,000,000)
- \$\$ Moderate Funding Requirements (\$1,000,000 - \$20,000,000)
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For more information please visit: changeforclimate.ca or call 311



Current Energy Transition Community Programs

The following energy transition initiatives are currently in market or will be launched soon. Details are included regarding annual/total budget, applicant activity:

Building Energy Retrofit Accelerator (BERA) is a rebate program that facilitates renovations to improve energy efficiency in commercial and institutional buildings. Rebates are designed to encourage deep green retrofit choices by using bundling and bonusing for those investments with greater GHG reduction impact. Eligible upgrades include HVAC systems, windows, lighting fixtures, building envelopes and more. Limited to builders of minimum 10,000 sq feet.

Annual rebate budget: \$1,000,000
Total Budget: \$3,150,000
Launched June, 2020 (Program ends May, 2023)
Uptake (as of January, 2021)
 Applications received: 55
 Projects/Installations completed: 5
 Funds Committed: \$723,152

Residential Solar Rebate Program provides financial incentive for homeowners to generate renewable energy on their homes. The program offers a rebate of 40 cents/installed watt to a maximum of \$4,000 towards the installation of rooftop solar panels (approximately 15% of equipment and installation costs).

Annual rebate budget: \$350,000 (for each of four years)
Total Budget: \$1,500,000
Launched: July, 2019, program ends June 2023)
Uptake (as of January, 2021)
 Applications received: 286
 Projects/Installations completed: 242
 Funds Committed/Disbursed: \$829,000/\$670,000

Solar Potential Map: In partnership with Google and MyHeat, Edmonton is the first municipality in Canada to access a new rooftop solar potential platform. This new tool provides a bird's eye view of every rooftop and helps homeowners understand their solar potential and the environmental and financial benefits they can expect. Edmontonians ready to go solar will find a link for the Solar Rebate Program (Launched June, 2018).

Electric Vehicle Charger and E-Bike (ECEB) rebate program helps Edmontonians electrify their transportation and supports active transportation modes. In response to fiscal constraints, the program has been limited to one year instead of three as originally designed. The program launched on June 3, 2020 and ends on May 31, 2021.

E-Bicycles:

Annual rebate budget: \$50,000
Total rebate budget: \$50,000
Uptake (applications closed as of June, 2020)
 Applications received: 700
 E-Bike rebates distributed: 85
 Funds distributed: \$50,000

Electric Vehicle Chargers:

Annual budget: \$150,000
Total Budget: \$150,000
Uptake (as of January, 2021)
 Applications received: 126 (16 commercial & 110 residential)
 Projects/Installations completed: (Commercial/ Residential) 3/47
 Funds Committed: \$98,000

Home Energy Retrofit Accelerator (HERA) is a residential energy efficiency incentive program designed to facilitate home renovations that reduce GHG emissions, save energy and lower utility bills. A replacement for the Home Energy Plan program delivered collaboratively with Energy Efficiency Alberta (2018-2019), HERA will advance Edmonton's retrofit economy, trigger local economic activity and build industry capacity. The program will also stimulate the market to properly value energy efficient homes by making household energy performance information available publicly via EnerGuide labels.

Annual budget: \$600,000 (for each of three years)
Total Budget: \$1,800,000
Launched: January 13, 2021
Uptake (as of January, 2021)
 Applications Received: 22
 Applications Approved: 15
 Funds Committed/Disbursed: \$3,850/\$0

Update on the Corporate Climate Leaders Program and Progress on Goal #3 of Climate Resilient Edmonton: Adaptation Strategy and Action Plan

Previous Council/Committee Action

That Administration provide an update to Committee on the Corporate Climate Leaders Program and any progress made on Goal #3 of the Climate Resilient Edmonton: Adaptation and Action Plan, as part of the 1.5 report to be presented on March 22, 2021.

Update

This attachment provides an update on the Corporate Climate Leaders Program, which catalyzes and celebrates leadership in the business community with respect to taking climate action and provides an update on progress made on *Climate Resilient Edmonton: Adaptation Strategy and Action Plan's* goal for Edmonton's communities, businesses and institutions to be aware, connected, and prepared for climate change.

Corporate Climate Leaders Program

The Corporate Climate Leaders Program is a call to action for Edmonton corporations to analyze their own carbon footprints, create a reduction plan, and report their progress towards targets in a public forum so successes and challenges can be shared with their peers and all of Edmonton. The program launched in 2018 with 17 founding members and has grown to now include over 58 organizations, from large oil and gas companies to small, home-grown Edmonton businesses, all working to understand their emissions and taking action to reduce their carbon footprint.

Every program year, the City of Edmonton offers the participating members with opportunities to learn and network through a series of workshops related to a variety of climate related topics such as climate financing, building optimization and energy management and climate business opportunities. Also, starting this year the City of Edmonton will organize its first-ever "Climate Leadership Summit " for all the Corporate Climate Leaders Program members. The summit will recognize local leaders in climate change and share learning of the participants that have shown leadership in mitigating climate change.

The Corporate Climate Leaders Program has launched the recruitment efforts for its Year 4 recently, where over 90 invitations were sent out to local organizations to lead Edmonton's efforts to take action on climate change. The program expects to recruit at least 20 new members in Year 4.

Current members of the program include:

Alberta Health Services	Earth's General Store	Kuby Renewable Energy
Alberta Museums Association	Earth Group	Lafarge Canada Inc.
Avila Arepa	EcoAmmo	Landmark Homes (Canada)
Boardwalk	Edmonton's Arts Council	Lehigh Cement
Bissell Centre	Edmonton Convention Centre	MacEwan University
Boyle Street Community Services	Edmonton EXPO Centre	Manasc Isaac Architects
Canadian Western Bank	Edmonton Federation of Community Leagues	Northern Alberta Institute of Technology
Canderel	Edmonton Folk Music Festival	NorQuest College
Capital Power	Edmonton Heritage Council	O'Hanlon Paving
Chandos Construction	Edmonton Public Libraries	Oxford Properties Group
City of Edmonton	ENMAX	PCL Construction Management Inc.
Clark Builders	Enbridge Inc.	ROSENAU Transport
Concordia University of Edmonton	EPCOR Utilities Inc.	Royal Bank of Canada
Covenant Health	FATH Industries	Scott Builders Inc.
Dandelion Renewables	Goodwill	SkyFire Energy Inc.
Deloitte	Graham LP	Solar Power Investment Cooperative of Edmonton
DIALOG	Great Canadian Solar	Stantec
DoBetter! Marketing	Hi Signs The Fath Group	Sticks and Stones Communication Inc.
	High Level Diner	SYLVIS Environmental Services
	Ikea Edmonton	Thurber Engineering Ltd.
	Italian Centre Shop (Southside)	University of Alberta

Goal #3 of Climate Resilient Edmonton: Adaptation Strategy and Action Plan

ConnectEdmonton's goal of Climate Resilience includes a city that is adapting to a changing climate. *Climate Resilient Edmonton: Adaptation Strategy and Action Plan* is a strategic action to help prepare for and adapt to the impacts of climate change and to support achieving the community's vision for Edmonton in 2050. The City Plan's bold plan for Edmonton outlines what needs to be accomplished to achieve city building outcomes, including supporting Edmontonians in building individual and community capacity to take action on climate change.

The climate adaptation strategy has eleven goals related to preparing for climate risks identified in Edmonton. The path towards climate resilience requires Edmonton's communities, businesses and institutions to be "aware, connected and prepared for climate change", which is Goal #3 in the strategy. Within Goal #3, the following three Actions are identified:

- The City of Edmonton in partnership with community stakeholders develops and implements a community scale and household climate change readiness program.
- The City of Edmonton develops and implements a local business and institution climate change readiness program.
- The City of Edmonton in partnership with community stakeholders develops and implements a community "Resilience Hubs" program that provides support and

resources for residents to improve their capacity to cope with climate changes and extreme weather.

Implementation of the strategy began in 2019. The first two years of implementation towards this goal included: identifying grant resources to further the work; raising awareness and increasing knowledge and understanding of how climate change will impact Edmonton; and sharing personal actions that can be taken to improve resilience. This work to date can be grouped primarily as follows:

- Preparing Homeowners by:
 - Sharing information through displays, workshops and handouts at events such as home shows, Resilience Festival, and Get Ready in the Park
 - Developing a **Climate Resilient Virtual Home** - an interactive platform that provides a road map to help homeowners and builders improve the climate resilience of homes.
 - Developing an Edmonton-specific **Climate Change Almanac** webpage to showcase how Edmonton's climate has changed over the years and how it will change.
 - Developing adaptation content for the **Change Homes and Habits for Climate Guides** and creating three short informational videos on home adaptation improvements through the Change for Climate Tiny Explanations video series.
 - Delivering **Lunch and Learns** on the basics of climate change, and what residents can do to both mitigate and adapt to, and prepare for, climate change in Edmonton.
 - Sharing information through the monthly **Change for Climate newsletter**.

- Preparing Institutions and Businesses by:
 - Delivering a climate change risk planning workshop for members of the **Corporate Climate Leaders** program. This workshop introduced the fundamentals of assessing climate related risks to their business, and how to prepare for those risks. There is commitment to continue to build adaptation capacity with this audience on an annual basis.
 - Supporting a discussion with the **Energy Transition Leadership Network** members on the expected climate change risks and impacts for Edmonton, and introduced ideas for planning and preparing for those impacts.

- Preparing Communities by:
 - Delivering a three-part workshop series for the Edmonton Federation of Community Leagues on **Adapting Community Leagues for Climate Change**. As a result of the COVID-19 pandemic, 2021 sessions will be delivered virtually.
 - Preparing **Resources for Teachers** (junior and senior high) who wish to have local information to discuss how Edmonton's climate has and is changing, and how schools can participate in adaptation efforts.

- Improving our understanding of the challenges and impacts different communities may face. This includes developing **neighborhood climate resilience and risk indices** to support community adaptation planning. This also includes two research projects with the University of Alberta that: 1) explores community vulnerability and resilience of older adults and immigrants in a changing climate; and 2) works with three community leagues to co-create neighbourhood climate action strategies with community members and adaptation planning experts.

The adaptation strategy sets Edmonton on a path to create a more climate resilient and adapted city. This can only be achieved if all communities in Edmonton are more connected and more resilient to the changing climate. Resilient communities and resilient people build resilient cities that are more attractive to businesses and the next million people who will call Edmonton home.

Integrated Financial and Carbon Budgeting

The City of Edmonton established a community-wide Carbon Budget of 155 megatonnes of carbon dioxide emissions between 2019 and 2050, or 135 megatonnes between 2020 and 2050. In order to remain informed and assess progress over this period, the City will require a new management and accounting approach to integrate greenhouse gas reductions into City budgeting and prioritization processes.

The deliverables of this initiative include the following:

- the presentation of a carbon budget in conjunction with financial budget systems and processes going forward,
- the provision of annual carbon budget progress updates to measure progress and identify opportunities and challenges, which includes a carbon forecast,
- the inclusion of a climate lens in the 2023-2026 proposed operating and capital budgets to assess carbon impacts of previous, current, and proposed investment decisions, and
- the incorporation of climate impacts into the Priority Based Budgeting tool to inform stakeholders.

Administration plans to establish a Carbon Budget Office, with resourcing support equivalent to one dedicated Carbon Budget Manager position at inset. Impacted areas beyond the Carbon Budget Office include project / program managers and financial staff throughout the City who will be required to contribute additional time and expertise to meet additional requirements of the new process. Resource requirements will be continuously assessed as implementation progresses.

Integration work is currently underway to move towards full implementation of integrated financial and carbon budgeting systems for the proposed 2023-2026 operating and capital budgets. Council will have the opportunity to inform and shape the process throughout the remainder of the current budget cycle. This includes:

- a baseline carbon budget update (Fall 2021)
- inclusion of carbon budget implications in the business planning cycle (Spring 2022)
- alignment discussions with Priority Based Budgeting
- integration of the carbon budget into the 2023-2026 budget planning process

A detailed listing of checkpoints and progress updates is provided in the following table.

Carbon Accounting Implementation Plan

COUNCIL PLANNING / BUDGET CHECK-IN	INTEGRATION OF CARBON BUDGET / ACCOUNTING
Q1 2021: Updated Energy Transition Strategy and Action Plan	Include the Proposed Carbon Accounting Framework in the report for Council review and / or debate.
Q4 2021. Fall Supplemental Capital / Operating Budgets	Include in the reports (or in a standalone report) current state information in terms of the Corporate and Community carbon budget, and estimated projections in various climate investment scenarios. This report can act as an initial baseline report to align with future progress reports. The initial focus will be towards City-driven programs.
Q1 - Q2 2022: Capital / Operating Budget Outlooks	The CIO / OIO will identify how an environmental lens that assesses carbon impacts, will be applied in the creation of the 4 year budget.
Q4 2022: Carbon Budget Status Update	(NEW) Annual update report to inform Council of the current state of emissions in relation to the carbon budget. Ideally, this update will be integrated into the Enterprise Performance Management (EPM) process currently in place. Progress in relation to initial baseline information will be the prime focus of this update.
Q4 2022: Proposed Capital / Operating Budgets	These reports will include a section (or standalone report) which highlights the carbon impacts associated with the base budgets as well as climate impacts of incremental budget requests (e.g. new service packages, capital profiles). It is anticipated that a focus of early budgets will be areas of current GHG accounting strengths, such as the Civic Operations GHG Management Plan and capital investment. As carbon budgeting processes mature, they will be expanded to include services that are often more difficult to quantify.
2023 and beyond: Ongoing Training, Education, Capacity Building	The Priority Based Budgeting principles used to prioritize operating services and capital projects proposed in the 2023-2026 capital budgets will incorporate an environmental lens that would assess carbon impacts.
	Further efforts beyond 2022 will be required to fully integrate carbon budget / accounting principles into existing systems and processes. Training will need to be provided to diverse disciplines throughout the Corporation including project management, environmental science, and finance and budget.

Once actions have been vetted through the implementation gates process, prioritization of the actions based on an integrated carbon and overall capital and operating budget.

Similar to a financial budget, a **Carbon Budget** includes revenues (annual emission limit), expenses (emissions) and deficits/surpluses (annual emission limit minus emissions). The Carbon Budget aligns with decision-making frameworks used by local

governments for capital and operating budgets, frameworks in which investments, costs and benefits are assessed over multiple years and often involve trade-offs between early action and deferred spending. When combined with effective monitoring of emissions, the Carbon Budget also provides a framework for reporting progress on a consistent basis from year-to-year.

Central to the success of Carbon Budgeting is a **Carbon Accounting Framework** to support the quantitative tracking and management of greenhouse gas emissions throughout the community. The accounting framework must contain the periodic emission inventories that provide the most accurate reading of overall progress toward achieving the level of emissions specified in the Carbon Budget. It must also support the quantification of the expected and actual emission impacts of the City's policies, practices and spending decisions, as well as the community emission impacts of initiatives of households, firms, utilities and other levels of government.

Funding Approach

Transformational change poses many challenges and opportunities. Edmonton's vision is aspirational but is achievable with significant levels of public and private investment in transformational initiatives that will reshape our city and our place in the world. Investment is required from the private sector, Federal and Provincial levels of government, and the City of Edmonton. The overall funding approach must be one of partnership.

An investment analysis at the strategy level (ie. of the broad community wide transition), identified public and private investments totalling \$41.7 billion over the next 30 years, averaging \$1.4 billion annually. However, because of the urgency to act to mitigate the effects of climate change, some of the investments have a higher front-end investment required for accelerated climate actions, to reach economies of scale and support local market transformation. Looking specifically over the next ten years, approximately \$24 billion is required to finance the transition, an average of \$2.4 billion per year. To put this in context, the GDP of the Edmonton Census Metropolitan Area (CMA) is about \$90 billion per year.¹

Private Investment

To catalyze the investment in private assets and energy transition actions throughout the region, a range of barriers will need to be overcome. Investors using business discount rates not only consider the weighted average cost of capital, but also include a premium based on the perceived risk of the investment. Higher risk premiums are applied to investments in the demonstration or early commercialization phase. Industry and household discount rates can be as high as 15% which means that to catalyze around 85% of private investment, government investment could be upwards of 15% of the total investment required. This 15% of investment would need to be supported by all orders of government to “de-risk” the necessary private investment. Administration will monitor future potential Federal carbon tax changes which may impact this assessment.

Public Investment

Of the annual investment requirement of \$2.4 billion, the level of public investment required to catalyze private investment and for local infrastructure is

¹ <https://www150.statcan.gc.ca/t1/tbl1/en/cv.action?pid=3610046801>

estimated to be approximately \$300 million. 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, shared with Provincial and Federal governments. The City share can be further aggregated into two categories:

- \$75 million annually for capital infrastructure investment
- \$25 million annually for catalyst investment

The City-owned capital infrastructure investment relates primarily to the full electrification of the bus fleet, deep facility retrofits, district energy systems and expansion of the active transportation network. These investments will enable future ongoing operational savings, and build infrastructure fundamental towards transition. The remaining operating portion focuses on new or increased rebates and incentives to local homeowners and businesses for energy transition actions, such as to increase the uptake towards solar installations and building retrofits.

These are 'net new' incremental investments, over and above what is included in current capital plans and budgets - very few of these actions are currently funded.

Funding the Action Plan

Within the energy transition actions, there may need to be further prioritization as there may not be sufficient funding or capacity to immediately advance them all. A listing of potential funding tools available to the City is provided in the following tables, categorized from 'conventional' to 'emerging'.

Conventional funding tools are readily available to the City and can be actioned in a relatively short period of time. Emerging funding tools will require further investigation and analysis in order to assess feasibility. A combination of these tools will likely be required to effectively advance these investments.

Next steps include continued engagement with private and public partners and further exploration of non-conventional funding strategies. These climate actions will roll into upcoming capital and operating long term plans. Budget prioritization tools will be reviewed and/or updated to ensure energy transition is properly represented.

Conventional Funding Tools

FUNDING TOOL	DESCRIPTION / OBSERVATIONS
Debt financing	Bridge financing tool available to manage the timing between investments and future funding sources. Trade-offs against competing initiatives will be required.
New 'Green' Levy	Similar in approach to previous levies (e.g. Neighbourhood / Alley Renewal, LRT, etc.)
Re-prioritize Approved Capital / Operating Budgets	Priority Based Budgeting can assist with budget reprioritization. Trade-offs against competing initiatives will be required.
Public / Private Partnerships (e.g. Canadian Infrastructure Bank, Climate Innovation Fund)	Examples include Canadian Infrastructure Bank and Climate Innovation Fund. Many emerging arrangements are similar to loan arrangements. Continuous scanning of emerging programs that may assist with the generation of investment capital and the sharing of project and financial risks.
Grants	An overview of the federal and provincial grant funding landscape is addressed in Attachment 6.

Emerging Funding Tools

FUNDING TOOL	DESCRIPTION / OBSERVATIONS
Property tax uplift deferral incentives	There are financial risks associated with locking in assessment growth to specific areas / initiatives. Trade-offs against competing initiatives will be required.
Carbon adjusted utility franchise fee	Develop a new franchise fee that reflects the carbon intensity of the energy provided by the utility.
Creation of a 'Municipal Energy Corporation'	An arms-length entity with the ability to operate and raise capital independent of the City of Edmonton.

Federal and Provincial Grant Funding Landscape

Grants

With financing and investment strategies for the City's climate change work addressed in Attachment 5, this section provides an overview of the federal and provincial grant funding landscape, and some of the opportunities and challenges of moving the City's Energy Transition Strategy forward. Grants are a key capital funding source for the organization. In the current 2019-22 capital budget cycle, approximately 40 percent of our capital program is contingent on grants from the federal and provincial governments. Significant federal funding is delivered through the Federal Gas Tax Fund, the Investing in Canada Infrastructure Program and the Building Canada Fund. The Municipal Sustainability Initiative, the Municipal Stimulus Program and Investing in Canada Infrastructure Program match funding provide the bulk of provincial funding. Given our reliance on partner funding and with municipal revenues unable to keep pace with civic investment needs and priorities, fully optimizing and leveraging available grants to fill this gap will continue to be important.

Federal Funding

In December 2020, the federal government released a strengthened Climate Plan, titled *A Healthy Environment and a Healthy Economy*. The plan builds on the work done to date and underway through the Pan-Canadian Framework to exceed Canada's current 2030 greenhouse gas target of reducing emissions by 30% below 2005 levels. The government's new goal is to establish the building blocks to build a cleaner, more competitive and resilient economy and get Canada to net-zero emissions by 2050.

In order to bring the net-zero emissions goal into reality, municipal governments will likely require funding support specifically for climate mitigation and adaptation on the same scale as funding provided through the federal Investing in Canada Plan. Without a similar funding commitment of this magnitude that includes a significant up-front grant investment, it will be a challenge for the City to move forward on realizing its own climate strategies.

To date, federal Budgets 2016 and 2017 have provided the most funding support for these goals. In particular, Budget 2017 introduced the Investing in Canada Plan (2016-2028), a 12 year slate of programming that provides over \$180B in funding nation-wide. The Plan commits \$90B in new, dedicated funding in the following areas: public transit, green infrastructure, social infrastructure, trade and transportation, and rural and northern communities. The remaining \$90B flows through existing infrastructure programs, such as the permanent Federal Gas Tax Fund (GTF), which provides over \$2B a year to municipalities for addressing a broad cross-section of infrastructure needs. Although the City's annual GTF funding grows incrementally with inflation, a significant portion of our allocation continues to be earmarked for South LRT (to Century Park) debt servicing until 2030.

The Investing in Canada Plan is almost halfway through its term and the majority of the federal funding has been committed. In Alberta, approximately two-thirds of the infrastructure funding provided to the province through the Investing in Canada Infrastructure Program (ICIP) component of the Investing in Canada Plan has been allocated and approved for public transit infrastructure projects. A total of \$1.47B has been earmarked for Edmonton's LRT network expansion. Given the significant investment in public transit, there is limited opportunity for the City to access additional federal investment under the Investing in Canada Plan to support other green initiatives.

The Canada Infrastructure Bank (CIB) was created in 2017 as a separate component of the Investing in Canada Plan and presents another opportunity to secure financing for municipal infrastructure projects. The Bank's purpose is to leverage its \$35B endowment to attract private capital and co-invest with private-sector and institutional investors in new, revenue generating infrastructure projects that might not otherwise be built or would not be built with private sector involvement.

The CIB does not provide grant funding and is not intended to replace existing infrastructure funding models, such as grants and P3s, but rather seeks to complement and expand these models by providing another option to help structure and finance new infrastructure projects. CIB's focus is specifically in the areas of public transit, green infrastructure, trade and transport, broadband, and clean power. More recently they have rolled out priority investment initiatives, such as zero emission bus and building energy retrofits programs, as part of the federal government's strengthened actions of the Climate Plan. There may be opportunities for the City to work with the CIB to move forward initiatives like zero-emission vehicles, LRV procurement and on clean energy to advance our district energy projects. The City is currently engaging with the CIB to determine if it is financially viable to utilize one or both of these programs to support the

City's climate change goals. Funding provided through these programs will impact the City's debt limit. As such, leveraging these programs would be advisable only where lending rates are more favourable than traditional borrowing and/or where these programs offer less risk than traditional borrowing options.

Most recently, the federal government has committed to providing an additional \$5.9B nationally to new public transit infrastructure and to establishing a \$3B per year permanent Public Transit Fund beginning in 2026-27. This funding cannot be used to support other types of energy transition projects because it is focused solely on public transit infrastructure, including funding planning activities for transit projects, developing active transportation (i.e., bike lanes and walking paths), and purchasing zero emission vehicles.

The Federation of Canadian Municipalities' (FCM) Green Municipal Fund (GMF), funded through federal endowments, also supports climate change mitigation and energy transition projects. The GMF typically provides low-interest loans to municipalities to a maximum of \$10M and grants up to 15% of the loan amount to a maximum of \$1.5M. The GMF Community Efficiency Financing Program stream is a \$300M initiative that helps municipalities deliver energy efficient financing programs. Under this program, the City's two-year Clean Energy Improvement Program (CEIP) pilot program has been approved for a loan in the amount of up to \$8.4M combined with a grant in the amount of \$1.3M for a total of up to \$9.7M.

The majority of funding provided through the FCM programming is modest in nature and in the form of repayable loans. As the City has access to favourable lending rates through the Alberta Capital Finance Authority, these opportunities need to be evaluated on a project by project basis to determine whether the terms of the financing is appropriate for the City. The FCM also provides advocacy on behalf of municipalities and has petitioned the federal government to double the annual allocations municipalities receive under the GTF. Such a top up in funding could provide municipalities with added financial resources to prioritize and undertake climate change mitigation and energy transition projects.

As the City's climate change goals are closely aligned with the Pan-Canadian Framework and the Climate Plan, the federal government is likely to be our first provider of support, but it is not clear whether significant, new funding is forthcoming in the short-term. Beyond the need for federal funding support, realizing the City's goals will also require partnerships with the provincial government and industry.

Provincial Funding

From 2015-2019, the Provincial Climate Leadership Plan supported a number of grant programs that aligned with federal and municipal energy transition goals and were funded by the Provincial Carbon Tax. However, in 2019, the Carbon Tax was repealed and the Climate Leadership Plan was abandoned. As a result, the primary source of provincial funding specifically targeting climate change mitigation and energy transition was lost. The current provincial government made a platform commitment to release a Climate Strategy, but the release date is unknown at this time.

The provincial Technologies to Reduce Carbon Emissions (TIER) system took effect on January 1, 2020, and replaced the previous approach to pricing carbon pollution for industry. In fall 2020, the Province committed \$750M under the TIER system for new and cleaner Alberta-based technologies that reduce emissions, like improved oil sands extraction methods and research and investment in carbon capture, utilization, and storage. In addition, a portion of this funding is intended to be used to reduce Alberta's deficit and support the Province's energy war room, which is now incorporated as the Canadian Energy Centre.

The TIER program has recently directed funding to support smaller grant programs that are competitively awarded, include smaller amounts of funding per project, target specific climate change goals, and are typically far oversubscribed. For example, the Province recently directed \$100M of TIER funds towards the new, \$150M Emissions Reduction Alberta: Shovel-Ready Challenge program. This program supports companies ready to implement leading-edge technologies in applications for both greenfield and brownfield operations, up to a maximum of \$15M per project with a minimum request of \$2M.

In recent years, the Province has committed \$1.47B for Edmonton's LRT network expansion, as match funding for the federal ICIP and a requirement of the Bilateral Agreement signed between the Governments of Canada and Alberta under this program. The Province, however, does not currently provide funding support directly to municipalities through a significant grant program to address their climate change needs. Where provincial funding support is available for the City to access, it is typically short-term funding for smaller-scale initiatives (ie: funding that flows through Emissions Reduction Alberta, the Municipal Climate Change Action Centre, and Alberta Innovates).

Without targeted programs that could provide cost-sharing support for these goals and to compliment the new federal programs (e.g. new public transit funding), the Province could direct municipalities to existing funding sources, such the current Municipal Sustainability Initiative (MSI) and the Local Government Fiscal Framework (LGFF), which will replace MSI in 2024/25. MSI is already committed to existing priorities, and the LGFF will be a necessary funding source for our core infrastructure needs currently funded through MSI. The LGFF is also based on revenue sharing and is legislated to increase at half the rate of provincial revenue increases. As a result, given the province's current fiscal situation, the LGFF may not provide significant funding to support these goals in the near future.

In this case, the City may need to reassess priorities and determine how the City budget can support energy transition initiatives. At the same time, advocacy by the City and municipal partners will be necessary to get these priorities higher up on the Provincial agenda so that funding is reflected in the province's capital planning and set aside in provincial budgets.

Council Policy

Climate Resilience



Programs Impacted	<p>Environmental Stewardship <i>The City of Edmonton's operations and service delivery sustains and conserves the environment.</i></p> <p>Environmental Protection <i>Edmonton protects its natural environment, minimizes its environmental impact and mitigates climate change.</i></p>
Number	C627
Date of Approval	TBD
Approval History	n/a
Next Scheduled Review	[Must not exceed 3 years from date of approval]

Statement

The City of Edmonton, through its planning, services, decision-making processes and leadership ensures, promotes and supports a climate resilient community with clean air and water; and natural and built environments that sustain long-term health and prosperity.

The City of Edmonton commits to immediately and urgently:

1. Act to be a carbon neutral community by 2050 through Energy Transition to help limit global warming to 1.5 degrees Celsius;
2. Act to adapt, prepare for and respond to a changing climate; and
3. Lead climate solutions in service delivery and corporate management.

The purpose of this policy is to provide clear and consistent governance and accountabilities for achieving a climate resilient community, and to demonstrate to Edmonton's citizens, businesses, and community and industry partners the City of Edmonton's commitment to climate solution leadership in all aspects of city planning, development and business decisions.

Guiding Principles

To achieve its commitments, the City of Edmonton decisions and actions will be:

- **Collaborative** Achieving a climate resilient community will require connecting and collaborating, cooperation and partnership with other governments, regional partners, institutions, communities, businesses, academia, and global partners. The City of Edmonton is committed to continuously listening to, learning from, and working with citizens, businesses, and our community and industry partners to achieve a climate resilient community.
- **Just and Equitable** Climate resilience must incorporate a just and equitable approach, that serves those today and those who come after us.
- **Mindful of Prosperity** The creation of economic opportunities for City of Edmonton citizens and businesses will be considered in planning climate resilient actions.
- **Transformational** Climate resilience requires transformative action, including integrating and accepting uncertainty in decision making processes.
- **Accountable** Climate resilient measures, including consideration of mitigation and adaptation co-benefits and tradeoffs, will inform decision-making.
- **Science and Evidence Based** Decision-making will inform continuous learning and improving and will be based on best available science, research and evidence.
- **Catalyze Change** Through community activation, partnership and advocacy, infrastructure investment, climate resilient programs including incentives, and policy and regulation to achieve climate resilience outcomes.

Climate Resilience Commitments

1. *Act to be carbon neutral community by 2050 through Energy Transition to help limit global warming to 1.5 degrees Celsius*

The City of Edmonton will catalyze and support community action to immediately and urgently align actions with the international goal of limiting global warming to 1.5 degrees Celsius and be carbon neutral by 2050 by pursuing:

- a. Renewable and Resilient Energy Transition - Promoting the urgent transition towards low carbon energy sources.
- b. Low Carbon City and Transportation - Planning, developing and building Edmonton to have carbon neutral and climate resilient communities and zero emissions transportation systems.
- c. Emission Neutral Buildings - Transforming Edmonton's building stock to be emissions neutral.
- d. Carbon Capture and Nature Based Solutions - Promoting a nature-based solutions approach to climate resilience by implementing and promoting actions that protect, sustainably manage, and restore natural and modified ecosystems.

2. Act to adapt, prepare for and respond to a changing climate

The City of Edmonton will increase climate adaptation and minimize the exposure to and reduce the vulnerability of people and assets to the impacts of climate change by adapting, preparing for and responding to a changing climate by:

- A. Climate prepared and adapted infrastructure and urban form - Planning, developing, building and adapting Edmonton to be ready for the future climate reality
- B. Prepared and adapted communities - Supporting communities, households, institutions, businesses and residents be more prepared for and able to respond to and recover from the impacts and opportunities of a changing climate
- C. Climate resilient, adapted and healthy ecosystems - Investing in and protecting ecosystems to build resilience, protect communities, enhance environmental connection, and support and improve quality of life
- D. Proactive risk management - Identifying and managing climate risks and vulnerabilities that could impact our cities long term livability

3. Lead climate solutions in service delivery and corporate management.

The City of Edmonton will ensure proactive leadership in climate solutions by taking a lead role in promoting and supporting Edmonton's climate resilience efforts and leading by example in its own civic operations.

- a. Governance - Establishing a governance framework to implement the City's climate change plans, that supports climate leadership by Council, Administration, and the community, including an advisory committee to City Council on climate resilience.
- b. Integrated Climate Resilience Decision-Making Model - Establishing a climate decision-making framework that includes considerations of short, medium and long-term climate conditions, vulnerabilities, risks and opportunities, and an integrated carbon and financial budget.
- c. Targets and Reporting - Establishing transformative and ambitious targets, including a carbon budget, to guide climate action, with progress reported to City Council and residents at least annually. Administration will provide the City Council and the community with information on key climate-related risks, opportunities, impacts and initiatives.

- d. Corporate climate resilience management plan - maintaining and implementing a plan(s) to manage greenhouse gases, climate change-related risks, opportunities and impacts to civic assets and services.
- i. Buildings - immediately adopting sustainable and resilient building practices for the buildings it owns, leases and funds , over the course of their entire lifecycle through: 1) the design and construction of Emission Neutral, climate ready buildings; 2) monitoring, benchmarking, operating, and maintaining City buildings, and 3) proactively retrofitting existing City buildings to reduce their carbon emissions and to prepare for a changing climate.
 - ii. City funded affordable housing - addressing energy poverty by applying a balanced approach to funding of affordable housing construction.
 - iii. Vehicles - transitioning to a zero emission fleet and public transit system incorporating lifecycle costing approaches.
 - iv. Energy and Offsets - purchasing 100% renewable electricity, installing onsite alternative energy systems on appropriate land uses, using low carbon or carbon neutral energy, and offsetting residual emissions to become a carbon neutral corporation.
 - v. Assets and Infrastructure - account for emissions and future climate conditions in design, and undertake carbon impact and climate risk and vulnerability assessments to guide investment and renewal decisions.

Definitions

Adapting: 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.

Alternative Energy Systems: Energy generated from alternatives to fossil fuels such as renewable energy, biofuel, biogas, biomass and hydrogen fuel cell. For the purpose of this policy, alternative energy also refers to alternative, localized, on-site energy generation such as heat and power cogeneration.

Carbon Neutral:

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

City-Funded Buildings: Projects that are funded by the City in the form of grants, or loans that are provided by the City for up to 33% of the total capital cost of the building project (i.e. land costs if applicable are not included). The total capital project cost must also be over \$3M including the portions funded by the City.

Climate Resilience: Climate resilience is achieved by mitigating and adapting to climate change.

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.

Energy Poverty: Energy poverty refers to the inability of a household to maintain access to energy services necessary to meet basic health and well-being needs at reasonable cost.

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

Mitigating: Efforts that slow climate change by reducing or preventing the release of greenhouse gases to the atmosphere.

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.



CLIMATE RESILIENCE AND OUR FUTURE CITY

What We Are Hearing: Climate
THE CITY PLAN

September 2018 – June 2019

Acknowledgements

We acknowledge the traditional land on which Edmonton sits, the Territory of the Treaty 6 First Nations and the Métis Nation of Alberta Region 4. We would like to acknowledge and thank the diverse Indigenous peoples whose ancestors' footsteps have marked this territory for centuries such as: Cree, Dene, Saulteaux, Nakota Sioux, Blackfoot, as well as the Métis and the Inuit.

Edmonton is a welcoming place for all people who come from around the world to share Edmonton as a home. Together we call upon all of our collective honoured traditions and spirits to work in building a great city for today and future generations.

The authors thank everyone who participated in the engagement activities. Your contributions are greatly appreciated and we hope you see your values and ideas reflected in these pages.



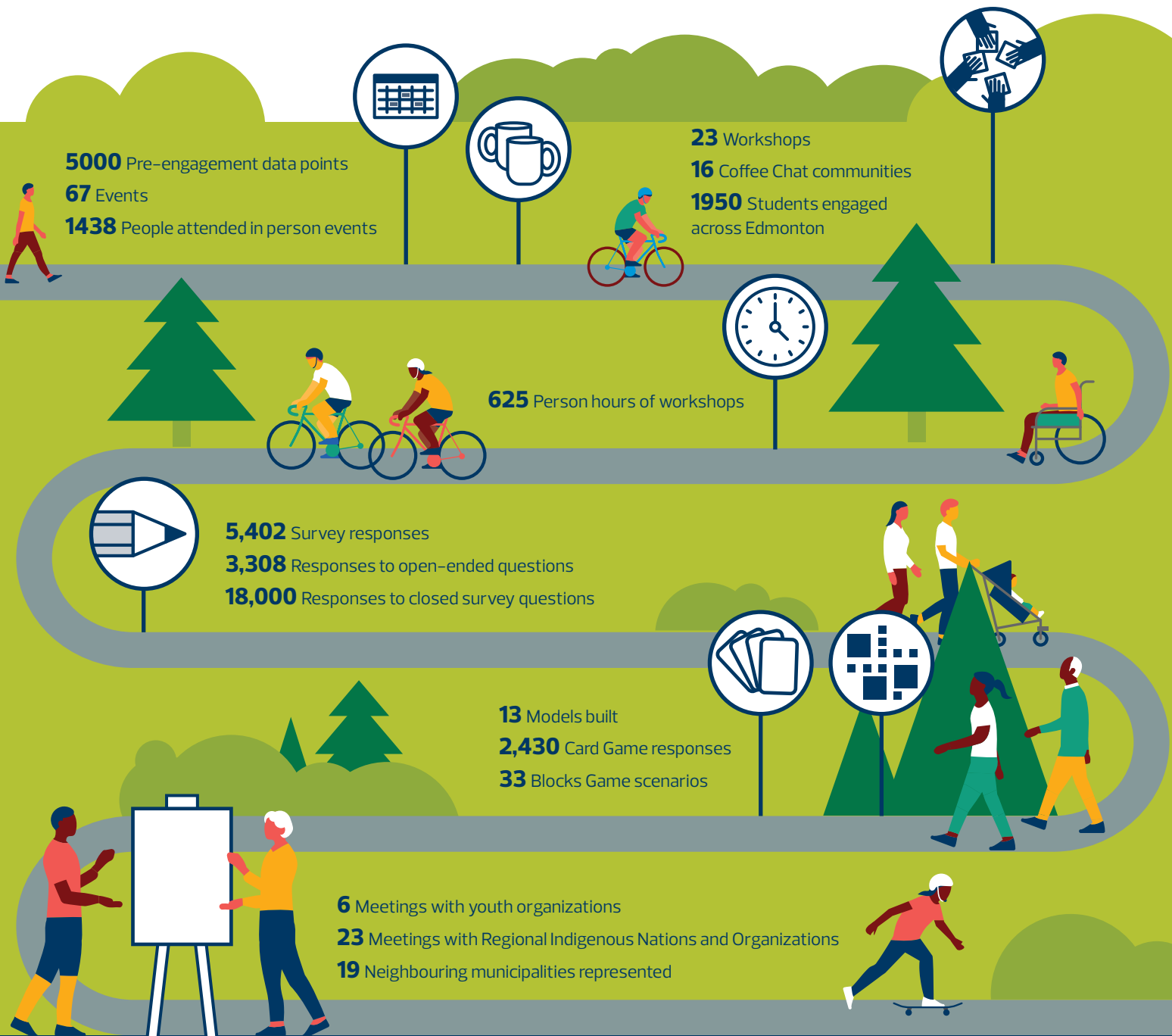
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ENGAGEMENT SNAPSHOT

WHO WE ARE HEARING FROM

Throughout The City Plan project phases, specific efforts were made to reach a diverse range of Edmontonians of different age, cultural and socio-economic background in different geographic areas of the city.





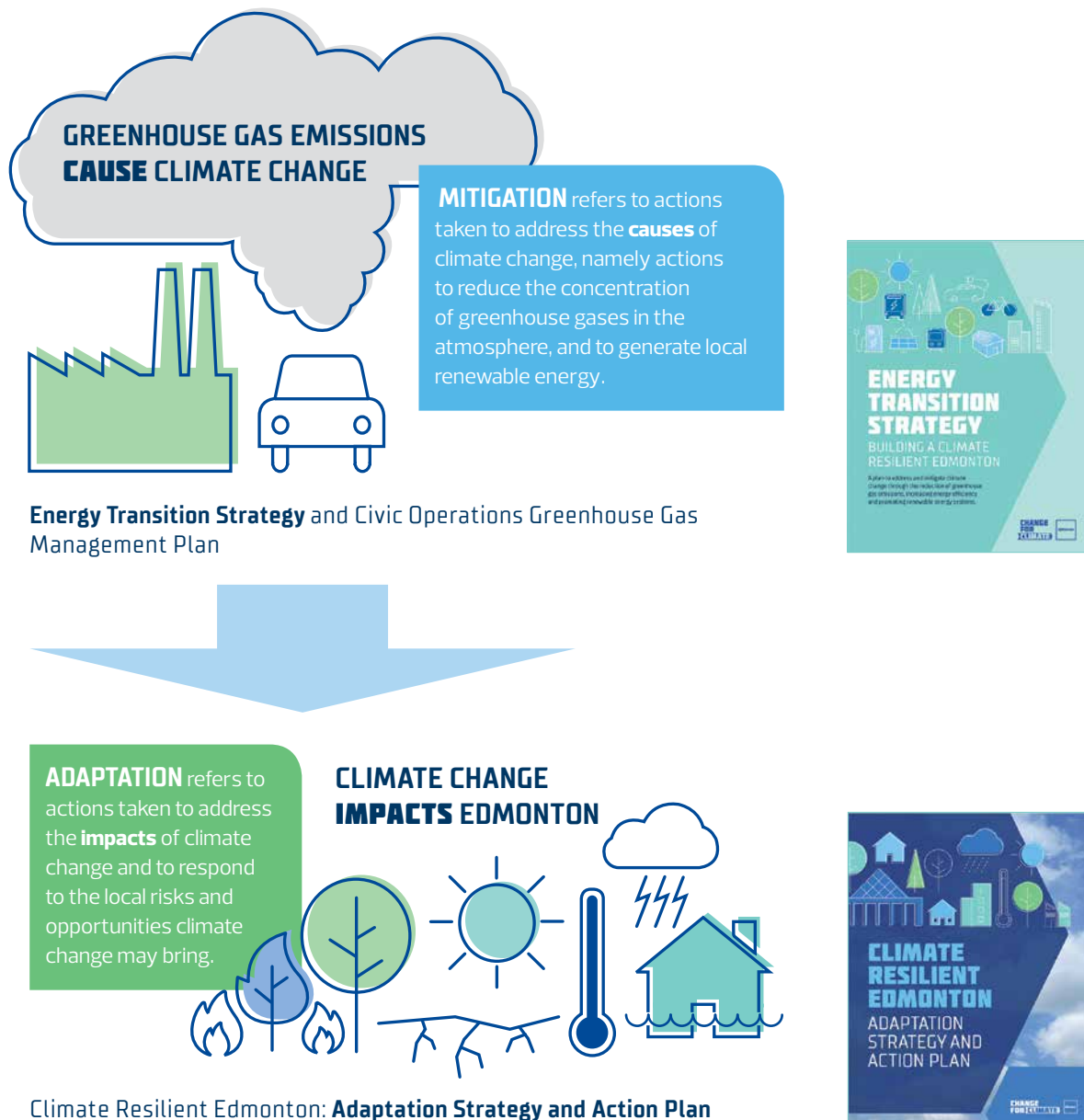
CLIMATE RESILIENCE & ENERGY TRANSITION STRATEGY

Climate resilience is one of the four goals of Edmonton's strategic plan ConnectEdmonton (Vision 2050). Climate resilience is about transitioning Edmonton to a low carbon future with clean air and water while adapting to a changing climate. To achieve this, the City of Edmonton developed the *Community Energy Transition Strategy* (2015) and the *Climate Resilient Edmonton: Adaptation Strategy & Action Plan* (2018), with the best scientific research and advice available, to help mitigate the risks of climate change and adapt to a changing climate.

On Aug. 27, 2019 City Council declared a climate emergency and directed administration to update the Community Energy Transition Strategy to align with the international target of limiting global warming to 1.5°C. While the Strategy is currently being implemented, to help Edmontonians, businesses and organizations mitigate their impact on climate change, it is also in the process of being updated. The updated Strategy will work within a local carbon budget of 155 Megatonnes and will be guided by the six Climate Shifts described on page 7. The Adaptation Strategy and Action Plan is not being updated at this time.

Edmonton's Community Energy Transition Strategy is a risk management response to a carbon constrained world. The strategy was designed to accelerate Edmonton work to take direct and indirect action to reduce greenhouse gas emissions, and increase renewable energy and energy efficiency across all sectors. The actions were designed to position Edmonton to prosper in a low carbon economy, and to take advantage of emerging opportunities in clean technology and carbon abatement.

Figure 1. Mitigation and adaptation diagram



CLIMATE SHIFTS

CLIMATE SHIFT 1

TOOLS & TARGETS

One of the foundations of the updated Strategy will be to use a local carbon budget to set its goals and to monitor its progress. Edmonton's carbon budget has been calculated using an internationally accepted methodology to be 155 Megatonnes. This is the amount of greenhouse gas emissions Edmonton can emit between 2017 and 2050 to meet the global target of limiting global warming to 1.5°C. Setting targets based on a carbon budget allows municipalities to visualize the urgency of the need for change. Every year that emissions are added to the atmosphere essentially reduces the remaining local carbon budget.

CLIMATE SHIFT 2

LOW CARBON CITY AND ZERO EMISSIONS TRANSPORTATION

Intensification of land use reduces emissions but it also drives transportation choices. A built form that includes low carbon dwellings and a high proportion of trips taken by active transportation and public transit will reduce emissions in Edmonton.

CLIMATE SHIFT 3

EMISSIONS NEUTRAL BUILDINGS

Buildings represent approximately 30% of Edmonton's greenhouse gas emissions. Approximately 80% of the buildings that will exist in 2050 have already been built. Both new and existing buildings need to reach a carbon neutral state in the future.

CLIMATE SHIFT 4

RENEWABLE REVOLUTION

Zero emissions energy is required both to reduce existing emissions and to ensure no new emissions are added. Proven technologies like solar will need to be deployed at scale. A circular economy and sustainable waste management practices including reducing waste at the source will be essential for a low carbon future.

CLIMATE SHIFT 5

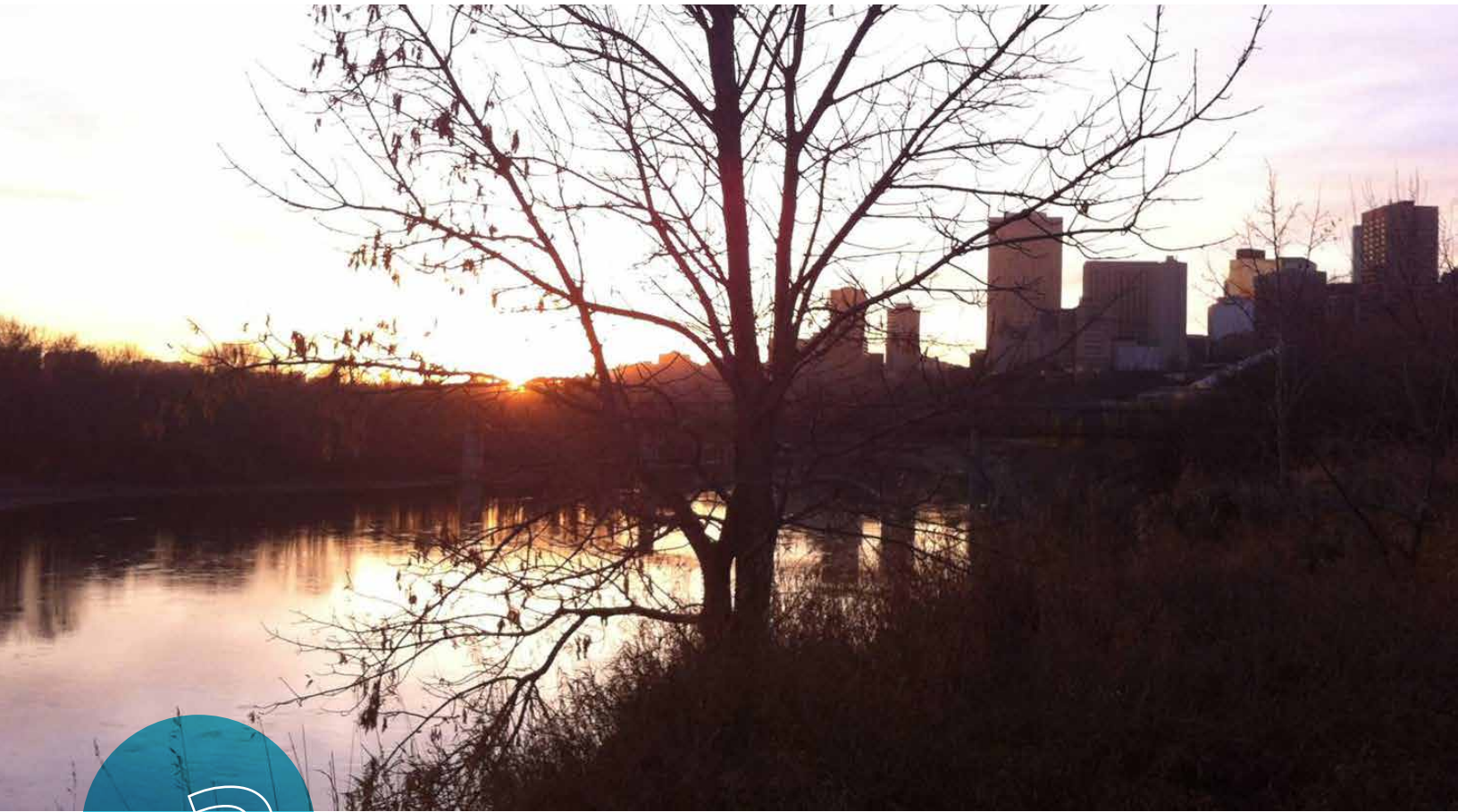
JUST AND EQUITABLE TRANSITION

A critical component is to ensure that all Edmontonians have access to the opportunities a low carbon future provides. Attention to the reduction of energy poverty, gender equity and ensuring access to green jobs for the vulnerable populations will be critical.

CLIMATE SHIFT 6

NEGATIVE EMISSIONS

Even if Edmonton is able to aggressively reduce its overall greenhouse gas emissions, modelling suggests that there will still be residual emissions to manage. A combination of natural and technological solutions for direct removal of carbon and sequestration and/or utilization of that carbon is required.



2

WHAT WE ARE HEARING ABOUT CLIMATE

Prior to City Council's decision to declare a state of climate emergency in August 2019, Edmontonians had already started to express urgent concerns about making major changes to address our environmental impact as a city.

The following pages summarize the climate-related feedback received to date through engagement for The City Plan, and the Vision 2050 engagement that has informed The City Plan. The City Plan engagement was designed to intentionally gather input from a wide cross section of Edmontonians. While this engagement did not explicitly ask about climate, climate did surface as a theme of interest. This document captures feedback about climate and will be used to inform the update of Edmonton's Community Energy Transition Strategy.

For a full report of what we heard through The City Plan engagement, who we listened to and how we listened, please visit www.edmonton.ca/thecityplan

- **What We Are Hearing: October – November 2018**
- **What We Are Hearing: November – December 2018**
- **What We Are Hearing: January – June 2019 (City-Wide Engagement)**
- **What We Are Hearing: January – June 2019 (Indigenous Engagement)**

INDIGENOUS VOICES

Indigenous communities shared that they need to be involved in City projects earlier to share perspectives about the environment and the impacts that they are experiencing in their home communities surrounding Edmonton, and Edmonton regionally impacts rivers, air, and wildlife in their communities. There is still a perception that what Indigenous communities are sharing is not being heard and acted upon.

When asked about their future aspirations during engagement for the City Plan, participants were not focused on specific actions, goals or targets related to climate change. As participants were not directly engaged on the specific Climate Shifts, responses often highlighted ideas related to the quality of life, quality of the river and valley, and the importance of protecting the environment. Generally, five themes emerged from the City Plan Indigenous Engagement data that have direct ties to climate and the resilience of the city.

Natural Areas and Wildlife

Communities are concerned that natural areas are disappearing in the city that contains wildlife corridors and traditional plants. Indigenous communities believe everything has a spirit and is alive and is equal, not greater than another. Although Indigenous communities have been engaged on environmental monitoring, additional work is required to understand the broader regional cumulative impacts that extend beyond the city limits.

North Saskatchewan River and Other Water Bodies Are Important

The forts in Edmonton located beside the North Saskatchewan River were important trading posts; the North Saskatchewan River was an important component of the Indigenous economy helping to bring trade goods to the fort and helping them to purchase supplies for themselves and their community. Rivers were also used to help access hunting grounds and areas for gathering plants and medicines. Rivers were also used to help Nations to gather, celebrate and share and participate in ceremonies, which is one of the ways Indigenous communities could pass on wisdom, knowledge, traditions, and stories important to sustaining their way of life.

Indigenous communities that still use the river system are concerned about the rivers drying up. Some communities that are downstream of the city are concerned about the pollutants coming into their communities and that contaminated water will impact their drinking water. Concern was also raised about pollution contaminating the fish, which are caught and eaten by Indigenous people.

Protect Natural Areas and Create New Green Spaces

Natural areas and green spaces are more than parks for Indigenous people, they provide important cultural and spiritual qualities supporting, their mental, physical, and spiritual well-being. Indigenous people have a strong and very unique connection to the environment, including the land, water, air, and everything living in the environment. The expression "all my relations" is often used to reflect that everything is connected.

Through previous engagements several Indigenous communities referenced the importance of having natural areas free of pollution and contamination. Many Indigenous people use natural areas to practice cultural ceremonies and to collect and harvest traditional plants and medicines. These natural areas are important places to teach future generations about culture, language, and connection to the land that help them protect and preserve their way of life.

Ideas on Renewable Energy

Many Indigenous communities were familiar with renewable energy, as many communities in attendance of the engagement session had their own forms of renewable energy projects including wind and solar. During engagement sessions, Indigenous communities specifically identified that the City could look at utilizing "green energy", "green power", and explore "reusing waste for energy". Indigenous communities have also recommended that the City seek out best practices from other countries (e.g., Germany) around the world.

Implement Recycling Programs

Throughout the engagement, Indigenous communities referenced the importance of recycling programs suggesting ideas such as: composting, gray water, water barrel program, and reusing products and reducing how much waste goes to the landfill.

CITY-WIDE ENGAGEMENT AND CLIMATE SHIFTS

When asked about their future aspirations as a city, participants were not focused on specific actions, goals or targets related to climate change. Responses often highlighted ideas related to quality of life, including access to amenities, services, affordable housing, reasonable commutes and job opportunities. Analysis of the data identified where those quality of life aspirations aligned with the climate shifts at the centre of the update of the Community Energy Transition Strategy. The text below highlights common themes related to climate change and sustainability received in the city-wide engagement for The City Plan.

CLIMATE SHIFT I



TOOLS & TARGETS

Participants broadly identified that they would like to see Edmonton reduce its ecological footprint and greenhouse gas emissions. On the whole, these statements did not have an amount or time frame attached to them.

More Than Just Greenhouse Gas Emissions –

Perception of environmental sustainability is focused on more than just limiting CO₂e emissions. Overall, responses were more likely to identify concerns about our collective ecological impacts like habitat degradation, or polluted waters, than global climate impacts.

General Aspirations – High-level aspirations like “be greener”, “be a climate leader” and “reduce our carbon footprint” were frequent. Specific actions were not identified.

“Greener” Is Not Enough – Saying “Greener” as part of The City Plan is not enough to meet the high bar of reaching the Paris Climate Agreement. Without clear and specific goals, ideas can be “green-washed” and approved. Guidelines should have clear thresholds and requirements for a range of topics including building and community design practices.

Track Metrics – It is crucial to have specific metrics and regularly monitor goals so we can understand how our decisions bring the city closer to its aspirations. Climate indicators and alignment with the Edmonton Declaration were specifically identified.

Specific targets – Adhering to international, national and local climate goals is important. (Limit increase in global average temperature to 1.5 degrees, a 40% reduction in emissions by 2050, and having all new buildings be built to Net Zero standards or better by 2030.)

Apply a Universal Climate Lens – All decisions should be made with consideration of climate impacts. Formally adding this lens to the decision-making process will help to ensure that Edmonton's climate goals are given a high priority and that its goals are actively considered at all stages of service delivery and policy making.

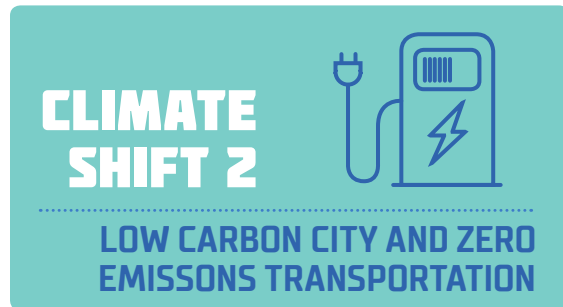
Consistency – Consistency over time is crucial to realizing major changes. Realizing goals requires implementation; decisions should be made only in alignment with goals.

Other Ideas

In addition to the above, participants also identified these ideas:

- Monitoring of air and water quality to address local environmental impacts; and
- Some participants indicated the need to use other metrics including 8/80 principles, Gender Based Analysis (GBA+), among others to help measure how the climate shift impacts people's quality of life and other factors associated with a just and equitable transition.

“Psychologically we need to shift, it’s not passion, it is terror. That’s taking over the whole world and we don’t want to be stuck with a plan that does not go far enough on that.”



The majority of responses received were focused on actions related to building a low carbon city. Edmontonians have clear ideas about the ways that the built form of our city can change to influence CO₂e emissions.

City Design Relies on Driving – Edmontonians recognize how the current design of our city directly contributes to CO₂e emissions. Reasons cited: how far Edmontonians have to travel to get to work and services, and how our cold winters have both contributed to large parts of the city being car-oriented or dependent. Driving is by far the best way to get around compared to transit or other modes, and even more so in the winter.

Car Dependency is Not Equitable – For most Edmontonians, living without a car is not a viable option. Reasons cited: cold climate, the design of suburban neighbourhoods and poor transit service. This is especially true for families, people who don't work downtown and people living in new suburbs. Without significant investment, achieving a greater uptake of public transportation and active transportation will be very challenging and will not occur equally across the city.

Electric Vehicle Adoption – Given Edmonton's existing car dependence and the magnitude of change required to reduce that dependency, it is important to find ways to speed the overall electrification of private vehicles in order to reach Edmonton's climate goals.

Exceptional Future Transit – The poor quality of Edmonton's existing transit system directly contributes to participants' decision to drive for their daily needs. To attract significantly more riders, the quality of the transit experience needs to improve. Common complaints raised against the existing system included long wait times, waiting in the cold, feeling unsafe both waiting and riding, as well as how long it takes to get to destinations compared to driving and the overall cost of transit, especially when considering paying for multiple family members and park and ride services. Ideas brought forward as part of these changes included:

- Make certain parts of the city free for transit;
- Build more transit priority infrastructure;
- Develop additional bus shelters;
- Expand the LRT network to serve a greater portion of the city including low income areas; and
- Improve neighbourhood access to bus transit.

Build a Low Carbon City – There is a desire to build a low carbon city by promoting more sustainable transportation systems including mass transit, walking, biking and electric vehicles. Reducing urban expansion into surrounding farmland and addressing car dependency across the city, especially in outlying areas can take place by reshaping the city. There are concerns about infill development and taking road space away from cars.

Safe Active Transportation – Active transportation networks that feel safe for a broad range of users are needed.

Local Access to Services – It is important to have communities in which it is possible to access services and amenities without a vehicle. The current design of neighbourhoods requires Edmontonians to drive; changes that encourage and enable residents to make more trips without a vehicle are desirable.



Design Well Integrated Future Communities –

Edmonton's climate aspirations need to be considered in the design of greenfield areas, where a large portion of Edmonton's growth occurs. Special attention needs to be paid to fully integrating major transportation transit rights-of-way, either for bus rapid transit or LRT into the design of new neighbourhoods.

Green Infrastructure – Green infrastructure can directly contribute to Edmonton's low carbon future. This includes the development of priority lanes for "green vehicles", expanding the LRT network, higher efficiency buildings, and active transportation corridors. Green transportation systems should efficiently connect the suburbs to other parts of the city and the core.

Role of the Private Sector – Identifying the roles of private businesses, service providers and utilities in helping Edmonton achieve its sustainability goals is important.

Evolve Carbon Emitting Industries – Reducing the impact of "carbon-emitting industries" to reduce Edmonton's climate impacts is an opportunity. While this is desirable from an environmental perspective, there is a need to evolve these industries to avoid eliminating jobs and livelihoods. Support to workers and their families impacted by the evolution of carbon industry is needed.



CLIMATE SHIFT 3



EMISSIONS NEUTRAL BUILDINGS

Develop Along Green Transportation Corridors – The co-location of additional medium and high-density residential development alongside major green transportation corridors, like frequent bus transit or LRT, is important.

Other Ideas

In addition to the above, participants also identified these ideas:

- Establish a “cap and trade” system to manage suburban growth;
- Establish car free areas to promote active transportation and transit to major destinations;
- Develop solutions to the “last mile” problem of transit systems;
- Create expanded green spaces that are more accessible and dispersed throughout the city;
- Promote opportunities for local food and urban agriculture;
- Redevelop and intensify existing neighbourhoods instead of developing in the suburbs;
- Connect greenspaces as part of the multi-modal transportation network; and
- Improve use of underutilized land instead of expanding the city.

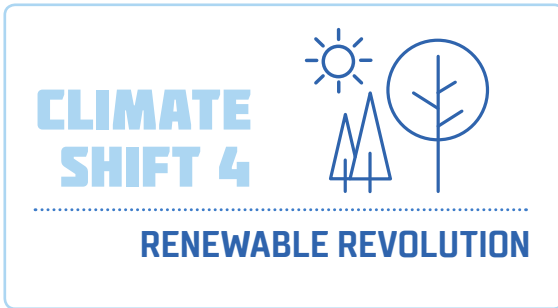
Compared to the other Climate Shifts, there were fewer responses related to carbon neutral buildings. Despite this, when carbon neutral buildings were raised by participants, there was consensus that more should be built. The significant role that carbon neutral buildings can play in achieving global climate goals was not identified.

Green Incentives – Incentives and rebates to undertake green renovations in Edmonton are desirable. These renovations, such as installation of high efficiency windows and re-insulation of older residential buildings, are often seen as more expensive or challenging than traditional building practices.

Renovate and Retrofit Heritage Buildings – Vacant and heritage buildings can be renovated and retrofitted to preserve Edmonton's character. It is possible to renovate the interior of buildings and maintain the façade: green retrofits.

Community Scale Carbon Retrofits – Supporting individual building owners interested in achieving carbon neutrality was mentioned. There was little mention of the massive scale at which these renovations are needed to bring buildings towards carbon neutrality.

“ENVIRONMENT! Our vision must have something such as: Green Initiative etc. etc. Global Warming is real and if we don't do anything, the temperature of our planet WILL go up.”



Mention of the renewable revolution was more often mentioned at workshops than at drop-in events. Overall, participants were supportive of renewable revolution ideas.

Renewable Energy Production – Future energy production should come from renewable sources. This involves limiting the use of coal and other fossil fuels for energy production and heating in order for Edmonton to meet our local commitments to the Paris Climate Agreement.

Type of Energy – Greater use of solar, hydro and wind energy, as well as exploration of nuclear energy, are possibly sources of future energy. There is a need for large-scale retrofitting of existing homes and buildings for solar energy production and greater adoption of electrified transportation options.

Manage Waste Wisely – The management of, and how we handle our waste products is important. It is important for Edmontonians to divert material from landfills, be better recyclers, and compost organics. Consumer culture plays into our carbon footprint.

Green Incentives – Incentives would be appreciated, especially for the installation of residential solar arrays.

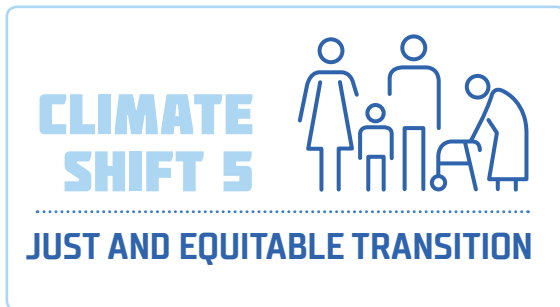


Other Ideas

In addition to the above, participants also identified these ideas:

- Compost as a way reduce waste production;
- Reduce overall consumerism; and
- Work with grocers, local restaurants and commercial food supplies to reduce waste in the food industry.

“Something related to the environment and climate change mitigation – controlling urban sprawl is part of this but is not enough. I see later that this idea is one of the goals, but I would prefer to see it as a concept that flows throughout.”



Ideas of inclusion and equity were described throughout The City Plan and Vision 2050 engagement data but generally without an explicit reference to climate. Across all engagement events, participants were interested in seeing greater levels of equity in many aspects of city building from policing to affordable housing and transit. While these concepts were not paired directly with environmental concerns, they did identify the following areas where concerns over equity and justice are aligned with the other Climate Shifts.

Overall Inclusion – It is important to ensure that Edmonton be an inclusive city in all ways, including welcoming newcomers and furthering reconciliation with Indigenous people.

Inclusive Redevelopment – In areas undergoing redevelopment and retrofitting, it is important to consider how redevelopment, even done with positive environmental outcomes, affects communities through displacement and cultural erasure. Residents of affordable or low-income neighbourhoods are more vulnerable to these challenges compared to residents of wealthier neighbourhoods. Green housing throughout the city is important, and it needs to be affordable and appropriate for a greater diversity of residents.

Housing Affordability – One of Edmonton's key appeals is its affordability compared to other cities in Canada and around the world. The future affordability of home ownership should be considered, especially as cheaper suburban housing shifts to be denser and additional costs associated with more sustainable and carbon neutral are incorporated into housing costs.

Indigenous Knowledge and Partners – Recognizing the long-standing role that Indigenous people have played as environmental stewards and advocates is important.

Green Jobs and Diversification – When it comes to revolutionizing the economy, Edmonton and Alberta as a whole, needs to be prepared for a "post-oil economy". This includes positioning educational institutions, designing new curricula and attracting new industries to contribute to a diversification of the economy away from oil and gas. Aim for plentiful green jobs that support workers in transition toward low carbon industries.

Equitable Access to Transit – Access to transit service around the city, including more affordable transit fares, expanded subsidized transit fare programs and an extended network of high-quality transit is important. Equity in distribution of major LRT investments is important; marginalized areas often do not have access to high-quality and frequent transit.

“There are no healthy cities or urban places if climate change is not solved. There is no other possibility than responding to these things.”

Equitable Transit Enforcement – Marginalized or minority groups are discouraged from taking transit because transit bylaw enforcement unfairly targets those groups.

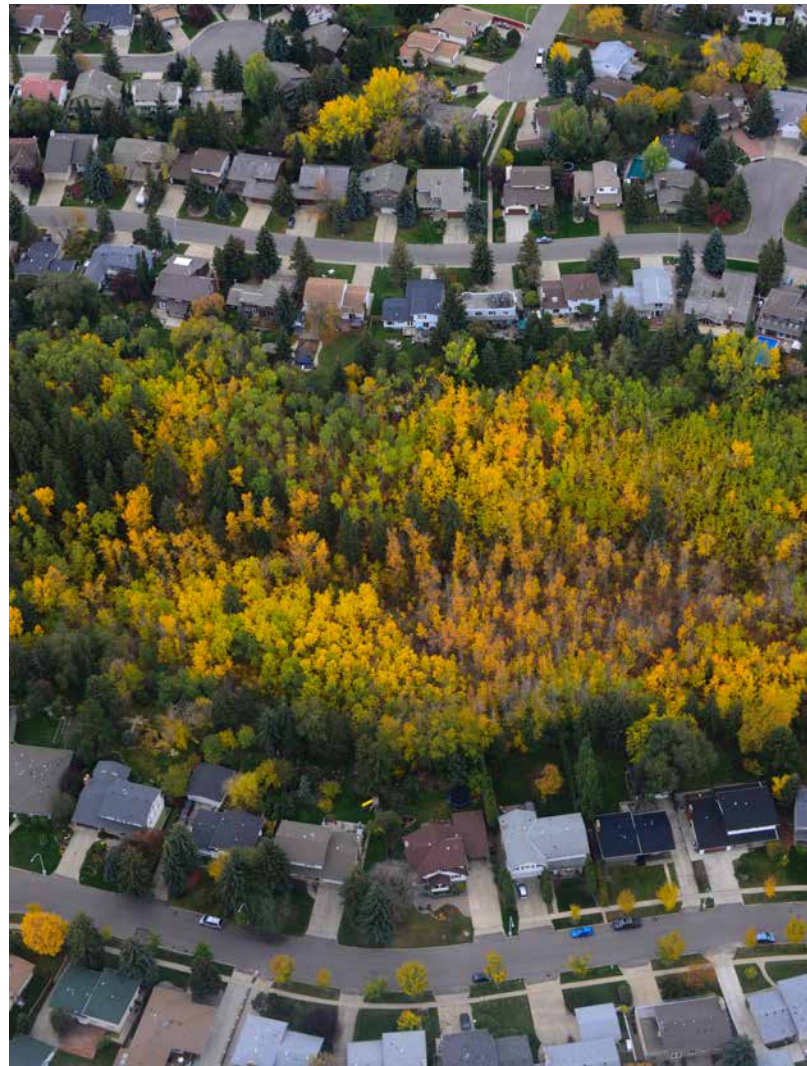
Dispersed Active Transportation Networks – Active transportation networks, distributed throughout the city to be accessible are important. These networks need to feel safe for all, including Indigenous people, people with mobility challenges, women, children and seniors.

Link to Other Climate Shifts – There is an explicit link between Climate Shifts 4 and 5 through calls for renewable energy production that was affordable for all users and having climate and energy production systems that are inclusive, rather than segregated.


Other Ideas

In addition to the above, participants also identified these ideas:

- Address quality of life inequities with promotion of time-consuming modes of transportation, like transit, for individuals who are already time impoverished as a result of other socio-economic factors; and
- Prepare to accept the arrival of new Edmontonians as a result of displacement and climate migration. Edmonton is a place with resources to be a climate refuge.



CLIMATE SHIFT 6



NEGATIVE EMISSIONS

Few methods and actions were identified to contribute to negative CO₂e emissions. Vision 2050 and The City Plan engagement did not ask for methods and actions, therefore this should not be interpreted as lack of public awareness or support.

Preserve and Protect – Preserving and enhancing greenspaces and natural areas is important to serve as carbon sinks and sequester additional CO₂e over their lifetime. It is important to also naturalize open spaces and protect farmland. This includes conversion of city-owned open park spaces into naturalized open spaces throughout the city. These concepts, although not always associated with negative emissions can contribute to this climate shift.

Other Ideas

In addition to the above, participants also identified these ideas:

- Establish permaculture systems which promote more circular use of resources in the agricultural industry including re-use of waste products;
- Use underutilized or vacant lands for urban agriculture as a way to strengthen the local food system;
- Require that additional lands be protected from development and maintained as natural areas during urban development to protect natural carbon sinks like wetlands and forests; and
- Consider how city infrastructure systems can be designed to make use of or emulate natural processes to manage products like sewage, stormwater or other waste materials.



CITY-WIDE ENGAGEMENT AND CITY DESIGN

Several engagement activities done by The City Plan Team focused explicitly on the preferred future form of Edmonton. These activities included building a model of Future Edmonton, a card game that focused on city patterns, and a game with blocks to explore how to distribute 1 million new Edmontonians. The following sections highlight some of the climate related findings of those activities.

City Patterns Card Game

The City Patterns card game identified Edmontonians' preferences about how the city's transportation, jobs, greenspaces and neighbourhoods might change in order to welcome another 1 million people to Edmonton.

Participants were asked four questions:

1. Transportation – How will Edmontonians move around the city?
2. Employment – How will jobs be distributed in the city?
3. Greenspace – How will we use greenspace in the city?
4. Proximity to Services – How will we intensify residential and commercial developments in the city?

For each question, at both drop-in workshops and through the Insight Community survey, participants chose their preferred pattern for the city:



DYNAMIC DOWNTOWN

This city pattern concentrates employment and population within a specific boundary centred around the current downtown and mature areas.



CONNECTED CORRIDORS

This city pattern distributes population and employment throughout the city along corridors as opposed to concentrating it at nodes.



VIBRANT VILLAGES

This city pattern attracts people and employment to major hubs distributed throughout the city.

Vibrant Villages

For all four questions, Edmontonians preferred the ideas which revolved around the concept of Vibrant Villages, which hinged on the idea of intensifying and promoting redevelopment around major destination and activity points throughout the city. Vibrant Villages would mean additional growth near major destinations like universities, hospitals, and commercial areas including areas like MacEwan University, NAIT, the Royal Alexandra Hospital and West Edmonton Mall.

In all question areas except Transportation, respondents second preference was for Connected Corridors, which would see intensification and change along major thoroughfares within Edmonton. Connected Corridors would mean additional growth along major thoroughfares such as Gateway Boulevard, 137 Avenue, 82 Street, Whyte Avenue or Kingsway Boulevard. This preference affirms other calls to see communities evolve to be more complete and offer a greater range of services locally.

What Kind of City Are We? Blocks Game

The Blocks Game provided The City Plan Team with feedback about how the city can welcome an additional 1 million residents within existing boundaries. Overwhelmingly, they identified changes to Edmonton's design and form that will contribute to an overall reduction of Edmonton's climate footprint and CO₂e emissions.

The actions identified by the participants included have a low carbon city in mind:

- **Reduce Edmontonians' dependence on private vehicles** by promoting the conversion of mature communities and the development of new areas to be hyper-local and walkable. This includes having local commercial spaces, recreation centres, park spaces and jobs many of which should be accessible within a short walk.
- **Improve the functionality and convenience of the transit system.** Without improving public perception of convenience, cost, safety and benefits of mass transit, Edmontonians have clearly indicated that driving will remain their primary mode of transportation into the future.
- **Integrate and co-locate where people work and live** so that daily commutes can be reduced: live close to work.
- **Develop high density, mixed-use developments along major transportation corridors.** Medium and low-density developments should be integrated into existing communities to support the overall densification of the city.
- **Reconfigure the system of multi-use trails and greenways as a functional transportation network**, as opposed to a mostly recreational system.

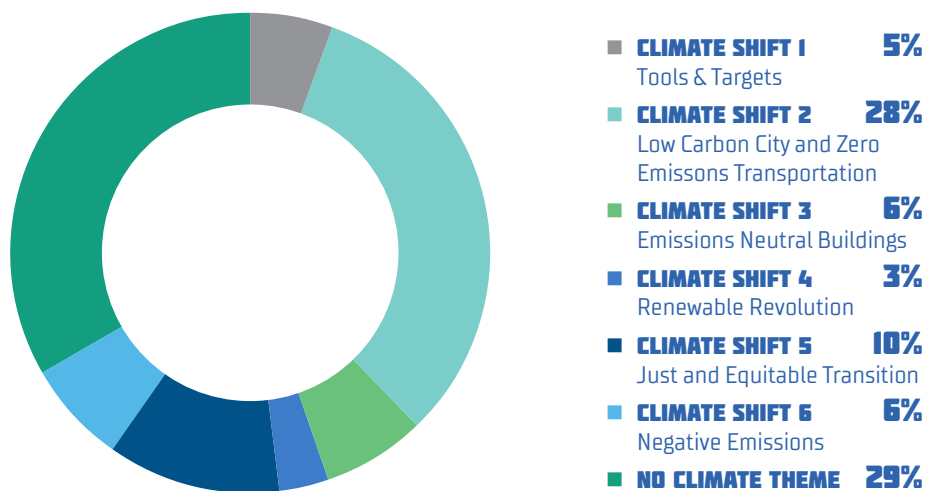
Quantitative Analysis

The March 2019 Insight Community Survey conducted as part of The City Plan engagement involved roughly 2,300 open text responses. From the responses, it is clear that Climate Shift 2: Low Carbon City and Zero Emissions Transportation is the climate shift that Edmontonians are most familiar with. The data mining software, when given a list of keywords related to the Climate Shifts, classified 28% of responses into that category. In addition, the survey responses also noted that Edmontonians are clearly interested in a Just and Equitable Transition, with 10% of responses including references to themes like energy poverty, green jobs, new Canadians, affordable housing and environmental justice.

Finally, the analysis also indicates a relative lack of input on the remaining four climate shifts: Tools and Targets, Emissions Neutral Buildings, Renewable Revolution, and Negative Emissions. Further engagement during this project should consider how best to gather a greater depth of perceptions and ideas related to these climate shifts as well as seek to educate Edmontonians about the potential value that they represent for meeting Edmonton's climate goals.

The combined results of the workshops and the Insight Community Survey are noted below.

Figure 2. Distribution of responses related to the climate shifts



For a full report of what we heard through The City Plan engagement, who we listened to and how we listened, please visit www.edmonton.ca/thecityplan



3

CONCLUSIONS AND NEXT STEPS

CONCLUSIONS

This What We Are Hearing Report gathers data about climate from the engagement undertaken for The City Plan (October 2018 to June 2019). The ideas captured here are the beginning of public engagement for the update of Edmonton's Community Energy Transition Strategy; they help highlight the many ways Edmontonians have already been telling the City what to do about the evolving crisis. It's now up to Edmonton's residents, municipal administration, business community, community organizations as well as other levels of government and decision makers to listen and take action. Other overall conclusions are discussed below:

A Low Carbon City of the Future – Edmontonians' are most interested and have the most ideas about this climate shift: being a low carbon city and electrifying the transportation system.

Climate Leadership – Edmontonians who provided input on the Vision 2050 overwhelmingly described a desire to have Edmonton be a global leader in environmental sustainability. While Edmontonians are clearly concerned about climate change and our impact on the environment, most did not articulate what actions should be taken to address these concerns.

Local and Tangible Environmental Sustainability – While many responses directly addressed ideas related to climate change, more often Edmontonians were focused on local and tangible impacts on the natural environment: air pollution, habitat degradation and waste management.

Timing – Of the responses directly related to environmental resilience, only a few indicated a time frame and those that did were focused on 2050 as opposed to the shorter 2030 timeframe which is identified for the Community Energy Transition Strategy.

Indigenous Voices – Indigenous communities shared that they need to be involved in City projects earlier to share perspectives about the environment and the impacts that they are experiencing in their home communities surrounding Edmonton, and Edmonton regionally impacts rivers, air, and wildlife in their communities.

Taxes and Efficiency – The City needs to be cautious when it comes to spending tax dollars, say a significant portion of respondents: keep taxes low, use common sense and ensure basic services are provided in a high-quality and cost-effective manner. Spending money on services which are considered extras compared to waste, roads and snow clearing, is not desirable for many Edmontonians. This includes spending on bike lanes and transit, which many feel contributes to traffic congestion.

City Design – The design of the city has an impact on our lifestyle and our CO₂e emissions. It also has an impact on how accessible and equitable the city is for its inhabitants.

Climate Adaptation – Adapting to the future impacts of climate change needs attention alongside the reduction of Edmonton's contribution to climate impacts.

Education and Awareness – Survey responses tended to indicate a lack of knowledge or awareness on multiple climate shifts. Future work as part of the Community Energy Transition Strategy update should focus on educating residents and broadcasting the importance of these climate shifts in meeting Edmonton's climate goals.

NEXT STEPS

The What We Are Hearing Report contains feedback from Edmontonians about climate resilience prior to City Council declaring a state of climate emergency and directing administration to update the Community Energy Transition Strategy to align with the international target of limiting global warming to 1.5°C. While many of the ideas summarized here indicate that residents have ideas about climate change, they did not get into specifics actions or how to make them happen in Edmonton. The targeted engagement activities which started in September 2019 and go into August 2020 will do this work. Expect to be in conversation about carbon budgeting, monitoring, negative emissions strategies, equity, and being a low carbon city.

For a full report of what we heard through The City Plan engagement, who we listened to and how we listened, please visit www.edmonton.ca/thecityplan

www.edmonton.ca/thecityplan

Edmonton

What We Are Hearing Report

Community Energy Transition Strategy

September 2019 - May 2020

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edmonton.ca/**EnergyTransitionUpdate**

| **SHARE YOUR VOICE**
SHAPE OUR CITY

Edmonton

Acknowledgements

We acknowledge the traditional land on which Edmonton sits, on Treaty 6 Territory, a traditional meeting ground, gathering place and travelling route for the Nêhiyawak (Cree), Anishinaabe (Saulteaux), Nakota Sioux, Dene (Denesuline), Niitsitapi (Blackfoot), and Métis. We acknowledge all the many First Nations, Métis, and Inuit, whose footsteps have marked these lands for centuries.

Edmonton is a welcoming place for all people who come from around the world to share Edmonton as a home. Together we call upon all of our collective honoured traditions and spirits to work in building a great city for today and future generations.

The authors of this report thank everyone who participated in the engagement activities. Your contributions are greatly appreciated and we hope you see your values and ideas reflected in these pages.

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1. Executive Summary

On August 27, 2019, Edmonton's City Council voted to update the Community Energy Transition Strategy (CETS) to align with the international target of limiting global warming to 1.5°C. At the same time, City Council declared a Climate Emergency and signalled that climate change is serious and demands urgent action.

On August 27, 2019, City Council voted to update the Community Energy Transition Strategy to align with the international target of limiting global warming to 1.5°C.

How We Are Hearing

In alignment with the City of Edmonton's Public Engagement Policy, the City is asking stakeholders to help *REFINE* and *ADVISE* on the proposed update of the CETS. Three streams of engagement are being pursued:

- The City is committed to engage with the Memorandum of Understanding Partners, including Enoch Cree Nation, the Confederacy of Treaty Six First Nations and the Métis Nation of Alberta, as the project intersects with Indigenous interests and concerns that relate to climate change. The state of the environment, rivers, wildlife and plants have been among some of the most identified areas of concern.
- The City is focused on targeted stakeholders who have diverse expertise and are well positioned to contribute technical expertise.
- The City focused on providing the general public with opportunities to learn about the proposed changes, provide advice, contribute ideas, and flag areas of concern.

The first phase of engagement for the CETS focused on **what** needs to be done to transition to a low carbon city and took place from September 2019 to May 2020. During this period 28 events took place to gather feedback from Edmontonians.



28

Events around
Edmonton



850+

Conversations with
Edmontonians



2600+

Written Comments

What We Are Hearing: Themes

Twelve general themes of feedback were identified:

1. **Take action now:** The impacts of climate change are unpredictable, wide-ranging and potentially irreversible.
2. **There is no “silver bullet”:** The CETS update must focus on a wide range of actions to meet the City’s climate goals. Fundamental system changes are needed.
3. **Pandemic recovery opportunities:** Implementation of the CETS can bring opportunities for economic recovery during and following the COVID-19 pandemic.
4. **Support investment in the transition:** The transition requires a significant amount of public and private financial investment. There is recurrent concern of how to fund the transition.
5. **Sustain the transition:** Choose actions that are sustainable and desirable in the long run. This will help support a high quality of life for current and future Edmontonians.
6. **Ensure a just and equitable transition:** Ensure that the implementation of this transition doesn’t exacerbate existing inequalities and that it brings opportunities for all Edmontonians.
7. **Leverage this opportunity for economic transition:** Beyond an energy transition this is an opportunity for Edmonton to innovate, leverage existing skills and diversify its economy.
8. **Change the culture:** Significant culture change will be required across many systems to embrace the overwhelming challenge of this transition. These include energy, transportation, food, waste and social and community systems. Our culture is already changing.
9. **Educate and communicate:** Wide-reaching awareness campaigns are necessary to help Edmontonians understand the needs, targets and solutions. This includes strategies to educate people on the new concepts and on the impacts of their lifestyle decisions.
10. **Align with the City Plan:** To succeed the CETS must align its targets and actions with those in the City’s new municipal development plan.
11. **Look beyond greenhouse gas emissions:** A range of sustainability issues should be considered including air and water quality, waste

“Thank you for calling a climate emergency and putting it into the public record!”

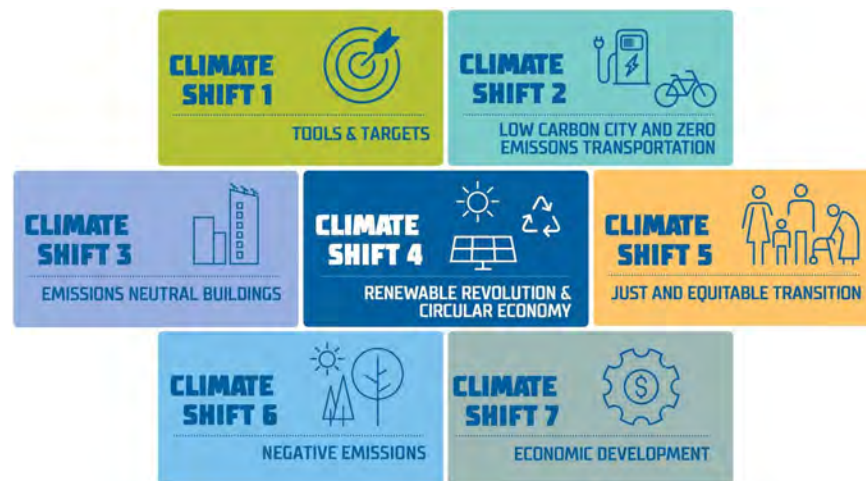
-Community pop-up participant

management, biodiversity, ecosystem and public health, as well as social, cultural and economic perspectives.

12. **Partner for change:** A wide range of partnerships will be needed to meet the City's climate goals. This includes partnerships with Indigenous communities, education and research institutions, industry and community organizations.

What We Are Hearing: Climate Shifts

The proposed actions needed to meet the City's climate goals have been grouped into seven Climate Shifts. These Shifts are the foundation of the CETS update and of the engagement and were developed by modeling the various scenarios and solutions, conducting jurisdictional scans of 52 cities and researching best practices.



Highlights of the feedback received:

Climate Shift 1: Tools & Targets: There is support for a local carbon budget to prioritize and guide municipal decision making, and track progress. A carbon budget for individuals could help them understand the impact of their actions. It is important to use global best practices for measurement and monitoring while considering the uniqueness of Edmonton and the oil and gas sector in the region. There is also concern about how to finance this transition.

Climate Shift 2: Low Carbon City and Zero Emissions Transportation: There is a desire to enhance our transportation systems and support more active transportation. It is acknowledged that Edmonton is designed as a

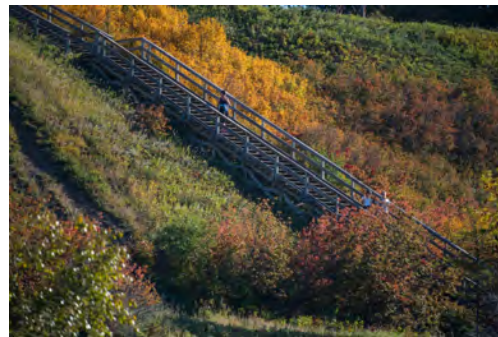
vehicle city and this shift would involve a culture shift. Access to renewable energy ideally via a “green grid” is essential to achieve this shift.

Climate Shift 3: Emissions Neutral Buildings: There is support for having energy efficient buildings and acknowledgement that we need to have people trained with the skills to do this work. Realistic targets are necessary and the City needs to work closely with industry partners.

Climate Shift 4: Renewable Revolution and Circular Economy: There is a desire to embrace renewable energy sources, reduce waste and to foster a sharing and circular economy. Edmontonians want to see the City manage waste better and establish extended producer responsibility.

Climate Shift 5: Just and Equitable Transition: There is support to make sure that people are not left behind and inequalities are not exacerbated with this transition. Energy poverty must be addressed. Creating a just & equitable working group and framework was well received during engagement conversations, as well as looking for opportunities to partner with existing organizations/programs.

Climate Shift 6: Carbon Capture and Nature Based Solutions: There is a desire to use natural areas and open spaces as carbon sinks. Planting trees, protecting wetlands and urban farming, as well as a range of community partnerships can support this. Technology approaches are considered most effective when integrated into industrial heavy carbon emitting processes.



Climate Shift 7: Economic Development: The energy transition is an opportunity to create employment opportunities and diversify Edmonton’s economy. Consideration about the impacts and possible opportunities of this transition for under represented minorities, women and oil and gas workers is important. Partnerships, political leadership, regulation and policy signals, market opportunities and training/retraining will be needed.

Next Steps

The input received during this first phase of engagement is being used to inform the draft update to the CETS, which will be presented to City Council in the fall of 2020.* The next phase of engagement, tentatively scheduled from July to October 2020, will seek advice about **how** to implement the proposed CETS with Edmonton-focused actions/solutions. A second What We Heard report will be prepared with the input received during the next phase and will help inform the CETS document. The updated CETS will be presented to City Council early 2021 for approval.

**At the time of writing this report, dates for engagement and City Council meetings are not confirmed.*

All subsequent engagement will be respectful of the directives of Alberta Health Services and Alberta's Chief Medical Officer of Health regarding the COVID-19 pandemic in the Edmonton area.

2. Update to the Community Energy Transition Strategy

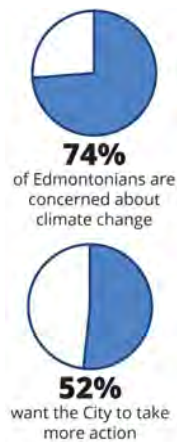
The CETS was approved by Edmonton's City Council in 2015 and it aims to reduce greenhouse gas (GHG) emissions, generate renewable energy and increase energy efficiency across all sectors.

The Community Energy Transition Strategy (CETS) was developed to help Edmonton mitigate the risks of climate change. The best scientific knowledge and advice available was used. The CETS was approved by Edmonton's City Council in 2015 and it aims to reduce greenhouse gas (GHG) emissions, generate renewable energy and increase energy efficiency across all sectors.

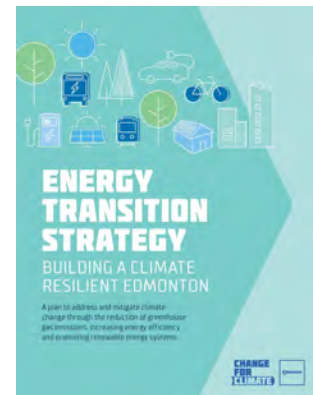
Since 2015, the City of Edmonton has been implementing the CETS with a suite of integrated programs under the *Change for Climate* banner. The programs have been developed to encourage residents, communities, corporations, industry, building owners/operators and others to work together to reduce GHG emissions.

Edmonton's current CETS is thorough and bold, but it's not bold enough to respond to the urgent call from the United Nations' Intergovernmental Panel on Climate Change (IPCC) to limit global warming to an increase of 1.5°C. According to the IPCC scientists, 1.5°C is the maximum amount that the average global temperature can increase without causing serious climate destabilization. Staying within this threshold is necessary to ensure a sustainable and equitable society for all. This goal is also in line with the [Edmonton Declaration](#), which calls on cities to take climate action and has been endorsed by over 4,500 municipalities in North America.

On August 27th, 2019, Edmonton's City Council voted to update the CETS to align with the international target of limiting global warming to 1.5°C. At the same time, City Council declared a Climate Emergency and signaled to local and international communities that climate change is to be taken seriously and demands urgent action.



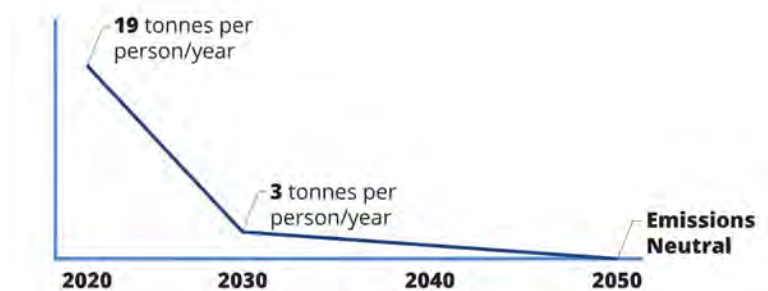
source: Climate Change and Energy Perceptions Survey, September 2019



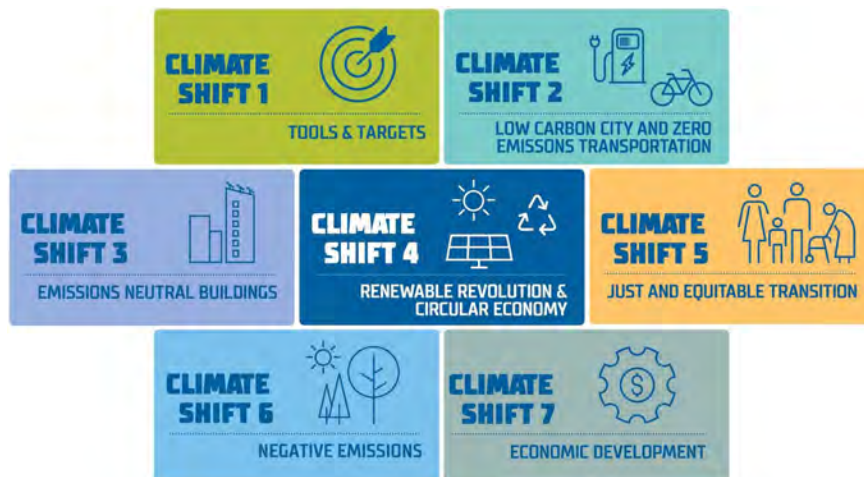
Edmonton is using a carbon budget to guide the update of the CETS, set targets and measure progress. A carbon budget is the total amount of GHG emissions permitted over a period of time (in this case until 2050) in order to stay within a temperature threshold.

Edmonton's carbon budget will be exceeded in 7 to 9 years.

At current levels of emissions, Edmonton's carbon budget will be exceeded in 7 to 9 years. Staying within this local carbon budget will require transitioning from 19 tonnes of emissions per person/year to 3 tonnes per person/year by 2030, to being emissions neutral by 2050.



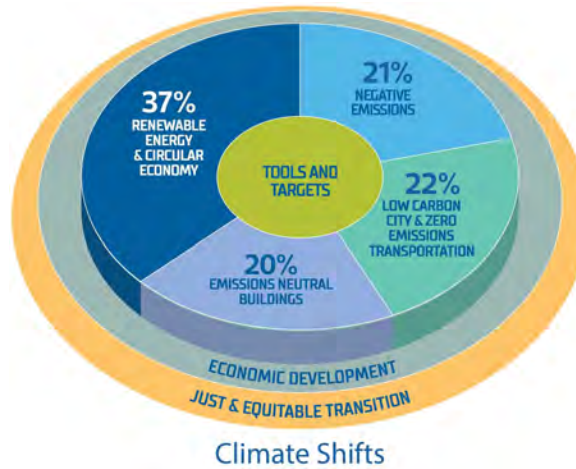
The City has grouped the proposed actions needed to achieve that transition into seven Climate Shifts. These Shifts were first developed by conducting jurisdictional scans of 52 cities, researching best practices and modeling the various scenarios and solutions.



The Shifts are designed to work in an integrated way. Tools & targets are at the core and are surrounded by the four Shifts whose actions directly or indirectly reduce GHG emissions. The percentages describe how each shift

contributes to reaching the target. In addition to being their own Shifts, the Economic Development and Just & Equitable Transition Shifts are lenses that apply to all Shifts. This integration ensures that this energy transition creates economic prosperity and that it happens in a just and equitable way.

The Climate Shifts with their proposed actions are being presented to stakeholders for their input.



3. How We Are Listening

Dynamic Listening

The update to the Community Energy Transition Strategy (CETS) as well as how Edmontonians are being engaged, has been a dynamic and flexible process. Information has been shared as it becomes available and input from stakeholders has been incorporated into the draft of the CETS as appropriate, as well as into the engagement design. Due to tight deadlines, engagement activities have taken place in parallel to the development of technical modeling and policy briefs.

In the fall of 2019 six “Climate Shifts” were shared with stakeholders. As a result of that engagement Climate Shift 7: Economic Development was added. The engagement that took place from January to May 2020 included this seventh shift as well as more detailed information on the proposed targets and actions. After March 12, 2020 the City changed how it engaged with stakeholders due to COVID-19. Although the majority of activities for the initial phase of engagement had already occurred, a few meetings with targeted stakeholders took place online in April and May 2020.

The purpose of engagement is to ensure that the proposed update of the CETS, with its Climate Shifts and actions, captures the best practices, innovations and ideas, and that it is implementable in Edmonton.

The City will continue this dynamic and flexible approach as the project proceeds. Particular attention will be paid to engagement activities that will advance the project and are respectful of the directives around the COVID-19 pandemic in the Edmonton area.

Purpose of Engagement

The purpose of engagement is to ensure that the proposed update of the CETS, with its Climate Shifts and actions, captures the best practices, innovations and ideas, and that it is implementable in Edmonton. Feedback from stakeholders and the public play a key role in the development of an updated CETS, which will be presented to Council for approval.

In alignment with the City’s Public Engagement Policy, this project uses the engagement spectrum to identify the role of targeted stakeholders and the public in the decision-making process.



The level of engagement in this project varies between *ADVISE* and *REFINE* depending on the Climate Shift and is shown in the table below.

ADVISE	ADVISE & REFINE
<ul style="list-style-type: none"> • Climate Shift 1: Tools & Targets • Climate Shift 2: Low Carbon City & Zero Transportation Emissions • Climate Shift 4: Renewable Revolution & Circular Economy 	<ul style="list-style-type: none"> • Climate Shift 3: Emissions Neutral Buildings • Climate Shift 5: Just & Equitable Transition • Climate Shift 6: Carbon Capture & Nature Based Solutions • Climate Shift 7: Economic Development

Streams, Phases and Activities

Three Streams of Engagement

This phase of engagement involved three efforts:

1. **Indigenous engagement** in this phase took place with the City's Memorandum of Understanding Partners, including Enoch Cree Nation, the Confederacy of Treaty Six First Nations and the Métis Nation of Alberta, to ask how the Partners would like to be engaged and share information and ideas.
2. **Targeted stakeholder engagement** was the main focus for this phase of engagement. This involved a variety of existing groups from various backgrounds, with diverse expertise, who are well-positioned to contribute to the technical aspects of the CETS update.

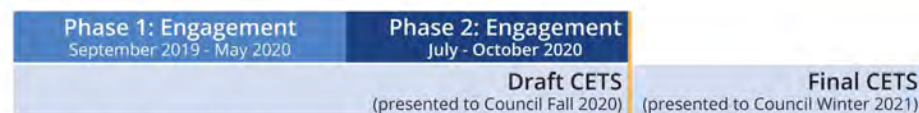
Participants were asked to identify what needs to be done for Edmonton to make the transition to a low carbon city and to do it in a just, equitable and prosperous way.

3. **Public engagement** events took place in the form of pop-up events at community gathering places (malls, recreation centres and public events) and workshop sessions on specific topics. The public had opportunities to learn about the proposed changes, provide advice, contribute ideas, and flag areas of concern. Education was an essential part of the engagement, as there are various new technical concepts and solutions that the general public might not be familiar with.

Parallel to these streams, an additional targeted stakeholder engagement is currently taking place with members of the building and development industry around Climate Shift 3: Emissions Neutral Buildings. Internal engagement with City of Edmonton representatives is also underway. The results of these engagements will be included in the final engagement report and integrated into the updated CETS as deemed appropriate.

Phases of Engagement

This phase of engagement took place from September 2019 to May 2020. A second phase of engagement is tentatively scheduled to take place from July to October 2020.* All subsequent engagement will be respectful of the directives of Alberta Health Services and Alberta's Chief Medical Officer of Health regarding the COVID-19 pandemic in the Edmonton area.



*Dates not confirmed due to COVID-19

This phase of engagement focused on obtaining input and advice about the Climate Shifts and the proposed actions/solutions. Participants were asked to identify **what** needs to be done for Edmonton to make the transition to a low carbon city and to do it in a just, equitable and prosperous way. The next phase of engagement, will seek advice about **how** to implement the proposed CETS with Edmonton-focused actions/solutions. The input received during this second phase of engagement will inform the final CETS document, scheduled to be presented to City Council for approval in the fall of 2020.

**At the time of writing this report, dates for engagement and City Council meetings are not confirmed.*

Engagement Activities

From September 2019 to May 2020, 28 engagement events took place giving participants opportunities to *ADVISE* and *REFINE* the update to the CETS, including:

- Community drop in events
- Public facilitated workshops
- Targeted stakeholder facilitated workshops
- Committee meetings and webinars



28

Events around Edmonton



850+

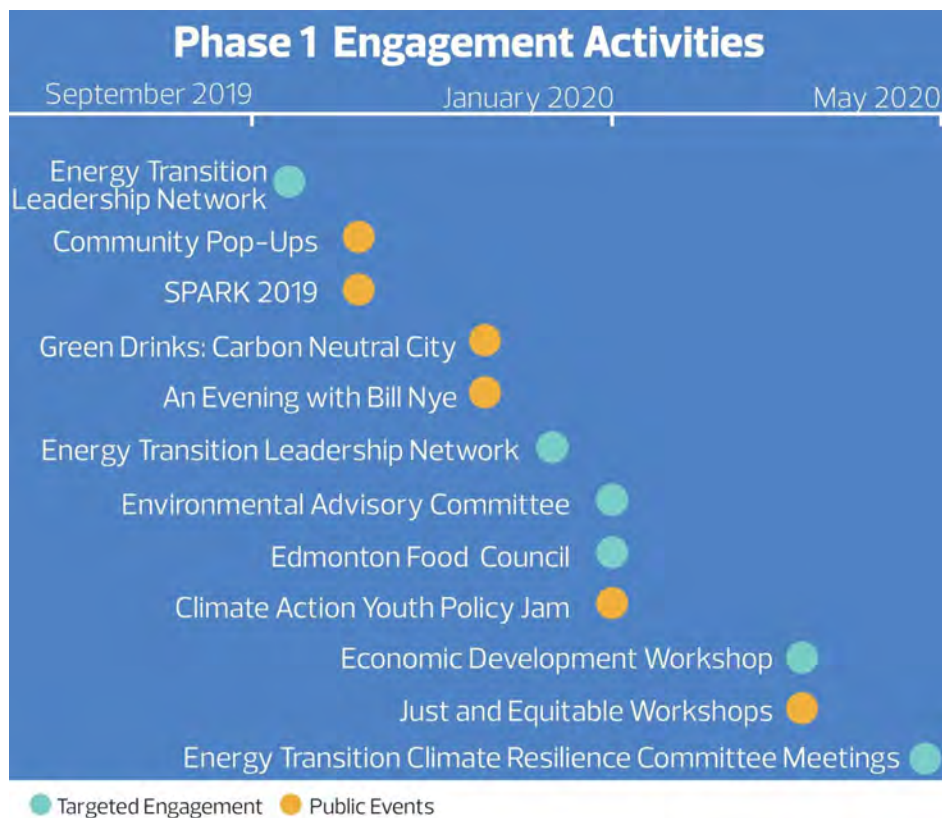
Conversations with Edmontonians



2600+

Written Comments

The details of how engagement took place, and the results, can be found in Section 4: Who We Are Hearing From and Section 5: What We Are Hearing. In addition to the above activities, seven stakeholder sessions specific to the Emissions Neutral Buildings Climate Shift and over 60 internal (City of Edmonton) stakeholder meetings to discuss the CETS update took place during this phase.



Communication of Engagement Opportunities

Public engagement events were promoted widely to ensure Edmontonians were aware of the opportunities to provide their input on the update of the CETS. Communications tools and tactics used include:

- Public service announcements
- Articles on the Change for Climate newsletter
- Social media (organic & boosted) posts on City of Edmonton and Change for Climate channels (Facebook and Twitter)
- Blog posts on change4climate.ca
- Up to date information at Edmonton.ca/EnergyTransitionUpdate
- Printed ads in the Edmonton Journal
- Invitations to targeted engagement events were emailed using existing stakeholder lists and when applicable through member organizations.



Public Engagement Commitments

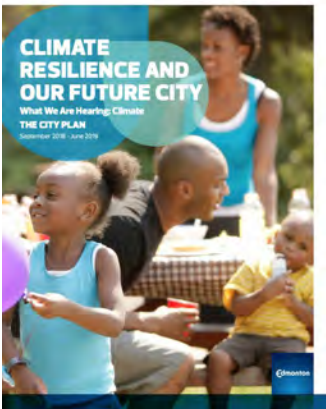
Below is a list of the commitments that have been made prior to initiating engagement with stakeholders. These commitments helped frame the engagement activities.

1. **We are aligning with the 1.5°C target:** Under City Council's direction the purpose of updating the CETS is to align its goals with the international target of limiting global warming to 1.5°C. This requires that Edmonton transitions to a low carbon city.
2. **We are using a local carbon budget:** The CETS update will use a local carbon budget to set its targets and to monitor its progress. Edmonton's local carbon budget was calculated to be 135 Megatonnes from 2020 to 2050.
3. **We are organizing actions into Climate Shifts:** The proposed actions have been grouped into categories called Climate Shifts. The proposed actions are the result of modelling, jurisdictional scans of 52 cities and best practices.
4. **We are working towards agreed goals and objectives:** With the larger goal of limiting global warming to 1.5°C, the objectives of the CETS are to reduce greenhouse gas emissions, reduce energy use, increase the generation of local renewable energy and pursue carbon capture and offset opportunities. The updated CETS is aiming for a just and equitable transition, while maintaining a

prosperous economy with excellent quality of life for all current and future Edmontonians.

5. **The project timelines are set by City Council:** The deadlines on this project were set by City Council on August 27, 2019 *prior to the COVID-19 pandemic:*
- a. An interim report with accelerated actions due to City Council on December 2, 2019.
 - b. An initial draft for the updated CETS due to City Council in June 2020.*
 - c. The final CETS Update due to City Council in October 2020.*
 - d. Endorsement of the final CETS by City Council for City Charter regulations in December 2020.

**These dates have been changed due to COVID-19 pandemic.*



Dynamic Questions

This phase of engagement started with a review of the climate-related feedback Edmontonians provided during engagement for The City Plan from October 2018 to June 2019. The key findings are summarized in the [Climate Resilience and Our Future City: What we are hearing about climate](#) report. These findings provided an understanding of where Edmontonians wanted the city to be in the next 30 years in terms of climate resilience and insights on some specific actions. This review also helped inform the planning of subsequent engagement, including how to engage specific key stakeholders such as Indigenous Peoples and identify the Climate Shifts that needed the most input.

From September 2019 to December 2019, engagement focused on sharing the Climate Shifts and asking stakeholders: **What needs to be done to transition Edmonton to a low carbon city?** To help them approach this broad question, stakeholders had an opportunity to learn about the proposed Shifts and actions/solutions and then answer three simple followup questions:

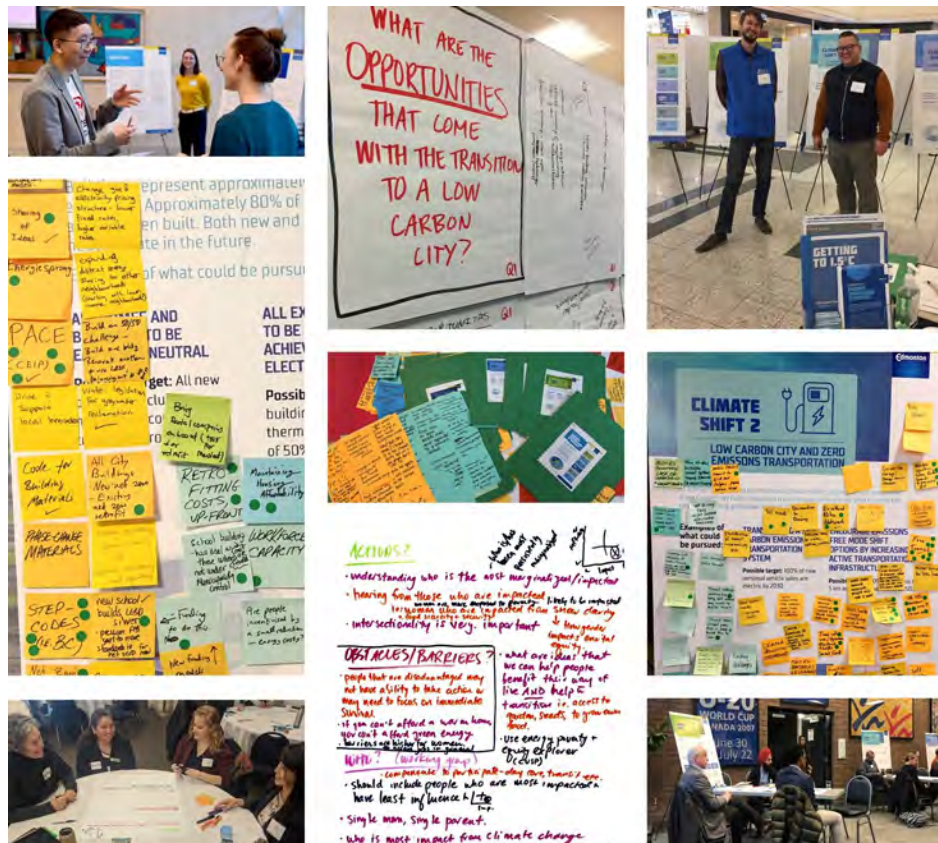
1. **What excites you?**
2. **What concerns you?**
3. **What is missing?**

After reviewing the feedback from the 2019 sessions and examining the information needed, the focus of engagement from January 2020 to May

2020 became more specific. Stakeholders were asked: **How can we make this energy transition happen in a just, equitable and prosperous way?**

This question allowed the public and targeted stakeholders to explore and *REFINE* the two least developed Climate Shifts: Just & Equitable Transition and Economic Development. This question also invited participants to explore applying just, equitable and prosperity lenses to all the Shifts.

Throughout the engagement, participants were asked questions to help identify both **opportunities** to make the energy transition, and **barriers** to the transition. Further, participants identified **solutions** to the barriers, providing vital feedback to the City about what can work best in Edmonton.



4. Who We Are Hearing From

This phase of engagement involved three streams: Indigenous engagement, targeted stakeholder engagement and public engagement.

To inform the update to the Community Energy Transition Strategy (CETS) this phase of engagement involved three streams: Indigenous engagement, targeted stakeholder engagement and public engagement. This section describes who was engaged. Results of the engagement can be found in Section 5: What We Are Hearing.

Indigenous Engagement

The City of Edmonton is located within Treaty 6 Territory and Region 4 of the Métis Nation of Alberta, and has been a gathering place and traditional territory of Indigenous peoples since time immemorial. The Edmonton metropolitan region is also home to over 75,000 Indigenous peoples (First Nations, Métis, and Inuit) who have and continue to make significant contributions to the city's social, economic and cultural prosperity.

Based on the extensive engagement the City has done with Indigenous communities and organizations from across Alberta, the City has learned that Indigenous communities are very interested in the climate conversation. Throughout the City's engagement sessions on such projects as City Plan, Breathe, River Crossing, Touch the Water and the six Light Rail Transit projects, the state of the environment, rivers, wildlife and plants have been among some of the most identified areas of concern.



The City is committed to engaging with its Memorandum of Understanding (Memorandum) Partners that include Enoch Cree Nation, the Confederacy of Treaty Six First Nations and the Métis Nation of Alberta when projects intersect with Indigenous interests and concerns. The City acknowledges that the CETS project is of interest to Indigenous communities and believes

in the importance of positive relationships with these communities within the spirit of the Memorandum Agreements (See Appendix B).

Indigenous engagement in Phase 1 involved the City reaching out to the Memorandum partners to share information about the CETS update project, and ask how the partners would like to be engaged. Partners then identified individuals with interest and expertise in environmental and climate science to engage with the City through a meeting and workshop activity.

Following this, three engagement sessions took place with Memorandum partners. Prior to the sessions, participants received a workbook with examples of existing projects in the Edmonton region that helped illustrate the kind of action the proposed CETS update is aiming for.

Targeted Stakeholder Engagement

Given the technical nature of the CETS update and the tight timelines, targeted engagement has been the focus of in-depth engagement. For this project, the term targeted stakeholders refers to a variety of existing groups from various backgrounds and diverse expertise that are well-positioned to make technical contributions to the update. Below is a summary of the targeted stakeholder engagement that was completed during this phase.



Energy Transition Climate Resilience Committee

The Energy Transition Climate Resilience Committee (ETCRC) is made up of 15 members who provide advice to City Council regarding the implementation of the Community Energy Transition Strategy and the Climate Resilient Edmonton: Adaptation Strategy and Action Plan.

In this phase ETCRC members were invited to dive into the proposed update of the CETS as follows:

- Strategy & Planning Subcommittee: Edmonton Tower, Sept. 24, 2019
- Strategy & Planning Subcommittee: Edmonton Tower, Oct. 17, 2019
- Action on Buildings Subcommittee: Virtual meeting April 9, 2020
- Strategy & Planning Subcommittee: Virtual meeting April 9, 2020
- Transportation Subcommittee: Virtual meeting April 14, 2020
- Clean Energy Subcommittee: Virtual meeting April 15, 2020
- ETCRC monthly meeting: Virtual meeting May 7, 2020

Energy Transition Leadership Network

The Energy Transition Leadership Network is a group of 230+ community members passionate about the energy transition, with members working together to turn ideas into action.

During this phase the Network met twice to discuss the CETS update. The first meeting focused on the role of fission and fusion (nuclear technologies) in Edmonton's energy transition and the second time to provide input to all the Climate Shifts.

- Edmonton Tower: Sept. 11, 2019 (50 attendees)
- Edmonton Tower: Dec. 4, 2019 (59 attendees)



Green Ribbon Panel (Energy Future Lab Fellows)

The Green Ribbon Panel is made up of 64 Energy Future Lab Fellows. This diverse group of innovators and influencers work together to shape the energy system the future requires. As a panel they bring their individual and collective expertise to provide technical advice and recommendations on the feasibility of the various proposed actions.

After receiving a webinar introduction to the CETS update, the Green Ribbon Panel was asked to review and provide written feedback to the 18 policy briefs that inform the update. The panel also participated in a follow up workshop to learn about how all the pieces of the CETS fit together and share their feedback one more time.

Engagement took place as follows:

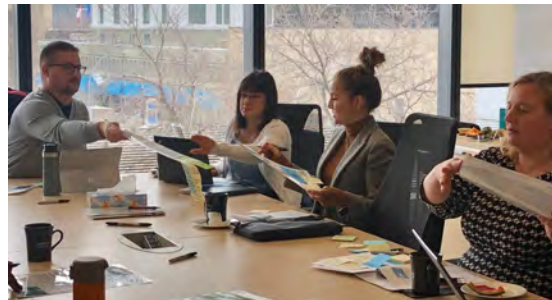
- Webinar: Oct. 17, 2019
- Policy briefs review via Google form: Oct. 2019 to Feb. 15, 2020
- Workshop at Cochrane Ranchehouse: Feb. 27, 2020 (64 attendees)

Environmental Advisory Committee

The Environmental Advisory Committee coordinates strategic advice and expertise from the community for the continuing development of the City's environmental strategic plans and environmental issues as they arise.

During a facilitated workshop, seven members of the committee provided input into the Climate Shifts and their actions.

The session took place on Feb. 12, 2020 at the Edmonton Tower.



Edmonton Food Council

As a volunteer committee of the City, the Edmonton Food Council's primary role is to advise on matters of food and urban agriculture and to take an active role in supporting the implementation of FRESH: Edmonton's Food and Urban Agriculture Strategy.

During a facilitated workshop eight members of the Edmonton Food Council provided feedback on the Climate Shifts as they relate to food. They mainly addressed: Renewable Revolution & Circular Economy, Just & Equitable Transition, Economic Development, Carbon Capture and Nature Based Solutions.

This engagement took place at The Roundhouse in MacEwan University on Feb. 18, 2020.

Economic Development Workshop

To further develop the Economic Development Climate Shift, the City invited members from the business community to a facilitated workshop. During this workshop participants were asked to apply an economic development lens to the proposed CETS update and help identify opportunities and challenges for innovation and collaboration, among others.

The session took place at the World Trade Centre on Feb. 27, 2020 and 23 active members of the business community participated.



Emissions Neutral Buildings (Industry Engagement)

In addition to the Indigenous, targeted stakeholder and public engagement sessions completed during this phase of the project, a targeted stakeholder engagement with members of the building and construction industry around this Shift is currently underway. Their feedback is not captured in this report but will be included in the final engagement report and integrated into the updated CETS as deemed appropriate.

The purpose of the targeted Emissions Neutral Buildings engagement is to identify how to achieve annual net zero greenhouse gas emissions in all new buildings constructed by the year 2030. This requires engagement with internal and external stakeholders involved in the building and construction industry as they will be those most affected by the updated CETS, as well as those responsible for its success.

In this phase an Emissions Neutral Buildings Steering Committee (ENBSC) was established and held three meetings. Three additional sessions took place to raise awareness and collect feedback on the Emissions Neutral Building Strategy with industry members from the Canadian Home Builders' Association, Infill Development in Edmonton Association (IDEA) and Commercial Real Estate Development Association. One meeting to gather technical feedback also took place.

As the ENBSC continues to meet in the coming months, a final Emissions Neutral Buildings pathway will be provided to City Council as part of the final CETS for their approval early 2021. Feedback provided from this stakeholder group during the duration of the project will be included in the engagement report for the next phase of engagement.

Internal City of Edmonton Engagement

Engaging with the City of Edmonton's leadership and staff is essential for the success of the CETS update. During this phase more than 60 meetings with representatives from across administration took place to share the proposed Climate Shifts, collect input on actions and explore new ideas for reducing greenhouse gas emissions. These meetings indicated an awareness of the City's energy transition and climate change work among staff and that a wide range of large and small actions to support the strategy are already underway.

It is worth noting that considerable effort is already being put into the following City initiatives: Emissions neutral buildings, electric buses, securing renewable energy, district energy, planning for climate mitigation & resilience as part of The City Plan and the Zoning Bylaw, and exploring a framework for incorporating carbon into the budget, among others. From a just and equitable transition lens, there are opportunities to collaborate and partner with other existing programs in the City.



Ongoing engagement with various internal stakeholders will continue until the final CETS is presented to City Council early 2021. Findings from internal engagement are continuously informing the update and a summary will be included in the final What We Heard Report which will be provided to City Council at the end of the project.

Public Engagement

Public engagement with Edmontonians on the CETS update is key to the long term success of the project. Being a community strategy, it is essential for the project team to know what excites and concerns the public on the proposed update and capture their ideas. Public engagement in this phase included a range of events as listed below.



Community Pop-Ups

In the fall of 2019, the City shared information about the CETS update and provided input opportunities at the following events across Edmonton:

- Engage Edmonton: This series of in-person sessions took place in partnership with the City Plan and Edmonton Bike Plan project and through these engagement activities, 264 conversations about the CETS took place.
 - Londonderry Shopping Centre, Oct. 19, 2019
 - The Meadows Recreation Centre, Oct. 22, 2019
 - Southgate Centre, Oct. 23, 2019
 - West Edmonton Mall, Oct. 24, 2019
 - Edmonton Tower, Oct. 25, 2019
- Spark 2019: Carbon Positive - Edmonton Convention Centre, Oct. 28 - 30, 2019 (36 conversations)
- The Local Good Green Drinks: A Carbon Neutral City - Yellowhead Brewery, Nov. 13, 2019 (106 participants)

- An Evening with Bill Nye - Northern Alberta Jubilee Auditorium, Nov. 16, 2019 (89 conversations)

During these sessions, participants were asked to share what excited them, what concerned them and what was missing from the Climate Shifts and proposed actions. Participants in these drop-in sessions had various levels of expertise on the topic.



Just and Equitable Transition Workshops

The City hosted two public workshops and asked participants to roll up their sleeves and dive into conversations about how to make this energy transition happen in a just, equitable and prosperous way. During the sessions participants applied their understanding of a just and equitable lens to the proposed CETS update and contributed ideas to the actions under Climate Shift 5: Just & Equitable Transition.

Sessions took place as follows:

- Commonwealth Recreation Centre: Mar. 4, 2020 (31 participants)
- La Cite Francophone: Mar. 7, 2020 (31 participants)

While these sessions were open to the public a concerted effort was made to invite stakeholders from social agencies, community organizations and diverse multicultural groups in the city.



Youth Policy Jam

The City organized a Climate Action Youth Policy Jam in collaboration with the Youth Climate Lab, a global organization that accelerates youth-led climate policy, projects and business ideas. This youth-for-youth interactive event used design thinking principles to engage the youth in the update of the CETS. Input was gathered around the seven Climate Shifts and the proposed actions.

This session took place Feb. 25, 2020 in the Heritage Room of Edmonton's City Hall and 34 Edmontonians between 18-24 years of age participated in this session.



Climate Change & Energy Perceptions Survey

The City commissions an annual Climate Change & Energy Perceptions survey to understand Edmontonians' beliefs regarding climate and energy transition, and compare changes in perceptions and social norms throughout the years. The results help inform policy and programs, such as the update of the CETS.

The 2019 general population online survey took place from Sept. 13 - 23 and had 1,003 respondents (residents of Edmonton and 18 years of age or older). A stand alone report for the survey results can be found in changeformclimate.ca/surveyresults.

Engagement Feedback

Understanding participants' experiences at engagement events is important. Engagement evaluation forms were distributed to participants at the end of organized engagement sessions and where possible during drop-in events. This feedback is used by the City to identify areas of improvement or clarification and help shape future engagement.

5. What We Are Hearing

This section describes the input received during the Indigenous, targeted stakeholder and public engagement sessions for the update of the Community Energy Transition Strategy (CETS). During these sessions engagement participants had opportunities to learn about the Climate Shift and the actions/solutions and were asked questions to help identify **opportunities and barriers, and solutions to those barriers**. Those categories are used to summarize the input received for each Climate Shift.

Indigenous Engagement: About the Climate Shifts

The following pages summarize the feedback provided throughout the Indigenous engagement workshops with Memorandum partners.



Climate Shift 1: Tools & Targets

Opportunities

- **Awareness and education:** There is an opportunity to build awareness and educate people on how much individuals contribute to collective greenhouse gas emissions and how much they individually contribute to Edmonton's carbon budget.

Barriers

- **Awareness and education:** The City will need to increase efforts to build awareness and educate Edmontonians on the current carbon budget and climate change context and the impacts of their daily behaviours to effectively contribute to meeting CETS targets.
- **Implementation and regulation:** Building and infrastructure retrofitting, consumption and emissions monitoring need to be implemented. It will be difficult to ensure that residents and industry have access to sustainable financial tools and technology for retrofits and that there is consistent monitoring regardless of incentive program regulations, political changes or socio-economic status.
- **Population growth:** Population growth will need to be accounted for in the local carbon and municipal budgets.

"Continue the greening of Alberta energy grid - bigger partnership City / Provincial/ Federal" - Indigenous workshop participant

- **Targets:** The 1.5°C target to mitigate climate change is evolving; what is going to happen when the current target is no longer relevant or feasible?

“Eco co-ops: partnering with City for green housing, social spaces in apartments, co-officing etc. Eco consuming lifestyle” - Indigenous workshop participant

Solutions

- **Awareness and education:** Educating Edmontonians on how they can effectively adapt their daily behaviours to reduce carbon emissions will be key to creating successful and meaningful long term solutions.
- **Climate modeling:** Modelling tools can be made widely available to Edmontonians so they can understand and track their impacts on the environment.



Climate Shift 2: Low Carbon City & Zero Emissions Transportation

Opportunities

- **Collaboration and partnership:** Collaboration and partnerships with communities and governments outside of the City present an opportunity to support regional adaptation to low carbon emissions and sustainable transportation.
- **Cultural change:** Making a cultural shift towards greener energy sources and transportation is an opportunity to bring communities and different social groups together to build support for changing our individual and collective choices and actions.
- **Sustainable transportation:** There is an opportunity to make transportation more sustainable in Edmonton by taking advantage of alternative transportation options such as rentable electric scooters and bicycles and creating incentives and built environments that make alternative options more appealing.

“The grid will need to get greener for electric vehicles being a good option” - Indigenous workshop participant



Barriers

- **Personal vehicle dependence:** The built environment has been designed to accommodate and encourage the use of private vehicles. It will be a challenge to adapt existing infrastructure to accommodate a shift towards public and sustainable transportation options.
- **Collaboration and participation:** Collaborating and coordinating changes with adjacent municipalities, communities and people commuting to the City for employment will be challenging but important as Edmonton is a regional economic and employment centre.
- **Implementation:** Implementing changes to reduce carbon emissions will require buy-in, participation and action from politicians and citizens. The City's jurisdiction may be limited to regulation and enforcement.

“Rentable e-bikes could make a difference, easy access, no storage”

- Indigenous workshop participant

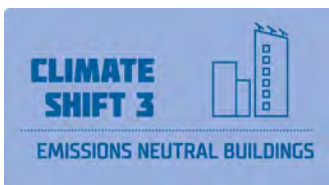
Solutions

- **Personal vehicle reduction:** Reduce the widespread dependence on personal vehicles through incentivizing and supporting alternative transportation and transit options.
- **Incentives:** Create retrofitting and public transportation incentives for citizens to adapt to greener energy and transportation options to encourage individuals, industry and communities to change.
- **Sustainable transportation:** Electric vehicles (EV) may support more Edmontonians in their sustainable transportation transition rather than telecommuting or using public transit. E-scooters, E-bikes and HOV lanes will also support individuals in their transition.

Climate Shift 3: Emissions Neutral Buildings

Opportunities

- **Financial tools and partnerships:** Explore opportunities to collaborate and partner with financial institutions to provide low interest loans and other financing tools to lessen the financial burden of adapting and retrofitting buildings and incentivize participation.



“Opportunities for creating affordable housing by turning old houses into various energy efficient units and creating community.”

- Indigenous workshop participant

- **Knowledge and expertise:** Use the knowledge and expertise that Edmontonians have.
- **Regulations:** There is an opportunity to update current building regulations to make new buildings more environmentally friendly and ensure that City facilities adhere to the same standards. Explore how the City can partner with other levels of government to support the transition to cleaner energy and emissions neutral buildings.
- **Retrofitting programs:** Explore program options to incentivize retrofitting buildings and coordinate program delivery with other levels of government to make retrofitting options appealing and affordable to Edmontonians.

Barriers

- **Compliance:** Compliance and enforcement will be a challenge for commercial and private buildings.
- **Local & global impact:** There are local and global socio-economic and environmental impacts in transitioning to alternative forms of energy. How will the transition impact local and global Indigenous communities?
- **Funding:** A lack of funding and/or contingency financial reserves are significant barriers to being able to implement change. Often what is offered will not cover the full costs of retrofitting a home or transitioning to greener energy. There needs to be a greater and more consistent financial incentive and support if people are going to make changes.
- **Knowledge and expertise:** There is a gap in knowledge and expertise that can make it difficult for communities to participate, access appropriate resources, or contribute meaningfully.

“Proper phasing of renovation funding (got solar funding, but didn’t realize that roof needed substantial upgrades).” - Indigenous workshop participant

Solutions

- **Funding and regulation:** Ensure that funding is substantive enough to be useful and incentivize meaningful participation. Simplify applications and reporting processes to encourage compliance and participation.
- **Retrofitting:** Retrofitting existing buildings could be a solution to the energy inefficiency of many older buildings and a way of creating more emissions neutral buildings.



Climate Shift 4: Renewable Revolutions and Circular Economy

Opportunities

- **Awareness and education:** There is an opportunity to enhance education and build awareness around renewable revolutions and circular economies.
- **Collaboration and partnerships:** There is an opportunity to partner with other municipalities, regions and levels of government to collaborate to become more effective and widespread.
- **Facilities:** There is an opportunity to expand existing recycling and composting facilities to make them more efficient, versatile, safe and reduce waste by increasing our capacity for recycling, composting and reusing.
- **Funding and incentives:** Providing funding and other incentives for renewables encourages participation and assists those that can not afford to implement the technology, such as people with low or fixed incomes.
- **Local energy and renewables:** Look into local renewable sources of energy production such as biofuels and solar power.



“In lower income neighbourhoods, could there be a community solar farm so that each home wouldn’t have to pay to have one installed on their own building.”

- Indigenous workshop participant

“Need policy around waste management for private companies... More control over commercial waste.”

- Indigenous workshop participant

Barriers

- **Funding and grants:** There is a lack of sufficient funding/grants and significant cost challenges associated with adapting to cleaner energy. Cost can be a huge barrier to success.
- **Programs:** Explore ways to make City programming more accessible, efficient and robust.
- **Recycling:** The City’s current recycling program could be improved, for example properly recycling glass.
- **Feasibility:** There can be feasibility challenges when it comes to updating buildings that can be a barrier to transitioning to clean energy (e.g. having to fix roofs prior to installing solar panels).
- **Waste management:** Many aspects of waste management are beyond the City’s control. How private companies package

consumer materials and dispose of waste cannot necessarily be monitored or controlled by the City. There is a lack of transparency regarding how private companies dispose of waste and whether or not their processes are environmentally friendly or ethical.

“With Blatchford the City has learned a lot about geothermal and efficiency and could publicly share lessons with private developers to incentivize and learn from the effort”

- Indigenous workshop participant

Solutions

- **Collaboration and partnerships:** Collaborate and partner with other regions and governments to ensure we reach collective goals.
- **Commercial waste:** Enhanced City regulation and control over commercial waste that is currently not regulated effectively.
- **Facilities:** City facilities need to be upgraded to increase their ability to recycle and process waste and increase what they are able to process.
- **Funding and incentives:** Grants and other incentives should be offered to encourage participation in efforts to be more environmentally conscious and enable the participation of those who would otherwise be unable to participate.
- **Renewables:** Use existing waste and materials to implement new renewable technologies and provide opportunities for community participation. (i.e., Businesses provide their compost to create biofuels for the community.)



Climate Shift 5: Just and Equitable

Opportunities

- **Collaboration and partnerships:** There is an opportunity to develop a working group with people that have experience with the just and equitable lens to support the City in implementing CETS in a just and equitable way.
- **Procurement:** Establish Indigenous procurement programs to take advantage of opportunities and support Indigenous communities and suppliers.
- **Accessibility:** Modify existing infrastructure and design new infrastructure to be universally accessible and encourage walkability.

“Many Indigenous Peoples live in Edmonton, good to see the mention of Indigenous Peoples here...Really good shift to include, hits a lot of good points” - Indigenous workshop participant

- **Best Practices:** Review best practices from other communities and countries for ideas on just and equitable housing, transportation and sustainability programs and practices.

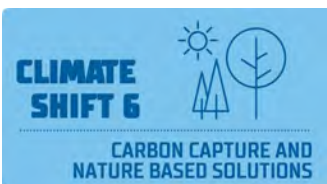
Barriers

- **Collaboration and resources:** There is a need for greater collaboration between all levels of government and Indigenous communities. There is also a need for resources and funding to build capacity to support the meaningful action and participation of communities.

“Continuous engagement with those most impacted by climate change - need to follow-up, needs to be continuous, strong dialogue with marginalized groups on changing programs” - Indigenous workshop participant

Solutions

- **Engagement:** Establish a working group for those that are marginalized and underrepresented and maintain ongoing dialogue about how they are impacted by climate change and the CETS initiatives.
- **Funding, financing and procurement:** Work with local Indigenous communities and levels of government to develop funding, financing tools and Indigenous procurement programs.
- **Training:** Support Indigenous work with transferable skills, or provide partnership with education institutions for re-training, to support Indigenous employment in the renewable energy economy.



Climate Shift 6: Carbon Capture and Nature Based Solutions

Opportunities

- **Collaboration and partnerships:** There is an opportunity to develop partnerships and collaborate with Memorandum Partners to share knowledge and resources and for nature based solutions.
- **Environmental protection:** Protect and enhance environmental assets locally and regionally such as wetlands and tree stands that serve an important purpose in carbon capture and nature based solutions.

Opportunity to partner to preserve surrounding wetland areas - Indigenous workshop participant



Partner with Indigenous groups to help plant trees, restore, maintain - Indigenous workshop participant

Barriers

- **Knowledge and expertise:** There is limited knowledge and expertise on carbon capturing technology and practices and the resulting long-term impacts of carbon capturing technology.
- **Risks to nature-based solutions:** Extreme weather and wildfires, land development and human or industrial activities and uses that pose risks to nature based solutions such as the River Valley or urban tree canopy.

Solutions

- **Awareness and education:** Educating the public and Indigenous communities on carbon capturing environmental assets, technology and practices will allow for greater collective understanding and implementation.
- **Best practices and policy:** Review existing land development best practices globally that are already being implemented on carbon capturing and policy and regulation to enhance nature-based solutions.



Climate Shift 7: Economic Development

Opportunities

- **Collaboration and partnerships:** There is a significant opportunity for the City to partner with Memorandum Partners through potential CETS initiatives such as job retraining, local food production, regional environmental initiatives and renewable local energy production.
- **Indigenous procurement:** Indigenous procurement policies and regulations will support Indigenous communities and peoples in participating in City CETS initiatives.

Barriers

- **Collaboration and partnerships:** There are significant farmlands surrounding the City that could be explored for economic opportunities (carbon capturing or local food production), but it requires regional collaboration between different levels of government.

- **Political environment and resources:** Changes in different levels of government pose a challenge to achieving a unified and collaborative understanding and effort and the sharing of resources to build capacity and encourage participation.

Solutions

- **Partnerships and funding:** Indigenous communities, business and the City can partner on unique economic development opportunities to support CETS initiatives that create a meaningful impact and build capacity in Indigenous communities and businesses.
- **Training:** Indigenous youth and businesses training in renewable technology, project management for renewable projects, transitioning skills from industries will increase economic opportunities for Indigenous communities and contribute toward achieving the CETS targets.



Targeted Stakeholder and Public Engagement: About the Climate Shifts

The following pages summarize the feedback provided throughout the targeted stakeholder and public engagement sessions.



Climate Shift 1: Tools & Targets

Opportunities

- Global alignment:** The City should be aiming to integrate global best practices into the City's approach to reduce greenhouse gas emissions. The City should also be looking to the global community to help inform their actions based on best-practices and other evidence-based solutions. Some participants also indicated that the City should also carefully integrate local characteristics including the city's car-dependent form, cold climate and economic reliance on the energy sector into the energy transition.
- Financing the transition:** Multiple financial tools and programs were identified that could be used to support Edmonton's climate goals. While some of these financial systems may be outside of the City's ability to implement, there were several opportunities including public-private partnerships (P3), zero-interest loans and the PACE program that they felt were viable for the City to implement. In addition, they identified that the City could leverage its significant purchasing power to select low emissions products that could drive down supply costs for producers and other consumers.
- Communication and education:** Communication and education were some of the most common topics identified in the engagement input. The City should be making the concepts easier to understand including providing examples of how complex technical terms and amounts relate to people's

"Can't think of anything missing... other than figuring out how we will pay for it and make it happen."
 -Energy Transition Climate Resilience Committee member



daily lives and annual consumption. Other sentiments were that the City needs to be making a more significant effort to broadcast its climate goals. In contrast, one participant was fed up with the focus on education and felt that the City should “just enact policy that must be followed. Be bold”.

“Native plants include more than just trees. Get rid of grass in city parks and properties. Plant clover and low maintenance plants”
-Environmental Advisory Committee

- **Industry reporting and measurement:** The City should mandate that large emitters report their emissions to the City in a transparent and consistent manner. Public comments also indicated that they were unsure how this should be undertaken and that further engagement with industry was needed to identify appropriate methods to measure their emissions.
- **Community-led approaches (grass roots movements):** Members of the public were interested in exploring community-based approaches to reducing greenhouse gas emissions like measuring emissions against residential neighbours or promoting community initiatives like community-gardens and local businesses. Some participants were also concerned that top-down actions would lead to major economic shocks. In this vein, one participant referenced the 1980s National Energy Program that is blamed for a major recession in Alberta.
- **Taxation:** Many participants felt that the City should consider alternate taxation strategies that promote energy efficiency and retrofits for homeowners and landlords. A wide range of ideas were identified including lowering taxes for high efficiency homes, taxing larger homes and providing other tax incentives for businesses that show significant reductions in greenhouse gas emissions.

Barriers

- **Other levels of government:** There was a recognition that to achieve its goals, the City would require support from other levels of government, especially around challenges like energy production that are largely outside of the City’s control. The current provincial government’s budget priorities were also commonly cited as barriers to the City reaching its climate goals.
- **Rate of change:** Some participants indicated that they were concerned about the short timeline that the City has identified for reaching its climate goals. Some felt that a step-wise approach

would be more approachable and easier to gain public buy-in.

Other participants were concerned that the City's actions are being started too slowly and that the city's current form and reliance on private cars will limit its ability to meet its goals.

- **Future proofing programs:** It is important that new programs that are implemented in the near future be considered from a far future lens. This includes ensuring that rebate programs or other subsidies are not supporting technologies that will not meet our future goals in the name of marginal improvements in efficiency today. For instance, specific issues were raised with programs at a national level that incentivize consumers to buy technologies that have to be phased out completely to meet the City's goals in the long term.
- **Quality of life:** Some participants were concerned that the City was asking people to lower their current quality of life and felt that this mentality will not garner support from the general public. Some of these comments indicated that the City should focus on what it wants rather than the negative aspects of the current situation. Others were clear that they felt that without politicians showing how they were sacrificing to meet these goals that the general public would not support these changes.

“What are the ideas that help people benefit from this way of life and help with the transition?”

-Just and equitable workshop participant

Solutions

- **Price on carbon:** Stakeholders and the public identified the need to put a price on carbon emissions in order to incentivize increases in efficiency and decrease emissions. Actions identified included:
 - Continue to focus on heavy emitters;
 - Identify a fair approach to carbon pricing for consumers; and
 - Find ways to mitigate impacts to low income families.
- **Consumer-level carbon budget:** A common idea that participants indicated was a family of tools to help Edmontonians better understand their personal greenhouse gas emissions. They indicated that public tools were needed to help calculate personal and business emissions. Other tools identified included online dashboards, publishing energy grid efficiency and labelling consumer products with emissions, including both on smaller purchases as well as larger sources of emissions like vehicles and

“Excited about how this shift can be a source of cost savings”

-Energy Transition Leadership Network participant

homes. Some participants also noted that energy labelling should not be about penalizing people but supporting them to make more sustainable choices overall.

- **City-level carbon budget:** Modelling a carbon budget and incorporating its findings into decision-making processes is critical to prioritizing actions and understanding how those actions are helping Edmonton reach its goals. Support for carbon budgeting included a spectrum of approaches from simply identifying tangible targets to integrating a carbon cost to all city projects and permit evaluations.

There was general support for city-level carbon budgeting with public support for budgets that measure our immediate carbon emissions while there was explicit support from some targeted stakeholders related to more fulsome carbon budgets that also consider the carbon emissions created by the production of goods and services both locally and globally. One expert stakeholder indicated that they felt the City would be well-enough served by using production-based reporting as it generally identifies the largest emitters for a community and that these emitters should be the target for the City's immediate upcoming 10-year action plan. They noted that future updates to the strategy could then expand on consumption-based budgets to identify remaining emitters once action had been taken on those topics.

- **Metrics and measurement:** Other ideas included suggestions for specific metrics to use when prioritizing actions or measuring their success. One recommendation was to consider the dollar cost per unit of carbon emissions reduction when prioritizing different actions or options. In addition, participants were concerned that the City does not have a clear 'baseline' or understanding of the current state of emissions against which to compare future actions.

"Adding a carbon budget into the City of Edmonton's greenhouse gas reduction targets is an effective way of communicating the urgent need to reduce emissions."

-Green Ribbon Panel - policy review comment



Climate Shift 2: Low Carbon City and Zero Emissions Transportation

Opportunities

- **Autonomous vehicles:** Participants had mixed concerns with the entry of autonomous vehicles (AVs) into the vehicle market. Some participants were concerned about how AVs could increase greenhouse gas emissions. In contrast, others felt that they might

have a positive impact if they were regulated with several key conditions like reduce vehicle trips, be electric and incentivize car sharing. In addition, they felt that there might be opportunities for AVs to travel at slower, more energy efficient speeds because they offer passengers an opportunity to do other work while travelling.

- Active transportation – bikes:** Support for active transportation was a common theme raised by participants. They identified that the City should be expanding a connected active transportation network. Comments focused primarily on enhancing the active transportation network including separated lanes, winter clearing, secure storage, and bike share. In addition, participants thought that there should be more emphasis on investment in active transportation infrastructure and greater prioritization during the design of transportation networks in the core and the suburbs.



“Bikes need to be permitted & left space on both buses & LRTs to increase integration possibilities”

-Community pop-up participant

- Electrifying the transportation system:** Stakeholders were in alignment that electrifying the city’s transportation system (the use of electric powered buses and promoting private electric vehicles) was important to meet our climate goals, although some comments indicated that hydrogen fuel might be more effective for some applications. Participants identified that the City could be involved in incentivizing electric vehicle (EV) sales as well as supporting installation of solar panels and charging stations. While comments were generally supportive of electric vehicles replacing internal combustion engines, comments also noted that they had concerns about the affordability of EVs and their availability at dealerships. Some comments indicated that changes wouldn’t be significant without stronger regulations and incentives that promote electric vehicles.



“Debunk myths around Electric Vehicles in cold climate”

- The Local Good Green Drinks participant

Barriers

“You almost have to drive to get to certain places. Our urban form needs that transition”

-Energy Transition Climate Resilience Committee member

- **Car-centric city:** Participants, especially members of the public were quick to point out that, generally, Edmonton is a car-centric city and that this would be a barrier to reducing greenhouse gas emissions for most Edmontonians. Participants identified multiple parts of this transition including a car-dependent urban form, urban sprawl, as well as strong car culture and continuing major investment in vehicle-only infrastructure.
 - Barriers to Transit Usage: The following barriers were identified related to Edmonton’s current transit system:
 - Transit trip times are usually longer than other transportation options;
 - Cold weather while waiting;
 - Buses are not reliably on time;
 - Over enforcement and high fines; and
 - Perception issues of transit;
- **Electrifying transportation:** Stakeholders were consistently positive that including more electric options within the city’s transportation system. Comments also raised the concern that Alberta’s electricity is generated from sources that have high greenhouse gas emissions that negate the benefits of EVs without a corresponding change to energy production. Participants also felt that without EVs, the entrance of self driving cars (autonomous vehicles) will result in major increases in carbon emissions.

Solutions

- **Greening the grid:** Participants from across the engagement sessions indicated that electrifying different systems like transit, passenger vehicles and building heating, would only effectively reduce greenhouse gas emissions if Alberta’s energy grid was also greened. This includes the continued phase out of coal and other carbon intensive energy sources during the production and the large-scale inclusion of low carbon energy sources.
- **Demand management:** Many participants identified that the City should start managing demand for vehicle trips through a variety of methods that are within the City’s control but are mostly outside of its normal operation. These ideas included:

- Car-free zones/pedestrian areas;
- Imposing congestion pricing;
- Establishing stringent road taxes; and
- Imposing toll roads.

- **Enhancing transit:** Transit

was the most common theme related to Climate Shift #2. Participants identified a wide range of solutions (and barriers) to enhancing transit services in Edmonton including some of the following:



- Increase the frequency and spread of transit;
- Enhance DATS;
- Provide free transit;
- Increase the amount of Park and Ride spaces;
- Construct dedicated bus lanes and other transit priority infrastructure; and
- Expand the LRT network.

- **Hydrogen energy:** Throughout the engagement comments, there was a consistent message from hydrogen fuel proponents that the City should consider how hydrogen can be used as a low carbon fuel. The Alberta Industrial Heartland area was identified as it has significant hydrogen production capacity for local industrial uses but that there is not currently a fulsome market for hydrogen products in the province.

“Rather than focussing on the new personal vehicles, the City should make it a priority to improve public transit”

-Community pop-up participant



Climate Shift 3: Emissions Neutral Buildings

Opportunities

- **Energy efficiency and reduction strategies:** Many participants raised the idea that a significant source of emissions reductions should be sought through energy efficiency and reduction strategies. Stakeholders identified how reductions in emissions can occur without significant investment in alternative energy infrastructure simply through reducing energy use in Edmonton and it was noted that moving towards alternative energy sources

must also be accompanied by reductions in energy usage overall. These ideas included reducing the need for heating and cooling as well as simply not using as much energy in people's day-to-day lives.

- **Building heating:** Building heating was a common theme identified by stakeholders with many participants identifying that there were opportunities for expanding the use of electrical heating systems for buildings to move away from natural gas heating. Some participants who made these comments were concerned that the concepts identified in the Emissions Neutral Buildings section did not sufficiently focus on electric building heating options. Of note are the same concerns raised about EVs in the province; in that the current sources of electricity are highly carbon intensive.
- **Communication and education:** Many participants suggested that it was important that the benefits of energy efficient buildings be communicated to the general public and that there was a significant need for consumer education on the subject. They also indicated that additional effort was needed to bring industry partners including builders, developers and major rental agencies on board with the benefits of more energy efficient building design and construction.
- **Operational efficiencies:** Some participants identified that it was important that the City and proponents of efficiency products and systems show how improvements to building efficiency help to enhance the livability and affordability of buildings. This included promoting the cost savings and operational benefits that came with heating and cooling efficiency.
- **Job opportunities:** Participants felt that it was important to consider how to improve opportunities for people working in building and development industries to get training to enter the field. This included providing job training for existing tradespeople and engineers who may require retraining to enter that field as well as training for young people entering the workforce for the first time.

“One of the targets should be our progression to electric heating- 63% of energy used in buildings is for heating”

-Energy Transition Leadership Network participant

“More and more deep retrofits, bump up the incentives and some of those retrofits could be happening as we speak!”

-Energy Transition Climate Resilience Committee member



Barriers

- **Cost of major energy retrofits:** Participants noted that a significant barrier to implementing major energy retrofits and other renovations is the cost to do the work. They noted that the current situation results in only a few relatively wealthy homeowners being able to afford these kinds of renovations. They felt that without significant support, incentives and cost reductions that some households, and in particular, low income households as well as renters and not-for-profits will be unable to participate in these kinds of building retrofits.
- **Older homes:** Some participants noted that there was a challenge in that the oldest homes in Edmonton are also the least energy efficient, cost the most to upgrade and tend to be owned by the people who have the least ability to pay for retrofits. This also included concerns about how to improve the efficiency of important heritage buildings.
- **Wide range of buildings and circumstances:** Participants noted that a significant challenge to the large-scale implementation of deep energy retrofits is the wide range of situations that need to be addressed. They noted that, especially in Edmonton's older neighbourhoods, any kind of standardized approach fails to capture the variety of interventions needed to bring different buildings up to carbon neutral standards.
- **Maintaining housing affordability:** Some participants were concerned that requirements to reduce carbon emissions in homes would unduly raise the cost of new housing and impact housing affordability in Edmonton.
- **Buy-in from owners/developers:** Participants were generally negative about the prospect of getting buy-in from most homeowners, builders and developers to support and accept the

"We will need bigger incentives to allow people to retrofit older buildings."

-Community pop-up participant



additional costs associated with more efficient buildings. These concerns should be tested in the ongoing engagement with the building industry being completed as part of the CETS update.

Solutions

- **Enhancing the building code:** Participants identified that there are opportunities for the City to push for enhancements to the building code that would support greater building energy efficiency. This included a range of options including following the lead of BC's Step Code program to changing municipal bylaws and requiring that neighbourhoods and buildings be designed for optimal solar orientation or requiring that new buildings be built to meet carbon neutral standards.
- **Municipal leadership:** Participants felt that the City has a role to play in demonstrating climate leadership when implementing the updated CETS. This included specific calls to renovate all city buildings to meet carbon neutral standards as well as to continue to explore opportunities for district energy systems for municipal and private developments.
- **Geothermal district energy in new areas:** Participants noted that there were opportunities to integrate more sustainable heating and cooling systems into new areas as they are developed through requiring the establishment of district heating and cooling infrastructure.
- **Bylaw changes:** Participants felt that it was important that the City takes active leadership in this field and changes its bylaws to require developers and builders to achieve better environmental outcomes. This included requiring that neighbourhood planning be optimized for solar potential and that all new buildings be constructed to be ready for solar power. Bylaw changes to support renewable energy production at a site-level was also a common suggestion from members of the public. In addition, some comments were concerned about the ability of individual homes to produce solar energy if they were overshadowed by larger apartments of mature trees.

"Also how are we looking at the zoning bylaws? They need to be net-zero now, because they will be developing for the next decades"

-Energy Transition Climate Resilience Committee member

Note: Additional targeted stakeholder engagement with members of the building and construction industry around this Shift is currently

underway. Their feedback is not captured in this report but will be included in the final engagement report and integrated into the updated CETS as deemed appropriate.



Climate Shift 4: Renewable Revolution and Circular Economy

Opportunities

“The end goal could be to ensure that Edmonton has a reliable electricity system that is as close to zero emissions as possible.”

-Energy Transition Climate Resilience Committee member

- **Renewable energy generation:** Participants were generally supportive of renewable systems like wind and solar energy generation to meet their energy needs. They also felt that it was important to establish a renewables compatible grid as soon as possible. Specific ideas that were supported by participants included solar energy co-ops, waste to energy projects, use of excess land for renewables, Indigenous-led clean energy projects and connecting abandoned oil and gas wells for geothermal energy. Other participants noted that it may also be needed to support greater integration of multiple energy systems that included coupling natural gas and electricity systems to ensure that energy and heating are consistently available.
- **Clean energy:** Edmontonians were clear that the City must be actively engaged in procuring clean energy for its facilities and helping to ‘clean’ Alberta’s electrical grid by supporting renewable energy sources throughout the province. Across comments related to all seven Climate Shifts, participants indicated that clean energy production, at the household level and the community level should be prioritized by the City and that a variety of supports and regulations should be put in place to advance these efforts. Some participants also felt that the local production of clean energy is important enough to require that all new buildings be designed to either be renewables-ready or to include renewables during construction.
- **Decentralized/distributed energy networks:** Participants felt that there should be an effort made to ‘distribute’ the City’s energy network. This included providing tools and supports for individual households and businesses to produce their own power and distribute it into the power network. It also included the need for

distributed energy storage including household batteries to store excess energy that is produced through this distributed network.

- **Circular economy:** Comments from participants were supportive of the City leveraging its waste management system to contribute to developing Edmonton's circular economy where items that would normally be considered waste products are used as raw materials for other purposes. These kinds of systems help to make efficient use of resources by reducing the quantity of resources that are sent to a landfill. Participants identified that there were opportunities for Edmonton to explore circular systems both at the consumer level and the industrial level.



- **Waste management systems:** Participants commonly identified the need to more actively align Edmonton's waste management system with its environmental goals. This included continuing to set high diversion rate goals and more actively recycling materials. Participants also wanted to see the implementation of some actions already contained in Edmonton's 2019 Waste Management Strategy including reducing the amounts of recyclable materials going into the landfill and implementing source separated organics. Participants also felt that producers of consumer products should be more responsible over the full lifecycle of their products.

Barriers

- **Affordability of renewable energy renovations:** Across most renewable energy renovations, there was a consistent theme related to the idea of a Just and Equitable Transition that most of these kinds of individual renewable installations benefit wealthier Edmontonians and are generally inaccessible to mid to low income Edmontonians as well as renters. From this perspective, participants noted that the City should offer a sliding scale of incentives that support low-income Edmontonians so that they can

afford these retrofits or else seek other forms of renewable energy production that are more equitably accessible.

- **Nuclear energy:** Nuclear energy continued to be a polarizing subject in the clean energy discussion. Some participants raised concerns that regardless of feasibility, that nuclear energy is outside of the City's jurisdiction. In addition, proponents described its benefits and the opportunities that new advances bring while opponents continue to express concerns over safety and waste storage. Finally, some stakeholder responses indicated that, regardless of the above, nuclear energy projects take too long to build to be useful in the timeline of this strategy and they are best to be excluded.
- **Culture shift:** One of the major barriers that has continued to be identified by participants across the Climate Shifts is the need for an overarching culture shift for Edmontonians. Participants continue to be concerned that many of these strategies will only be supported and adopted by marginal parts of the population. In addition, they recognized that Edmonton faces additional barriers to a full energy transition given the region's traditional and ongoing reliance on the oil and gas sector.

Solutions

- **District energy systems:**

District energy systems use shared infrastructure to share building heating and cooling among connected developments. Comments commonly identified district energy systems as potential



solutions to meet future heating and cooling needs in Edmonton. District energy systems could be implemented both in existing commercial areas as well as in newly developing neighbourhoods.

- **Solar panels:** The most common form of renewable energy that was identified by participants was solar panels. Comments from the public were mixed about how solar energy systems should be developed, whether the city should prioritize roof-top solar

systems or whether large-scale solar farms should be developed that achieve greater efficiencies of scale. Participants felt that neighbourhoods should be designed to optimize solar collection and that zoning bylaw regulations should consider how individual buildings impact their neighbours' abilities to produce solar energy.

- **Energy storage:** Participants noted that it will be important for Edmonton's (and Alberta's) energy grid to find ways to store energy in a secure and sustainable manner when energy production is not fully aligned with energy consumption. Participants identified different opportunities like hydrogen storage, in-home batteries or use of private EVs to capture and store energy entering the grid.
- **Sharing economy:** A small group of participants felt that the City had a role in enabling more features of the 'sharing economy' which is intended to reduce the number of products consumed by providing systems that formalize opportunities for neighbours to share items which might be needed but only occasionally. These kinds of systems might include tool libraries where members can borrow construction tools when needed to eliminate the need to purchase those tools.
- **Waste to energy:** Waste to energy systems use waste products to produce energy either through chemical processes or through combustion. Comments from participants identified that the City could implement waste to energy systems in its waste management system and produce energy using those materials which are not usable as resources in another system.

Climate Shift 5: Just and Equitable Transition



A Just and Equitable Transition is identified both as a Climate Shift as well as a lens through which all the other Climate Shifts can be designed to make their actions more equitable and ensure the transition is available for all Edmontonians.

Opportunities

- **Defining just and equitable:** Some participants were concerned that there needs to be a clear definition of the terms just and equitable and the ideas supporting them as the CETS is implemented. Some participants also felt that there needs to be

additional public-facing communication around these ideas with the general public.

- **Indigenous engagement:** Many participants were interested in ensuring engagement with Indigenous Peoples and organizations was taking place. This included working with urban Indigenous groups as well as with partners, elders and other representatives.

Note: As part of this project, the City invited urban Indigenous populations to join the Youth Policy Jam and the Just & Equitable workshops, as well as reached out to its partners through the Memorandum of Understanding between the Enoch Cree Nation, Memorandum of Cooperation & Dialogue between the Confederacy of Treaty 6 First Nations, Memorandum of Shared Recognition & cooperation between the Metis Nation of Alberta.

For more information see Section 4 Who We Are Hearing From, as well as the Indigenous Engagement feedback above.

- **Access:** Many participants offered ways to make CETS programs and actions more accessible. These included reducing language barriers by providing translation/interpretation services as well as using simple language in documents.

- **Integrating and aligning with existing work:**

There are opportunities to support the implementation of the CETS by



integrating its implementation with existing programs that already work with marginalized Edmontonians. They also noted that there would be significant benefits if other business areas of the City administration were undertaking actions that directly aligned with the CETS as part of their operation.

- **Mitigating impacts of the transition:** A common theme was about mitigating the impacts of the transition on Edmontonians who are already marginalized. This often focused on mitigating potential cost increases for renewable energy, carbon neutral housing or additional taxes on carbon emissions. These kinds of considerations should clearly be made to ensure that new

“Not just about money or education... how do we have programs that create employment in other income brackets.”

-Energy Transition Climate Resilience Committee member

“Integrate skill building for green jobs into existing employment readiness programs”

- The Local Good Green Drinks participant

measures meant to shift behaviour do not further contribute to their marginalization.

- **Ability to pay:** Some comments received during the engagement indicated that the City could consider strategies and actions similar to how climate change is being considered at a global level where countries and organizations with a greater ability to make changes and pay are encouraged to take actions above and beyond those countries that are unable to afford to make similar changes as well as financially support those poorer countries.

There was also recognition that different types of programs can be developed that help different people of differing incomes and abilities to pay.

“Ensuring affordable housing is one main concern that people have before being able to consider energy transition actions. But in addition to housing, other basic needs must also be stable before energy transition is possible for/by all.”

-Just and Equitable Workshop participant

Barriers

- **Systemic change required:** Some of the barriers that were identified by stakeholders included systemic issues like racism, poverty and homelessness. The changes required to address those systemic issues will require more broad reaching actions by all levels of government, communities and individuals to address. These larger issues also contribute to lowering the ability of low income households and other marginalized people to invest in actions that are part of the energy transition.
- **Energy poverty:** There is a recognition that low income households are also more likely to be living in homes that are not energy efficient and have a lower ability to pay for deep energy retrofits. In addition, participants noted that, in many cases, people living in poverty are struggling to meet more pressing needs and can't afford the time, effort and money needed to participate in the transition. To address this, participants indicated that the City should undertake incentives specifically for low-income or marginalized groups and provide a wide range of supports to help these individuals participate.
- **Fossil fuel industry:** Some participants brought up concerns about how this energy transition will impact those currently working in the fossil fuel industry and that there would be pushback and a lack of interest from energy sector workers in transitioning to different industries.

“To ensure a truly just and equitable transition we probably needed to start some time ago. Making it truly just and equitable takes time (doesn't mean we shouldn't start)”

-Just and equitable workshop participant

Solutions

- Connecting with diverse communities:** Many participants were interested in ensuring the City connects with diverse parts of Edmonton including those who do not typically participate in engagement events. There was also support for seeking more in-depth engagement with diverse groups through community organizers, advocacy organizations and by supporting community climate ambassadors to share information and opportunities related to the CETS implementation. Participants also noted that there should be special efforts taken to engage with different age segments of Edmontonians including seniors and youth.
- Connecting with diverse businesses:** Some suggestions were focused on ensuring that the CETS actions were engaged and useful not only for large established businesses but also smaller and minority-owned businesses that may not be as able to access support or be aware of the opportunities for participating in the transition.
- Affordable housing:** Many participants felt that there should be a push to have affordable housing be developed or renovated to reduce their greenhouse gas emissions. This included deep energy retrofits for existing housing and ensuring that all new affordable housing that is built is built to carbon neutral standards and provides access to good transit and local services for residents.
- Jobs and employment training:** Participants provided a wide range of suggestions to support energy industry workers to be less impacted and even benefit from the transition, including providing guaranteed income, job training and slowing the transition.

“Use networks already in place, including community leagues, NGOs, seniors, school groups, religious and ethnic groups, they know what is needed for justice and equitableness for their constituency/group.”

-Just and equitable workshop participant

Just and Equitable Working Group

During the public workshops, participants discussed the possible creation of a Just and Equitable Working Group. Stakeholders discussed who should be part of this group and resources needed.

Participants

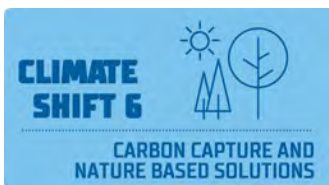
The Just and Equitable Working Group’s should be composed of people at the intersection of those most impacted and those most marginalized by traditional power structures. The following stakeholders were identified:

- Affordable housing providers
- Bio-diversity experts
- Economic development and government representatives
- Ethnic minorities
- First Nations
- Industry leaders/utilities
- Green energy providers
- LGBTQ+
- Low income households
- Newcomers to Canada
- People most impacted by the energy transition
- Refugees
- Seniors
- Single parents
- Students
- Youth
- Women

Engagement Support

Participants identified a range of engagement supports that participants felt would help to make engagement by the Just and Equitable Working Group more inclusive. Barriers to participation should be reduced by supporting the engagement of a broader cross-section of Edmontonians.

- Monetary compensation for time, effort, expertise and travel
- Child minding
- Educational support
- Provide food
- Rotate locations
- Translation and interpretation support



Climate Shift 6: Carbon Capture and Nature Based Solutions

Opportunities

- **Protecting natural sinks:** Proponents felt that the City should pursue opportunities to use natural areas as carbon sinks. Participants identified protecting and expanding natural areas like forests and wetlands, naturalizing public park spaces and converting excess publicly and privately-owned lands into natural areas. Participants also noted how there were crossover benefits to



“When you look at a tree - you are looking at our best tool to regulate the carbon cycle and to mitigate the effects of climate change.”

-Spark 2019: Carbon Positive participant

“Parks and public space that become edible - feed the communities (employ pickers, processors, allow storage)”

-Just and equitable workshop participant

The deployment of these technologies should not take the place of aggressive emissions reductions strategies in other areas.

-Green Ribbon Panel - policy review participant

increased natural areas including reducing flood risk and the urban heat island effect.

- **Education, partnerships and research:** Some comments highlighted how there are opportunities to partner with educational institutions like the University of Alberta and NAIT to fund research and implementation of carbon capture and sequestration technologies. Some participants also felt that Alberta’s robust industrial sector and leadership in the field of technologically-based carbon capture were opportunities to be leveraged by the City to meet its long-term climate goals.
- **Improving energy efficiency:** Improving energy efficiency across all sectors was identified by stakeholders as an important aspect of reaching climate goals. Given the significant amounts of greenhouse gas emissions that are generated from energy production, some stakeholders identified existing concepts like ‘Negawatts’ which are units of energy that are not produced because of improved efficiencies by consumers.
- **Urban agriculture:** A range of urban agriculture opportunities were identified as potential actions that the City should take to meet its climate goals. Participants noted that opportunities, like planting more fruit trees, converting vacant lots and front yards to agriculture lands and constructing green roofs, are small actions that individual residents and landowners can take to contribute to the climate goals.

Participants were also supportive of how increasing local urban agriculture can contribute to local food security.



Barriers

- **Escape route for business as usual:** Some participants were concerned that the use of carbon capture and sequestration techniques will allow society to continue with business as usual without addressing the underlying issues of carbon emissions.
- **Energy requirements:** Some participants were concerned that the implementation of large scale carbon capture technologies

currently requires significant energy input to function. They felt that this was a challenge in the Edmonton context where a significant portion of the region’s energy is derived from high emissions sources. As such, some participants noted that carbon capture technology should only be implemented once the energy grid is based more on renewable sources.

- **Natural area trade-offs:** Participants noted that there were challenges to be addressed when prioritizing different design options. This included concerns that higher density developments resulted in the removal of mature trees on private property, or how LRT design plans resulted in tree removal along the LRT right-of-way.

*“Incentives/property tax percentages for replacing lawns/tree planting”
-Just and equitable workshop participant*

- **Aesthetics of naturalized spaces:** Some participants were concerned that there would be pushback from Edmontonians who felt that the naturalized areas were messy and did not meet community



standards for yards. They also felt that there would be a lack of uptake from Edmontonians who did not know how to maintain or manage naturalized yard spaces.

*“Get rid of grass on City parks and properties - replace with clover and low maintenance native plants.”
Environmental Advisory Committee Participant*

Solutions

- **Naturalization of park spaces:** Participants indicated that the City should plan to naturalize a significant portion of public lands including portions of parks, berms and medians.
- **Replace trees:** For participants who were concerned that new developments were resulting in trees being removed, they indicated that the City should mandate that any trees that were removed from private property should be replaced either on-site or through



cash-in-lieu as development occurs.

- **City requirements:** Some participants indicated that the City should begin to require businesses that operate in Edmonton to use materials that are based on carbon capture technologies. Potential materials include biochar from burning organic waste as well as concrete that is partially derived from capture carbon products.
- **Industrial sequestration:** Stakeholders indicated that there were more opportunities to implement carbon capture systems at emissions at major industrial developments than compared to Direct Air Capture technologies that draw greenhouse gases directly from the atmosphere. Major industrial emitters were identified as the best locations for major carbon capture and storage technology to be implemented and specific comments identified that industrial carbon capture is about urbanizing technology currently used in the oil and gas industry.



Climate Shift 7: Economic Development

Similar to the Just and Equitable Transition Climate Shift, Economic Development has been identified both as a Climate Shift as well as a lens through which all the other Climate Shifts can be designed to ensure that the transition brings opportunities for continued prosperity in the region. In addition to receiving input from members of the public, an Economic Development focused workshop was held with targeted stakeholders working in that field in Edmonton.

Opportunities

- **Economic diversification and regulatory signalling:** The most common and overarching focus was the need to diversify Edmonton's economy. Participants also felt there was a need for the City and other levels of government to give clear regulatory and policy signals to encourage the market to shift in alignment with the updated CETS. Potential actions included making direct investments in projects and reducing regulatory barriers for new renewable projects.

"Experiment with regulatory changes the way you would for other innovations"

-Economic Development Workshop Participant

“Partner regionally to see shared benefit EMRB / Edmonton Global - especially for food!”

-Edmonton Food Council participant

- **Market opportunities:** Many comments were focused on identifying how the transition can be an economic development and market opportunity. This included additional work to identify monetary opportunities and value propositions, define value, find investment capital and establish an appropriate return on investment.
- **Partnerships:** Partnerships were identified in order for the City to provide support for actors working in key areas that are not directly related to the City’s jurisdiction or mandate.
 - Educational institutions like the University of Alberta, NAIT and MacEwan University
 - Collaboration with other jurisdictions including the provincial and federal governments
 - Investment attraction and industry advocacy organizations
 - Large emitters, corporations, investors and banks
 - Youth and ambassadors to different cultural communities
- **Political leadership:** Stakeholders identified the need for ongoing political leadership on the topic of climate action. This includes:
 - City funding into green technologies
 - Investment and subsidies for green retrofits
 - Mandate green procurement practices by the City

“Build awareness / understanding that saved energy from energy efficiency is a resource that delivers value to utility systems, and the economic value of that energy resource”

-Economic development workshop participant

- **Export expertise to the world:** Some participants indicated that businesses in the Edmonton area should be focused on developing technologies and solutions to the climate crisis that can be exported around the



world. They felt that Edmonton’s position as an energy sector hub and industry leader should be leveraged to implement and expand the capacity of technological solutions to reduce greenhouse gas emissions.

- **Changing our language:** Participants identified that there is a need to change the language that the City and Edmontonians use when discussing the transition. They noted that it is important to focus on the positive changes that will come from the transition

including changing reliance on global market systems, job growth and investment in new industries and benefits to communities, households and businesses.

Barriers

- **Cost of transition:** Members of the public were more likely to ask questions related to the cost of the transition like “Who will be paying for this?” and “Will there be tax savings?” Many suggested that the City should help homeowners with the cost of retrofitting their homes. This included suggestions for rebates and incentives on retrofits and the installation of renewable energy systems. Members of the public were also more likely to specifically identify low-income individuals or families and oil and gas workers as needing support during the transition.
- **Culture shift:** Participants were in alignment that there is a major culture shift required both by business and consumers in Edmonton to meet Edmonton’s climate goals. Stakeholders highlighted that there needs to be incentives and policy changes to speed up market changes.
- **Regional competition:** Stakeholders identified the presence of regional competition and a lack of alignment amongst regional municipalities. They indicated that the City of Edmonton may face challenges meeting its goals if they are not supported by the actions of other regional municipalities.



Solutions

- **Emerging industries:** Participants shared that Edmonton might be best placed to prosper from the transition by supporting emerging technological industries like smart cities, artificial intelligence and other locally-based solutions.
- **Green workforce training:** Stakeholders identified the need to raise awareness and access to green jobs and training programs. Including:

- Build green training into existing job readiness programs (i.e. Water Wings, Verto, Kids in the Hall)
- Green jobs for new graduates
- Work with skilled workers to support their transition to less carbon-intensive industries

Economic Development Focus Areas

Participants of the economic development workshop were asked to help identify possible focus areas for economic development as it related to the CETS. The themes below summarize the feedback.

- **Financing the transition:** Participants raised a number of potential options for helping to finance the transition. Many participants felt that there was a need to ensure that there are market opportunities for businesses during the transition. It was felt that this is one of the main ways to ensure that businesses will align their operations with the energy transition.

Participants also identified the need for incentives, loan programs like the Property Assessed Clean Energy program (also known as Clean Energy Improvement Program), leveraging federal and provincial funds and charging additional taxes on consumer and industry emissions. There were also specific suggestions that the City focus its incentives on small businesses and start-ups rather than large corporations given the funding that they have available to them.

- **Integrating the CETS work:** Participants identified the need to use existing and developing networks of businesses and advocates to ensure that there is alignment between the updated CETS and the business community. There were also comments about the need for funding that aligns with the CETS as well as changing regulations to support cleaner energy products as well as supporting public and private clean energy procurement. Finally, some comments also suggested that the City focus on communicating the opportunities and needs for businesses to align their operations with the CETS.
- **Regulations:** Participants identified a range of regulatory changes and programs that could be considered to align the CETS with the

business community. They included extending manufacturer responsibility, monetizing emissions reductions, allowing innovative funding programs, improving permitting processes and working with other levels of government to align the regulatory framework.

- **Research Required:** Participants saw opportunities to further research topics such as smart cities integration, carbon neutral materials and buildings, emissions baselines and local implementation pilots, to support the CETS update.
- **Advocate and Educate:** Participants saw advocacy and education opportunities with groups such as young adults, policymakers, industry executives, large energy users as well as commercial building owners and managers. In addition, participants identified the need for additional education around life cycle costs (and emissions) for industry and operators. And identified the need for broader education and communication through advertisements and other marketing campaigns.
- **Data:** Opportunities to use data to support the transition were identified in the areas of employment, workforce information and business data. In addition, it was identified that there would be benefits in publishing the results of pilot projects and implementing open data principles.
- **Success criteria:** When asked to identify potential success criteria for the transition, participants mentioned improving quality of life, alignment between the public and stakeholders, as well as continued prosperity for the region.

Systems Change Themes

As it relates to climate change, Edmontonians are interested in a much broader spectrum of environmental issues than limiting greenhouse gas emissions and generating renewable energy. The following broader environmental themes were commonly brought up by participants.

- **Regional action:** Edmonton's regional context was commonly identified as both a solution and a challenge when it comes to implementing the CETS. Many participants identified opportunities to work with regional partners including Indigenous groups, neighbouring municipalities as well as individual rural landowners and stakeholders. Despite these opportunities, some participants felt that there may be challenges in aligning the City of Edmonton's work with that of its neighbours who are even more reliant on oil and gas investment for jobs and taxation.
- **Healthy city:** Many participants identified that there are additional benefits of undertaking the energy transition. This included creating more social communities, improving the physical and mental health of residents and increasing space for wildlife in the city.
- **Food system:** Improving Edmontonians' access to a more sustainable local food system was a goal many participants felt should be part of the CETS update. This included providing additional opportunities for urban agriculture, using plantings on public and private lands to provide food and working with research institutions to improve the sustainability of local agricultural practices.
- **Community-based approaches:** This includes the range of actions that could be undertaken at a community level and whose implementation might fall to community-organizations. Community-based approaches that were identified included establishing local energy and other co-operatives, providing opportunities for neighbours to support each other's transition and



connecting the CETS implementation with local community-organizers and ambassadors.

- **Communication and collaboration:** One of the most common themes raised by participants was that there was a need to undertake information and communication campaigns about the goals of the CETS. This included general advertising and continued communication campaigns about the need for the energy transition as well as specific campaigns with stakeholders to raise awareness about opportunities for integrating day-to-day business operations with the goals of the CETS.
- **Urbanism:** Participants commonly identified that it would contribute to Edmonton meeting its climate goals if the City promoted a more urban form of mixed-use and mixed-income communities to develop around the city. This included promoting mixed-use communities that improve walkability as well as integrating community-level commercial nodes.
- **Water and wastewater management:** Many comments received from the public engagement sessions were interested in having the City take a more active role in reducing water use in Edmonton and developing infrastructure and practices to make better use of wastewater
- **Climate culture shift:** A common theme was the need for an overarching climate culture shift. The culture shift is about the ongoing changes in social norms in order to have Edmontonians make more decisions that contribute to meeting our climate goals. This culture shift differs from other Climate Shifts that address technical solutions like increased energy efficiency and renewable energy generation to meet our climate goals. Instead, it requires large and small changes to the complex patterns of behaviour and consumption that influence uptake and market demand for the other shifts.



6. Highlights

General Highlights

The majority of engagement activities were focused on gathering feedback on the proposed update of the Community Energy Transition Strategy (CETS) and its Climate Shifts. Twelve general themes of feedback were identified and will be considered in the update of the CETS:

1. **Take action now:** The impacts of climate change are unpredictable, wide-ranging and potentially irreversible.
2. **There is no “silver bullet”:** The CETS update must focus on a wide range of actions to meet the City’s climate goals. Fundamental system changes are needed.
3. **Pandemic recovery opportunities:** Implementation of the CETS can bring opportunities for economic recovery during and following the COVID-19 pandemic.
4. **Support investment in the transition:** The transition requires a significant amount of public and private financial investment. There is recurrent concern of how to fund the transition.
5. **Sustain the transition:** Choose actions that are sustainable and desirable in the long run. This will help support a high quality of life for current and future Edmontonians.
6. **Ensure a just and equitable transition:** Ensure that the implementation of this transition doesn’t exacerbate existing inequalities and that it brings opportunities for all Edmontonians.
7. **Leverage this opportunity for economic transition:** Beyond an energy transition this is an opportunity for Edmonton to innovate, leverage existing skills and diversify its economy.
8. **Change the culture:** Significant culture change will be required across many systems to embrace the overwhelming challenge of this transition. These include energy, transportation, food, waste and social and community systems. Our culture is already changing.
9. **Educate and communicate:** Wide-reaching awareness campaigns are necessary to help Edmontonians understand the needs, targets and solutions. This includes strategies to educate people on the new concepts and on the impacts of their lifestyle decisions.

“I like that we are focusing on a wide variety of potential solutions. I believe we need all of the things mentioned to get near those targets.”

-Energy Transition Climate Resilience Committee member

10. **Align with the City Plan:** To succeed the CETS must align its targets and actions with those in the City's new municipal development plan.
11. **Look beyond greenhouse gas emissions:** A range of sustainability issues should be considered including air and water quality, waste management, biodiversity, ecosystem and public health, as well as social, cultural and economic perspectives.
12. **Partner for change:** A wide range of partnerships will be needed to meet the City's climate goals. This includes partnerships with Indigenous communities, education and research institutions, industry and community organizations.

Climate Shifts Highlights

Throughout the engagement process, there were several common findings for each Climate Shift that were reiterated consistently by stakeholders and members of the public.

Climate Shift 1: Tools & Targets

- **City-level carbon budget:** Support for the City to use a local carbon budget to track and prioritize municipal projects, as well as to consider the impact of all decisions on the carbon budget.
- **Global aspirations with local considerations:** The CETS should use global best practices for measurement and monitoring and consider the uniqueness of Edmonton, including the connection to the oil and gas sector in the region.

Climate Shift 2: Low Carbon City and Zero Emissions Transportation

- **Getting to zero emissions transportation:** There was acknowledgement that implementing an electrical transportation system is a key part of reducing GHG emissions. In Alberta, this move must be accompanied by a significant shift towards large-scale renewable energy production.
- **Active transportation and enhanced transit:** Participants identified a wide range of solutions (and barriers) to enhancing transit services which they considered key for the transition, as well as the need to expand the active transportation infrastructure network. This includes a more walkable city and separate bike lanes, winter clearing, secure storage, and bike share.

- **Cultural change:** There is a need to make a cultural shift towards renewable energy sources, active and public transportation, electric vehicles, and towards being a greener city. This could bring communities and diverse groups together to collectively and individually change our choices and actions.

Climate Shift 3: Emissions Neutral Buildings

- **Realistic targets:** Base targets on modeling and then determine what is achievable in Edmonton.
- **Education opportunities:** We need to grow the expertise of Edmonton's building industry to meet the technological challenge of designing and constructing carbon neutral buildings.
- **Cost of energy retrofits:** Retrofitting existing buildings will be a major task at a substantial cost. But this is necessary work for a low-carbon future.

Note: Additional targeted stakeholder engagement with members of the building and construction industry around this Shift is currently underway. Their feedback is not captured in this report but will be included in the final engagement report and integrated into the updated CETS as deemed appropriate.

Climate Shift 4: Renewable Revolution and Circular Economy

- **Clean energy as the basis for the transition:** A system of consistent and affordable renewable energy is crucial to meeting Edmonton's climate goals. Many of the actions, such as electrifying transportation, are founded on having access to clean energy.
- **Energy efficiency:** Use less energy and use the energy we produce more efficiently. Efficiency-based solutions allow Edmontonians, businesses and industry to take action in ways that save money in the long run.
- **Circular economy and waste management:** Edmontonians want to reduce their waste, and reuse and participate in more in the sharing and circular economy. They want to see extended producer responsibility, less waste of resources and better management of the waste produced.

Climate Shift 5: Just and Equitable Transition

- **Define just and equitable:** This is the time for a just and equitable transition but these terms need to be defined to make sure we are all talking about the same thing.
- **Made in Edmonton approach:** Applying an equity lens is a global best practice and participants welcomed the inclusion of such lens and Shift in the CETS. The actions on the updated CETS need to be accessible to all Edmontonians and not negatively impact vulnerable or marginalized people in our city. Energy poverty must be addressed.

Climate Shift 6: Carbon Capture and Nature Based Solutions

- **Nature based approaches:** Our natural areas and open spaces can serve as carbon sinks (as well as support the quality of life of Edmontonians). Tree planting, urban farming and partnering to use natural spaces outside of Edmonton boundaries can play a key role. Nature based approaches.
- **Technology based approaches:** Technology based approaches to carbon capture are most efficiently used when integrated into heavy carbon emitting processes related to industrial developments.

Climate Shift 7: Economic Development

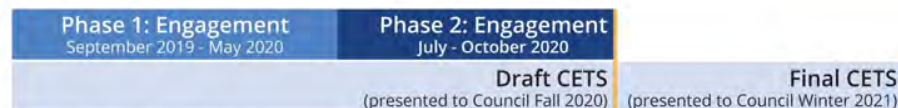
- **Impact on oil and gas:** Edmonton's economy is tightly linked with the oil and gas industry which is expected to be significantly impacted over the time frame of the transition. Because of this, stakeholders have been clear that the CETS needs to explicitly consider economic development challenges and opportunities and support people whose livelihoods have been impacted during the transition.
- **Economic development integration:** The energy transition must be pursued as an economic diversification transition. Opportunities for economic development can provide support for the investments needed.
- **Regional Considerations:** Edmonton's economy is tied to its regional neighbours and the province. Regional alignment to provide a just, equitable and prosperous future is important.

7. What Happens Next

The purpose of this phase of engagement was to identify **what** actions should be taken to meet Edmonton’s climate goals, including reducing its emissions to fit within the identified carbon budget. The City’s project team is using the data gathered in this phase of engagement to inform the draft update to the Community Energy Transition Strategy (CETS), and identify new ideas and opportunities. Engagement results have been shared with the project team in a variety of formats including an interim data summary in early 2020, the full tabulated engagement input (September 2019 to May 2020) and this summary report.

The draft update to the CETS will be presented to Edmonton City Council in the fall of 2020.* In addition to the input from this phase of engagement, seven other streams of work are informing the update to the CETS:

1. 18 Policy briefs written and/or reviewed by experts
2. Technical modelling of the proposed actions and their emissions
3. Financial modeling of the proposed actions
4. Jurisdictional review of 52 cities
5. Scientific reports and best practices (IPCC, C40)
6. Topic-specific input on *Climate Shift 3: Emissions Neutral Buildings* from building and development industry
7. Engagement with internal City of Edmonton stakeholders



*Dates not confirmed due to COVID-19

The next phase of engagement, tentatively scheduled from July to October 2020, will seek advice about **how** to implement the proposed CETS with Edmonton-focused actions/solutions. A second What We Heard report will be prepared with the input received during the next phase and will help inform the CETS document. The updated CETS will be presented to City Council early 2021 for approval.

**At the time of writing this report, dates for engagement and City Council meetings are not confirmed.*

All subsequent engagement activities will be respectful of the directives of Alberta Health Services and Alberta's Chief Medical Officer of Health regarding the COVID-19 pandemic in the Edmonton area.



8. Appendices

Appendix A: Engagement Data

Two versions of the engagement data are available:

1. A PDF of the engagement data is available at [Edmonton.ca/EnergyTransitionUpdate](https://www.edmonton.ca/EnergyTransitionUpdate)
2. A Google Sheet with engagement data is available on request. Please send an email to andrea.soler@edmonton.ca

Appendix B: Memorandum of Understanding

The Memorandum of Understanding between Enoch Cree Nation and the City of Edmonton, the Memorandum of Cooperation and Dialogue Between Confederacy of Treaty Six First Nations & City of Edmonton, and the Memorandum of Shared Recognition and Cooperation Between Métis Nation of Alberta and City of Edmonton are available online at:

https://www.edmonton.ca/city_government/initiatives_innovation/indigenous-relations.aspx

Appendix C: Engagement Information Boards

A [PDF](#) is available online at [Edmonton.ca/EnergyTransitionUpdate](https://www.edmonton.ca/EnergyTransitionUpdate)

Appendix D: Glossary of Terms

Carbon budget: The amount of emissions permitted over a period of time in order to stay within a temperature threshold. As we release greenhouse gases, the remaining budget is reduced.

Carbon capture: A process that captures carbon emissions from their source or directly from the air.

Carbon offsets: Reducing carbon emissions to compensate for emissions released elsewhere. Offsets are tradeable (they can be bought and sold).

Carbon sequestration: The long-term storage of captured carbon emissions in vegetation and soils through plant growth or underground rock formations.

Carbon utilization: A process that uses captured carbon emissions as a resource when creating new products or materials. **Circular economy:** an economy in which resources are kept in use for as long as possible. At the end of a product's life its components are recovered and regenerated into other products rather than being disposed of in a landfill.

Emissions neutral: Describes technologies or systems that have no net impact on global greenhouse gas levels. This means they either do not add emissions to the atmosphere or remove as many emissions as they create.

Greenhouse gas emissions: The release of atmospheric gases like carbon dioxide and methane that contribute to global warming (generally referred to as carbon emissions).

Just & equitable transition: A dialogue and planning process to ensure that all Edmontonians have access to the benefits and opportunities this energy transition can bring, and that nobody is unfairly impacted by these changes.

Low carbon city: A city-building approach that focuses on reducing carbon emissions primarily by minimizing or eliminating the use of energy produced from fossil fuel combustion. One tonne of carbon dioxide (CO₂): is a unit of greenhouse gas emissions.

One tonne of CO₂: It is roughly equivalent to the amount of greenhouse gases released by driving 4500 kms or heating a home over the winter months.

Renewable energy: Energy that is produced with a fuel source that is naturally replenished within the lifespan of a person (e.g. solar, wind, geothermal).