# COMMUNITY ENERGY TRANSITION STRATEGY 2019 IMPLEMENTATION PROGRESS REPORT

Publication Date: July 2020

CHANGE FOR CLIMATE

Edmonton

EDMONTON'S COMMUNITY ENERGY TRANSITION STRATEGY 2019, WAS A YEAR OF CONTINUED ACTION AND IMPLEMENTATION THROUGHOUT THE CITY. THIS INCLUDED ONGOING ENGAGEMENT WITH THE COMMUNITY TO FURTHER UNDERSTAND CITIZEN AND BUSINESS INTERESTS IN ENERGY TRANSITION.

# PAUL ROSS

## BRANCH MANAGER, ECONOMIC AND ENVIRONMENTAL SUSTAINABILITY

**Edmonton's Community Energy Transition Strategy 2019, was a year of continued action and implementation throughout the city. This included ongoing engagement with the community to further understand citizen and business interests in energy transition. There was continued implementation of incentive programs that help to support citizens as they continue to make green energy choices. Through ongoing understanding of community interests and implementing a variety of programs, the intention is to help transform the market where consumer demand will take a strong foothold and help drive Edmonton towards a low carbon future.**

Critical to climate resilience work is the work the City of Edmonton undertakes to build partnerships that will continue to create community commitments resulting in further shifts to becoming a more sustainable community. This work is enhanced through learning from other jurisdictions and sharing our experiences.

In response to City Council's direction, significant research was launched to align the Strategy with international commitments and the Edmonton Declaration that identified the need for action that will limit global warming to 1.5C. The revised strategy will help inform decisions regarding adjustments to activities, intensity and scale of effort and investment choices to meet the outcomes stated in the Edmonton Declaration.

The City also continued to advance programs which assist Edmontonians and Edmonton businesses in pursuing a lower carbon path. These programs included the residential solar program which has seen 543 installations since June 2018. Other programs, such as the Corporate Climate Leaders Program, have focused on catalyzing and celebrating leadership in the business community with respect to taking climate action. This program now has 40 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.

Looking ahead to 2020, Edmonton will continue to prepare for the province's Clean Energy Improvement Program (CEIP). CEIP introduces an innovative financing tool that would provide affordable financing to residents and businesses for energy efficiency and renewable energy retrofits. The repayment mechanism is built into the property tax system.

City Council, through ConnectEdmonton has outlined climate resilience as one of its four goals and along with Regional prosperity there is a commitment and opportunity to integrate the work of climate resilience with economic development. In reflection, 2019 was a year that presented many opportunities for the Edmonton community in the context of a strong economy and increasing interest by the community in the environment.

As this update is released, we are experiencing the Covid-19 global pandemic and the associated health and economic impacts. This will bring new challenges throughout 2020 and beyond, as the work on climate resilience moves forward. However, through all this the City continues to be committed to climate resilience and taking meaningful action towards reducing Edmonton's Carbon footprint.

# IN THIS REPORT

**This report provides a summary progress report on the implementation of Edmonton's Community Energy Transition Strategy (CETS or the Strategy). The report contains the following sections:**

# EXECUTIVE SUMMARY

**In 2019, the City of Edmonton worked to further carry out the initiatives contained in our Community Energy Transition Strategy (CETS). To achieve carbon reductions in our city, we focused on expanding programs to the public and pursued initiatives that both attracted and leveraged the engagement of the private sector and community members.**

We increased the reach of many of our programs, including those that help Edmonton's citizens, businesses, and community leagues to make greener energy choices. We started work towards procuring more green electricity for municipal operations and forged ahead with initiatives related to shifts in our transportation methods. We also made significant progress in the development of the City-owned sustainable neighbourhood of Blatchford.

2019 was also a turning point for the City. It was a year in which City Council asked tough questions regarding the CETS, including whether it aligned with the international scientific community's goal to limit emissions. To mitigate the worst effects of a changing climate, we must contribute to efforts to ensure that the global average temperature does not increase by more than 1.5 degrees Celsius (°C).

A report was prepared comparing the CETS's actions and targets to the ambition of limiting Edmonton's emissions to a 1.5°C global average temperature increase scenario. Although the challenge is immense and the conversations are complex, the simple answer to Council's question was no, that the approved Community Energy Transition Strategy does not address a target of limiting emissions to 1.5°C.

Council then directed City Administration to analyze the issue further and update the CETS to align with the international target of 1.5°C. Since that time, we have conducted research to align the CETS with these international standards; this work is still underway.

A draft updated Strategy will be provided to Council in 2020 with the intent to approve a final course of action.

**WE STARTED WORK TOWARDS PROCURING MORE GREEN ELECTRICITY FOR MUNICIPAL OPERATIONS AND FORGED AHEAD WITH INITIATIVES RELATED TO SHIFTS IN OUR TRANSPORTATION METHODS.**

City staff and resources were reallocated to prepare the updated CETS. However, work to implement the current Strategy continues as City Council recognizes that we cannot stand still while planning for the future. This progress report provides an update on the continued implementation of the CETS.

In alignment with the City's Public Engagement Policy, engagement with public and targeted stakeholders for the proposed update to the CETS started in September 2019 and by the end of the year 14 engagement activities had taken place. The purpose of the engagement is to ensure that the proposed update of the CETS captures the best practices, innovations and ideas, and that it is implementable in Edmonton. Stakeholders include: Energy Transition Climate Resilience Committee, Energy Transition Leadership Network, City's Indigenous Memorandum of Understanding Partners, youth, climate advocates, economic development and building and construction representatives, among others.



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# BACKGROUND

**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, the CETS was developed to outline how we could collectively make Edmonton into a sustainable energy city. The Strategy 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. The Strategy is a risk management response to a carbon constrained world.

**The CETS included an eight-year action plan across seven key areas. A three-phase approach was adopted to implement the Strategy:**

- **PHASE 1:** Establishing an Accountability Framework (2015-2016)
- **PHASE 2:** Gearing Up for Community-Scale Programs (2016-2018)
- **PHASE 3:** Delivering Community Scale Programs (2019 and beyond).

The implementation of the Strategy is currently in Phase 3.

The actions being pursued are meant to position Edmonton to prosper in a low carbon economy, and to take advantage of emerging opportunities in clean technology and carbon abatement.

With oversight of City Council (through an established Council initiative) and the advice of the Energy Transition Climate Resilience Committee, various programs and initiatives have been pursued over the last few years. We continue to refine and build upon them.

**THE ACTIONS BEING PURSUED ARE MEANT TO POSITION EDMONTON TO PROSPER IN A LOW CARBON ECONOMY, AND TO TAKE ADVANTAGE OF EMERGING OPPORTUNITIES IN CLEAN TECHNOLOGY AND CARBON ABATEMENT.**



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# 2019 HIGHLIGHTS

## IMPLEMENTATION PROGRESS AND HIGHLIGHTS

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# 2019 IMPLEMENTATION PROGRESS AND HIGHLIGHTS

**This section provides a summary of the key performance indicators starting with the highest-level measures such as carbon budget and emissions profiles, followed by relevant program level metrics. Highlights regarding the implementation progress of the CETS are also provided.**

## EDMONTON'S CARBON BUDGET

To mitigate the worst costs and environmental damages associated with climate change, scientists working through the Intergovernmental Panel on Climate Change (IPCC) have identified that humanity must restrict global warming due to GHG emissions to less than a 1.5˚C rise. Through the observations of how concentrations of emissions with global warming potential drive global average temperatures, scientists have quantified that a 1.5˚C increase equates to a global community that emits a maximum of 400 gigatonnes (Gt) more carbon dioxide equivalents between 2018 and 2050[1].

In 2019, utilizing a convergence and contraction model derived from C40 cities, the global carbon budget was localized to Edmonton. The result was 155 megatonnes (Mt) apportioned to Edmonton. This means that between 2019 and 2050, Edmonton must emit no more than 155 Mt of GHG emissions in order to reduce Edmonton's contribution to global warming in alignment with the 1.5˚C global average temperature goal.

In 2018[2], the Edmonton community emitted 19 Mt of GHG emissions. Using a similar figure of 19 Mt as a proxy for 2019, this means that only 136 Mt remain in Edmonton's carbon budget. At Edmonton's current emission rate, the carbon budget will be exceeded in seven to nine years.

## AGGREGATED INVENTORIES

Since the late 1990s, the City has calculated both Edmonton's community GHG emissions and corporate emissions. Both protocols follow current international best practices. In 2019, Edmonton released both community and corporate GHG inventories for the 2018 calendar year.

As in previous years, both the corporate and community inventories were submitted to the Carbon Disclosure Project, where they are publicly available. Information was also submitted regarding Edmonton's GHG reduction and energy efficiency targets; mitigation and renewable energy programs; local hazard assessments; and adaptation plans. This information was also shared with the Global Covenant of Mayors for Climate & Energy. As a result, the City of Edmonton was awarded with "Full Compliance" for its commitment, inventory, target and plan stages. This makes Edmonton one of only 32 cities worldwide to have achieved this acknowledgement for climate change mitigation, adaptation, and resilience planning.

Measuring, monitoring, and reporting program-level success metrics as well as aggregated emissions reductions is a tenet of the CETS. Metrics provide a high-level view of the Strategy and gauge the performance of individual programs. Significant improvements were made to the City's ability to report publicly on these metrics. Where available, links are provided throughout this report to public, interactive versions of the visualizations.

[1] It is important to point out that IPCC has developed probability scenarios and this carbon budget is extracted from the 50% probability of success scenario. Allen, M. R., Barros, V. R., Broome, J., Cramer, W., Christ, R., Church, J. A., ... & Edenhofer, O. (2014). IPCC fifth assessment synthesis report-climate change 2014 synthesis report

[2] The last year available at the time of writing this report.

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## CITY OF EDMONTON COMMUNITY GREENHOUSE GAS EMISSIONS

In 2018 (the last year available at the time of writing this report), the City of Edmonton's community GHG emissions were calculated to be approximately 19 million tonnes of carbon dioxide equivalent (tCO2e). Compared to the 2017 reporting year, this represents an increase in total net emissions of 3.36% (or 608,000 tCO2e). Annual per capita emissions stayed flat: 19.11 tonnes (t) per person in 2018, compared to 19.08 t per person in 2017. They have decreased from a high in 2005 of 25 t per person.

### Edmonton's Community Emissions

#### Community GHG Emissions






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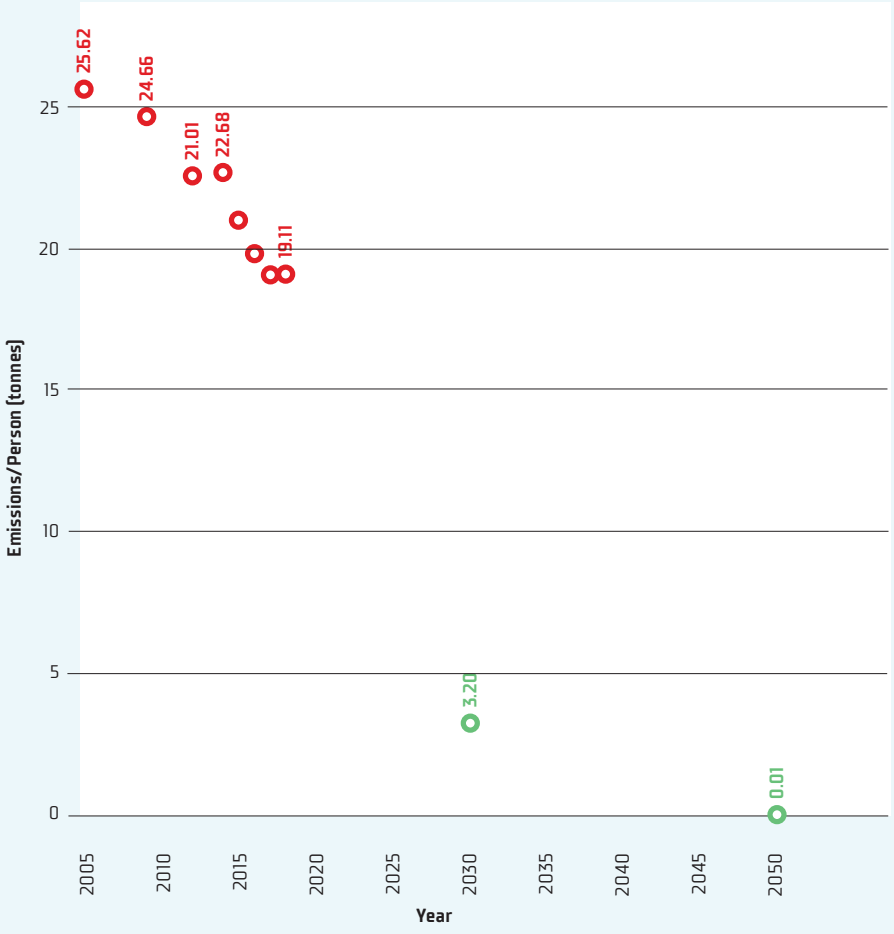
# PER CAPITA EMISSIONS AND THE CARBON BUDGET

## IF EDMONTON IS TO STAY BELOW ITS CARBON BUDGET, IT WILL NEED TO REDUCE PER CAPITA EMISSIONS FROM ITS CURRENT LEVEL OF 19 TONNES PER PERSON TO 3 TONNES PER PERSON BY 2030. BEFORE 2050, EDMONTON WILL NEED TO ACHIEVE CARBON NEUTRALITY.

### Edmonton's Community Emissions

#### Per Capita Emissions



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## CITY OF EDMONTON CORPORATE GREENHOUSE GAS EMISSIONS

The City of Edmonton's corporate GHG emissions inventory represents a portion of the community GHG emissions. The inventory was compiled for the 2019 reporting year following the reporting requirements of The Climate Registry (TCR) General Reporting Protocol (Version 2.1, January 2016) and the TCR Local Government Operations Protocol for the Quantification and Reporting of Greenhouse Gas Emissions Inventories (Version 1.1, May 2010).

In 2019, the City's net, corporate GHG emissions totaled 324,000 tonnes of carbon dioxide equivalent (tCO2e); this total includes the city's urban forest and the purchase of Renewable Energy Certificates (RECs).

Without including the urban forest and RECs, corporate emissions would have been 447,063 tonnes. This total has not changed significantly from the 2018 reporting year. However, they have increased 6% from the 2005 baseline. Much of the increase from the baseline GHG emissions is the result of expanding building stock, corporate fleet, and transit services. This change is summarized in the table below.

### Change in Corporate GHG Emissions by Reporting Category

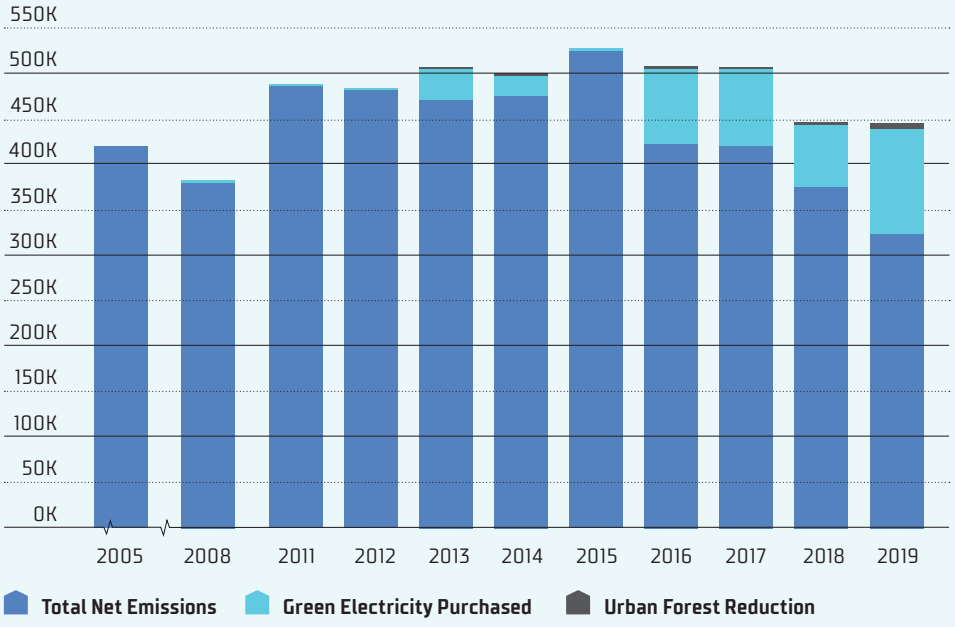
| Reporting Category | 2005 GHG Emissions (tCO2e) | 2018 GHG Emissions (tCO2e) | 2019 GHG Emissions (tCO2e) | Change From 2018 (%) | Change From 2005 (%) |
|---|---|---|---|---|---|
| Buildings and Other Facilities | 173,111 | 191,029 | 194,527 | 1.8% | 12.4% |
| Streetlights and Traffic Signals | 74,216 | 49,117 | 46,689 | -4.9% | -37% |
| Vehicle Fleet | 25,036 | 34,515 | 35,537 | 3.0% | 41.9% |
| Transit Fleet | 11,680 | 91,056 | 90,279 | -1% | 673% |
| Waste Management and Landfills | 88,862 | 81,586 | 80,031 | -1.9% | -9.9% |
| Renewable Energy Credit (REC) Purchases | - | -68,000 | -115,600 | -70% | n/a |
| Total without RECs | 424,000 | 447,302 | 447,063 | -0.05% | 5.4% |
| Total with RECs | 424,000 | 376,019 | 323,816 | -13.9% | -23.6% |

**INCLUDING THE URBAN FOREST AND RECS PURCHASED, CORPORATE EMISSIONS HAVE FALLEN 24% SINCE 2005. EDMONTON'S TARGET IS TO REDUCE EMISSIONS 50% BELOW 2005 LEVELS BY 2030.**

# GREEN UP EDMONTON'S ELECTRICITY

## IN 2019, EDMONTON BEGAN ITS JOURNEY TOWARDS PROCURING 100% GREEN ELECTRICITY FOR MUNICIPAL OPERATIONS. A PUBLIC REQUEST FOR PROPOSAL IS SCHEDULED FOR 2020 TO PROCURE RENEWABLE ENERGY FOR ITS CIVIC OPERATIONS. WE HOPE TO CATALYZE OVER 300,000 MEGAWATT HOURS (MWH) OF NEW RENEWABLE GENERATION ON THE ALBERTA GRID BY 2023.

### City of Edmonton Corporate Operations Emissions

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The GHGs emitted from City operations account for approximately 2.7% of Edmonton's overall community emissions. Actions taken by the City to reduce these emissions highlight what is achievable in the community. Leading the implementation of low carbon initiatives shows that they can be replicated by other Edmonton businesses and organizations.

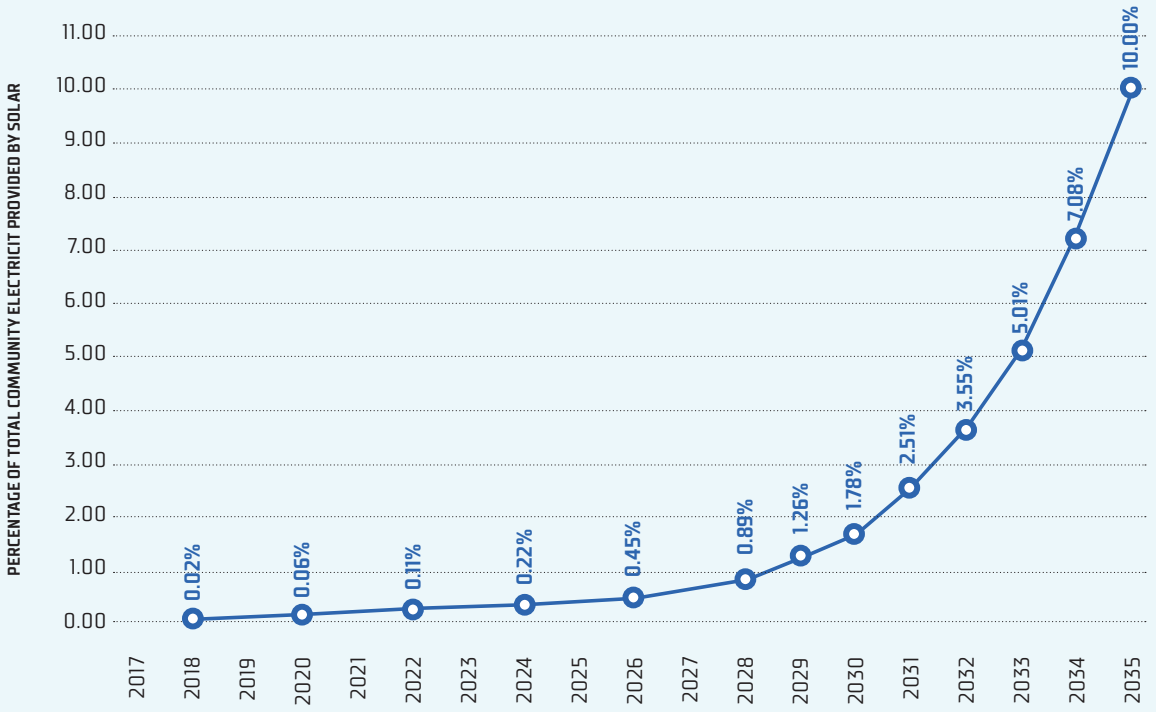
## COMMUNITY RENEWABLE ELECTRICITY TARGET

Over 2018 and 2019, Edmonton contributed to and sustained a Solar Rebate Program. Initially in partnership with Energy Efficiency Alberta, the solar rebate was provided to both commercial and residential customers who installed solar energy systems onto their buildings and homes. After the provincial program abruptly ended, Edmonton continued the residential rebate program ($0.40 per watt installed) through 2019 and it continues today.

The existing CETS targets 10% of electricity generation from local renewable energy by 2035. In 2019, solar photovoltaic (PV) systems provided 0.04% of the electricity used in Edmonton.

Should solar remain the only form of local renewable electricity generation, the solar industry must increase Edmonton's *percentage of total community electricity provided by solar* at an annually compounded growth rate of 41% to meet the 2035 target[3].

### Percentage of Total Community Electricity Provided by Solar




**THIS SINGLE SECTOR EXAMPLE ILLUSTRATES THE REQUIRED EXPONENTIAL GROWTH OF FUTURE-READY INDUSTRIES IN EDMONTON THAT WILL BE ENABLED IF WE REACH OUR AMBITIOUS TARGETS.**

[3] Target from the existing CETS, not the proposed 1.5 Degree Strategy.

# PROGRAMS AND INITIATIVES – HIGHLIGHTS

## Civic Operations

### Greening Electricity of City Operations

In the 2019 to 2022 budget, City Council approved $16.5 million for the purposes of procuring green electricity for City operations. A public tender led to a contract awarded to AUMA/TransAlta, Direct Energy, and Enmax for the supply of RECs to the City of Edmonton. The result is that approximately 60% of Edmonton's carbon emissions associated with its civic electricity use were offset in 2019 and will be 100% in 2020 through to 2022. However, this is just Edmonton's bridging strategy.

Beginning in 2023, the City of Edmonton will procure renewable electricity directly from a new generator(s) through a long-term financial power purchase agreement. The intent is for this contract to supply Edmonton's electricity needs with clean, green power for 20 years and help Edmonton achieve its 2030 target of reducing its civic emissions 50% below 2005 levels by 2030.

### The Greenhouse Gas Management Plan

The Greenhouse Gas Management Plan for Civic Operations 2019-2030 targets a reduction of emissions in City operations by 50% below 2005 levels by 2030. Progress within corporate operations in 2019 included:

- **Energy retrofits of City buildings:**
  - Energy audits completed for all projects on the 2019-2022 renewal list that are appropriate for energy retrofits.
  - Energy savings and GHG reduction tracking at various design stages was rolled out, starting with the Peter Hemingway pool renewal and Kinsmen Recreation Centre.
  - Planning for co-generation at Kinsmen Sports Centre began.
  - Design of a net-zero fire hall was completed.
- **Deployment of microgeneration solar PV on City buildings and sites:**
  - The City of Edmonton installed five solar PV systems on City buildings:
    - Meadow's Fire Station
    - Queen Elizabeth Pool
    - Davies Garage
    - Jasper Place Fire Hall
    - Blatchford Energy One
- **A consultant was retained and is developing site selection, design, and construction guides for further solar PV installation on City sites.**
- **200 kilowatts of building-integrated PVs were installed as part of the Edmonton Convention Centre's atrium glazing replacement project.**
- **Accelerated LED streetlight conversion:**
  - Currently developing project plans and preparing project and product requirements.
  - Plans to issue a request for proposals to hire consultants in July 2020.
- **Replacement of diesel buses with electric buses:**
  - The City purchased 40 electric buses; they began to arrive in 2020. Infrastructure for charging the vehicles is in place at the Centennial Garage. Work is being done to complete charging infrastructure in the Kathleen Andrews Transit Garage.

### Progress on City Policy C532

City Policy C532 – Sustainable Building Policy – sets an ambitious standard of sustainable building practices for buildings the City of Edmonton owns, leases and funds. A summary of progress in 2019 relevant to the policy is included this Council memo.

- **New construction:**
  - One major renovation project (Ortona Art Centre) is targeting LEED Silver certification.

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- Eight new projects are in design. All are targeting a minimum LEED Silver certification, above code energy targets, and have 1% on-site renewable/alternative energy generation. This includes the Windermere Fire Station, which is funded for design and construction and will be a net-zero energy building.

- **Existing buildings:**
  - 39 large buildings participated in the Building Energy Benchmarking Program in 2017. The City expanded its participation to 60 buildings in 2018 and 114 buildings in 2019. This now represents participation of all eligible corporately owned buildings.
  - BOMA BEST certification was initiated and completed for five City buildings.

An implementation team was created to support enforcement of the policy. This team meets regularly and has issued clarifications on questions about the policy's content.

### Implementation of Climate Resilient Edmonton: Adaptation Strategy and Action Plan

Our climate is already changing, both globally and locally. It's affecting our weather, environment, economy, and health. Scientists predict that Edmonton will be exposed to higher temperatures, drier summers, more extreme precipitation events, more variable extreme weather events, and an overall warmer and drier climate that could lead to a transformational change in our ecosystems.

Climate Resilient Edmonton: Adaptation Strategy and Action Plan is the first climate change adaptation plan for Edmonton; 2019 was the first year of its implementation. The Plan sets out pathways to prepare for and respond to anticipated climate change impacts. During the first year of implementation, efforts focused on:

- **Advancing flood resilience as a key pillar of strategy implementation.** In 2019 EPCOR presented its 20-year flood mitigation plan to the Utility Committee of Council with the goal to slow, move, secure, predict and respond to flooding events. To help support this plan, $59 million in flood mitigation grants were approved from the provincial and federal governments in 2019.
- **Developing climate change adaptation resources for residents,** such as the Climate Resilient Home website climateresilienthome.ca. The site was developed with regional partners to provide current information about adapting one's home for a changing climate. A series of "tiny" videos to help explain how to prepare for changing temperatures, precipitation and weather extremes was also developed.
- **Preparing community organizers** by hosting a series of workshops for community leagues, corporate climate leaders and others to prepare and plan for climate change.
- **Applying a climate adaptation lens to City decision making** by "mainstreaming" climate change adaptation into public infrastructure, major City processes and planned document updates (such as City Plan, Zoning Bylaw Renewal, Design and Construction Standards, and Asset Management Plans).
- **Developing tools and conducting research to support science and evidence-based decision making.** In 2019, Edmonton became one of the first cities in Canada to have an in-house climate analysis and projection tool. It allows staff to model specific climate parameters and thresholds to inform assessments of assets and services.
  - In 2019, research was completed to help identify best approaches to advance ecoroofs in Edmonton. The research found that ecoroofs help improve urban environments by reducing the urban heat island effect. They also increase building energy efficiency, stormwater retention,





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and biodiversity, thereby providing habitat for a variety of species and improving air quality. This research was taken forward to inform updates to the Zoning Bylaw and to inform advancement of ecoroofs through other program implementation (i.e., Brownfield Grant Program).

- 2019 was also the inaugural year of the IPCC Legacy Research Grant, which funded three climate change adaptation research projects to explore community vulnerability and resilience in older adults and immigrants; model fire risk; and model high-resolution precipitation projections to allow for engineering standards and river flood maps to be updated. These research projects were initiated in 2019 and will be completed in 2020/2021.

- **Working with regional partners to investigate and prepare for the major challenges that climate change poses to the region.** This work involved completing a regional tree vulnerability assessment and a guide to urban forest management in a changing climate; completing a pest vulnerability assessment and a guide for managing invasive species and pests in a changing climate; and completing a preliminary water security assessment and best practices guide.

## Pilot of a Consumption-Based Inventory

At a high level, the City of Edmonton's existing corporate and community GHG inventories track direct emissions from natural gas, vehicle fuel, and waste inside the City boundary, and from the generation of electricity that is used within the City boundary. This is referred to as a production-based GHG inventory because it views the emissions that result from producing a good or service as belonging to the location in which that good or service was produced.

The City completed its first consumption-based GHG inventory for Edmonton in 2019. This approach allocates the emissions generated when producing goods to the location of the final consumer of those goods rather than to that of the original producer.

The results of this work are now being integrated into the CETS's ongoing program planning and the 1.5 Degree Update that will be brought to City Council in 2020.

The consumption-based inventory is expected to be recalculated every four years and will continue to inform the City's energy transition work.

## Enviso and Corporate Environmental Literacy

Edmonton's environmental management system, Enviso, maintains an ISO14001 certification. This certification enhances City Administration's ability to systematically identify and manage environmental risk associated with all operations.

Energy consumption and GHG emissions are the two most significant ways the City impacts the environment. By coordinating efforts in programs like BOMA BEST, employee education, and influencing operational or mechanical changes in facilities and processes, Enviso's "Plan-Do-Check-Act" cycle of continuous improvement helps reduce GHG emissions, and increases employee awareness of the environmental impacts of energy consumption.

Enviso Awareness Training is a course offered to all staff to support environmental literacy and build understanding of their responsibilities associated with City Policy C512 – Environmental Policy – approved by City Council in 2006. At the end of 2019, 87% of staff had completed training, which is an increase of 16% compared to the previous year.

## Energy Profiling

In 2019, approximately 50 users signed up for training on the EnergyCap software, which provides energy profile information about Edmonton owned and operated buildings and facilities. The utility supply group provides training for all users and works with staff on data questions. The goal is to increase the number of EnergyCap users to over 100.

## Secondary Metering

In 2018, a pilot project to determine potential use of secondary, City-managed submeters was completed. The final sub-metering report was prepared in 2019. Opportunities for sub-metering will be evaluated case by case to determine the cost benefit of meter installation and ongoing management.

## Enabling Green Building through Bylaw and Process Improvements

The original CETS identified a need to investigate the barriers to achieving the low carbon goals that already existed in Edmonton's policies, bylaws, development regulations, and approval processes. This was completed through the Evaluation of Sustainable Development Goals project.

The investigation was completed in 2019 as a joint effort among many City departments. It provided key recommendations related to their findings. Implementation of these recommendations will ensure that sustainable principles are applied to all stages of the planning process, and that sustainable projects are not hindered by administrative processes.

This work aligns with the Pan-Canadian Framework's focus on identifying barriers to net zero, and subsequently mapping out a pathway to net zero.

## Clean Energy Improvement Program and Energy Efficiency Alberta

In 2018, the Provincial Government of Alberta passed legislation to support a Clean Energy Improvement Program (CEIP) in Alberta. The act and regulation came into force January 1, 2019.

CEIP 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. The City of Edmonton worked closely with Energy Efficiency Alberta (EEA) in 2019 to develop the program. A pilot program is tentatively scheduled for launch in Edmonton in 2020.

## Preparing for the Transportation Shift

The most recent data for transportation emissions in Edmonton is from 2018 and identifies a total of 5.8 megatonnes (or 31%) of the total community GHG emissions generated are related to transportation. As this constitutes such a significant portion of Edmonton's emissions, the Strategy recommends pursuing multiple reduction strategies, including the following:

- **Electric Vehicle Strategy**
  Edmonton's Electric Vehicle Strategy was adopted in 2018 and identified opportunities to electrify the city's transportation system. Electrification has been identified by international climate networks as critical to significantly reducing a community's GHG emissions. The vision presented focuses on hybrid electric and battery electric, plug-in, and light-duty electric vehicles (EVs). It assesses how the City can help Edmonton become an EV-ready city, accelerate the uptake of EVs in Edmonton, and create an environment to help accelerate EV adoption. Efforts to implement recommendations began in 2019.

- **Electric Vehicle Charging Facilities**
  In alignment with the Electric Vehicle Strategy, Edmonton has collaborated with ATCO and EPCOR Distribution to expand EV charging infrastructure across Edmonton. The City of Edmonton is currently working with providers on two initiatives:

  1. ATCO has identified five curbside locations in commercial districts. Installation and energizing will be completed by mid-2020.
  2. EPCOR began to install and energize 13 chargers at City facilities. The first of these was installed late in 2019; the balance will be completed by mid-2020.

  These initiatives will increase the number of publicly accessible charging stations in Edmonton from 19 in 2017 to 45. This is more than 50% of the way to the City's target of 85 publicly





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accessible charging stations by 2022. This in turn will provide EV drivers with convenient, high-quality EV charging facilities in commercial and business districts, and other high-density areas. It will also signal that EVs are an achievable option in Edmonton, while increasing the City's understanding of EV charging usage, pricing structures and durability.

**Electrification of Buses**

Electrification of transportation is highlighted in the Electric Vehicle Strategy as a priority goal. It has the potential to significantly contribute to GHG reductions, particularly as the Alberta electricity grid decarbonizes. The financial analysis within the 2018 technical review of the Strategy Action Plan also indicated that the investments in electrification of transit can be expected to provide returns of up to 20 times the invested value over a period of 30 years.

With the 2018 approval of the Greenhouse Gas Management Plan for Civic Operations, electrification of Edmonton Transit Services (ETS) buses moved closer to becoming a reality. To align with the Plan, ETS is working to replace approximately half of its fleet with electric buses. This will occur in batches over time, as the supporting charging infrastructure is installed. The goal is to replace approximately 440 buses by 2030. Installation of the first charging infrastructure began in 2019 and will be completed in 2020. The total amount of GHG reductions expected by 2030 as a result of this (and based on the anticipated greening of Alberta's electricity grid) will be 17,800 tonnes per year.

**Protected Bike Lanes**

In recent years, an important initiative of Edmonton's City Planning Branch has been the development of 7.8 km of protected bike lanes in the downtown core. Encouraging active transportation is a strategy with multiple benefits. Not only are GHG emissions virtually eliminated when people walk or ride their bikes, their physical and mental health improves, their household expenses drop, and wear and tear on city roads decreases.

Protected bike lanes opened in 2017. In 2019, City Administration continued to monitor the network for changes in the number of cyclists. Although the results are preliminary, the number of cyclists riding on the downtown bike network has increased since it was installed. We continue to see steady use of the downtown network, with the total number of cyclists growing in many locations.

## Protected Bike Lanes

### 102 Ave Through Railtown Park

| YEAR | TOTAL CYCLISTS RECORDED |
|---|---|
| 2018 | 151,366 |
| 2019 | 164,488 |

8.7% GROWTH

### 102 Ave East of 105 Street

| YEAR | TOTAL CYCLISTS RECORDED |
|---|---|
| 2018 | 105,283 |
| 2019 | 120,097 |

14.1% GROWTH


**LRT Expansion**

Edmonton's Light Rail Transit (LRT) network is an integrated transportation system that supports the City's strategic goals of Healthy City, Urban Places, Regional Prosperity and Climate Resilience and meets the needs of Edmonton's diverse and growing population. It transforms the way people live, learn, work, and play.

The transformational impact of Edmonton's LRT network includes the following future extensions:

- Valley Line LRT: a 27 km low-floor, urban LRT line between Mill Woods in southeast Edmonton and Lewis Farms in west Edmonton. The extension, upon completion, is expected to serve more than 100,000 commuters daily.
- Metro Line Northwest Extension: an addition of 11 km to the current Metro Line to improve mobility and access to existing and new neighborhoods in the north and northwest areas of the city, including the City of St. Albert. The extension will also directly improve and encourage Transit Oriented Development (TOD) in Blatchford, one of the world's largest sustainable communities.
- Capital Line South Extension: an addition of 8 km to the current Capital Line to service the south areas of the city, including the new South Edmonton Hospital (2030). The extension will also directly improve mobility around the region and encourage Transit Oriented Development.

Many milestones were achieved in 2019:

- Construction continued on the first phase of the Valley Line LRT: Downtown to Millwoods. This phase is scheduled to open in 2021.
- The second phase of the Valley Line LRT: Downtown to Lewis Farms entered into procurement. Construction is scheduled to begin in 2021.
- Phase one of Metro Line Northwest: NAIT to Blatchford completed the procurement phase. Construction is scheduled to begin in 2020.
- In addition, the concept plan for Capital Line South was completed and approved by City Council.

## Community Programs

2019 was the first year of Phase 3 of the CETS. It focused on "Delivering Community Scale Programs". As such, the year included the launch of two new community programs, expanding and preparing for the full operation of existing programs, as well as laying the groundwork to offer financing.

## Change Homes for Climate: Residential Solar Program

In 2018, Edmonton launched its Residential Solar Program. This was the first direct GHG reduction program implemented under the CETS. At first, the City offered a rebate of $0.15 per watt, stacked on top of Energy Efficiency Alberta's provincial rebate of $0.90 per watt. The provincial rebate ended abruptly on May 22, 2019; the City rebate was subsequently increased to $0.40 per watt, where it remains today. At the current rebate amount, Edmonton's Residential Solar Rebate Program saves homeowners approximately 15% of the cost of their solar installation.

To the end of 2019, Edmonton's solar program catalyzed over 543 new systems and added over 4.1 megawatts (Mw) of local installed capacity. At the end





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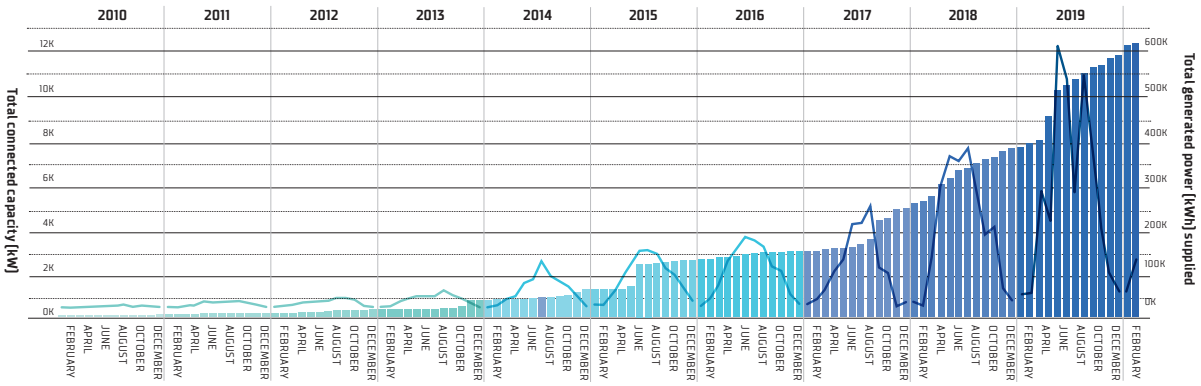
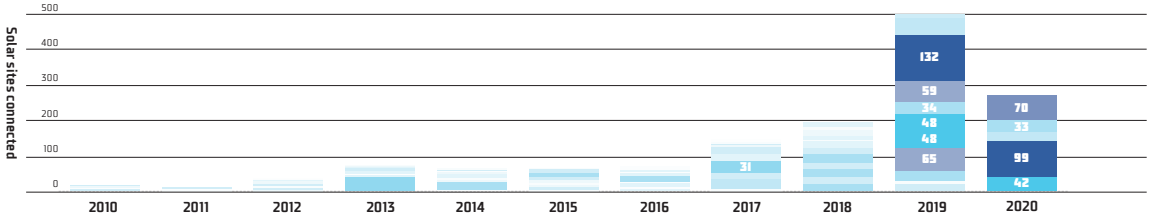
of 2019, Edmonton had a total installed solar capacity of 12 Mw. Over the course of the year, solar systems in the city provided 3,004.55 megawatt hours of electricity back to the grid. The City has continued support of Solar Alberta and other organizations to offer workshops for residents and industry.

The City also implemented an online solar potential map to engage Edmontonians. The map, which will undergo significant improvements in 2020, provides Edmontonians with an estimate of the electricity that could be generated and the corresponding GHG emission reductions from the installation of a solar PV system on their home. The site provides useful links to users for information and incentive programs. To the end of 2019, the map had 10,251 unique site visits.

## Edmonton's Solar Power Installations Over Time / Connected Capacity and Generated Power Supplied to the Grid




## Solar Installations by Month and Year




View charts online

Solar power provided enough electricity to meet 0.097% of the community's total electricity needs in 2019, up from 0.087% in 2018. This demonstrates that significant acceleration is required to achieve the Strategy's target of 10% renewable electricity by 2035.

The City of Edmonton also collaborated with Google on the launch of the Environmental Insights Explorer in late 2019.

"The launch of this Google tool in Edmonton engages our residents in learning more about the sources of GHG emissions in our city," says Edmonton Mayor Don Iveson. "The user friendly and visual nature of the tool will give us important data that can help us make the changes we need to ensure a sustainable future."

One insight gathered from this tool is that there is potential for solar PV systems on over 230,000 Edmonton rooftops, which would total 3,736 Mw of capacity.

### Change Homes for Climate: Home Energy Plan Program

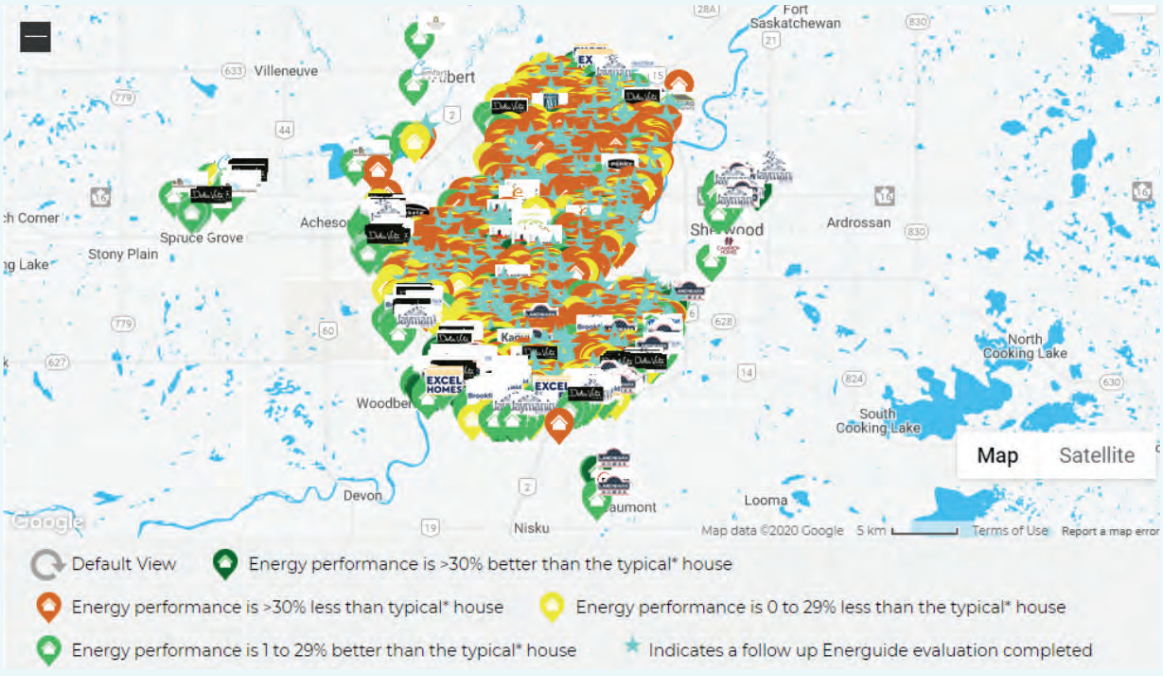
The City of Edmonton's EnerGuide Rebate Program completed its third successful year in 2019. It was then replaced by the Home Energy Plan. The new program provided rebates to Edmontonians for an EnerGuide evaluation. It also posted the EnerGuide label they received from that audit onto the Change Homes for Climate Energy Map.

In January 2019, the City partnered with Energy Efficiency Alberta, allowing Edmontonians to stack rebates on top of the provincial Home Energy Plan Program. This allowed for the expansion of City rebates beyond energy labelling to include home energy efficiency improvements as well. On October 24, 2019, the Government of Alberta closed the Home Energy Plan Program. As a result, the City could no longer stack home energy efficiency rebates, resulting in the closure of Edmonton's program. A limited interim program is in place, and a new City of Edmonton funded rebate program is under development for launch mid-2020.

## HOME ENERGY PLAN PROGRAM PARTICIPANT: "THE PROGRAM IS VERY WORTHWHILE, AND I HOPE WE CAN AFFORD TO CONTINUE (HONESTLY, WE CAN'T AFFORD NOT TO)."

### Who is Participating

This map shows the EnerGuide labels of participating homes and their builders. It allows people to compare energy use between homes and it helps make residential greenhouse gas emissions and energy use more visible for everyone. View map online



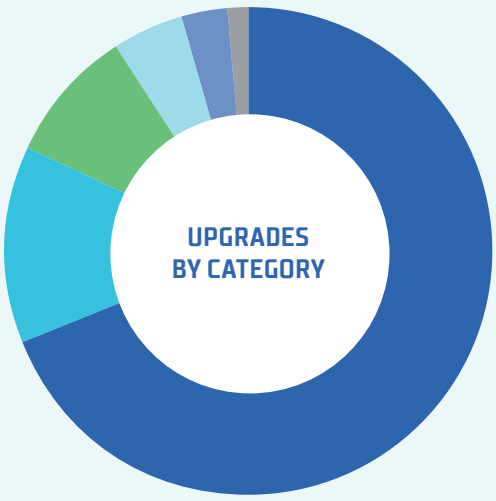
As of the end of 2019, there were 4,350 homes with EnerGuide labels on the map (2,918 were existing homes and 1,432 were new homes). This includes more than 20 builders who signed up to share the EnerGuide labels of newly built homes on the site. New homes have the builder's logo attached to their tag; this is used as a marketing tool to highlight energy efficiency champions among builders. This progress is an integral part of market transformation towards greater efficiency in the new home market.

During 2019, 2,765 Edmontonians participated in the Home Energy Plan Program and completed a total of 2,679 home upgrades. These energy efficiency upgrades catalyzed over 34,638 tonnes of GHG emissions reductions in Edmonton, stimulating over $15 million in economic investment.

### Edmonton Home Energy Plan Program Results

The following results were achieved through the Home Energy Plan Program in 2019.

- **Number of EnerGuide Labels**
  Existing Homes: 2,765
  Post-Upgrade Evaluations: 261
- **Energy Efficiency Upgrades**
  Total # Upgrades: 2,679
  Total # Homes: 2,134
- **Catalyzed Energy Savings**
  963,476 gigajoules (lifetime)
- **Catalyzed Tonnes of GHG Emissions Reductions**
  49,856 (lifetime)
- **Economic Impact**
  Stimulated over $15 million of community investment in upgrades




**THESE ENERGY EFFICIENCY UPGRADES CATALYZED OVER 34,638 TONNES OF GHG EMISSIONS REDUCTIONS IN EDMONTON, STIMULATING OVER $15 MILLION IN ECONOMIC INVESTMENT.**

## Eco-City Grant Program

This program mobilizes the community to take action to reduce GHG emissions, which can be done through showcasing and/or education programs. The grant program provides funding for community projects in two categories:

1. Energy transition acceleration: Projects that result in direct and immediately measurable emission reductions.
2. Community climate action: Projects that build literacy and capacity to facilitate low carbon lifestyles and drive future carbon reductions.

This program is designed to accelerate Edmonton's transition to an energy sustainable and climate-resilient city.

In 2019, grants were awarded to the following organizations:

**Alexis Nakota Sioux Nation: Waheeba (Sun) Energy Project**

The project combined three solar PV installation projects at the Alexis Nakota Sioux Nation (west of Edmonton) with community engagement and on-the-job training and work experience. The initiative builds upon efforts to develop local expertise and capacity in the solar PV energy sector.

**Jasper Place Wellness Centre: Food4Good Community Food Centre**

Food4Good is building a Community Food Centre to alleviate some of the food insecurity experienced in one of the city's most vulnerable areas — the west end of Edmonton. In this area, household incomes are 2.5 times less than city averages. Residents depend on food charity resources 3.5 times more than city averages. Compared to other Edmonton neighbourhoods, this area has higher rates of chronic disease and mental health issues.

**La Cité Franco et la Résilience Climatique/La Cité: A Hub For Climate Resilience**

Building on the community spirit and diversity of the Francophone community in Edmonton, La Cité Francophone Résiliente will empower Francophone participants and Anglophone Bonnie Doon neighbourhood residents of different ages, ethnicities and cultural backgrounds to make localized energy infrastructure modifications to the world-renowned La Cité building.

**Métis Urban Housing Corporation of Alberta Inc.: Furthering Climate Change Resilience Through Métis Housing Organizations**

The Métis Urban Housing Corporation launched a Climate Change Action Plan to support citizens of the Métis Nation of Alberta to take climate action. Staff participate in training courses to increase knowledge and awareness of energy efficiency and share this knowledge with tenants and facility operators.

**Alberta Association of Immigrant Serving Agencies: South Asian Energy Mentor**

This project delivers important energy conservation and climate change messaging to South Asian newcomers to Edmonton. To date, this community has not been effectively engaged. With the support of the grant, this project will overcome trust and language barriers by connecting to the community through community presentations, workshops, and individual home visits.

**ALUS Canada: Upstream Resiliency Through Action on the Agricultural Landscape**

The City of Edmonton sits on the North Saskatchewan River within the North Saskatchewan River watershed -- one of Alberta's most populated watersheds. Through this project, farmers and ranchers in Leduc County and Parkland County were engaged to establish 43 acres of natural infrastructure projects on marginal or environmentally sensitive agricultural land. As the largest group of private landowners, farmers and

ranchers are uniquely positioned to take wide-scale actions towards climate resilience.

**Bike Edmonton Society: Explore Bike Edmonton Challenge**

Bike Edmonton is engaged in helping more Edmontonians choose energy sustainable transportation. Bike Edmonton plans to launch the Explore Bike Edmonton Challenge which encourages Edmontonians to cycle more by providing incentives and resources that are needed for safer, more fun cycling experiences.

**Iron & Earth: Edmonton Chapter Director and Development**

Edmonton is home to one of the largest and most diverse concentrations of skilled industrial tradespeople in Canada. Through the grant, Iron & Earth Edmonton will help create opportunities for — and support — this constituency in their journey of establishing sustainable energy careers.

## Green Leagues

In 2019, the City continued to provide support to the Edmonton Federation of Community Leagues (EFCL) for the Green Leagues Program. To support the implementation of Climate Resilient Edmonton: Adaptation Strategy and Action Plan, a three-evening workshop series on climate adaptation was offered to community leagues. In addition, in February of 2019, Green Leagues facilitated a workshop series on sustainable innovation, design, facility maintenance and energy management. In 2020, it is expected that Green Leagues will offer a workshop series about energy efficiency and adapting to climate change.

Throughout 2019, Green Leagues successfully supported the planning and/or installation of three roof-mounted solar PV arrays. Windsor Park and Inglewood Community Leagues installed 11.5 kilowatts (kW) and 16.0 kW arrays, respectively, while Parkdale Cromdale Community League commissioned a 16.6 kW array to be installed in 2020.

Energy efficiency retrofit projects have been completed by Parkallen, Pleasantview, Parkdale Cromdale, Baturyn and Evansdale Community Leagues. Green Leagues also partnered with NAIT's Alternative Energy Program to offer free energy audits for Windsor Park and Inglewood Community Leagues in 2019. Where new building construction has been planned, Green Leagues and the EFCL have encouraged energy-efficient building certifications, such as Net-Zero and Passive House.

Green Leagues utilized its communication tools to encourage energy efficiency and solar power among community leagues, educating community league volunteers on green technologies, and highlighting the work being done by its member leagues. Education and promotional materials were distributed digitally on Green Leagues' and EFCL's social media platforms, EFCL's website and e-newsletter, as well as in person at a variety of community events. Green Leagues also worked with Windsor Park Community League to host a monthly Sustainability Speaker Series for local residents.

Finally, Green Leagues hired a sustainability scholar through the University of Alberta who identified potential barriers to community league sustainability.

## CitiesIPCC Legacy Research Grant Program

The CitiesIPCC Legacy Research Grant Program was established for Edmonton to contribute to the Global Research and Action Agenda on Cities and Climate Change Science (Research Agenda), developed when Edmonton hosted the first ever IPCC Cities and Climate Change Conference. The research grants advance knowledge about how Edmonton can continue on the path to becoming an energy sustainable and climate-resilient city. Eligible research projects align with the topics of urban planning and design, built and blue/green infrastructure, sustainable consumption and production, finance, uncertainty, and/or informality.

The first recipients of the program were awarded in 2019 and include:

- **Climate Change, Older Adults & Immigrants: Exploring Community Vulnerability & Resilience**
  Dr. Shelby Yamamoto & Dr. Jordana Salma from the University of Alberta School of Public Health
- **Fire Risk Modelling**
  Dr. Karim El-Basyouny, Dr. Tae Kwon & Rachelle Foss from the University of Alberta Faculty of Engineering
- **High-Resolution Climate Change Projections for the City of Edmonton: Modelling Extreme Events & Uncertainty**
  Dr. David Sauchyn, Samatha Kerr & Yuliya Andreichuk from the University of Regina Prairie Adaptation Research Collaborative
- **Urban Transport Partnerships: Last Mile Solutions & Electrification**
  Vincent Morales, Binnu Jeyakumar & Janelle Lee from the Pembina Institute

## Participation in the Federal Pan-Canadian Framework on Clean Growth and Climate Change

Municipalities continue to support the principles and actions of the Pan-Canadian Framework on Clean Growth and Climate Change. In 2019, the City of Edmonton provided formal input into the working groups assembled to promote building energy labelling and EVs.

Three of Edmonton's energy transition programs – EnerGuide for Homes, the Building Energy Benchmarking (BEB) Program, and the Electric Vehicle Curbside Charging Station Pilot – strategically align with the Pan-Canadian Framework. In addition, Edmonton's project on enabling green building through bylaw and process improvements is in alignment with the Pan-Canadian Framework's focus on "removing barriers to net zero".

The outcomes of the research projects will be provided as part of a community-wide event to be held in the fall of 2020.

## Building Energy Benchmarking Program

This program is the first of its kind to be hosted by a municipality in Canada. It's 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. Using the ENERGY STAR portfolio manager tool, the City helps benchmark the properties using their utility data and comparing their energy performance (using EUI, ENERGY STAR scores and other indicators) to that of similar buildings regionally and nationally. This allows building owners and operators to understand their energy use in the context of other similar buildings. As part of the program, participants are eligible for an optional rebate to conduct an ASHRAE Level 2 energy audit, providing building operators with detailed information on how they can reduce their energy use and GHG emissions.

The program was launched in June 2017 and has grown each year. Participation in Year Three (2019) was 278 buildings, up from 184 in Year Two and 99 in Year One. The Year Three Building Energy Benchmarking Report will be available in mid-2020 and will build on the energy use details gathered in previous years to demonstrate building performance over time. In addition to the reporting, 16 participating buildings took advantage of the City's rebate on an ASHRAE Level 2 energy audit.

The three-year pilot program was designed to effect market transformation and ensure energy efficiency is appropriately valued. The program engages owners of Edmonton's large buildings in benchmarking their energy performance and sharing the results publicly. Moving forward, the City will continue to encourage all building owners to participate in benchmarking and encourage more efficient buildings. This voluntary program will continue to build upon past success and assist the community in understanding the benefits and importance of building energy benchmarking and transparency prior to any federal and provincial regulations being introduced.



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## 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 18 founding members including large retail chains like IKEA, industrial facilities such as Lehigh Cement, and oil and gas leaders like Enbridge.

In 2019, recruitment of cohort two, saw an additional 22 members join for a total of 40 members. They are now finalizing their inventories and establishing targets, with GHG emissions reductions results ready to be shared in 2020. Cohort two participants range from large construction companies like Scott Builders to retail grocers like the Italian Centre Shop. More than 75% of the first two cohorts worked with Climate Smart, a social enterprise that offers tools for businesses to measure and profitably reduce their carbon footprint.

Highlights of Climate Smart members' accomplishments include:

- A total of 1,094,446 tonnes CO2e measured, equivalent to 1.6% of Edmonton's community-wide emissions (as per the 2018 community GHG inventory).
- 16 participating businesses became Climate Smart certified (GHG inventories finalized and reduction strategies identified).
- Multifaceted reduction strategies were developed by members, highlighting electricity, heat, transportation, and materials as categories. Within each category, behaviour change was identified as a key opportunity.

| Founding Members | Cohort Two |
|---|---|
| Alberta Health Services | Avila Arepa |
| Canadian Western Bank | Bissell Centre |
| Chandos Construction | Boyle Street Community Services |
| City of Edmonton | Capital Power |
| Clark Builders | Dandelion Renewables |
| Covenant Health | DIALOG |
| Enbridge Inc. | Earth's General Store |
| EPCOR Utilities Inc. | Edmonton Convention Centre |
| Ikea Edmonton | Edmonton EXPO Centre |
| Lafarge Canada Inc. | Edmonton Federation of Community Leagues |
| Landmark Homes (Canada) | ENMAX |
| Lehigh Cement | Graham LP |
| MacEwan University | Great Canadian Solar |
| Manasc Isaac Architects | Kuby Renewable Energy |
| Northern Alberta Institute of Technology | Italian Centre Shop (Southside) |
| PCL Construction Management Inc. | Oxford Properties Group |
| University of Alberta | Scott Builders Inc. |
| West Edmonton Mall | SkyFire Energy Inc. |
| | Stantec |
| | Sticks and Stones Communications Inc. |
| | SYLVIS Environmental Services |
| | Thurber Engineering Ltd. |

# IN 2019, TWO CAPACITY-BUILDING WORKSHOPS WERE OFFERED TO ALL MEMBERS. BOTH CLIMATE ADAPTATION AND GREEN ELECTRICITY PROCUREMENT WORKSHOPS WERE DELIVERED TO THE CORPORATE CLIMATE LEADERS.

Evaluation results from the adaptation workshop showed that of the 26 members that attended, 88% of participants were pleased with the content and structure of the workshop indicating overall success.



## Light Efficient Community Guidelines

In 2018, as recommended in the Strategy's Action Plan, a project to develop the City's first Light Efficient Community Guidelines was undertaken. This was an extension of City Policy C576 -- Light Efficient Community Policy -- approved by City Council in 2013. It applies to City-owned buildings and development.

This document provides enabling direction on community developments by:

- Identifying the types of urban light sources that have negative environmental impacts, and the types of impacts these include.
- Identifying best practices and mitigating actions to reduce the negative impacts of urban light on the environment.

The intent is to continue to work with City departments in 2020 to support communication of the document that was published in 2019.

## Community Outreach and Engagement

**Change for Climate Community Program**

Change for Climate is the community mobilization program of the CETS. It's a call to all Edmontonians to take action on climate change and work together to reduce our GHG emissions and prepare for a changing climate. This program launched in late 2017. By the end of 2019 it had:

- **271,070 visitors** to the changeforclimate.ca blog and related City of Edmonton web pages.
- **5,292 individuals** join the Change for Climate movement.
- **20,836 actions** marked as done on the Change for Climate spectrum.
- **5,667 individuals** were engaged via outreach activities.
- **2,065,800 views** of the Renewable series and 27,680 social media interactions.
- **1,323,795 views** of the various Change for Climate videos.
- **A 70% increase** in Facebook followers since 2018.
- **A 26% increase** in Twitter followers since 2018.
- **202,256 social media interactions**/engagements.
- **44% of Edmontonians recall** having heard or seen Change for Climate content.


## Climate Change and Energy Perceptions Annual Survey – 2019

A follow-up to the 2017 and 2018 Climate Change & Energy Perceptions Survey was carried out in 2019. Results were largely consistent with previous surveys, indicating:

- **74% of Edmontonians** are concerned about climate change and 75% agree on the need to take action now (similar to the results in 2017)
- **63% of Edmontonians** are personally taking action on climate change (an increase of 9% from 2017).
- **Edmontonians are primarily taking action to decrease their GHG emissions** by improving their home's energy efficiency or altering their mode of transportation and/or frequency of driving.
- **52% of Edmontonians** indicated becoming more supportive of taking action on climate change in the last year (an increase of 9% from 2018).

The survey was released on social media and in a news release. The survey received media attention.



## Change for Climate Talks

Change for Climate Talks are short and inspiring presentations by local community leaders who want to share their ideas on how we can act on climate change. The second Change for Climate Talks took place in 2018 and video recordings of each of the 11 speakers were released in early 2019. They collectively received almost 750,000 views on YouTube and Facebook combined.

The third Change for Climate Talks event took place in 2019. This sold-out event saw an enthusiastic audience of 400 people listen to eight community leaders as they presented their inspirational stories of action on climate change. The speakers came from a variety of professions and backgrounds and discussed topics ranging from urban farming to media coverage on climate change to electric vehicles to the sharing economy.

The talks were filmed and published on YouTube and Facebook in late 2019, where they collectively received over 570,000 views.

## Video Storytelling and YouTube Productions

*Renewable* is a video and blog series about visionaries, creators and community leaders working towards a sustainable future in Edmonton. In 2019, this series released its final episode from Season 2 and two episodes from Season 3. In addition to previous awards, in 2019 it won Digital Alberta's Ember Award for Short Film/Documentary Series, another nomination for AMPIA's Rosies Award for Online Film and Video – Branded Series, and an ACE Award for Broadcast Series, Advertising Campaign Distinction.

With over two million views and over 27,000 social media interactions, the Renewable series has brought international attention to the energy transition initiatives taking place in Edmonton.

- Rockie Awards (digital non-fiction series) – 2018 nominee
- Webby Awards (online film and video branded series) – 2018 &2020 finalist
- Telly Awards (webseries: documentary) – 2018 gold
- Digtal Alberta's Ember Award (best short film/ documentary under 30 minutes) – 2018
- Anvil Award (non-broadcast series award) – 2018
- ACE Award (broadcast series award, advertising campaign distinction) – 2018 & 2019
- AMPIA's Rosies Award (online film and video – branded series) – 2018 & 2019 nominee
- SocialWest's #Hashtag Award for Best Social Media Campaign – 2019 honourable mention
- Digital Alberta's Ember Award (Short Film/ Documentary Series) – 2019
- IABC Gold Quill Award (Audio-Visual) – 2020


*A Tiny Explanation* is a series of eight short "how to" videos to help individuals and communities make changes to become more sustainable. Released in 2018, the series received IABC's 2019 Award of Merit for Communication Skills in Audio/Visual and an honourable mention at SocialWest's 2019 #Hashtag Awards for best social media campaign.

## Media Coverage

In 2019, 50 stories were written in 10 different media outlets about the CETS and its programs. In addition, 33 inquiries were received from the media looking for more information for a story.

## Blatchford

Blatchford is the City of Edmonton's visionary project to convert 536 acres of centrally located land into a sustainable and vibrant community for 30,000 residents. The neighbourhood will reflect best practices for sustainable urban design by prioritizing walking, cycling and transit in the street design; increasing density; combining housing, retail, commercial and public spaces; and incorporating significant parks and green spaces.

In any community, let alone one the size of Blatchford, how that community uses energy has a significant impact on the environment. Blatchford will use three strategies – energy conservation, energy efficiency and the use of renewable energy sources – to minimize the community's environmental impact and ensure community energy resiliency. This includes:

- **Conservation (green buildings):** All buildings and homes in Blatchford are being designed and built to reduce power, heat and water use right from the start.
- **Efficiency:** The first stage of a District Energy Sharing System (DESS) has been built to provide heating and cooling and domestic hot water for the buildings in Blatchford. The DESS is capable of sharing energy between buildings which significantly reduces overall energy demand.
- **Renewables:** The use of on-site renewable energy sources including geo-exchange, sewer heat exchange and solar PV.

Blatchford's vision is to be a carbon-neutral community that uses 100% renewable energy. To help achieve these sustainability goals, City Council established the Blatchford Renewable Energy Utility, a municipal utility that designs, builds and operates the DESS.

Major community development milestones in 2019 included the:

- Drilling of 570 boreholes for Blatchford's geo-exchange field.
- Commissioning of Energy One, the area's DESS (and its associated solar PV installation) that will serve the Blatchford community.
- Commissioning of a 26.28 kW solar PV system at Energy One.
- Start of residential construction in the first stage of the community.
- Sale of approximately 33 acres of land in the community to NAIT for their campus expansion.
- Development of full utility structure to provide sustainable heating and cooling energy for all buildings and businesses in Blatchford.

### Waste to Fuel

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.

- In 2016, the facility obtained certification from the International Sustainability and Carbon Certification system.
- In 2017, Enerkem Alberta Biofuels received the lowest carbon intensity value ever issued by the British Columbia Ministry of Energy and Mines under the Renewable and Low Carbon Fuel Requirements Regulation.
- In 2017, it became the first ever waste-to-biofuel facility to sell its ethanol under the U.S. Renewable Fuel Standard after receiving registration approval from the U.S. Environmental Protection Agency (EPA).

In 2019, it processed 15,700 tonnes of municipal solid waste feedstock.

### Anaerobic Digester

The anaerobic digester completed in 2017 was designed to process up to 48,000 tonnes of organic waste annually by turning it into compost and biogas. The biogas produced will be used at the Edmonton Composting Facility to lower the GHG footprint of that facility, and eventually will be used to generate electricity that will be fed into the Alberta grid.

Commissioning of the digester began in October 2018 and is expected to be complete in 2020. The quality of the biogas produced so far has been deemed satisfactory. As soon as it is commissioned, the anaerobic digester is expected to run at full production.

### Downtown District Energy System

District energy was highlighted in the 2018 technical review of CETS as an effective, resilient approach to increasing energy efficiency and reducing consumption in denser urban areas. In such areas, aging boilers can be replaced by a highly efficient boiler plant located and managed in a central location. The energy is distributed from that location out to connected buildings. A district energy system can also include a combined heat and power system which further reduces carbon emissions by utilizing waste heat to produce on-site electricity. The initiative was resized and redesigned in 2019 to establish a smaller but expandable system. City Council's formal consideration for approval and funding is scheduled for 2020.

**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.**

# A LOOK AHEAD

## IMPLEMENTING THE COMMUNITY ENERGY TRANSITION STRATEGY WHILE PLANNING THE 1.5 UPDATE

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# A LOOK AHEAD: IMPLEMENTING THE COMMUNITY ENERGY TRANSITION STRATEGY WHILE PLANNING THE 1.5 UPDATE

**City Council was clear that implementation of the CETS was to continue while the necessary planning work was conducted to update it to a level of ambition aligned with the goal of staying below a 1.5°C global average temperature increase.**

Through modeling, jurisdictional scans and following best practices, the City of Edmonton has grouped the climate actions needed to achieve the 1.5°C target into seven "climate shifts." Programming and initiatives being actioned in 2020 are summarized with the climate shifts in mind.

The following programs and initiatives are being pursued in 2020, including those identified in the Interim Report Accelerated Climate Actions (CR_7577) submitted to the Executive Committee of Council on December 2, 2019. Certain actions within this section may also be leveraged to stimulate the local economy as part of the City's COVID-19 economic recovery strategy.

## CLIMATE SHIFT 1: TOOLS AND TARGETS

### Getting to 1.5 Degrees: Evaluating the Technical Review of the Strategy

In 2018, sophisticated carbon modelling using the CityInSight model was undertaken to develop a local carbon budget for Edmonton and evaluate CETS in the context of a 1.5°C goal.

In 2019, the implications and recommendations that came out of this modelling and technical review of the Strategy's Action Plan were shared and discussed with City Administration and City Council. This important work contextualizes Edmonton's energy transition efforts relative to those of other international climate leaders. It can be used to guide City Council direction for future energy transition planning and implementation.

In 2020, these results will be used to complete the update to the Community Energy Transition Action Plan for the next ten years.

### Carbon Accounting Project

As directed by City Council, City Administration is exploring the implementation of a carbon accounting framework for Edmonton's financial decision making. The carbon emission of proposed projects/programs may be compared to an annual carbon budget/baseline similar to a project/program budget or an annual corporate financial budget. This will add an environmental decision-making lens to the City's budget process.

## CLIMATE SHIFT 2: LOW CARBON CITY AND ZERO EMISSION TRANSPORTATION

### Electric Vehicle Transition Catalyst

The Electric Vehicle Strategy was implemented in 2019. In 2020, work to encourage the adoption of electric vehicles (EVs) will continue and will include:

- Launch the Electric Vehicle Charging and Ebike Rebate Program: An initiative that incentivizes electrification of the transportation system as well as reduces the use of single occupancy vehicles.
- Curbside and public access charging stations: The City plans to continue partnerships with ATCO and EPCOR to expand public charging infrastructure.

City Administration will also look for opportunities to pursue post COVID-19 federal/provincial funding to further expand charging infrastructure and familiarity with EVs.

### Alternative Low GHG Emission Fuels

The City of Edmonton will explore the feasibility of alternative fuel sources such as hydrogen through collaboration with local research institutions (University of Alberta) and regional associations (Alberta's Industrial Heartland Association).



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## City Plan: A Plan for Two Million People Becoming Greener as We Grow

Over 2019, major strides were made in the development of the draft City Plan, including ongoing public and stakeholder engagement, completion of scenario development and technical studies, and the drafting of policy intentions and directions. In addition to transportation, land use, and fiscal assessments of the City Plan scenarios, modelling also included a robust analysis of the GHG emissions and energy use, as well as a climate vulnerability costing for each of the scenarios developed.

The draft City Plan is an invitation to join in building a version of our city that respects and preserves the things we value today while also creating a city to attract and inspire its next million residents. It sets a strategic direction for the way Edmonton grows, including its land use, mobility systems, open spaces, employment, and social networks. Generally, it touches on most aspects of life in Edmonton. It identifies a set of "Big City Moves". These are invitations to work together to build our future city in a new way. They define bold, transformative priorities and create a different set of opportunities for Edmonton.

"Greener as We Grow" is the first Big City Move. It sets a commitment to use growth as a catalyst for good design and conscious decisions ensuring we protect our land, air, water, and biodiversity. Achieving tangible change means setting ambitious targets associated with each of the Big City Moves. For Greener as We Grow, these draft targets include planting two million new urban trees, achieving a total community-wide carbon budget of 135 megatonnes and zero net per person GHG emissions. Integration of emissions targets and GHG modelling into the development of the draft City Plan marks the first time in Edmonton, and possibly Canada, that such targets have been included as part of a land use and transportation official plan.

## Greenhouse Gas Management Plan: Civic Operations

Key activities planned for -- and underway -- for the Greenhouse Gas Management Plan for Civic Operations in 2020 include:

- Completion of site selection, design, and construction guides for solar PV installation.
- Continued development of a new City Council policy that will enable verified cost savings to be harvested from the utility operating budget and directed to a separate fund that can be used to fund additional carbon abatement projects.
- Development and implementation of the accelerated LED street light replacement program.
- Establish a cross-department steering group to support the implementation, monitoring and reporting of the plan.
  - » Request for proposals for green electricity procurement will be issued.
  - » Continued development of the City's monitoring and reporting protocol for energy retrofit projects.
  - » Arrival and deployment of first 40 electric buses.

## Corporate Climate Leaders Program – Cohort Three

2020 will be an exciting year for the Corporate Climate Leaders Program as a third cohort will be recruited, members will undergo additional training/ attend workshops and planning will begin for the first Corporate Climate Leaders' Summit. Moving forward, the program will be delivered in partnership with Green Economy Canada, a national not-for-profit dedicated to supporting businesses with their transition to a low carbon economy.

## Change for Climate Community Engagement Program

In 2020 Change for Climate will continue the implementation of its overarching strategy with the goal of getting more Edmontonians to take action on climate change. Some strategies and tactics include:

- Continue to encourage Edmontonians to join the movement, commit to taking action and share their stories via the changeforclimate.ca blog and social media.
- Continue to engage with residents in person by participating in targeted outreach events and festivals;
- Organize community events and partner with festivals/organizations to engage with Edmontonians in creative ways (especially important during COVID-19 precautions).
- Continue with the release of Season 3 of the Renewable series.
- Update the annual survey to monitor changes in perception and evaluate program awareness and messaging.
- Develop resources to integrate climate adaptation into the Change for Climate program, focused on residents and educational institutions.

### Protected Bike Lanes

The Edmonton Bike Plan, an update to the 2009 Bicycle Transportation Plan, is nearly complete. City Council review is expected in 2020. The Bike Plan includes an updated vision for the future of cycling of Edmonton along with direction for the growth of Edmonton's cycling network.

Cycling infrastructure continues to be installed as part of neighbourhood renewal projects. Cycling infrastructure currently planned through renewal includes approximately 8 km on new shared pathways, 6.5 km of protected bike lanes, 35 km of painted bike lanes and 11 km of shared roadways.

Recommendation highlights include the expansion of the southside bike network. A portion will be implemented through the Strathcona neighbourhood renewal, which started in 2019 and is planned for completion in 2021.

## CLIMATE SHIFT 3: EMISSION NEUTRAL BUILDINGS

### Clean Energy Improvement Program: Financing the Low Carbon Future

The Clean Energy Improvement Program (CEIP) Regulation came into force in 2019 following passage in 2018 of Alberta's provincial CEIP legislation. The tool represents a significant new approach to financing many elements of the province's transition to reduced energy consumption and increased generation of renewable energy. The CEIP is expected to be an effective mechanism to finance energy efficiency retrofits and renewable energy systems to existing privately owned residential and commercial buildings.

In 2020, the City of Edmonton is designing a pilot CEIP in cooperation with Energy Efficiency Alberta. Implementation of this low-cost financing tool in a pilot program is an opportunity for Edmonton to test the potential for GHG reductions and increased local renewable energy generation through retrofits to commercial and residential buildings.

### Civic Building Solar Installation Program

Develop a program for civic building solar installations that accelerates solar installations on existing buildings.

### Net-Zero Buildings

Submit for City Council's approval a revision of the Sustainable Building Policy (C532) to make net-zero buildings the requirement for new civic construction.

### Pathway to Net Zero

In 2020, work already completed on identifying and eliminating barriers to net-zero building development will be used as groundwork for developing a pathway to net zero. This will consist of developing approaches and tools to advance Edmonton's building stock (existing and new) to a net-zero or zero-carbon state. This work aligns with the Pan-Canadian Framework's focus on identifying barriers to net zero and mapping out a pathway to net zero.



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## Industry Engagement on Emissions Neutral Buildings

As part of the targeted engagement, industry stakeholders will be included early and frequently on development of the Emission Neutral Buildings Climate Shift.

## Change Homes for Climate: Home Energy Efficiency Rebate Program

In 2020, we will launch a new Home Energy Efficiency Rebate Program that will help Edmontonians make home improvements. It will continue the City's nation-leading approach to home energy labelling and disclosure and offer further rebates for household energy efficiency measures. As a proven approach to local energy efficiency and job creation, this program offers further opportunity to scale up as required by City Council.

## Climate-Ready Home Demonstration Project

In 2020, in partnership with NAIT and funded by Energy Efficiency Alberta, the City will launch a "climate-ready home" demonstration trailer. This innovative outreach and engagement tool will help make household energy efficiency visible. Edmontonians will be able to interact with hands-on demonstrations and explanations of the innovative technologies used in climate-ready homes. Climate-ready homes address both climate mitigation and climate adaptation challenges. This tool will also be used by NAIT to educate and involve their students in climate-ready homes, further enabling the City's energy transition goals.

## Building Energy Benchmarking Program (BEB) – Year Four

In 2020, the City will continue its nation-leading approach to energy benchmarking and disclosure through this program. We aim to recruit a higher number and more diverse buildings into the program while maintaining those currently participating. This will be facilitated by the integration of BEB into the new Building Energy Retrofit Accelerator Program, currently under development. With participation already at more than 300 buildings, the program will continue to encourage building owners to have their building's energy use compared to other similar buildings. In addition, the City will continue to encourage owners to have their buildings undergo energy audits to identify measures that will improve their energy performance and increase awareness of how energy efficiency can save on operational costs.

## Change Buildings for Climate: Building Energy Retrofit Accelerator Program

Building upon the relationships and knowledge developed in the BEB and Corporate Climate Leaders Programs, a commercial energy efficiency rebate program will be launched in 2020. It will leverage existing City of Edmonton programs to provide incentives for energy efficiency retrofits in commercial buildings. For example, participation in BEB will be a requirement for all rebate recipients within this program.

The program will be an adaptive, measure-focused, cost-effective rebate program that facilitates deep green renovations and emissions reductions in commercial and institutional buildings. Ultimately, it will seek to stimulate market transformation such that deep energy retrofits and emissions reductions strategies become the new market norm for buildings and businesses.

## CLIMATE SHIFT 4: RENEWABLE REVOLUTION

### Renewable Electricity Procurement

In late 2018, the City of Edmonton initiated a project to procure 100% of the City's corporate electricity requirements from renewable sources. The request for proposals for renewable electricity will be issued in Q2 of 2020 with the expectation to have an executed supply agreement in place by the end of 2020 for renewable electricity delivery on or before January 1, 2024.

### Residential Solar Program – Year Three

The Change Homes for Climate Residential Solar Incentive Program launched in 2018 and will continue through 2020 and beyond as budget permits. It is noteworthy that this rebate program offers potential to scale up as needed to achieve more ambitious climate targets and stimulate the local economy as desired by City Council.

### Wind Power Generation and Use

In 2020, the City plans to investigate the implementation of wind power in civic building and/or open spaces.

### City-wide District Energy Potential Assessment

The City will evaluate and prioritize city-wide opportunities for the deployment of district energy systems to reduce emissions and reduce grid vulnerability.

## CLIMATE SHIFT 5: JUST AND EQUITABLE TRANSITION

### Change for Climate Mobilizer Pilot Program

As part of the City's ongoing efforts to engage the community to take action on climate change (and in line with one of the recommendations of the technical review of the CETS), a Volunteer Pilot Program was launched in 2019 with support from Energy Efficiency Alberta. This program aims to educate community leaders and help them connect their communities with information and resources that motivate climate action. Volunteer community members have been trained on outreach strategies to promote and establish social norms around talking about and acting on climate change. The pilot continues with volunteers (known as change for climate mobilizers) carrying out their volunteer work across the community. The pilot program will conclude in Q3 of 2020 with recommendations for future implementation.

### Residential Qualifying Income Retrofit Program

The addition of a Qualifying Income Retrofit Program is scheduled for 2021; related research and design activities have already started. The goal is to support energy transition for lower income Edmontonians who live in energy poverty and cannot afford the full cost of energy efficiency upgrades. This program will complement other energy transition initiatives well.

## CLIMATE SHIFT 6: CARBON CAPTURE AND NATURE BASED SOLUTIONS

### Advancing Nature-Based Solutions

In alignment with ConnectEdmonton and the objective to plant an additional two million trees by 2050, the CETS seeks to enhance the natural carbon storage within the City. To deliver these objectives, the City will need to establish an integrated ecosystems services team (responsible for supporting improvements to ecosystem health) and increase the natural carbon storage of ecosystems in Edmonton. This is envisioned to include the establishment of conservation and restoration of key carbon storage resources; promote sustainable urban farming; and establish nature-based requirements within district planning, zoning bylaw, area structure plans, area redevelopment plans, neighbourhood structure plans, and asset management processes.

### Supporting Carbon Capture Technologies

The Edmonton region is already host to industrial carbon capture and storage projects. We are proud of the regional development of both carbon capture industrial systems and a carbon dioxide pipeline to transport the captured carbon dioxide to storage and enhanced oil recovery pools south of Edmonton. Supporting the growth of technological carbon capture and storage, particularly at sources within the City of Edmonton (such as the recently announced feasibility evaluation at the Edmonton Lehigh Cement Plant), will assist the community in reducing emissions and contribute to the growth of this important industrial technology with a shift to the preferential purchasing of this low-carbon cement.

There are also potential opportunities for deployment of carbon capture at City facilities directly, in the form of smaller scale carbon capture systems that use the carbon dioxide to produce products such as soap. This technology is effectively a "bolt on" system that can be deployed on current emissions sources such as natural gas furnaces. Further evaluation of these systems for use at City facilities may reveal opportunities for reducing emissions with carbon capture and storage.

### Offsetting Residual Emissions

Based on the emissions forecast, even under the most ambitious climate plan there will remain residual emissions that lack technology or approaches to eliminate. The only method to reduce these emissions is to "offset" them by purchasing reductions from other projects and accounting for them against the City's GHG inventory. The updated CETS includes the development of an offset purchasing strategy for the City of Edmonton to help manage the costs of the energy transition and maximize the remaining Edmonton carbon budget.

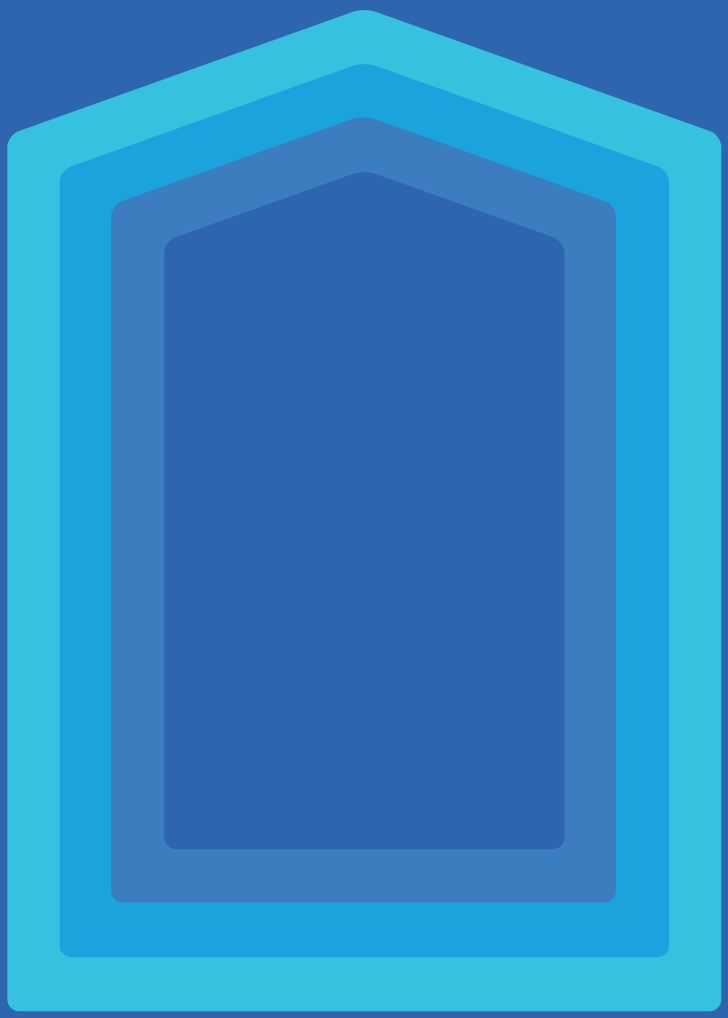
## CLIMATE SHIFT 7: ECONOMIC DEVELOPMENT

### Edmonton Climate Innovation Fund

Guided by the longstanding work of The Atmospheric Fund, Edmonton and five other Canadian cities joined together to incubate the creation of Low Carbon Innovation Centres across Canada based on The Atmospheric Fund model. In 2018 the group submitted and was successful in obtaining from NRCan $165 million in funding; $21.7 million specifically for the Edmonton centre.

The Edmonton Climate Innovation Fund (ECIF) is housed within the Alberta Ecotrust Foundation (AEF). AEF has over 30 years of direct experience navigating the Alberta market by convening stakeholders and facilitating partnerships between industry actors and the environmental community. AEF is also a funding organization, providing grants to environmental non-governmental organizations so that they can advance environmental and conservation efforts throughout Alberta. AEF has a long-standing relationship with the City of Edmonton as the administrator of two of its popular grant programs: the EcoCity Grant and the IPCC Legacy Grant.

The ECIF will receive the funds in mid-2020. The funds will be utilized to create an endowment, which in turn will be invested into low carbon initiatives. Through preliminary consultation with stakeholders, the initial areas of focus being explored include building better and retrofitting wiser, moving on mobility, and decarbonizing energy. The ECIF will meet its mandate through program design and deployment, grant making, and direct impact investment of the endowment funds.



CHANGE FOR CLIMATE

Edmonton

For more information please visit: **changeforclimate.ca** or call 311