



Energy & Sustainability Framework

Date	March 24, 2022
To	Executive Committee
From	People & Transformation
Service Area	Innovation, Energy & Technology
Item No.	EX22-41

RECOMMENDATION

The Executive Committee recommends that City Council:

1. Approve the Energy & Sustainability Framework (Appendix A) and authorize the use of the Framework as a guide for future energy, emissions, and sustainability-related decisions and actions.
2. Request that Administration provide a yearly progress report regarding implementation of the Framework to Executive Committee starting in the second quarter of 2023.
3. Remove item PPC20-9 from the List of Outstanding Items for City Council.
4. Approve these recommendations at its meeting on March 30, 2022.

ISSUE

The Energy & Sustainability Framework (Appendix A) outlines a dynamic and living plan for the community to reach its goals of becoming 100 per cent renewable and net-zero by 2050. The Framework is ambitious and requires sustained effort from the City of Regina, residents and all sectors of the community. It outlines opportunities available to all sectors of Regina's community and follows the principle of "reduce, improve, switch". This principle underscores the need to reduce energy use where possible and drastically increase energy efficiency before and while transitioning to renewable energy sources. These actions minimize greenhouse gas (GHG) emissions, decrease

the burden on utility systems and maximize the financial return while improving quality of life for today and future generations.

For our community to be successful we must learn, innovate and work together to implement the plan. The City recognizes as a municipal government we do not have jurisdiction over consumer choices and each sector in the community, however, we can act as a catalyst by taking a leadership role by implementing actions that are within the City's control, setting a community target, building partnerships and providing information so the community can make informed choices and decisions.

IMPACTS

In developing the Energy & Sustainability Framework, the City along with consultant Sustainability Solutions Group carried out a robust engagement process and worked through a series of emissions, energy-use and financial modelling exercises. Through this process, impacts were identified and a plan tailored to Regina's needs was established.

Current Emissions and Energy Use

The first energy-use and emissions modelling exercise investigated the community's current energy use and resulting emissions. Over 70 data sets including demographic, building and utility were collected and analyzed. This was important to understand current energy-use and emission patterns in the community and establish a baseline to set targets and develop actions. Regina has a unique emissions profile with per capita emissions that are 1.7 times more than the national average (23.5 tonnes of CO₂e compared to 14.2 tonnes of CO₂e) and 4.7 times more than the global average (5 tonnes of CO₂e). One tonne of CO₂e is equal to emissions from driving 4,500 kilometres which is approximately nine round trips from Regina to Saskatoon.

Business-as-Planned Scenario

The next step was to model a "business-as-planned" scenario that looked at what the community's energy-use and emission patterns would be in 2050 if no action was taken to improve efficiency or reduce emissions other than action already planned. This scenario demonstrates that without strategic and deliberate action, emissions will not decrease and the City's 2050 goal would not be achieved.

Developing a Low-Carbon Pathway

With the "business-as-planned" scenario established, the next step was to model a series of actions based on the principle of "reduce, improve, switch". The possible actions available to communities are very similar with a high degree of consistency in over 60 community-based plans across

Canada. The exercise produced multiple nuanced scenarios that explored more and less aggressive “low-carbon pathways” to reduce emissions, improve energy consumption and switch to renewable or low carbon energy sources.

The scenario or “low-carbon pathway” for Regina is based on opportunities and constraints within the community and guided by stakeholder input and the Intergovernmental Panel for Climate Change (IPCC) recommendations to limit global temperature rise to below 1.5 degrees Celsius. The IPCC’s recommendation is based on the threshold needed to avoid the impacts of climate change. By implementing actions on the “pathway”, it is expected emissions in Regina will decrease by 97 per cent (equivalent to emissions of 1.4. million vehicles) and our community energy consumption will decrease by approximately 38 per cent (equivalent to energy needed to power 3 million homes).

Regina’s “low-carbon pathway” includes Seven Big Moves with actions that are necessary to achieve the 2050 goal. It is based on existing and available technology and is consistent with actions in other plans being implemented across Canada. The actions also factor in federal legislation that will impact consumer markets. A summary of the Seven Big Moves is provided below and additional information can be found in the *Implementing the Framework* section in Appendix A.

Big Move 1: Building Retrofits: Energy use in buildings accounts for 69 per cent GHG emissions in Regina. Retrofitting buildings presents a significant opportunity to achieve reductions in both energy consumption and GHG emissions. Retrofitting buildings also creates local jobs and generates cost savings for households and businesses. Current buildings must be approximately 50 per cent more efficient, on average, than what they are today.

Big Move 2: Clean Heating: Most of the emissions from buildings in Regina currently come from natural gas used for space and water heating. In the future, new and retrofitted buildings will need to use more efficient and cleaner space and water heating systems. This is realized by switching out fuel heating systems to electric systems.

Big Move 3: Net-Zero New Construction: Buildings and the heating and cooling systems within them are long-lasting assets. When new buildings are being designed and constructed, the community will need to continue to work towards buildings that are not sources of carbon emissions. All provinces have agreed to adopt the Government of Canada’s net-zero energy-ready building code for new residential builds by 2030. Encouraging net-zero new construction now means that fewer new buildings will be contributing to GHG emissions in the community, and fewer buildings will need to be retrofitted in the future.

Big Move 4: Renewable Energy Generation: One of the most significant low-carbon transition opportunities the community can pursue is to increase renewable energy generation. Transitioning and scaling up renewable energy generation can be achieved by investing in

individual and community-scale wind and solar power. Moving to these sources will allow the community to decrease emissions from the electricity grid, which is directly related to emissions levels from electricity use in homes and businesses and in electric vehicles. It also maximizes the emissions reduction benefits of building retrofits and fuel-switching.

Big Move 5: Low-Emissions Vehicles: Similar to many Canadian cities, Regina is heavily reliant on individual automobile trips to get around. The transportation sector makes up 23 per cent of community emissions on a yearly basis. While not all vehicle trips can be avoided, there are viable alternatives to gasoline-fueled vehicles.

Big Move 6: Increase Active Transportation and Transit Use: In addition to increasing low-emissions vehicles, increased active transportation and transit use are important strategies to reduce transportation emissions. Efforts to increase transit use, walking, and cycling will be critical to reducing emissions from transportation. Active transportation provides many co-benefits related to health and community well-being.

Big Move 7: Cleaning and Re-energizing Industry: Regina's industrial sector represents one-third of energy consumption and GHG emissions in the community. The City is committed to continue its positive dialogue with industry stakeholders to encourage industry to consider their energy transition and to work together on solutions to mitigate the economic risk associated with the transition to a low-carbon economy.

SaskPower is a key community partner whose goals of decreasing emissions from the power grid by 50 per cent by 2030 and working towards net-zero by 2050 will contribute significantly to Regina achieving our community goal by 2050. It is also expected the green economy will continue to evolve and provide new opportunities through innovation and technology that may enable the community to achieve the 2050 goal sooner.

Financial Modelling and Quality of Life

A financial analysis of the "low-carbon pathway" was completed and describes an investment opportunity that will generate jobs, stimulate businesses, reduce GHG emissions and provide benefits for the community and the City. The timing and sequencing of the actions are intended to maximize the financial return while improving quality of life for today and future generations.

The City is beginning to see the green economy grow in Regina with a number of economic development opportunities in the industrial sector aimed at decarbonization. This positions our community for growth and prepares us for economic shocks and shifts that are expected as the world continues to move towards a net-zero global economy.

Businesses and residents are also making consumer choices and decisions based on the principle of “reduce, improve, switch”. Collectively these decisions can contribute directly to local economic development and household savings in the long-term. In 2020, household energy expenditures were \$6,333 and are estimated at \$4,036 in 2050 after full implementation of the “low-carbon pathway”.

The net financial benefit for the overall community is projected to be over \$12.5 billion¹ by 2050 and \$18 billion by 2100. It is also estimated that as the community transitions, an average of over 4,000 full time equivalent jobs will be generated per year through to 2050. To achieve the benefit, community-wide investment is estimated at \$11.5 billion.

This is a significant community investment and implementation includes actively pursuing funding opportunities, financing mechanisms including incentives and strategic partnerships. Funding already exists from other levels of government and third parties such as the Federation of Canadian Municipalities and the Government of Canada. Upcoming funding opportunities have also been announced by the Canadian Mortgage and Housing Corporation.

As a leader, the City will be assessing municipal contributions through our budget processes and Council resolution based on priorities. In anticipation of the Framework’s release, \$6 million in strategic investments to advance municipal actions on the “low-carbon pathway” were made by the City in 2022.

OTHER OPTIONS

City Council set the target of becoming a renewable and net-zero community by 2050. Developing the Framework involved considering the effects of more and less ambitious pathways and their impacts on meeting City Council’s target. The selected pathway was identified after considering the evidence-based impacts and feasibility along with feedback gathered from the community and subject matter experts.

A more ambitious pathway would still achieve City Council’s goal but was found to be not feasible due to local constraints, market supply constraints and to avoid adverse impacts on Regina’s economy and labour force.

A less ambitious pathway was not chosen because it would not achieve the goal of becoming a renewable and net-zero community by 2050. Choosing a less aggressive pathway also positions Regina behind its peer cities across Canada, including Saskatoon. This diminishes Regina’s competitive advantage in attracting economic investment in the green economy and third-party

¹ For comparison, Regina’s Gross Domestic Product (GDP) was \$15.8 billion in 2020.

funding.

Regina's "low-carbon pathway" creates the best possible economic and co-benefits for the community, while balancing the need to minimize the negative effects of climate change and optimizing Regina's competitive advantage amongst other Canadian cities.

COMMUNICATIONS

Energy & Sustainability Framework Development

Community and stakeholder engagement was a vital component of developing the Energy & Sustainability Framework. Extensive input from the community was sought to ensure the unique conditions, constraints and community voices in Regina were heard and understood. The plan was influenced by input from:

- A Community Advisory Group made up of community members from different sectors.
- An Internal Advisory Committee made up of cross-departmental staff from the City of Regina.
- Discussions with Regina's residents using a variety of outreach techniques and formats.
- Research on best practice.
- Sustainability Solutions Group expertise from working with other municipalities across Canada.

Transparency was at the heart of the engagement with meeting recordings and working drafts being regularly published on the City's public engagement platform, *Be Heard Regina*, for the public to review and stay informed. Further information can be found in *The Community Lens* section of the Framework (Appendix A).

Implementation of Low-Carbon Pathway

The development of the Framework is just the start of community and stakeholder engagement. As this is a community plan, residents and all sectors in the community will want to further explore "what does this mean to me?". Administration does not have all answers today and is committed to work with residents and the community to understand how collectively we can answer that question and take action to make Regina renewable.

DISCUSSION

Regina's "low-carbon pathway" cannot be implemented by Regina's municipal government alone. It will require significant effort, collaboration and investment from all sectors, other levels of government, utilities, residents and businesses.

Community Leadership

City Council has established several priorities for the community including economic prosperity, community safety and well-being, environmental sustainability, enhancing a vibrant community and operational excellence. Building a strong, healthy and vibrant community requires focus in these priority areas and partnerships between all levels of government, industry and community-based organizations. Although the City may not have jurisdiction in all areas, we see the impact these initiatives have on the quality of life for all residents and often take a leadership role to partner and advance action throughout the community.

The City will continue to expand its role as a community leader to advance progress on the Seven Big Moves through ongoing advocacy, partnership, awareness/education and direct action in the municipal operations. The Framework identifies a number of opportunities for partnership and collaboration, and notes where community education and leadership from other sectors are required. The City is planning to continue with the Community Advisory Group with an updated mandate that focuses on implementing the plan across the community.

For advocacy, Administration continues to work with other levels of government (provincial, federal) as well as organizations such as Federation of Canadian Municipalities. We know that financial support exists within some of these groups targeted at municipal governments but also individuals, homeowners, and businesses. The City is actively exploring opportunities for leveraging that funding to make Energy & Sustainability related actions more affordable for residents and the community.

Under partnership, there are several opportunities that are being explored by Administration with our external stakeholders. The City looks forward to upcoming investment and innovation opportunities that strengthen its relationships with indigenous communities and industry. We know our partners at Economic Development Regina will be vital in attracting and reporting on businesses in the green economy and job growth.

Education and awareness will be one of the most important pieces as our community continues on the journey of transitioning to a Renewable Regina. As a demonstration of leadership, the City is focusing efforts on building energy literacy within the community and educating about the impacts of climate change. The choices each of us make every day are key to achieving the 2050 goal.

Our goal is to clearly communicate the economic, social, and environmental benefits of pursuing Regina's renewable goal, and to create awareness of available programs and resources that will encourage and drive sustainable change.



The City has invested \$70,000 in 2022 to continue the broad energy literacy campaign that began in 2021 and is also focusing on increasing awareness about vehicle idling and energy consumption. The City is not alone in needing to increase education and awareness and looks forward to partnering with other corporations like SaskPower on these campaigns.

We will continue to use the City's online engagement platform *Be Heard Regina*, as well as in-person experiences to keep residents updated and engaged.

Municipal Operations Takes Action on the Seven Big Moves

The City has the opportunity to lead the way and demonstrate benefits that can be achieved by taking action to make the Seven Big Moves within municipal operations and through partnership. Administration has many initiatives already underway or planned between now and 2024 that align directly to the Seven Big Moves and the principle of “reduce, improve, switch”. With the approval of the Framework, these actions are expected to expand based on discussions with stakeholders on how we can work in partnership to advance broader community action on the Seven Big Moves.

In addition to the Framework, there are synergies between the actions municipal operations are taking and the recent Efficiency Review. There are several initiatives that move us towards our Energy & Sustainability goals and are significant efficiency improvements for municipal operations including facilities, fleet, landfill/waste diversion, transit trees, water/wastewater and land use planning. An overview of these initiatives is included in Appendix B.

In 2022, the City invested approximately \$6 million in actions in anticipation of the Seven Big Moves. An overview of those investments and the associated work is provided below:

Investment in energy retrofits at City facilities (\$250K). Building energy retrofits are a key part of the Energy & Sustainability Framework and the City will begin this work in 2022 with additional investment being required in subsequent years. Retrofits at City facilities are being targeted where energy consumption is highest based on data collected from the Energy Monitoring & Optimization Project. These investments will yield a decrease in energy expenses over the long term. Work is currently being done to estimate additional capital expenditures in future years and the ongoing operating budget reductions that could be achieved with continued investment in additional retrofit work which will be reflected in the 2023/24 budget. (Big Moves: Building Retrofits and Renewable Energy Generation).

Launching a residential home retrofit program to help make retrofits affordable for homeowners, renters, and landlords (\$200K). Home retrofits are expensive. Administration is committed to advancing a recommendation for City Council to consider establishing a Residential Retrofit Rebate program. The program is expected to be modelled after the Federal Government's Greener Homes Grant Program and to provide top-up rebates on items that qualify for the federal program. The funding in 2022 will enable this program to begin, with

funding for subsequent years requested through the 2023/24 budget process. It is important to accelerate this program prior to 2023/24 to ensure federal funding does not run out. (Big Move: Building Retrofits).

Investment in facility upgrades that prepare our transit buildings for alternative fuel buses (\$250K). Prior to transitioning to alternative fuel buses, facility infrastructure upgrades will be required to operate and maintain the new buses in the fleet. These upgrades will take several years to complete and the sooner we begin, the sooner we can switch. Facility infrastructure design work is anticipated to commence in 2022 with implementation in 2023 so that it is ready to use when the new bus fleet begins arriving in 2024. Funding for implementation will be requested in the 2023/24 budget. (Big Move: Low Emissions Vehicles).

Installation of vehicle charging infrastructure (\$50K). As our Fleet is transitioned to electric vehicles investment in charging infrastructure is required. As the number of electric vehicles in our fleet will be minimal in 2022, only \$50K is requested. Additional investment in charging infrastructure will be included in the 2023/24 budget request. (Big Move: Low Emissions Vehicles).

Investing in marketing and awareness programs (\$70K). Building energy literacy and educating residents about the impacts of climate change and their contribution toward mitigating is key to achieving a Renewable Regina. This money is being used to continue the broad energy literacy campaign led by the City throughout 2021, in addition to more targeted items like reducing vehicle idling and reducing energy consumption. (All Big Moves).

Investment of green bins for Curbside Food and Yard Waste Services (\$5.5M). The Curbside Food and Yard Waste Program is rolling out city-wide in fall of 2023. In preparation of the implementation green bins are being purchased in 2022.

The City is preparing for the upcoming two-year budget cycle and to remain on the “pathway”, targeted investment is expected to focus in the following areas: retrofitting City facilities, installing electrical vehicle charging infrastructure, purchasing electrical vehicles and buses, installing rooftop solar for City facilities and advancing partnership opportunities.

By taking significant action on City operations, we can use success to increase the education, awareness and adoption of residents and all sectors in our community to take action. This will facilitate ongoing work of City staff as they work with key stakeholders to advance actions outside of City jurisdiction that achieve targets for the Seven Big Moves.

Monitoring and Reporting

The Energy & Sustainability Framework has been developed using a science and evidence-based approach with achievable targets and set milestones. It provides an opportunity to establish how

data can be used to track to the plan and measure success and/or recalibrate to achieve long-term targets.

The City is participating in the Harvard Bloomberg Data Track which is allowing us to develop a foundation for monitoring and reporting starting with municipal operations. We will continue to add additional reporting as we work with community partners and explore how we can share data to tell our community's progress towards Renewable Regina.

The first annual progress report is scheduled to be considered by Council in the second quarter of 2023.

Using data to demonstrate positive impacts of implementing actions to advance the Seven Big Moves across other priority areas such as community well-being and economic growth is an important success factor to building a strong, healthy and vibrant community.

DECISION HISTORY

At the meeting on October 28, 2020 City Council directed the Administration to develop a community-wide Energy & Sustainability Framework and Action Plan (CR20-88) that includes:

- a. Community and municipal-wide action plans, with timelines and targets to achieve a Renewable Regina by 2050;
- b. Actions focused on land use and transportation planning, development and building permit guidelines, energy efficient building design, transportation demand management, waste management, energy conservation, regulatory tools, financial tools, advocacy for legislative change, as well as public education and awareness;
- c. Community engagement through the development and implementation;
- d. A regular and ongoing progress reporting framework that includes community reporting at regular intervals; and
- e. A preliminary estimate of the financial and economic impacts associated with implementing an action plan.

In response, at the June 20, 2019 Planning and Priorities Committee meeting, the Administration recommended:

1. That the City of Regina host and Energy and Sustainability Conference in May 2020 to provide input into the development of an Environmental Sustainability Framework, which among other initiatives, would include a roadmap for the organization to move to more renewable energy sources, autonomous vehicles and solar panels.
2. That the return date for item MN18-11, MN18-1 and MN18-4 be updated to Q3 of 2020 on the List of Outstanding Items of City Council.

These recommendations were approved by the Committee and forwarded to the July 29, 2019 City Council meeting where they were approved. The *Reimagine Conference* was scheduled for May 20-21, 2020. The conference agenda was focused on best practices in energy management and environmental sustainability. The content would have provided input into the development of Regina's Framework/Roadmap.

On March 13, 2020, the Energy and Sustainability Conference Planning Group made the decision to postpone the Conference until Fall 2020. The scope and duration of the unfolding public health emergency was unknown but significant enough that all levels of government-imposed restrictions on most aspects of society including travel and public gatherings.

Item MN18-11 Make Regina a Renewable City, considered at the October 29, 2018 meeting of City Council stated:

1. That Administration return to Council of Q4 of 2019 with a proposed framework and implications for the City of Regina to join the growing number of municipalities from around the world and commit to be a 100 per cent renewable city by 2050.
2. That Administration seek external funding sources, such as grants made available through the Federation of Canadian Municipalities, to finance the report and any future costs incurred from this commitment.
3. Said report include at least four possibilities of new and concrete actions for improving the environmental sustainability of the City of Regina that could be considered by Council for implementation by Q4 of 2023.

Respectfully Submitted,



Cara Simpson
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Respectfully Submitted,



Louise Folk
Executive Director, People & Transformation

ATTACHMENTS

Appendix A - CoR Energy and Sustainability Framework
Appendix B - ESF Municipal Operations Action Plan