

COMMUNITY ENERGY TRANSITION STRATEGY

THE 2018 UPDATE ON CITY COUNCIL'S CLIMATE RESILIENCE GOAL

Publication Date: March 2019



Edmonton

The background of the image shows a cityscape of Edmonton, Alberta, Canada. In the foreground, there is a green park area with trees and a bridge. The middle ground features several high-rise buildings, including the City Hall tower. The sky is blue with some clouds. A large blue shape, resembling a stylized arrow or a corner of a page, is overlaid on the right side of the image, containing the text.

**2018 HAS BEEN A YEAR
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STRATEGY, AND EDMONTON
AS A WHOLE. FROM HOSTING
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INTER-GOVERNMENTAL
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AS A WORLD LEADER
IN MUNICIPAL ENERGY
TRANSITION.**

PAUL ROSS

BRANCH MANAGER, ECONOMIC AND ENVIRONMENTAL SUSTAINABILITY

"2018 has been a year of achievements for the Energy Transition Strategy, and Edmonton as a whole. From hosting scientific conferences, to participating in inter-governmental panels, and contributing to new international standards, Edmonton has established itself as a world leader in municipal energy transition. This work builds relationships that will expedite our shift to a sustainable community, and will allow us to share the benefit of our experience with others.

In response to City Council's direction, a significant step was taken this year towards making Edmonton's operations sustainable. The approval and funding of the Greenhouse Management Plan for Civic Operations will allow the City of Edmonton as a corporation to achieve significant reductions in its operational greenhouse gas (GHG) emissions.

The City also launched support programs designed to assist Edmontonians and Edmonton businesses in pursuing a low carbon path. These programs included the residential solar program which has seen 170 installations since June 2018. Others, 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 over 40 organizations, from large oil and gas companies to small, home grown Edmonton businesses, all working on understanding their emissions and taking action to reduce their carbon footprint.

Looking ahead to 2019, Edmonton will continue to prepare for the province's Clean Energy Improvement Program (CEIP). The CEIP introduces an innovative financing tool that would allow residents and businesses to obtain affordable financing with a repayment mechanism that is built into the property tax system. As a result of City Council's sustained advocacy to the Province, this tool was enabled through provincial regulation in late 2018.

City Council, through its strategic planning work, has outlined climate resilience as one of its top priorities. Combined with the directions outlined in the Edmonton Declaration, the expectations to deliver on the priorities are high. The City of Edmonton is ready, and in 2019 and beyond, I am confident that we can continue to take deep and meaningful action to reduce Edmonton's carbon footprint."

THIS REPORT

This report provides an update on Edmonton's Community Energy Transition Strategy (the Strategy) activities and accomplishments in 2018. The report contains the following sections:

- » [Executive Summary](#)
- » [Scaling Up Community Programs](#)
- » [2018 Accomplishments and Updates](#)
- » [Emerging Opportunities and Challenges](#)
- » [Looking Ahead](#)
- » [Appendix A: Measuring Up](#)
- » [Appendix B: Edmonton Declaration](#)

EXECUTIVE SUMMARY

2018 was a year of mobilization for [Edmonton's Community Energy Transition Strategy](#). Building on the governance and foundations established in the first three years of the Strategy, 2018 saw Edmonton move beyond planning into operational programming.

In parallel, the past year saw the City of Edmonton stand out as a municipal leader in energy transition. An international conference, multiple awards, and the passage of new provincial legislation all focused attention on the momentum and successes of Edmonton's approach to energy transition.

CITY LEADERSHIP

With the support of City Council, Edmonton increased its international and national role in climate leadership. Milestones included the following:

- ▶ The City of Edmonton hosted over 700 delegates from 64 countries at the first CitiesIPCC and Climate Change Science Conference;
- ▶ Mayor Don Iveson announced and gained international support for the [Edmonton Declaration](#);
- ▶ The Global Covenant of Mayors identified the City of Edmonton as one of only 32 cities in the world to have become "Fully Compliant" with the Global Covenant of Mayors for Climate and Energy Commitment; and
- ▶ Edmonton was politically and administratively instrumental in Alberta's passage of legislation to enable the Clean Energy Improvement Program (CEIP). This program will provide affordable financing for energy retrofits with the innovation of paying the financing back through the municipal property tax bill. This means the financing is attached to the property and not the individual or corporation. Alberta is only the 4th Canadian jurisdiction to adopt this approach to financing energy transition.

The City of Edmonton also made significant progress within the community and its own operations.

Highlights include:

- ▶ City Council's approval of the [Greenhouse Gas Management Plan: 2019–2030 Civic Operations](#) (the Plan) and four years of funding have allowed administration to outline a pathway for City operations to achieve its goal of 50% reductions in greenhouse gas emissions relative to 2005 by 2030. As a result, the coming years will see energy improvements in corporate assets, including retrofits to city buildings, procurement of green electricity, and transitioning to an electric transit fleet. Edmontonians will begin seeing these changes when Edmonton's first electric buses arrive in 2019. Work has also begun in earnest to procure 100% of the City of Edmonton's electricity for its operations from renewable sources.
- ▶ In September 2018, Edmonton's City Council advanced the city's first [Electric Vehicle Strategy](#). Electrifying a city's transportation system has been identified by international climate networks as a critical action in significantly reducing a community's greenhouse gas emissions.
- ▶ In June 2018, Council approved components of Edmonton's Strategic Plan for 2019 – 2028. This included an aspirational vision for Edmonton in 2050, a 10-year principle that is the lens to guide decision-making for the term of the plan, and four, 10-year strategic goals to facilitate progress towards the vision. Climate resilience is one of four goals outlined to support the 2050 Vision.

IN SEPTEMBER 2018, EDMONTON'S CITY COUNCIL ADVANCED THE CITY'S FIRST ELECTRIC VEHICLE STRATEGY. ELECTRIFYING A CITY'S TRANSPORTATION SYSTEM HAS BEEN IDENTIFIED BY INTERNATIONAL CLIMATE NETWORKS AS A CRITICAL ACTION IN SIGNIFICANTLY REDUCING A COMMUNITY'S GREENHOUSE GAS EMISSIONS.

- ▶ Public reporting of Edmonton's greenhouse gas emissions, targets and programs took a step forward in 2018. As in previous years, both community-wide and corporate greenhouse gas emissions inventories were completed and published with the [Carbon Disclosure Project \(CDP\)](#). However, the inventories have also been published in summary and visualized formats on Edmonton's [Citizen Dashboard](#), [Open Data Catalogue](#), and on a new [Change for Climate Tableau Public](#) site. This last site is updated regularly and currently includes interactive maps and graphs measuring the city's solar installations, Edmonton's changing temperature, and our progress towards our Energy Transition Strategy Targets. The solar visualizations have proven particularly popular, with over 1500 views in the first two months.
- ▶ A technical assessment of the Community Energy Transition Strategy was undertaken in 2018 to evaluate it within the context of the goal of limiting global average temperature increases to 1.5 degrees Celsius. This type of modelling and review exercise allows the City to adjust the Strategy's direction in an informed manner, if necessary. The review involved analyzing the city's emission trends, its existing energy transition initiatives and constraints, and various transportation and urban planning options, to model out potential paths for achieving the more aggressive emission reduction goals outlined in documents like the Edmonton

Declaration. The outcomes of this work require further evaluation in 2019 in consultation with senior leadership, City Council, and community stakeholders to understand next steps.

COMMUNITY PROGRAMS

In 2018, two new programs were added to the suite of initiatives operating under the Energy Transition Strategy.

- ▶ The first was the city's first direct greenhouse gas reductions program – a Residential Solar Program – which was launched at the end of June. By the end of the year, this program had provided rebates for 170 solar system installations, adding over 1.2 MW of renewable energy installed capacity in Edmonton.
- ▶ The Corporate Climate Leaders Program was the second new initiative. 18 large Edmonton corporations, including the City of Edmonton, signed on to participate in this program. In spring of 2018, representatives from these corporations received training and began to analyze their own carbon footprints, and create a reduction plan. Ultimately, they will report their progress publicly. In August, the program was officially opened to all Edmonton corporations, including small and medium sized businesses, and non-profit organisations. Now, over 40 participants are in the program. The results of the 18 large corporations' initial analyses will be reported to the City in early 2019.

In addition, the following programs entered their second year of operations in 2018:

- ▶ The Building Benchmarking Program almost doubled the number of participants in 2018. The program now has a total of 169 large buildings submitting their energy use data for benchmarking against other, similar buildings. In addition, 2018 saw a tenfold increase in the number of participants who took advantage of an energy audit for which they received a rebate from the City of Edmonton.

- ▶ The EnerGuide for Homes Program is a nation-leading, residential energy labelling and rebate program. In 2018, the number of homes participating in this program rose to 1060. The program has been particularly successful in the new home market, hitting 93% of the target number of participating homes. Changes are being introduced in 2019 to stimulate additional participation in the existing home market.

Many other projects and initiatives the City is undertaking have links to energy transition and climate change mitigation. These include (among other things) the update to the Municipal Development and Transportation Master Plans, the ongoing implementation of the Infill Strategy, and the expansion of the city's bike lane network. It also includes commitments to expand the Light Rail Transit system as well as to continue to build civic accommodations to a high standard as per Policy 532. Other initiatives include Blatchford, where the community's first roads were completed and streetlights installed, and 570 holes were bored for its geo-exchange field. These initiatives, although not described in detail in this annual report, are acknowledged as important contributors to climate change mitigation in Edmonton.

LOOKING AHEAD

2019 will see the City of Edmonton's Energy Transition efforts focus on several streams of activity.

Strategically, efforts will focus on:

- ▶ Socializing the results, implications and recommendations of the 2018 technical review of the Strategy's Action Plan with City Administration and City Council;
- ▶ Supporting and piloting CEIP with selected community programs in cooperation with the provincial government and Energy Efficiency Alberta; and
- ▶ Supporting the work to incorporate GHG emissions into the next City Plan.

Key components of the work in civic operations will include:

- ▶ Finalizing an implementation plan for the Greenhouse Gas Management Plan for Civic Operations and;
- ▶ Advancing work to procure renewable electricity for 100% of the city's operational needs.

Within the broader community of Edmonton:

- ▶ Four new community programs will be initiated;
- ▶ The CitiesIPCC Legacy Research Grant will be launched;
- ▶ The existing residential and business programs will be scaled up; and
- ▶ Progress on transformational initiatives such as Blatchford, as well as work to expedite the electrification of transportation and encourage a shift to active transportation, will continue.

MEASURING UP

The City of Edmonton measures its energy transition success by monitoring its progress against three targets. As of the most recent year for which data is available (either 2017 or 2018 as indicated), the City's progress against these targets is as follows:

- 1. Target:** Community greenhouse gas emissions to be reduced by 35% below 2005 levels by 2035.
2017 Progress: Community greenhouse gas emissions in 2017 increased by 3% above 2005 levels.
- 2. Target:** Per capita energy use to be reduced by 25% below 2005 levels by 2035.
2017 Progress: Per capita energy use reduced by 22% below 2005 levels.
- 3. Target:** 10% of electricity used in Edmonton to be from renewable sources and produced locally by 2035.
2018 Progress: 0.09% of electricity used in Edmonton was from renewable sources and produced locally.

THIS YEAR IN NUMBERS

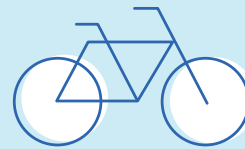
4,113

PEOPLE ENGAGED VIA
OUTREACH ACTIVITIES



171

Buildings participating in the
Building Benchmarking Program



6,627

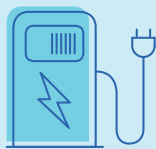
AVERAGE NUMBER OF
CYCLISTS COUNTED AT
ONE LOCATION ON THE
DOWNTOWN BIKE GRID
ON A WEEKDAY IN JUNE.



\$190,766.25

Rebates provided to residential
customers installing solar systems.

32



PUBLICALLY-ACCESSIBLE
ELECTRIC VEHICLE CHARGING
STATIONS IN EDMONTON

10,500



TONNES OF MUNICIPAL SOLID
WASTE CONVERTED INTO BIOFUEL

\$29,623.00

Climate Smart Rebates disbursed
to Corporate Climate Leaders



25

ELECTRIC BUSES
PURCHASED
CITY BUILDING ENERGY
AUDITS COMPLETED

62%

Percentage of Edmontonians
who reported taking action
on climate change

42%

Percentage
of city street
lights replaced
with LEDs



1,310,859

Views of Renewable
video series



1.27 MW

Capacity of residential
solar system installations
subsidized by the City of
Edmonton

22%

Reduction in Energy Use
per capita since 2005

BACKGROUND

In 2011, Edmonton City Council approved *The Way We Green* describing the sustainable and resilient city we want Edmonton to become:

“Edmonton is a sustainable and resilient city. Living within the limits of nature, we have become a leader in energy efficiency and energy conservation. A carbon-neutral city, Edmonton is prepared for disturbances that could result from climate change.”

In April 2013, a Citizens' Panel on Edmonton's Energy and Climate Challenges provided City Council with the following recommendation (supported by 92% of panelists):

That the City of Edmonton take the measures needed to become a low carbon City by 2050.

Edmonton's Community Energy Transition Strategy (the Strategy) was then developed to outline how to make Edmonton a sustainable energy city. The Strategy included an eight-year action plan across seven key areas:

- ▶ Energy use in buildings;
- ▶ Generation of electricity and heat;
- ▶ Energy use in industry;
- ▶ Land-use, transportation and development;
- ▶ Water and wastewater;
- ▶ Waste reduction and recycling; and
- ▶ Leadership in City (corporate) operations.

The Strategy explained that significant investment would be needed to advance energy transition programs, including funding for education, capacity building, financial incentives and program administration. While these costs were significant, by 2035 these investments were expected to deliver a net present value of approximately \$2.5 billion more than their investment cost.

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)

Phase 1:

Establishing an Accountability Framework has been completed. To provide governance, oversight and community involvement in the advancement of the Energy Transition Strategy, the following mechanisms were established in the initial years of the Strategy and continued to operate in 2018:

▶ **Energy Transition Advisory Committee (ETAC):**

In their third year of existence, ETAC continued to actively participate in Edmonton's energy transition journey. Two University of Alberta graduate students were added to ETAC to support the committee and advance their own research and expertise. In addition to 7 full committee meetings, members reviewed and provided advice on implementing numerous components of the Strategy. Agreement was also reached among committee members to expand ETAC's mandate in 2019 to include the City's resilience and adaptation initiatives. Further details are provided in the ETAC Annual Report and Workplan.

► **Energy Transition Council Initiative:** City Council has established energy transition as one of its 24 council initiatives. The desired outcomes are to ensure Council involvement in 1) implementing the Strategy and 2) developing Edmonton's adaptation plan. City councillors were involved in many aspects of the 2018 work on implementing the Strategy, as well as reviewing and approving Edmonton's adaptation plan, and supporting administration's requests for funding for the next budget cycle.

► **Energy Transition Leadership Network:** Community leaders are invited to participate in Energy Transition Leadership Network events every three months. These events are organized by City administration, and aim to inspire action, strengthen community, and ultimately achieve a low carbon, sustainable energy future in Edmonton. Meetings generally have 20 to 40 participants; however, the network has more than 100 members actively generating innovative solutions, collaborating, and supporting each other with feedback.

► **A strategic goal in Edmonton's vision for tomorrow:** In June 2018, Council approved components of the strategic plan for 2019 – 2028. This included an aspirational vision for Edmonton in 2050, a 10-year principle that guides decision-making for the term of the plan, and four 10-year strategic goals to facilitate progress towards the vision. Climate resilience is one of four goals outlined to support the 2050 Vision.

With a governance framework in place, in 2017 work moved into Phase 2: Gearing Up for Community-Scale Programs. Work during this phase is focused on:

1. Socializing the urgency of climate change with the Edmonton community;
2. Ensuring the City as a corporation is a leader with respect to carbon reduction; and
3. The establishment of pilot scale community programs and enabling initiatives that will set the stage for larger community scale programs in the future.

In 2017, the first pilot programs were put in place alongside an overarching community mobilization program called "Change for Climate". In 2018, the work continued with the launch of two new programs, and the refinement and expansion of existing programs.

The implementation of the strategy is entering into Phase 3: Delivering on Community Scale Programs. To facilitate this, City Council approved additional funding in 2019 to 2022 operating and capital budgets to further advance both community efforts and operational emissions reductions.

EDMONTON IS A SUSTAINABLE AND RESILIENT CITY. LIVING WITHIN THE LIMITS OF NATURE, WE HAVE BECOME A LEADER IN ENERGY EFFICIENCY AND ENERGY CONSERVATION. A CARBON-NEUTRAL CITY, EDMONTON IS PREPARED FOR DISTURBANCES THAT COULD RESULT FROM CLIMATE CHANGE.

2018

UP

DATE



2018 ACCOMPLISHMENTS AND UPDATES

2018 ACCOMPLISHMENTS AND UPDATES

The following summarizes the City of Edmonton's 2018 progress in advancing the Energy Transition Strategy.

CITY LEADERSHIP

On the National and International Stage CitiesIPCC and Climate Change Science Conference and the Edmonton Declaration

In recent decades, global urbanization has changed the way much of the world's population lives. By mid-2016, it was estimated that 55% of the world's population was living in cities. And while those cities provide employment opportunities and centralized services to their citizens, they also now emit approximately 70% of all anthropogenic greenhouse gas emissions. This fact highlights the challenges of serving a densely-populated area; however, it also highlights a unique opportunity:

- ▶ A municipal government a) frequently interfaces with its residents giving it a useful perspective on their needs, and b) is able to take actions to change their communities often more directly than regional or federal governments.

These qualities can position a city to take action to mitigate and adapt to climate change in ways that are very effective in their community.

In March of 2018, the City of Edmonton hosted 701 participants from 64 countries for the first ever CitiesIPCC and Climate Change Science Conference. Co-sponsored by the IPCC and nine global organizations, this conference aimed to increase scientific understanding specifically of climate change and cities, and to support the implementation of the Paris Agreement, the New Urban Agenda, and the UN's international Sustainable Development Goals. The CitiesIPCC Conference brought together scientists and policymakers to connect scientific knowledge with practical experience, and to better articulate where there are important gaps in understanding.

Discussions highlighted:

- ▶ The lack of systematic data and research bases for much of the developing world;
- ▶ A need among municipal leaders for knowledge of practical policies and programs;
- ▶ Differing abilities among cities to implement changes based on the formality or informality of their governing structures; and
- ▶ The difficulties for many municipalities of implementing global agreements in the context of multiple layers of governments, private interests, and local priorities.

The Conference produced the [Global Research and Action Agenda on Cities and Climate Change Science](#) which highlights the following research needs in the context of cities and climate change:

- ▶ Understanding of cross-cutting issues such as capacity of local institutions, interconnectivity of different sectors, impacts of scale, and data availability;
- ▶ Evidence-based knowledge to support practitioners and decision-makers in topical areas such as urban planning and design, sustainable consumption, and production and finance; and
- ▶ Avenues to support the Global Research and Action Agenda.

A parallel public forum and trade show, along with live-streaming of the plenary sessions allowed approximately 8000 more individuals from 30 countries to participate in the proceedings.

In addition to these achievements, the conference was a place for global mayors to meet and assert their commitment to taking aggressive climate action. Edmonton Mayor Don Iveson facilitated the creation of the [Edmonton Declaration](#), which allowed cities'

mayors to affirm their commitment to climate action publicly. To date, over 4500 cities have committed through their member networks to the principles of the Declaration. Signatories (of which the City of Edmonton is one) commit to the essential actions cities need to take to ensure that their portions of global greenhouse gas emissions do not exceed the limits required to keep global average temperature increase to a maximum of 1.5 degrees.

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 2018, the City of Edmonton provided formal input into the working groups assembled to promote building energy labelling and electric vehicles.

Three of Edmonton's Energy Transition programs – EnerGuide for Homes, the Building Energy Benchmarking (BEB) Program, and the Electric Vehicle Curbside Charging Station Pilot – directly 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".

Partnership with Energy Efficiency Alberta

2018 represented a successful year of partnership with Energy Efficiency Alberta (EEA). Cooperative promotion and administration efforts was key to supporting the Energuide Home Energy Evaluation, and the residential solar program.

Also in 2018, the Provincial Government passed legislation to support a Clean Energy Improvement Program in Alberta. The CEIP introduces an innovative financing tool into Edmonton that allows residents and businesses to obtain affordable financing with a repayment mechanism that is built into the property tax system. As per the regulations, EEA will be the administrator of this program. The City of Edmonton is closely collaborating with the EEA to develop the program details so that the CEIP can be launched in Edmonton later in 2019.

Civic Operations

Approval of the Greenhouse Gas Management Plan: 2019–2030 Civic Operations

The Greenhouse Gas Management Plan: 2019–2030 Civic Operations, was presented to City Council in May of 2018. It outlined three emissions reduction scenarios for City operations relative to the Pan-Canadian Framework on Clean Growth and Climate Change. These scenarios included:

1. Meeting the Pan-Canadian Framework target of reducing emissions by 30% below 2005 levels by 2030;
2. Reducing emissions by 50% below 2005 levels by 2030; and
3. Becoming carbon neutral by 2030.

Each scenario required different levels of capital investment in energy retrofits of City buildings, deployment of microgeneration solar PV on City buildings and sites, accelerated LED streetlight conversion, replacement of diesel buses with electric buses, and the purchase of green electricity and carbon offsets. All scenarios produced positive net benefits over a 20 year time frame.

In May 2018, City Council approved the 50% reduction below 2005 target, which included capital investments in City infrastructure and 100% green electricity for civic operations. In early 2019, City Council approved a budget that included full funding for the capital requirements for the first four years of the solar PV and LED streetlight conversion initiatives as outlined by the Plan.

Funding for building energy retrofits is being directed through an integrated building rehabilitation and renewal budget approved by City Council for 2019 to 2022 capital budget. Additional funding was not provided for electric buses; however, the City has applied for \$30 million of funding from the Alberta Community Transit Fund (ACTF). If awarded, this would support the installation of charging and maintenance facilities for electric buses. A decision regarding the ACTF grant is expected in the first quarter of 2019.

From 2019 to 2022, the City will continue to purchase renewable energy certificates created in the province to meet the Plan's green electricity targets. However, development is underway of a procurement strategy to obtain 100% of Edmonton's civic operations electricity from new, renewable energy facilities in the province. This will support the expansion of the province's renewable energy industry.

Early successes in progress within corporate operations include:

- ▶ Installation of a 200 KW of building-integrated photovoltaics (BIPV) into the atrium glazing replacement project on the Shaw Conference Centre;
- ▶ Renovations to install combined heat and power systems on the Terwillegar and Millwoods Community Recreation Centres; and
- ▶ The completed design of a net zero fire hall.

Approval of the Climate Resilient Edmonton: Adaptation Strategy and Action Plan

In November 2018, the [Climate Resilient Edmonton: Adaptation Strategy and Action Plan](#) was presented to the Executive Committee of Edmonton's City Council. The strategy describes qualities of a resilient city, and sets out pathways to prepare for and respond to anticipated climate change impacts.

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. An Edmonton-specific climate risk and vulnerability assessment was conducted to inform the strategy, with support from over 50 organizations throughout the community. The assessment identified that on average, climate change is expected to impact Edmonton annually with an additional 22,000 direct physical and mental health incidents, and expected GDP costs of \$3.2 billion, as early as 2040.

[Climate Resilient Edmonton](#) has 18 actions, organized within 11 goals, that are clustered under five paths. The strategy outlines transformative goals and early actions for becoming more climate resilient. It will deliver on adaptation commitments made in the Edmonton Declaration such as using formal climate science and evidence-based decision making while planning, designing, developing and building, in order to be climate resilient today and in the future. Climate Resilient Edmonton will begin implementation in 2019.

Review of the Community Energy Transition Strategy Action Plan

A key component of the Strategy's Action Plan is the requirement that it be reviewed and updated every four years. In 2018, a technical review of the plan was completed. This review involved the analysis of a significant amount of data including, but not limited to:

- ▶ Edmonton's historical emissions inventories and emission reduction goals;
- ▶ Characteristics of its residential and non-residential buildings;
- ▶ Its heating and cooling energy use and energy sources;
- ▶ A zone-based travel model and household travel survey data;
- ▶ Plans for the "greening" of Alberta's electricity grid;
- ▶ Previous analyses of energy use in the city; and
- ▶ Existing energy transformation initiatives and constraints.

The data analysis was done within the context of a local carbon budget which was created through methodologies provided by C40, an international municipal climate leadership network. Key recommendations from this review included:

1. The changes required to infrastructure, transportation, energy sources, etc. will need to be more significant and implemented faster than what is outlined in the current Strategy. Although the current action plan will result in greenhouse gas

emission and energy use reductions, they will not be sufficient or timely enough to meet the Paris Agreement conditions.

2. Change the City of Edmonton's greenhouse gas reduction targets to be based on the city's carbon budget. Targets based on local carbon budget more clearly define the required limits to Edmonton's emissions, and highlight the implications of delaying energy transition actions.

In 2019 the modelling will be assessed in the context of direction provided by City Council through things such as the Edmonton Declaration, the Municipal Development Plan, the Transportation Master Plan, and the further development of Edmonton's Strategic Plan.

Pilot of a Consumption-Based Inventory

At a high level, the City of Edmonton's existing corporate and community greenhouse gas 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 assigns responsibility for the emissions from producing a good or service to the location in which that good or service was produced.

In 2018, the City initiated the pilot of a **consumption-based** GHG inventory for Edmonton. 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. There are several benefits to this approach including the following:

- » The GHG footprint of a produced item is more accurate because it includes emissions produced to move the item through the supply chain to its final destination; and
- » The responsibility for the emissions generated for a produced item are more appropriately assigned to the consumer demanding the product, rather than to the supplier.

The completion of the pilot consumption-based inventory for Edmonton is scheduled for mid-2019. It is expected that the information provided by this initiative will complement the existing production-based inventories, and provide additional information on how the City can effectively reduce its emissions.

Progress on City Policy C532

In 2018, City Policy C532 – Sustainable Buildings Policy – produced its first results:

» New construction:

- » The Ortona Art Centre, a major renovation project, is targeting LEED Silver certification and
- » Eight new projects are in design, all targeting LEED Silver certification at a minimum, above code energy targets, and having 1% on-site, renewable/ alternative energy generation. The Windermere Fire Station is funded for design and construction, and will be a net-zero energy building.

» Existing buildings:

- » After having its 39 large buildings participate in the Building Benchmarking program in 2017, the City expanded its participation to 60 buildings in 2018. Participation of all large, corporately-owned buildings is expected in 2019.
- » BOMA Best certification was initiated for 5 city buildings.

- » An Implementation Team was created to support enforcement of the policy and to respond to questions. This team meets regularly and has issued clarifications on the policy's content.

Enviso and Corporate Environmental Literacy

In June 2018, Edmonton became the 1st municipality in Canada and 2nd in North America to achieve certification for its environmental management system, Enviso, for the entire corporation, through one ISO 14001 certification. A OneCity Enviso certification increases City administration's ability to systematically identify and manage environmental

risk associated with all operations. Energy consumption and greenhouse gas emissions are the two most significant ways the City impacts the environment.

Moving into 2019, the Enviso system will be used to assist in reducing energy consumption and greenhouse gases associated with the City's activities, products, and services. By coordinating efforts in programs like BOMA Best and employee education, and influencing operational or mechanical changes in facilities and processes, Enviso's Plan-Do-Check-Act cycle of continuous improvement will help reduce greenhouse gas emissions, and increase employee awareness of the environmental impacts of energy consumption and greenhouse gas emissions.

To support the roll-out of this system across the City, an Enviso Awareness E-Learning course was rolled out to staff.

The Enviso training is the second training course offered to staff to support environmental literacy. "Energy 101 – The Basics" helps City staff understand the basics of energy management and sustainability, and provides tools to help them reduce facility energy use. The second year of the Energy 101 course saw another 76 staff (mostly in Citizen Services) complete basic energy literacy training.

Energy Profiling

In 2018, City staff were provided with online access to important energy profile information about Edmonton owned and operated buildings and facilities.

Expansion of Edmonton's City EnergyCAP (ECAP) software is currently underway. The enhancements are expected to support improved understanding of utilities cost avoidance, and to provide access to energy profile information required to plan and implement measures that reduce emissions in civic operations. Specific benefits include:

- ▶ Online viewing of power, gas and water use data for City-managed buildings;
- ▶ Rapid retrieval of information to build energy profiles and view the status of energy retrofit projects;
- ▶ Tracking measured energy use performance outcomes against baselines; and
- ▶ Central, controlled storage of key data and managed data exchange to support City open data and benchmark reporting objectives.

Secondary Metering

In 2018, a pilot project to determine requirements for the City to use secondary, City-managed sub-meters was completed. The trial included four City-managed buildings including one building currently leased to a third party. In the context of the City of Edmonton, adding sub-meters to individual buildings or components of buildings will provide two key benefits:

1. It will better allow administration to monitor and adjust energy retrofit technologies. This will ensure that settings are optimized and the technologies are achieving the efficiencies required of them.
2. In the future, it could allow the City to provide tenants of its facilities with charge-back billing and energy use information specific to their area – that is, not rolled up into a single facility total. This in turn would allow them to monitor their own energy use.

The final report from this pilot project will be completed and provided to City administration in late February for review. The report will include costs to the City for sub-metering, requirements and risks to implement, and potential flow-through or cost-sharing models to provide the sub-metering service and associated data to City tenants.

Enabling Green Building through Bylaw and Process Improvements

The Energy Transition Strategy identified a need to investigate the barriers to achieving Edmonton's low carbon goals that exist in policies, bylaws, development regulations, and approval processes. This investigation was initiated in 2018 as a joint effort among many City departments to create a Sustainable Development Framework. This framework 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.

Understanding the Low Carbon Economy and Edmonton's assets and opportunities

In 2017, Economic and Environmental Sustainability engaged The Delphi Group to undertake research and analysis to better understand the size and scope of the green energy economy in the Edmonton region, and to develop recommendations to support local businesses, grow key components of the value chain, and attract new investment and talent. Secondary research included a review of more than 50 relevant reports and articles, including a review of major industry trends and growth opportunities. Sector profiling work included:

- ▶ Data collection and analysis to estimate green energy sector employment and gross domestic product (GDP);
- ▶ Compiling lists of relevant companies, projects, investments, and research activities; and
- ▶ Performing a value chain assessment of existing strengths, weaknesses, and gaps.

Consultation included interviews with 22 industry leaders, and a focus group that brought together key stakeholders from business and government

to discuss the local opportunities and challenges for growing Edmonton's green energy economy.

The final report from this work – Edmonton's Green Energy Economy – was released in February, 2018.

Transformational Initiatives

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.

- ▶ **Conservation (Green Buildings):** All buildings and homes in Blatchford will be designed and built to reduce power, heat and water use right from the start.
- ▶ **Efficiency: A District Energy Sharing System (DESS)** is being built to provide heating and cooling and domestic hot water for all buildings in Blatchford. The DESS is capable of sharing energy among 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.

Ultimately, Blatchford's vision is to be a carbon-neutral community that uses 100% renewable energy. To help achieve this goal, City Council established the Blatchford Renewable Energy Utility, a municipal utility that will design, build and operate the District Energy Sharing System.

Major community development milestones in 2018 included:

- ▶ Drilling of 570 boreholes for Blatchford's geo-exchange field located under the first stormwater pond;
- ▶ Construction of the underground base and the ground-level platform for the first Energy Centre in the community;
- ▶ Construction of roads and paving-stone walkways in the first stage of residential development; and
- ▶ Starting the land sales process to sell land to home builders who align with the community's vision and environmental goals.

Waste to Fuel

The Enkern 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 / 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 (ISCC) system.
- ▶ In 2017, Enkern 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.
- ▶ Also 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 the first 11 months of 2018, it processed 10,500 tonnes of municipal solid waste feedstock.

Anaerobic Digester

The anaerobic digester that completed construction in 2017 was designed to process up to 48,000 tonnes of organic waste annually, turning it into compost and biogas. The biogas produced will be used at the Edmonton Composting Facility to lower the greenhouse gas 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 spring, 2019. 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 is highlighted in the 2018 technical review of the Strategy 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.

In partnership with ENMAX, the City continues to develop the Downtown District Energy Initiative. This system would consist of a central energy plant as part of the Winspear Centre of Music, containing high efficiency natural gas boilers and a combined heat and power plant. A thermal piping distribution system that uses existing pedways and underground parking lots would transfer the heat from the central plant to the ten buildings that would initially be connected to the system.

In 2018, ENMAX advanced their design and has started more detailed discussions around the connection to each building. More detailed coordination is now underway with those building

owners. Ultimately the further development of the Downtown District Energy System above and beyond the first ten buildings could reduce annual GHG emissions in the community by 94,000 tonnes in comparison to business as usual.

Preparing for the Transportation Shift

In 2017, transportation in Edmonton generated 5.8 Mtonnes or 30% of the total community greenhouse gas emissions. Because it constitutes such a significant portion of Edmonton's emissions, the Strategy recommends pursuing multiple reduction strategies.

Electric Vehicle Strategy

In September 2018, City Council received Edmonton's first [Electric Vehicle Strategy](#). Electrifying a city's transportation system has been identified by international climate networks as a critical action in significantly reducing a community's greenhouse gas emissions. Edmonton's Electric Vehicle Strategy focuses on hybrid electric and battery electric, plug-in, light duty electric vehicles (EVs), and identifies how the City can help Edmonton become an EV-ready city, accelerate the uptake of EVs in Edmonton, and create an environment in which EVs can thrive.

Electric Vehicle Charging Facilities

In alignment with the Electric Vehicle Strategy, Edmonton is collaborating with ATCO and EPCOR Distribution to install electric vehicle charging stations at strategic locations in Edmonton in 2019. Two initiatives are currently underway:

1. ATCO has acquired three EV chargers and is working directly with Epcor to identify three curbside locations in commercial or business districts at which to install them. All three chargers will be installed by the end of 2019.
2. The City is currently negotiating an agreement with Epcor to have up to 20 publicly accessible charging stations installed at city facilities. The first of these is expected to be installed later in 2019.

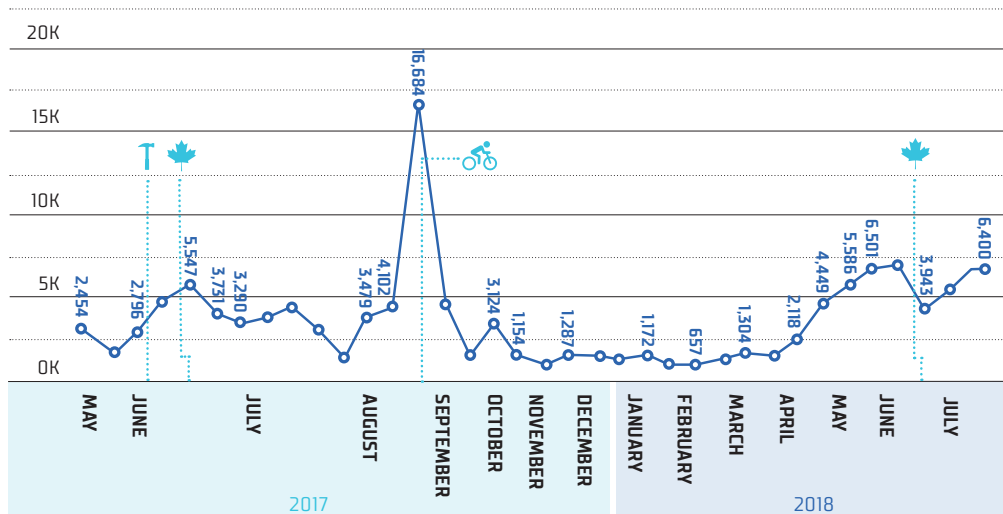
These initiatives will increase the number of publicly-accessible charging stations in Edmonton from 19 in 2017 to up to 29. This would be 34% of the way to the City's target of having 85 publicly accessible charging stations by 2022. This will provide Edmontonians and visitors with convenient, high quality electric vehicle charging facilities in commercial and business districts, and other high density areas. It will also signal electric vehicles as a viable 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 Strategy as a priority goal with the potential to significantly contribute to greenhouse gas reductions, particularly as the Alberta electricity grid decarbonizes. The financial analysis within the 2018 technical review of the Strategy 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.

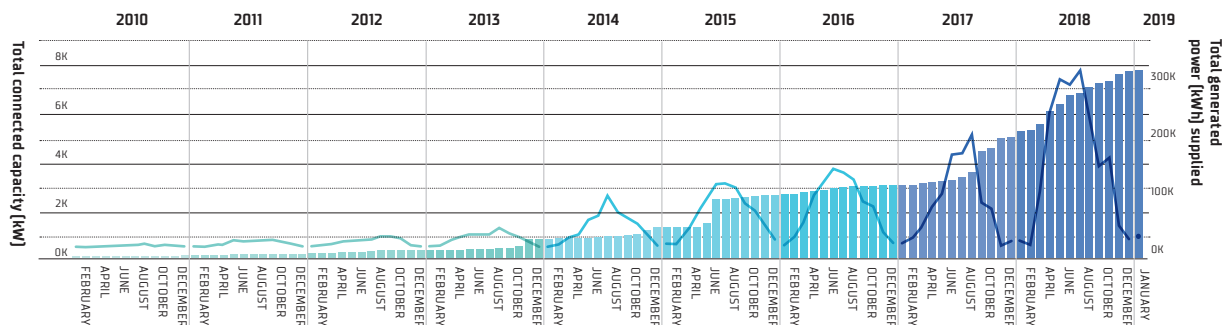
With the 2018 approval of the Corporate GHG Management Plan, electrification of ETS buses took a significant step closer to becoming reality. To align with the plan, Edmonton Transit Services (ETS) is working to replace approximately half of its fleet with electric buses in batches over time, as the supporting charging infrastructure is installed. The goal is to have approximately 440 buses replaced by 2030. Installation of the first charging infrastructure is now underway. ETS has already ordered 25 electric buses, ten of which will arrive in Edmonton in the third and fourth quarters of 2019. The total amount of greenhouse gas 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.

Downtown Bike Grid Monitoring



- JUNE 16, 2017**
Downtown Bike Network Begins to Open in Phases
- JULY 1, 2017 AND 2018**
Canada Day
- SEPTEMBER 4, 2017**
Tour of Alberta

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



Protected Bike Lanes

An important initiative in Edmonton's City Planning Branch over the past two years 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.

After opening the protected bike lanes in 2017, 2018 gave city administration its first opportunity 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 significantly increased since it was installed.

Results on how ridership has been affected overall in downtown Edmonton will be shared in 2019 in a comprehensive Downtown Bike Network report.

LRT Expansion

Edmonton's Light Rail Transit (LRT) system is currently undergoing significant extensions into the west and northwest, and to the south and southeast of the city. As the provincial electricity grid becomes greener, maintaining and extending this fully electric component of the city's transit system will be key to Edmonton's energy transition.

In 2018, no new stations opened but construction continued on the Valley Line Southeast. This line will extend 13 km from downtown into the southeast quadrant of the city. It is scheduled to open in 2020.

COMMUNITY PROGRAMS

2018 was the second year of Phase 2 of the Energy Transition Strategy, focused on "Gearing up for Community Scale Programs". As such, the year included the launch of two new community programs, expanding and preparing for the full operationalization of existing programs, as well as laying the groundwork for financing the low carbon future.

Residential Solar Program

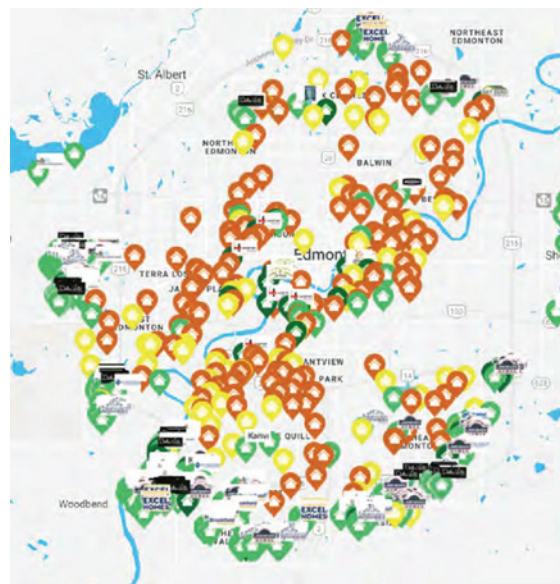
In 2018, Edmonton launched its Residential Solar Program. This is the first direct greenhouse gas reduction program that has been implemented under the Energy Transition Strategy. Leveraging the existing provincial solar incentive, Edmonton has combined the following:

- ▶ A new and powerful online [solar potential map](#);
- ▶ Educational workshops for residents and industry; and
- ▶ A \$0.15 per watt rebate that supplements the provincial incentive of \$0.90 per watt.

The solar potential map provides Edmontonians with an estimate of the power that could be generated and the GHGs saved by having a solar PV system installed on their home. Between its launch in June and the end of the year, the map had 3823 visits, with a significant spike after the province increased its rebate to \$0.90 per watt in August.

The City's Residential Solar Program combined with the provincial rebate now results in the average homeowner saving approximately 40% on a residential solar installation. And although it is still early days for the program, Energy Efficiency Alberta data suggests that Edmonton is seeing a participation rate that is nearly 10% above the Alberta average.

To date, Edmonton's solar program has catalyzed 170 installs and added over 1.2 MW of local installed capacity. At the end of 2018, Edmonton had a total installed solar capacity of 7.7 MW, and solar systems



in the city had over the course of the year provided 179.79 MWh to the grid.

Despite these [impressive numbers](#), solar power still only provided enough electricity to meet 0.087% of the total community's electricity needs in 2018. This leaves significant room for improvement to achieve the Strategy target of 10% renewable electricity by 2035.

EnerGuide for Homes Program

The City of Edmonton's EnerGuide Program completed its second successful year in 2018. The program provides a \$400 rebate to Edmontonians to get an EnerGuide evaluation done for their home and to post the EnerGuide label they receive from that audit on the [Change Homes for Climate EnerGuide Map](#).

There are also now over 20 builders signed up to share their homes on the site, which is 93% of the target for the program. 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.

As of the writing of this report, there are 1060 Edmonton homes with EnerGuide evaluations on the map. 196 are existing homes and 864 are new homes. To increase participation in the existing house market, changes are being made to the program in 2019; these changes include integration with realtor.ca, and the introduction of a retrofit incentive that is aligned with the provincial Home Energy Program.

Eco-City Grant Program

The intent of the Eco-City Grant Program is to showcase actions that can be taken at the community level to reduce greenhouse gas emissions, thereby increasing awareness and adoption of these actions across Edmonton. The successful applicants also reflected administration's understanding of the need to support under-represented and low-income Edmontonians in making the transition to sustainable energy.

The program provides funding for community projects in two categories, which are described below. The 2018 initiatives are listed below each category:

- » Energy Transition Acceleration projects are those that result in direct and immediately-measurable emission reductions. 2018's winners in this category included:
 - » Bissell Centre: Solar Installation (\$50,000)
 - » St. Paul's Anglican Church: Solar Installation and Education Program (\$39,978.75)
 - » Windsor Park Community League: Solar Education, Training and Installation (\$20,000)
 - » Yellowhead Tribal Development Foundation: Solar Installation and Training Program (\$50,000)

- » Community Climate Action projects are those that build literacy and capacity to facilitate low carbon lifestyles and drive future carbon reductions. 2018's winners in this category included:

- » Alberta Green Economy Network: Sun-in-a-box Community Engagement (\$5,000)
- » Edmonton Tool Library Society: Tool Library Outreach and Replication (\$20,000)
- » Women Building Futures: Preparing Edmonton's diverse, high quality, solar energy workforce (\$20,000)
- » TREC Charitable Foundation: Kids World of Energy Edmonton (\$17,390)
- » S.H.A.P.E (Safe Healthy Active People Everywhere) Society: Stepping Toward a Greener Tomorrow (\$20,000)

Green Leagues

In 2018, the City continued to provide support to the Edmonton Federation of Community Leagues for the Green Leagues program. This program encourages the adoption of solar PV and energy efficiency upgrades in community league buildings, and raises awareness about the benefits of such improvements with its members.

In 2018, four new solar PV systems with a total installed capacity of 115.74 kW were installed on community league buildings. As of the end of 2018, the following work has been completed on community league buildings in Edmonton:

- » 26 energy efficiency projects (including 15 major upgrades);
- » 18 solar PV installations; and
- » 3 community leagues have become net zero electricity buildings.

Building Energy Benchmarking Program

The BEB Program is another first in Canada: a voluntary program that invites Edmonton's large commercial, institutional, industrial, and multi-family buildings to submit their energy profile data to the City for benchmarking and market sharing. Using the EnergyStar Portfolio Manager tool, the City benchmarks the properties against the national EnergyStar rating system and compares their Energy Use Intensity 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 gain access to an incentive to conduct an ASHRAE Level II audit, providing these building operators with detailed information on how they can reduce their energy use and greenhouse gas emissions.

The program was launched in June of 2017, and in March of 2018 Edmonton's first [Building Energy Benchmarking Report](#) was released, providing energy use information for 99 buildings in Edmonton. Since January of 2018, the program participation rate rose by 73% to include 171 buildings (60 civic and 111 public); this brought the program close to its target of 200 buildings in year 2. In addition, 14 buildings took advantage of the City's rebate to receive an energy audit.

The 3-year pilot program is designed to encourage market transformation where energy efficiency is appropriately valued. It also seeks to engage Edmonton's large buildings in benchmarking their energy performance and sharing the results with the City. Like the residential labeling program, this voluntary program will assist the community in understanding the benefits and importance of energy benchmarking and transparency prior to any federal and provincial regulations being introduced.

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 in a public forum so successes and challenges can be shared with their peers and all of Edmonton.

The program launched with 18 founding members including large retail chains like IKEA, industrial facilities such as Lehigh Cement, and oil and gas leaders like Enbridge. These initial 18 members have now begun work on creating their inventories and establishing targets, and are expected to submit their first results early in 2019. When the program was expanded to all Edmonton corporations in August of 2018, 23 additional organizations stepped forward to participate. Those in this group with little to no experience tracking their energy use or GHG emissions were also able to participate in the world-leading Climate Smart training program. This second cohort of participants ranges from large construction companies like Scott Builders to small retail grocers like Earth's General Store.

THE UNIVERSITY OF ALBERTA HAS BEEN A LEADER IN ENERGY EFFICIENCY, GHG REDUCTIONS, AND SUSTAINABILITY FOR OVER 30 YEARS. PARTICIPATING IN THE CORPORATE CLIMATE LEADERS PROGRAM ALLOWS US TO SHARE OUR EXPERIENCES WITH OTHER ORGANIZATIONS, AND TO ENGAGE AND EDUCATE OUR OWN STUDENTS, STAFF, AND FACULTIES ABOUT CLIMATE CHANGE ACTION.

Michael Versteeg, Manager, Energy Management and Sustainable Operations, University of Alberta

In 2019, the City of Edmonton hopes to recruit another 50 corporate participants for the Corporate Climate Leaders Program.

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 policy C576: "Light Efficient Community Policy" approved by City Council in 2013 that applies to City-owned buildings and development.

This document provides enabling direction on community developments by:

1. Identifying the types of urban light sources that have negative environmental impacts, and the types of impacts these include; and
2. 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 the City departments and other stakeholders so as to publish the guidelines later in 2019.

Community Outreach and Engagement

Change for Climate Community Program

[Change for Climate](#) is the community mobilization program of the City's Energy Transition Strategy. It's a call to all Edmontonians to take action on climate change and work together to reduce our greenhouse gas emissions through energy efficiency, energy conservation and promotion of renewable energy.

This program launched in late 2017 and by the end of 2018 it had:

- ▶ **179,369** visitors to the [changeforclimate.ca](#) blog and related CoE web pages;
- ▶ **1,744** individuals join the Change for Climate movement;
- ▶ **3,617** actions marked as done on the Change for Climate spectrum;
- ▶ **4,113** individuals engaged via outreach activities;

- ▶ About **1,000** members of the public attend the community events and trade show during the CitiesIPCC and Climate Change Science Conference;
- ▶ **1,310,859** views of the Renewable Series and 19,869 social media interactions;
- ▶ **875,184** views of the various Change for Climate videos;
- ▶ A **61%** increase in Facebook followers since 2017;
- ▶ A **57%** increase in Twitter followers since 2017;
- ▶ **201,904** social media interactions/ engagements; and
- ▶ **29%** of Edmontonians who recall having heard or seen Change for Climate content.

Climate Change and Energy Perceptions Annual Survey – 2018

A follow-up to the 2017 Climate Change & Energy Perceptions Survey was carried out in 2018 with a larger number of participants. Results were largely consistent with those of 2017, indicating:

- ▶ **73%** of Edmontonians are concerned about climate change and 72% agree on the need to take action now (identical to the results in 2017);
- ▶ **62%** of Edmontonians are personally taking action on climate change (an increase of 8% from 2017);
- ▶ Edmontonians are primarily taking action to decrease their greenhouse gas emissions by improving their home's energy efficiency or altering their mode of transportation and/ or frequency of driving;
- ▶ **43%** of Edmontonians have become more supportive of taking action on climate change in the last year;
- ▶ An encouraging reduction of **8%** in the gap between how concerned individual Edmontonians are about climate change and how concerned they believe others are.

The survey was released on social media with the video [Let's go down this path together](#) which received 166K views. The survey received media attention.

Change for Climate Talks

The second Change for Climate Talks event took place in 2018. This sold out event saw an enthusiastic audience of 350 people listen to ten 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 fashion to food to wildfires to solar systems. The evening closed with Edmonton's poet laureate Ahmed Ali commenting on how art and creative language can be used to shift negativity surrounding climate change into a constructive energy.

The talks were filmed and published on YouTube, where they collectively received 405K views.

Road to 100% Renewable

In September 2018, an audience assembled in City Hall to hear an informal discussion between Mayor Don Iveson and Georgetown, Texas Mayor, Dale Ross about the importance of renewable energy in meeting economic, social and climate change goals. Despite the event being organized quickly, with only short notice given to the public, attendance was higher than anticipated with an estimated 100 attendees.

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 2018, this series released its final episode from [Season 1](#) and three episodes from [Season 2](#). Also in 2018, Renewable, Season 1 received the following regional and international awards and nominations:

- » Gold Winner of the Telly Awards – Webseries: Documentary
- » Winner of the Anvil Award – Non-Broadcast Series Award

- » nominee for The Rockie Awards – Digital Non-Fiction Series
- » Nominee for AMPA'S Rosie's Award – Online Film and Video, Branded Series
- » Winner of Digital Alberta's Ember Award for Best Short Film or Documentary Under 30 Minutes
- » Winner of The ACE Award – Broadcast Series Award, Advertising Campaign Distinction
- » Finalist for the Webby Awards – Online Film and Video, Branded Series

With over 1.3 million views and 19,000 social media interactions, the Renewable series has brought international attention to the energy transition initiatives taking place in Edmonton.

► [A Tiny Explanation](#) is a series of eight "how to" short videos to help individuals and communities make changes to become more sustainable. The series received approximately 334,000 views in 2018.

Media Coverage

In 2018, 82 stories were written in 10 different media outlets about the City's Community Energy Transition Strategy and its programs. In addition, 24 inquiries were received from the media looking for more information for a story.

EMERGING OPPORTUNITIES AND CHALLENGES

Emerging opportunities and challenges to be considered going forward in 2019 include:

GETTING TO 1.5 DEGREES: EVALUATING THE TECHNICAL REVIEW OF THE STRATEGY

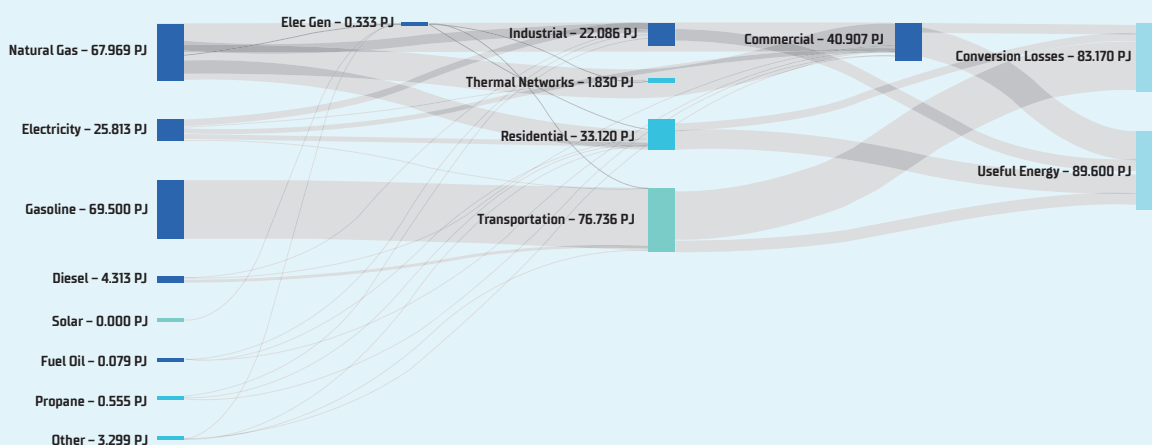
In 2018, sophisticated carbon modelling using the CityInSight model was undertaken to develop a carbon budget for Edmonton and to evaluate the Strategy in the context of a 1.5 degrees Celsius goal.

In 2019, the results, implications and recommendations that came out of this modelling and technical review of the Strategy's Action Plan will need to be 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, and can be used to guide City Council direction for future energy transition planning and implementation.

CITYINSIGHT IS A STATE OF THE ART, CITY-SCALE, ENERGY EMISSIONS AND FINANCE MODEL. CITYINSIGHT INCORPORATES AND ADAPTS CONCEPTS FROM THE SYSTEM DYNAMICS APPROACH TO COMPLEX SYSTEMS ANALYSIS. FOR ANY GIVEN YEAR WITHIN ITS TIME HORIZON, CITYINSIGHT TRACES THE FLOWS AND TRANSFORMATIONS OF ENERGY FROM SOURCES THROUGH ENERGY CURRENCIES TO END USES TO ENERGY COSTS AND TO GHG EMISSIONS.

WHAT IS CITYINSIGHT?

CityInSight is a state of the art, city-scale, energy emissions and finance model. CityInSight incorporates and adapts concepts from the system dynamics approach to complex systems analysis. For any given year within its time horizon, CityInSight traces the flows and transformations of energy from sources through energy currencies (e.g. gasoline, electricity, hydrogen) to end uses (e.g. personal vehicle use, space heating) to energy costs and to GHG emissions. An energy balance is achieved by accounting for efficiencies, conservation rates, and trades and losses at each stage in the journey from source to end use. Sankey diagrams provide a visual representation of "picture" or energy flows, transformations and energy balance.



CLEAN ENERGY IMPROVEMENT PROGRAM: FINANCING THE LOW CARBON FUTURE

The passage in 2018 of Alberta's provincial Clean Energy Improvement Program legislation represents a significant new approach to financing many elements of the province's transition to renewable energy. The CEIP is expected to be an effective mechanism to finance all of the following areas of energy transition programs:

- ▶ Energy efficiency retrofits to existing residential and commercial buildings;
- ▶ The installation of infrastructure required to charge electric vehicles in existing residences, commercial properties and City facilities; and
- ▶ Renewable energy systems for new and existing buildings.

In 2019, the City of Edmonton will pilot CEIP in cooperation with the provincial government and Energy Efficiency Alberta. Access to this financing tool is an incredible opportunity for Edmonton. However, the challenge will be to quickly develop and launch the tool in a meaningful way based on local stakeholder feedback.

CITY PLAN: ACCOUNTING FOR EMISSIONS IN CITY PLANNING

In December 2018, the Carbon Disclosure Project (CDP), to which Edmonton reports its emissions annually, provided the city with feedback on its GHG reporting, target setting, and mitigation and adaptation plans. One of their suggestions was to integrate emissions and energy consumption targets, and GHG emissions modelling into Edmonton's City Plan.

In the same month, Edmonton's project to update the City Plan was identifying how best to do just that – to incorporate emissions modelling into scenario development. This will be the first time this has been done in Edmonton. The results will not only facilitate the development of a City Plan that aligns with Edmonton's commitments to reduce GHG emissions, it will create a legacy among City staff of accounting for emissions when undertaking planning exercises.

As with any provincial election, potential uncertainty exists as to whether the implementation of the current policy framework will continue as is, increase in effort, or be reduced in effort. Monitoring the election and any changes to provincial policy and programming will be critical in 2019.

THE PASSAGE IN 2018 OF ALBERTA'S PROVINCIAL CLEAN ENERGY IMPROVEMENT PROGRAM LEGISLATION REPRESENTS A SIGNIFICANT NEW APPROACH TO FINANCING MANY ELEMENTS OF THE PROVINCE'S TRANSITION TO RENEWABLE ENERGY.

LOOKING AHEAD

In addition to the initiatives identified in the Emerging Opportunities and Challenges section above, City Council's approval of additional funding for the next four years will allow energy transition efforts to accelerate in 2019 with the following work:

CIVIC OPERATIONS AND CITY INFRASTRUCTURE

Greenhouse Gas Management Plan: Civic Operations

Key activities planned for and underway for the GHG Management Plan: Civic Operations in 2019 include:

- ▶ Establishment of a Solar PV Working Group that will develop and began implementation of the \$16.5 million funded solar PV installation program for City buildings and sites;
- ▶ Establishment of an Energy Retrofit Working Group to develop an energy retrofit plan that is integrated with the capital rehabilitation and renewal program, and piloting of a measurements and verification program to demonstrate actual emissions reductions for carbon abatement projects; and
- ▶ Development of a new City Council policy that will enable 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; and
- ▶ Establishment of a cross-department steering group to support the implementation, monitoring and reporting of the plan.

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. In 2019 this work will continue and will include a review of the City's electricity requirements, research on the

advantages and disadvantages of the available renewable technologies that could meet the required load, and contracting options. In the third quarter of 2019, with City Council's approval, administration will issue an RFP to renewable electricity suppliers.

Electric Vehicles

Following the acceptance of the Electric Vehicle Strategy, work to encourage the adoption of electric vehicles in 2019 will expand.

In addition to the ongoing work to install up to 10 new publicly-accessible, electric vehicle charging units, in 2019 the City of Edmonton will also:

- ▶ Formulate an incentive program to encourage EV adoption;
- ▶ Participate with the Government of Alberta and the City of Calgary in the development of an Electric Vehicle Readiness Plan; and
- ▶ Prepare to take advantage of a provincial incentive expected in March of 2019 for the purchase of electric vehicles and charging facilities for a municipal fleet.

COMMUNITY PROGRAMS

Residential Solar Program – Year 2

The Residential Solar Incentive Program launched in 2018 is scheduled to run for another 2.5 years. Given the fact that solar system installations in Edmonton increased 150% in 2018 relative to 2017, this program is expected to continue to contribute significantly to Edmonton's energy transition for some time. In fact, if Edmonton's uptake of solar continues to grow at the same rate as it did in 2018, Edmonton will reach its target of 10% local renewable electricity by 2029.

Home Energy Plan

The Home Energy Plan is a new program that incorporates and expands upon the previous EnerGuide for Homes Program. It was launched in early 2019 to assist citizens with residential energy efficiency retrofits. The program is integrated into Energy Efficiency Alberta's Home Energy Plan and provides additional rebates for home upgrades such as furnaces, insulation, and tankless hot water heaters.

Residential Qualifying Income Retrofit Program

A new Qualifying Income Retrofit Program will be launched in 2019, with the goal of supporting energy transition for low income Edmontonians who live in energy poverty and cannot afford the full cost of energy efficiency upgrades.

Building Energy Benchmarking – Year 3

In 2019, the City aims to recruit an additional 129 buildings (15 civic and 114 public) into the BEB program. This will result in a total of 300 of Edmonton's large buildings having their energy use benchmarked against that of other, similar buildings. In turn, a significant proportion of Edmonton's commercial building owners will have become aware of ways to improve their energy efficiency and save on operational costs.

Corporate Climate Leaders Program – Year 2

2019 is expected to be an exciting year for the Corporate Climate Leaders Program, as the initial 18 participants will report their first data, the second cohort of small – medium sized businesses will complete their training, and a third cohort will be recruited. The program will publicize results of all of these components of the program during 2019.

Commercial Retrofits Program

Building upon the relationships and knowledge developed in the BEB and Corporate Climate Leaders programs, in 2019 a commercial retrofits program will be launched. This program will leverage existing

provincial and City of Edmonton programs to provide incentives for energy efficiency retrofits in commercial buildings.

Participants in the BEB program who have become aware of issues with their buildings' energy performance should be ideal candidates to be interested in receiving incentives to make the necessary energy efficiency retrofits. In this way, the program will move the commercial community from a period of energy efficiency education into energy efficiency action.

CitiesIPCC Legacy Research Grant Program

The two major outcomes of the CitiesIPCC Conference and the Change for Climate Global Mayors Summit were the Global Cities Research and Action Agenda on Cities and Climate Change Science, and the Edmonton Declaration.

In keeping with these outcomes and in an effort to accelerate research specific to the Edmonton area, the City of Edmonton is establishing a research grant program that will be offered starting in summer, 2019. This program will provide funding of up to \$175,000 annually (until available funds are fully disbursed) to research that will advance regional knowledge and align with the Edmonton Declaration's commitment to "work collaboratively with the scientific and academic community and city organizations to make available better analysis of local climate data in order to deliver solutions impacting climate change policies and decisions, and develop research and development approaches aimed at deployment of new technologies, particularly within city boundaries." The C40 Research Agenda will be the source of research topics and questions for great proposals. The program will be administered by the Alberta Ecotrust Foundation.

Change for Climate Community Engagement Program

In 2019 Change for Climate will continue the implementation of its overarching strategy with the goal of getting Edmontonians to take action on climate change. This will be the second of five years for the

program. Some strategies and tactics for 2019 will include:

- ▶ Continuing to encourage Edmontonians to Join the Movement, commit to taking action and share their stories via the changeformclimate.ca blog and social media.
- ▶ Continuing to engage with residents in person by participating in targeted outreach events and festivals;
- ▶ Working with community influencers for the release of recordings of their 2018 Change for Climate Talks. This will allow those who couldn't see them in person to see them in social media, and leverage the networks of the influencers to reach a larger audience.
- ▶ Organizing community events and partner with festivals/ organizations to engage with Edmontonians in creative ways.
- ▶ Continuing with the release of Season Two and production of Season Three of the Renewable Series. This is an opportunity to continue to share the great energy transition initiatives taking place in Edmonton.
- ▶ Development of the annual survey to monitor changes in perception and evaluate program awareness and messaging.

Climate Ambassador Program

As part of the City's ongoing efforts to engage the community in taking action on climate change, and in line with one of the recommendations of the technical review of the Strategy, a Climate Ambassadors Pilot Program will be launched in 2019. This program will aim to educate community leaders on climate change, energy efficiency and renewable energy, and equip them with tools and resources to affect change in their communities. Volunteer community leaders will be trained on outreach strategies to increase energy efficiency behaviours, renewable energy technology adoption and participation in Change for Climate programs.

Pathway to Net Zero

In 2019, 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 an approach for Edmonton to evaluate 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.

Low Carbon Innovation Centre

Guided by the longstanding work of the Toronto Atmospheric Fund, Edmonton and five other Canadian cities have joined together to incubate the creation of Low Carbon Innovation Centres across Canada based on the Atmospheric Fund model. In 2018 the group submitted a joint funding application to NRCan worth \$150M; further progress will depend on the outcome of this application.

WHAT IS THE TORONTO ATMOSPHERIC FUND (TAF)?

The Toronto Atmospheric Fund (TAF) invests in urban solutions in the Greater Toronto and Hamilton Area (GTHA) to reduce carbon emissions and air pollution. Specifically, it finances entrepreneurs whose products or services can significantly cut emissions in the GTHA, and developers and property owners who are making their buildings more energy efficient.

The ultimate goal of TAF is to reduce carbon emissions by 80% by 2050 in the GTHA, while realizing a livable, prosperous region that is a world leader among climate-friendly urban centres

The premise of the Innovation Centre concept is there is no shortage of great ideas for how to reduce urban emissions, but all too often there is something missing between opportunity and deployment at scale; this holds for technological advancements, policies, programs, financing, etc. The LCIC theory of change is to use the multiple stages of the innovation process to fill in the blanks including:


1. Developing ideas and concepts;
2. Demonstrating, refining and de-risking opportunities through trials and collaboration; and
3. Paving the path to mainstream implementation by demonstrating feasibility and benefits, advancing the policy and practical requirements for implementation, supporting financing, and generating buy-in and acceptance for adoption.

If successful, Edmonton and its partner Alberta Ecotrust will receive an initial investment of \$20M to create an endowment which will be used to finance low carbon innovation projects. Initial areas of focus would include energy efficiency retrofits, community renewable energy and electric vehicles.

IN 2019 CHANGE FOR CLIMATE WILL CONTINUE THE IMPLEMENTATION OF ITS OVERARCHING STRATEGY WITH THE GOAL OF GETTING EDMONTONIANS TO TAKE ACTION ON CLIMATE CHANGE. THIS WILL BE THE SECOND OF FIVE YEARS FOR THE PROGRAM WHICH, WILL CONTINUE TO WORK WITH INFLUENCERS IN THE COMMUNITY AND WITH EDMONTONIANS TO ENCOURAGE THEM AND HELP THEM TAKE ACTION.



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APPENDIX A: MEASURING UP

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Measuring, monitoring, and reporting program level success metrics as well as aggregated emissions reductions is an important tenet of the Community Energy Transition Strategy. Metrics provide a high-level view of the strategy as well as gauge the performance of individual programs. In 2018, significant improvements were made to the City's ability to report publicly on these metrics; links are provided throughout this section to public, interactive versions of the visualizations presented.

GREENHOUSE GAS INVENTORIES

The City has been calculating Edmonton's community greenhouse gas emissions and its corporate emissions since the late 1990s. Both of the protocols follow current international best practices. In 2018, Edmonton released both corporate and community greenhouse gas inventories for the 2017 calendar year.

As in previous years, both the corporate and community inventories were submitted to the [Carbon Disclosure Project](#), where they are publicly available. In addition to the inventories, information on Edmonton's GHG reduction and energy efficiency targets, mitigation and renewable energy programs, local hazard assessments, and adaptation plans were also submitted. This information was also shared with the Global Covenant of Mayors for Climate & Energy, which in 2018, awarded the City of Edmonton ["Full Compliance" with 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.

City of Edmonton Corporate Greenhouse Gas Emissions

The corporate inventory followed the reporting requirements of The Climate Registry (TCR) General Reporting Protocol (Version 2.1, January 2016). The results indicated total absolute GHG emissions (before subtracting Renewable Energy Credits) for 2017 were 512,477 tCO₂e. This was a decrease of 0.2% from the previous year (2016), but an increase of 0.3%

over the 2005 baseline. Much of the increase since 2005 is the result of the city's population growth, and corresponding growth in buildings, corporate and transit fleet, and waste management services.

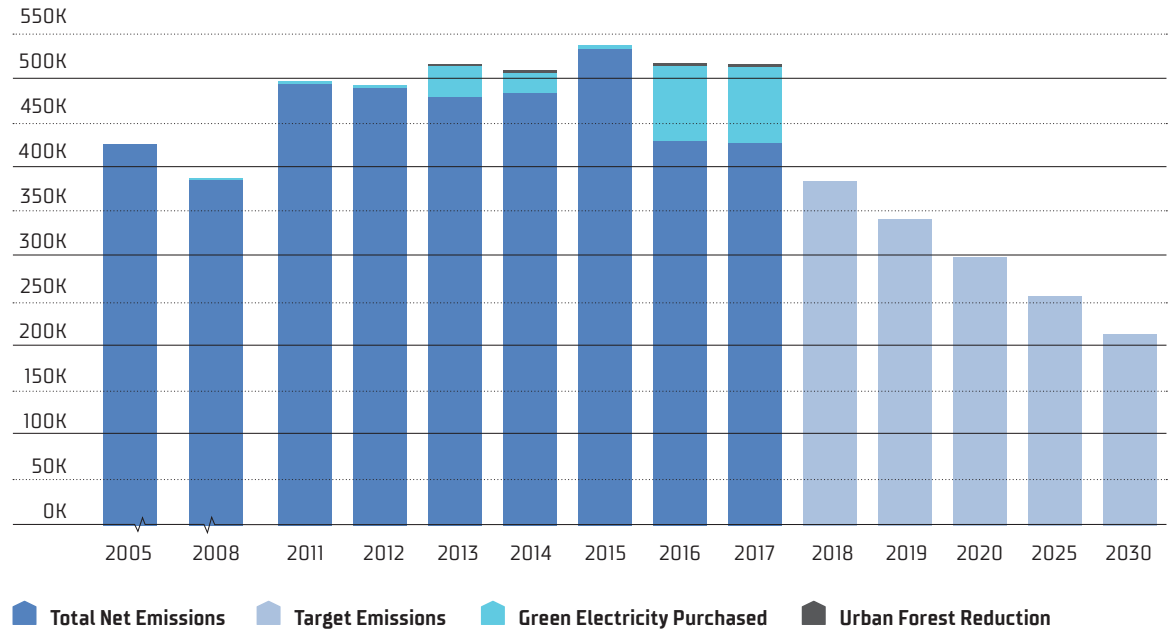
93,895 MWh of Renewable Energy Credits (RECs) were purchased in 2017 resulting in a reduction of 71,360 tonnes of CO₂e (or 13.9%) from the corporate inventory for a final emissions total of 424,881 tCO₂e.

The greenhouse gases emitted from City operations account for approximately 2.7% of the overall community emissions. Actions taken by the City to reduce these emissions provide a means of highlighting what is achievable in the community, leading the implementation of low carbon initiatives that can be replicated by other city businesses and organizations.

The following figure presents the City of Edmonton's:

- ▶ Historical corporate emissions;
- ▶ The new target outlined in the Greenhouse Gas Management Plan: Civic Operations, and approved by City Council, to reduce corporate emissions by 50% by 2030 relative to 2005, and interim targets;
- ▶ Historical reductions in emissions due to the urban forest and the purchase of green electricity (or RECs).

Total Corporate Emissions and Targets

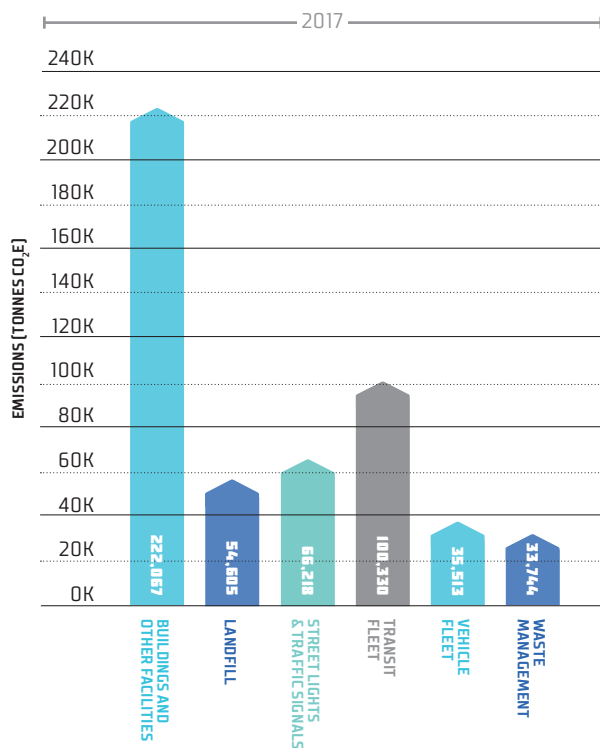


In 2018, this information was also publicly released in an interactive format at the following site: [The City of Edmonton's Corporate GHG Emissions and Targets](https://www.edmonton.ca/city_government/20180501-edmonton-gas-emissions).

Grouping the emissions by municipal sector area highlights the fact that energy used to heat and cool city buildings (including pools and recreation facilities) and energy required to operate facilities such as the Edmonton Waste Management Centre constituted 51% of corporate emissions.

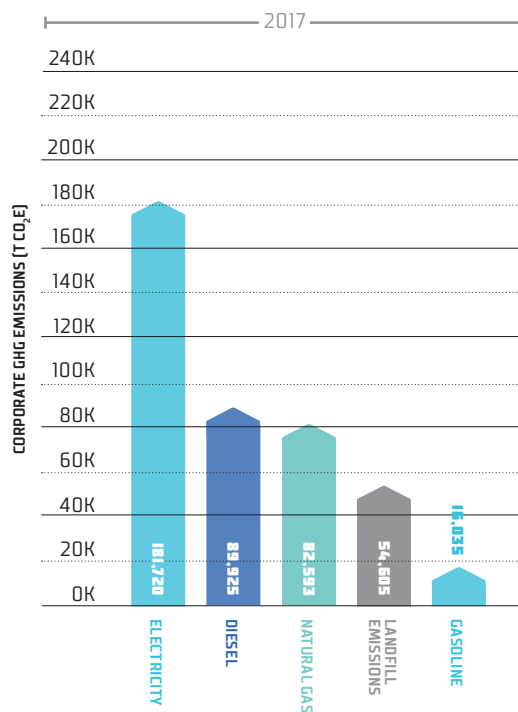
THE GREENHOUSE GASES EMITTED FROM CITY OPERATIONS ACCOUNT FOR APPROXIMATELY 2.7% OF THE OVERALL COMMUNITY EMISSIONS. ACTIONS TAKEN BY THE CITY TO REDUCE THESE EMISSIONS PROVIDE A MEANS OF HIGHLIGHTING WHAT IS ACHIEVABLE IN THE COMMUNITY, LEADING THE IMPLEMENTATION OF LOW CARBON INITIATIVES THAT CAN BE REPLICATED BY OTHER CITY BUSINESSES AND ORGANIZATIONS.

2017 GHG Emissions by Business Area in the City of Edmonton



Grouping the emissions by fuel type highlights the fact that Alberta's electricity grid is still fueled primarily by coal and natural gas. When the City procures 100% green electricity, these emissions will fall accordingly.

2017 GHG Emissions by Fuel in the City of Edmonton

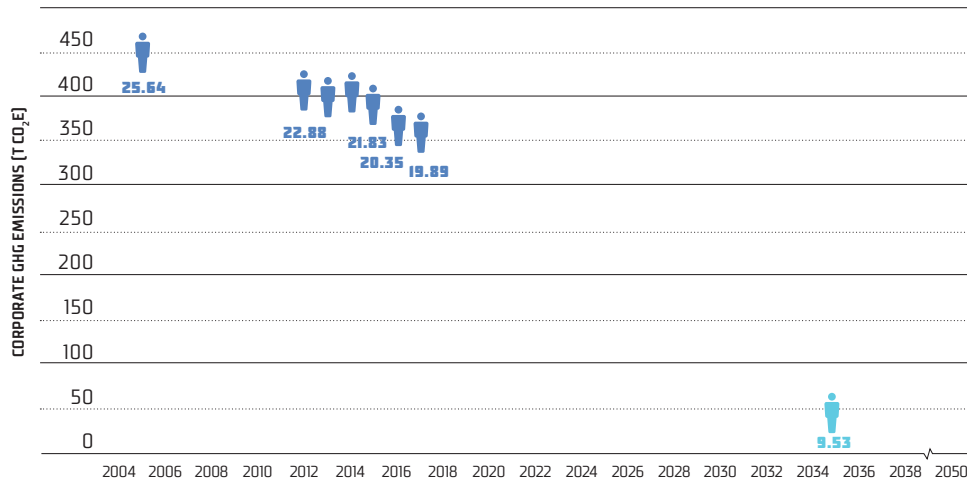


City of Edmonton Community Greenhouse Gas Emissions

In 2017 (the last year available at the time of writing this report), the [City of Edmonton's Community GHG Emissions](#) were calculated to be approximately 18.9 million tonnes of carbon dioxide equivalent (the measure of convention for greenhouse gases). Compared to the 2016 reporting year, this was an increase in total net emissions of 3.2% (or 590,000 tCO₂e). This increase can be attributed to a colder winter resulting in increased use of natural gas, as well as an increase in population of 5.6% with corresponding increases in transportation- and waste-related GHG emissions. Although emissions have stabilized in recent years, Edmonton emissions are still 3.2% higher than the 2005 baseline and therefore well above the 2035 target of 35% reduction below 2005 levels.

MEASURING, MONITORING, AND REPORTING PROGRAM LEVEL SUCCESS METRICS AS WELL AS AGGREGATED EMISSIONS REDUCTIONS IS AN IMPORTANT TENET OF THE COMMUNITY ENERGY TRANSITION STRATEGY.

Per Capita Emissions

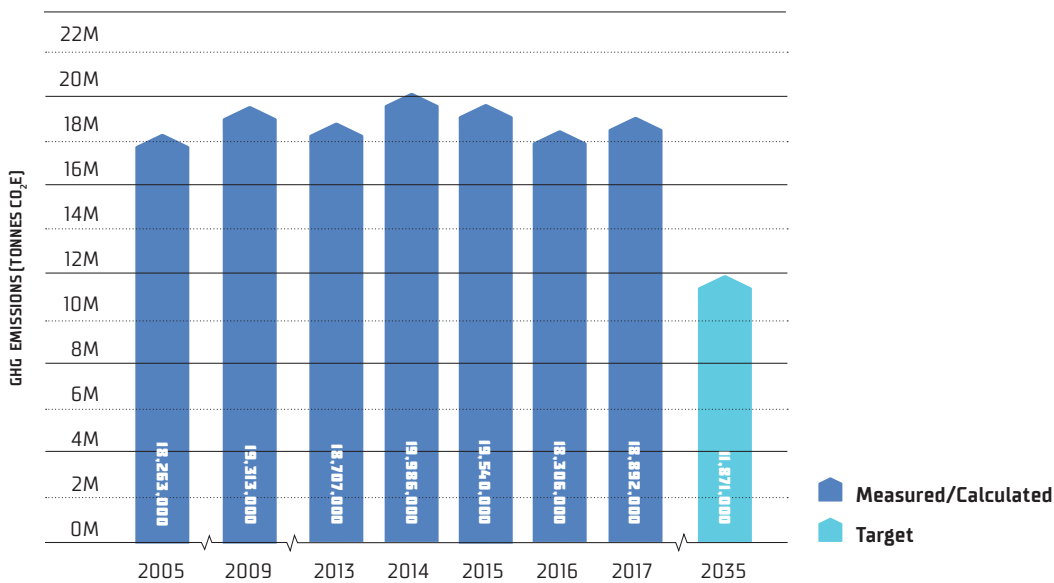


The City of Edmonton's GHG emissions are approximately 20 tonnes of CO₂e per capita. To meet the Strategy target of reducing overall emissions by 35%, this will need to fall to 9.5 tonnes per capita by 2035. The World Bank's 'Representative GHG Baselines for Cities and their Respective Countries' shows that city per capita emissions will vary widely, from less than one tonne in the poorest countries, to over 20 tonnes for Sydney, Australia. It should also be noted, however, that data availability and GHG estimation methods will vary greatly among cities. Variability in greenhouse gas emissions at the city level are associated with the local climate and how energy is created in the region in addition to any specific carbon reduction activities undertaken.

For example, Vancouver has a carbon footprint of 2.3 tCO₂e/capita. This is at least partially due to the fact that it has access to hydro-electricity which has a very small GHG grid intensity factor (0.01067 tCO₂e/MWh). Vancouver is also not subject to months of temperatures below 0 degrees centigrade – thus, heating demands are typically lower than they are in an inland city like Edmonton. Alberta also has a much higher grid intensity factor (0.76 tCO₂e/MWh) as electric ity has until very recently been predominantly generated by coal and natural gas.

City of Edmonton Community Greenhouse Gas Emissions Reduction Target

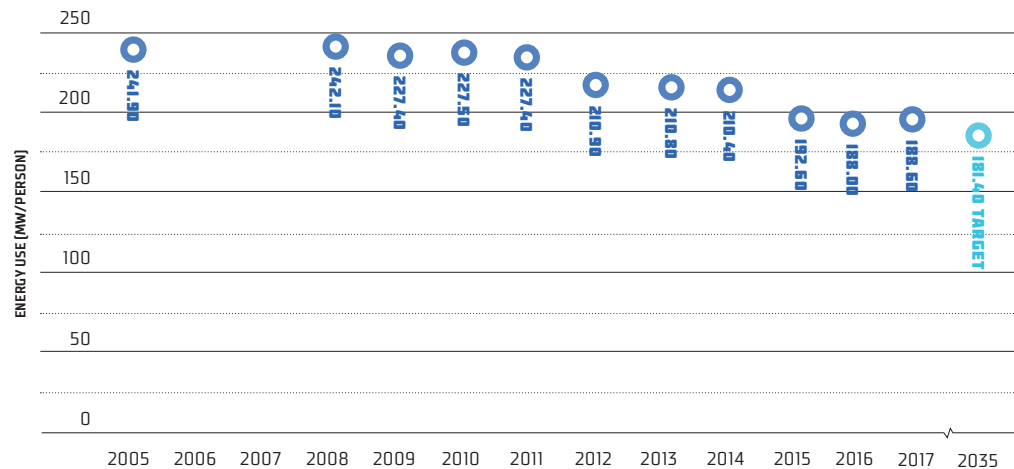
35% Reduction in Community GHG Emissions by 2035



THIS GRAPH REPRESENTS THE CITY OF EDMONTON'S PROGRESS AS OF THE END OF 2017 TOWARDS REACHING ITS GOAL OF A 35% REDUCTION IN COMMUNITY GREENHOUSE GAS EMISSIONS BY 2035.

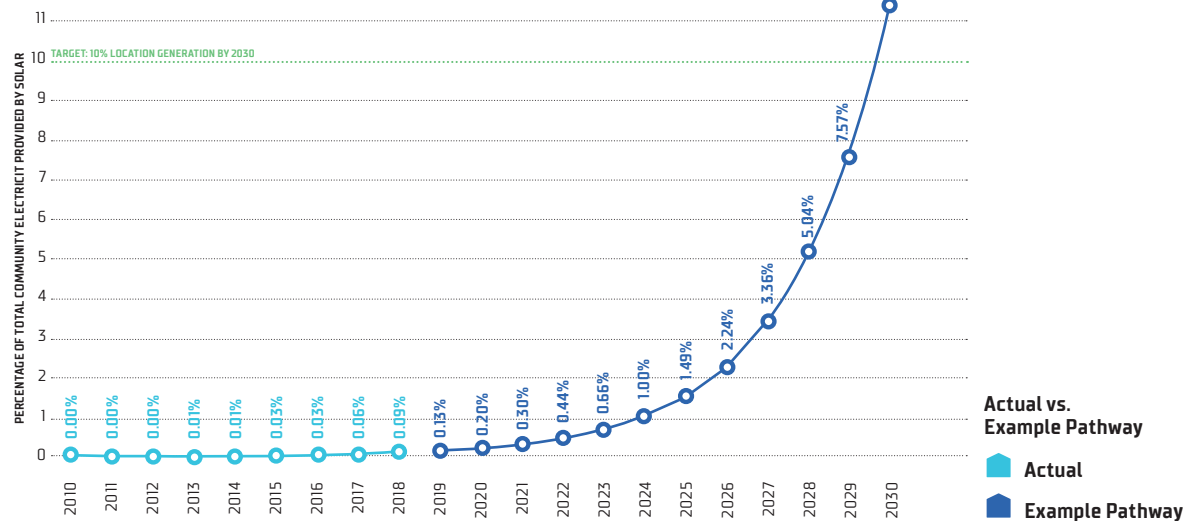
City of Edmonton Per Capita Energy Use Reduction Target

25% Reduction in Per Capita Energy Use by 2035



THIS GRAPH REPRESENTS EDMONTON'S PROGRESS AS OF THE END OF 2017 TOWARDS REACHING ITS GOAL OF A 25% REDUCTION IN PER CAPITA ENERGY USE BY 2035.

Percentage of Total Community Electricity Provided by Solar



THIS GRAPH REPRESENTS EDMONTON'S PROGRESS AS OF THE END OF 2017 TOWARDS REACHING ITS GOAL OF 10% RENEWABLE ELECTRICITY BY 2035.

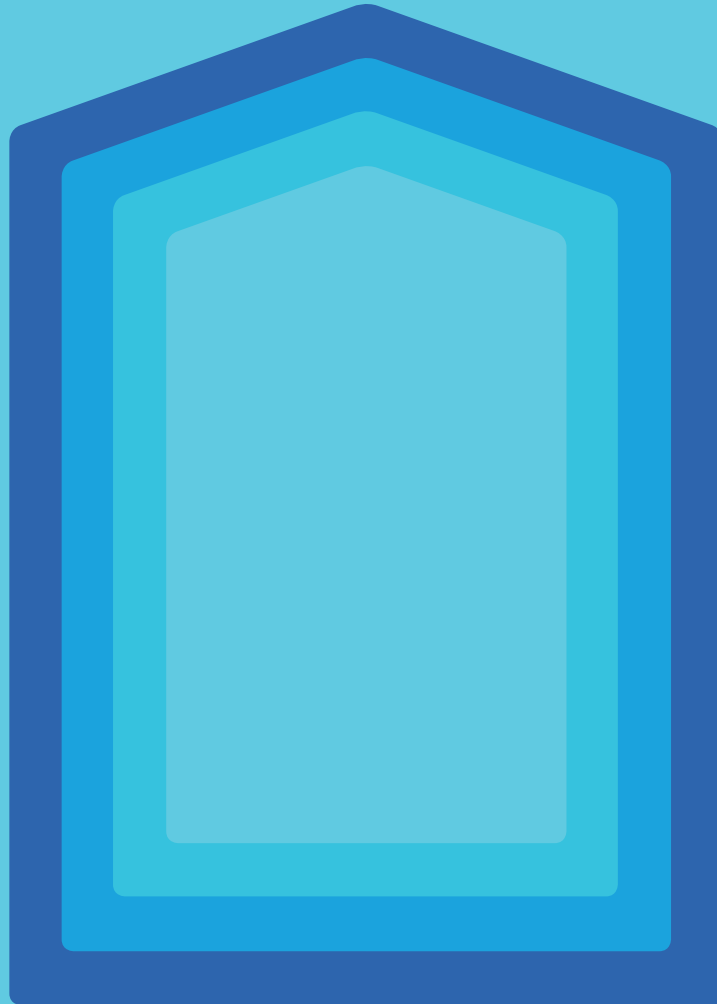
APPENDIX B: EDMONTON DECLARATION

EDMONTON DECLARATION

- ▶ Formally recognize the immediate and urgent need for action that will limit global warming to 1.5 degrees Celsius.
- ▶ Establish, implement and maintain GHG inventories, targets, action plans and reporting mechanisms consistent with the Paris Agreement and commitments made through the Global Covenant of Mayors for Climate & Energy and provide that data to the global community.
- ▶ Coordinate and integrate their efforts in developing and achieving increasingly ambitious Nationally Determined Contributions committed to under the Paris Agreement through co-developing tools, resources and governance structure in support of local governments.
- ▶ Establish formal, science-based policy and decision-making processes within their organizations.
- ▶ Establish formal, rigorous processes to understand and minimize the greenhouse gas emissions caused by the consumption of goods, services and products within their boundaries and along the full supply chain.

EDMONTON'S ACTIONS

- ▶ Edmonton's 2018 technical review of the Strategy assessed the city's ability to limit emissions in accordance with the 1.5 degree maximum, and recommended changing its emissions reduction targets to a carbon budget to more formally embed them into its planning processes.
- ▶ Edmonton has maintained corporate and community GHG inventories since the 1990s. It has targets for GHG emissions reductions, energy use, and local, renewable energy, and a Community Energy Transition Strategy, Corporate GHG Management Plan, and an Adaptation Strategy and Action Plan. All related data is reported annually and publicly.
- ▶ Edmonton is participating in the Pan-Canadian Framework working committees for both building energy labelling and electric vehicles. It also participates in the Urban Sustainability Directors' Network to coordinate with municipalities across North America on urban sustainability initiatives.
- ▶ In addition to the strategies and plans mentioned in #2, Edmonton has a Sustainable Building Policy, and associated implementation team.
- ▶ In 2018, Edmonton piloted a consumption-based inventory to better understand and reduce GHGs emitted due to consumption and transportation of goods produced outside the city's border.



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

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