City of Saskatoon
Communications & Public Engagement

ENGAGE

Renewable Energy Strategy

What We Heard – Options Identification
June 21, 2022

Engagement Summary

The City of Saskatoon (City) is developing a long-term, city-wide Renewable Energy Strategy (Strategy) to switch to low carbon energy sources. The Strategy will present the status, conditions, and challenges for renewable energy in Saskatoon as well as provide an action plan showing the near and long-term actions recommended to meet energy-related targets from the Low Emissions Community Plan. The development of this multi-year strategy and suite of corporate and community programs will potentially lead to an increase in renewable energy uptake and support within Saskatoon.

For these and other reasons, City Administration are engaging the community in the development of a long-term strategy. Based on what we hear, in addition to further research and internal considerations, the City Administration will develop a comprehensive strategy that will be presented to City Council in Summer 2022.

A total of 113 respondents participated in meetings and a survey during the first phase of engagement, which was focused on determining renewable energy initiatives that may work in Saskatoon and identifying any associated opportunities and barriers. Program preferences that emerged from the engagement activities are discussed in this report.

General Interest

When asked on a scale of one to five how important it is that the energy they consume comes from low-carbon emitting and renewable energy alternatives, the average participant responded, “Somewhat Important” (3.2). Further analysis indicated a high degree of variance in the responses, meaning most participants either strongly supported or strongly opposed low-carbon emitting and renewable energy alternatives.

Opportunities in Renewable Energy

Most respondents believed there was significant potential for renewable energy in Saskatoon. Virtual net metering was viewed as a major step towards making renewable energy more accessible and in increasing overall public support within the community. Participants suggested that although there are many opportunities for renewable energy in Saskatoon, there is a need to recognize that we currently rely on non-renewable energy production which makes up a large sector of our regional economy.

Some participants representing the business and industrial, commercial, and institutional (ICI) community stated that sectors would likely move towards renewable energy if more information on the opportunities was available, benefits could be realized, and return on investments were profitable. Public perception has been shown to be moving towards clean energy as an important business practise, therefore the business and ICI sectors are looking to offset their emissions and are actively exploring new opportunities.

Numerous opportunities specific to Saskatoon were identified, including leading by example by exploring renewable opportunities in new developments, exploring power generation partnerships, and standardizing policies and plans with other Saskatchewan municipalities.

Barriers to Renewable Energy

Out of the proposed barriers to community-wide renewable energy adoption, respondents identified the following in order of their importance:

1. *Project costs* – renewable energy systems require significant capital investment
2. *Return on investment* – savings or revenue generation may be low and result in a long payback period
3. *Limitations to selling power* – there are limited opportunities to sell power at a larger scale
4. *Access to capital* – limited availability for loans and capital funds to support renewable energy projects
5. *Knowledge and Awareness* - the benefits are not well understood and there is little accessibility to resources and tools

Subject matter experts within the renewable energy community also identified numerous barriers to renewable energy generation and use in Saskatoon, which included the following themes:

1. *Costs* – renewable options can appear to be a cheaper solution until maintenance and operational costs are incorporated
2. *Utility provider* – there is also a lot of frustration within the community surrounding the recent changes to the net metering program and there being no incentive to move towards renewables; many participants expressed their concern that SaskPower plays a critical role in our province's energy future, but they are not doing enough to reduce emissions and meet targets
3. *Education gap* – the lack of energy literacy within the community stifles initiatives before they can be further explored
4. *Simple* – the City needs make energy choices/participation simple and convenient for all
5. *Priorities* – there are more pressing priorities that prevent the community from exploring renewable energy opportunities further

Our Role of the City in the Energy Sector

When asked what role the City should adopt when it comes to renewable energy, the majority of participants expressed the need for the City to adopt all four of the proposed roles: Leading by Example, Investor, Regulator, and Encourager. Because the goals and actions related to reducing emissions and climate change are so large, they need to be addressed through a variety of roles and programs. Participants identified that Saskatoon is in a unique position due to having its own distribution utility company, Saskatoon Light & Power, which provides the opportunity to explore different roles they can play within the renewable energy sector.

City-led Renewable Energy Projects

When presented with the proposed City-led programs and initiatives, most participants were supportive and commended the City for leading the movement towards renewable energy in a meaningful way. Numerous participants reiterated the need for the City to lead by example to spark interest in the community in taking on similar initiatives. However, numerous participants suggested the City shift their focus towards improving energy efficiencies within the community rather then investing in renewable energy alternatives due to this being a more cost-effective approach.

Out of the proposed City-led programs being explored, respondents expressed their support for the following:

1. Landfill gas exchange
2. Waste to Energy
3. Site-scale solar
4. Hydropower at the Saskatoon Weir
5. Energy storage
6. District energy systems
7. Utility-scale solar
8. Renewable energy procurement

The initiatives with the most amount of "uncertainty" were district energy systems (18%), hydropower at the Saskatoon Weir (16%), waste to energy (14%), and energy storage (14%). These results indicate the need for greater community education and further studies on the role of these projects within the Saskatoon prior to the implementation of these initiatives.

Suggestions for other City-led initiatives included beneficial electrification of City fleet vehicles, blending renewable natural gas directly into the SaskEnergy gas system, and working with utility providers to procure energy from renewable sources.

Financial Incentive Programs

Participants expressed the need for strong incentives to implement projects within the community, and costs were viewed as being the largest barrier for uptake. However, incentives should not just be targeted towards those who can already pay for the project, but rather towards renters, income-qualified and structurally excluded residents, centering equity, opportunity and energy security in the design of the incentive programs. Rebates were generally viewed as being of benefit to the community, but it was recognized that the costs associated with renewable energy technologies have reduced considerably over the last decade. The City's Home Energy Loan Program was viewed as a benefit in making the considerable investment for homeowners and businesses more feasible.

When asked whether a city-wide rebate/grant program for solar photovoltaic (PV) installations that was facilitated by the City would be beneficial, most respondents stated it would be (57%). Other suggestions for financial incentive programs included, providing incentives that are tailored towards the businesses and ICI sectors, incentives for new builds to be solar ready, and offering incentives on a declining scale to decrease City expenditure over time.

Local Development Policies & Bylaws

Respondents ranked the following proposed regulation and policy initiatives in order of their support:

1. Simplified solar administration process
2. Renewable energy development standards
3. Land-use planning
4. Solar easement policy

Suggestions for other local development policies and bylaws included changing building code requirements to set precedence for new builds, exploring the current lack of electric vehicle (EV) charging opportunities in the city, and researching how other cities are facilitating the use of renewable alternatives while not placing limitations to building developments. Numerous

participants asked for clarification on why there would not be mandates for renewable energy development standards. It was suggested that mandates would establish unwavering requirements that would need to be followed rather than providing suggestions that are often ignored.

Education Programs and Awareness Campaigns

When asked how important education is in helping to spur renewable energy in Saskatoon, most participants stated it was very important. It was suggested that having a more-informed community would not only increase uptake in renewable energy, but also normalize its use across the community and improve the uptake of the City's other sustainable initiatives. However, numerous participants suggested that education programs can only succeed with corresponding policy changes.

Out of the suggestions for the best ways to educate the community on renewable energy options, respondents identified their support for the following:

1. Savings calculator
2. Training opportunities
2. On your electricity bill
4. Website/app
5. Public-facing solar and energy mapping
6. Profiling success stories
6. Demonstrations

Educational gaps for renewable energy were identified, including how individual actions can lead to change, providing a trustworthy source of information that debunks misinformation, providing opportunities to see renewable energy use in action, and what steps are involved in implementing a renewable retrofit. Numerous suggestions were provided to limit educational gaps and improve community awareness, such as developing educational information for specific audience types, showcasing success stories within the community, and providing information that is easily understood.

Final Considerations and Common Themes

When asked for their advice on implementing the Strategy or for any additional comments, participants provided the following considerations:

Costs: some respondents felt that tax-payer dollars should not be spent on initiatives other than the basic necessities for living in a city; there is confusion surrounding the return on investment and realized costs for renewable energy

Efficiency measures: efficiency measures should be taken first to improve our energy consumption

Employment opportunities: as the industry evolves towards renewable alternatives so does the job market and there is significant potential for employment opportunities for our community

Economics versus environment: economics cannot be the sole reason that we explore renewable opportunities and impacts to the environment should be considered in the decision-making process

Energy poverty: energy poverty is an important issue; need to focus funding for projects that provide those that are disadvantaged the means to participate

Lead by example: the City should be a model for the community for the use of renewable energy alternatives; think outside the box to develop multidisciplinary solutions

Simple: community adoption of renewable energy needs to include turn-key opportunities and a streamlined process to increase community uptake

Support: many respondents expressed their support for the Strategy and the proposed initiatives

Utility provider: there is frustration within the community towards SaskPower in regards to the current limitations in selling power back to the grid, the lack of incentives for adopting renewable alternatives, and the overall lack of support for renewable energy in Saskatchewan

Next Steps:
The remaining phases of engagement will further validate our findings by:

- Identifying community preference to help inform the selection of recommended programs
- Prioritizing recommended programs
- Validating our key findings with a wider stakeholder base

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1 Background

The City of Saskatoon (City) is developing a long-term, city-wide Renewable Energy Strategy (Strategy) to switch to low carbon energy sources. There are many reasons to invest in renewable energy options, but three in particular stand out:

1. Reducing greenhouse gas (GHG) emissions, which the City of Saskatoon has committed to an 80% reduction in corporate and community emissions by 2050
2. Establishing long-term financial investments to increase energy resilience and better manage our energy resources
3. Potentially creating numerous community employment opportunities.

The Strategy will present the status, conditions, and challenges for renewable energy in Saskatoon. Program outcomes include engaging the community on the viability of renewable energy opportunities, determining their associated state of readiness and costs, developing a prioritized list of recommended renewable energy initiatives, and determining how they should be implemented. The development of this multi-year strategy and suite of corporate and community initiatives will potentially lead to an increase in renewable energy uptake and support.

This work stems from the 2019 Business Plan and Budget Deliberations, where City Council approved funding for an Integrated Solar and Renewable Energy Strategy with the purpose of identifying and prioritizing renewable energy opportunities for the community and corporation to meet the actions from the Low Emissions Community Plan. While most of the Low Emissions Community Plan actions and targets refer to solar energy, this Strategy will look at other renewable energy technologies including wind, geothermal, and hydroelectricity, as well as low-emissions energy solutions, such as waste-to-energy, and nuclear energy. It will also compare the financial, environmental, and social impacts of the various renewable energy options and prioritize them for City Council.

From January 2021 – July 2022, City Administration are engaging the community on relevant components of the Strategy. Based on the feedback we receive, in addition to further research and internal considerations, City Administration will develop a comprehensive strategy that will be presented to City Council in 2022.

1.1 Strategic Goals

The Strategy aligns with the City of Saskatoon 2022-2025 Strategic Plan; in particular, its goal of Environmental Sustainability**,** which includes the outcome, “Greenhouse gases are reduced in a way that maximizes co-benefits and doesn’t leave anyone behind”. The key actions to achieve this outcome include:

- Implement climate actions in the Low Emissions Community Plan and the Corporate Adaptation Strategy within proposed timeframes.
- Develop initiatives to increase the use of renewable energy or low emissions energy sources and promote opportunities for property owners to generate their own electricity from renewable sources.

1.2 City Project Team

- Jeanna South, Director, Sustainability
- Amber Weckworth, Project Supervisor, Sustainability
- Adir Gilkson, Project Manager, Sustainability
- Pam Groat, Project Engineer, Sustainability
- Kathryn Theede, Manager, Energy & Sustainability Engineering, Sustainability
- José Cheruvallath, Manager, Metering & Sustainable Electricity, Saskatoon Light & Power
- Gabriella James, Accounting Coordinator, Finance
- Megan Quintal, Marketing Consultant, Communications & Public Engagement
- Kenton Lysak, Engagement Consultant, Communications & Public Engagement

1.3 Spokesperson(s)

- Jeanna South, Director, Sustainability
- Amber Weckworth, Manager Climate, Strategy and Data, Sustainability

2 Summary of Engagement Strategy

The following engagement goals were identified to help inform the development of the Strategy:

Phase 0: Involvement of Low Emission Community Plan Stakeholders

- Determine the level of interest of past Low Emission Community Plan Stakeholders

Phase 1: Options Identification

- Identify renewable energy initiatives that may work in Saskatoon
- Identify opportunities and barriers associated with the Strategy and proposed programs

Phase 2: Selecting Preferred Initiatives

- Identify community preferences to help inform the selection of recommended programs
- Prioritize recommended programs
- Further identify new program elements that enhance opportunities and mitigate barriers

Phase 3: Close the Loop

- Share components of the Strategy and recommended programs to identify any concerns
- Validate key findings with the community

2.1 Participants

The participants outlined below were identified due to their knowledge, interest in, or their potential to be impacted by the Strategy. These groups include:

2.1.1 Low Emissions Community Plan Stakeholders

Organizations engaged during the development of the Low Emissions Community Plan were invited to be engaged on future Low Emissions Community Plan initiatives, including the Strategy. If the identified stakeholders showed interest in engaging, they were assigned to the most relevant stakeholder group described below. Low Emissions Community Plan Stakeholders included:

- Business Improvement Districts
- Greater Saskatoon Chamber of Commerce
- North Saskatoon Business Association
- Federated Cooperatives Limited
- Nutrien
- Saskatoon & Region Homebuilders Association
- University of Saskatchewan

2.1.2 Community

Everyone who lives in Saskatoon will have the potential to participate in renewable energy initiatives once implemented. Engaging with the community will enable the City to better develop educational materials, strategic communications and future engagement activities that are inclusive to the community.

- Businesses
    - Business Improvement Districts
    - Greater Saskatoon Chamber of Commerce
    - North Saskatoon Business Association
- Carshare – Renewable Rides

- Community associations
- Industrial, commercial, and institutional sector
- Property Managers
    - Saskatchewan Landlords' Association
- Residents

2.1.3 Impacted Groups

Those who may be disproportionately impacted by the implementation of the Strategy and its corresponding initiatives, including:

- Environmental advocacy
    - Climate Justice Saskatoon
    - Ducks Unlimited Canada
    - Fridays for Future Canada
    - Meewasin
    - Partners For the Saskatchewan River Basin
    - Saskatchewan Light Pollution Abatement Committee
    - Saskatoon Nature Society
    - Wild About Saskatoon
- Indigenous organizations
    - Central Urban Métis Federation Inc.
    - City of Saskatoon Indigenous Technical Advisory Group
    - Saskatoon Tribal Council
        - Cress Housing Corporation
- Industry professionals:
    - Building operators
    - Canadian Commission on Building and Fire Codes
    - Electricians
    - Developers and home builders
        - Saskatoon & Region Home Builders Association
    - Real estate businesses
- Job Banks and training schools
    - SIAST and other trade schools
- Low-income residents and organizations
    - Renters of Saskatoon and Area
    - Saskatoon Poverty Reduction Partnership – First Voice Group
    - Structurally excluded and equity-deserving residents
- Waste management organizations
    - Ministry of Environment
    - Saskatchewan Waste Reduction Council
    - Waste-Not YXE

2.1.4 Subject Matter Experts

Those with experience or knowledge related to renewable energy and its applications. Subject Matter Experts include:

- Academic institutions:

    - Saskatchewan Research Council
    - University of Saskatchewan
        - School of Environment and Sustainability
        - Student Coalition
        - Office of Sustainability
- City Administration:
    - Building Standards
    - Dundonald Avenue Solar Farm
    - Facilities
    - Permitting
    - Recovery Park Project
    - Recreation and Community Development
    - Saskatoon Light and Power
    - Saskatoon Water
- Renewable energy and community experts:
    - Distributed Energy Association of Saskatchewan
    - Energy managers from other jurisdictions
    - First Nations Power Authority
    - Saskatoon Energy Management Taskforce
    - Saskatchewan Environmental & Industry Managers Association
    - Saskatchewan Environmental Society
        - Solar Co-operative
    - Sask Ev
- Renewable energy installation companies:
    - Biomass
    - Hydro
    - Geothermal
    - Solar
    - Wind
- SaskEnergy
- SaskPower

A summary of participants, level of influence, engagement objectives, engagement goals and engagement activities completed are provided below.

Table 1: Summary of Engagement Strategy

Phase	Participants	Level of Influence	Engagement Objective	Engagement Goal	Engagement Activities
0	Low Emissions Community Plan Stakeholders	Consult	Determine level of interest for future engagement opportunities	Involvement	Correspondence Meetings
1	Community Subject Matter Experts	Collaborate	Explore initiatives that may work in Saskatoon and their corresponding opportunities and barriers	Options Identification	Correspondence Meetings Survey
2	Community Impacted Groups Subject Matter Experts	Consult Involve	Determine support for and prioritize the recommended programs	Selecting Preferred Initiatives	Correspondence Meetings Surveys Workshops
3	Community Impacted Groups Subject Matter Experts	Consult Involve	Share components of the Strategy to validate our findings and determine any red flags	Close the Loop	Correspondence Meetings Survey

** Correspondence refers to emails, phone calls, and virtual meetings with participants*

3 Engagement Activities

Participants provided their feedback through individual meetings and a survey were held from April 13th to May 12th, 2021 to collect feedback on the proposed initiatives and their associated opportunities and barriers. Participants were also able to provide input through the City of Saskatoon Engage Page forum, or contact the project team directly via email, mail, or telephone.

3.1 Meetings

From April 13th to May 12th, 2021 various meetings were held with identified participants. The meetings included a short presentation that introduced the Strategy and initiatives being proposed followed by a series of discussions.

3.1.1 Intended Audience

Participants included specific Low Emissions Community Plan Stakeholders, Impacted Groups, and Subject Matter Experts. Participants included the following:

- Business Improvement Districts
- City of Regina
- Distributed Energy Association of Saskatchewan
- Energy Management Task Force
- Federated Co-operatives Limited
- First Nations Power Authority
- Greater Saskatoon Chamber of Commerce
- North Sector Business Association
- Pioneer Solar
- Saskatchewan Environmental Society
- SaskEnergy
- SaskEV
- SaskPower
- University of Saskatchewan

3.1.2 Marketing Techniques

No marketing techniques were employed for these activities. Participants were contacted individually by the project lead and engagement consultant to organize meetings.

3.1.3 Analysis

Meeting notes were provided by the project lead and engagement consultant, which the engagement consultant analyzed using mixed methods. Qualitative methods included a thematic analysis and open coding of responses to identify key concepts.

3.1.4 What We Heard

A total of 46 participants from 14 different organizations participated in the meetings.

General Interest

When asked what comes to mind when you hear the phrase renewable energy, participants suggested the following:

- Barriers
- Biomass conversion
- Clean fuel regulations and renewable fuel
- Costs
- Distributed energy
- Energy storage
- Full cycle economy
- Hope for the future
- Infinite payback
- Lack of incentives
- Nuclear power/small modular reactors
- Reduced air pollution
- Restricting the grid
- Self-generation
- Solar power, especially within the city limits
- The need for utility providers to change their perspectives on renewable energy
- The potential for a green environment that is fueled by a green economy
- The way the world is leaning
- Uncertainty because there hasn't been a need to explore options further
- Wind

Some participants representing the business and ICI community stated that sectors would likely move towards renewable energy if more information on the opportunities was available, benefits could be realized, and return on investments were profitable. For many businesses there needs to be a "bottom-line reason" for moving towards renewable energy or it needs to improve their optics amongst their customer base. Currently, installing solar panels is the most compelling route for downtown businesses due to the associated optics; but, solar access can be challenging within the downtown environment. Participants also suggested that renewable energy is not a top priority within the business and ICI communities due to other more pressing concerns taking precedence, such as safety, maintaining a clean environment, growing their business, and the impacts of the pandemic.

Opportunities in Renewable Energy

Most respondents supported there being significant potential for renewable energy use in Saskatoon. Virtual net metering was viewed as a major step towards making renewable energy more accessible and in increasing community support. Participants representing the business and the ICI sectors indicated that virtual net metering simplifies investing in renewable energy projects over time by allowing for multi-staged approaches over multiple sites. Although this process is complex, it can become more manageable with virtual net metering.

From a business and ICI perspective, participants indicated that there is an opportunity to be seen as an industry leader and partner of municipalities and the community when transitioning to renewable energy. Public opinion is moving towards adopting clean energy as an important business practise, thereby causing the business and ICI sectors to offset their emissions and explore renewable opportunities. It was also suggested that the potential for costs savings and

efficiencies in the operation of their business would incentivize business owners enough to explore participating in future programs.

Some participants suggested that although there are opportunities for renewable energy in Saskatoon, there is also the need to recognize that we currently rely on non-renewable energy productions that make up a large sector of our regional economy. Therefore, there needs to be a multi-phased approach in introducing renewable energy into Saskatoon to allow the community time to adjust to this paradigm shift.

Participants suggested the potential for solar energy generation in Saskatoon is significant due to the following factors:

- Advances in battery technology
- Costs are becoming less of a barrier as solar panels are increasingly more affordable
- Saskatoon owns their own electrical utilities so there is a greater ability to shape our energy potential
- Solar has a lot of potential to meet our summer air conditioning loads if intermittency issues are solved
- Space for solar is available on under-used lands, rooftops, and remediated or empty lands
- Use solar as a revenue stream with corresponding sales back to the grid

Numerous opportunities specific to Saskatoon were identified, including:

- Adopting Silicon Valley's Solar Score Card to assess solar manufacturers
- Align charging of electric vehicles with the most optimal times (outside of peak periods of use which are 5:00pm – 10:00pm in the winter and 1:00pm – 6:00pm in the summer)
- Clean energy production via hydrogen and renewable natural gas
- Create more opportunities like the Dundonald Avenue Solar Farm for other neighbourhoods and partner with community organizations
- Explore battery storage at the Dundonald Avenue Solar Farm
- Explore "distributed energy sandbox" approaches to learn from small-scale, manageable projects and test the corresponding return on value
- Hybrid-electric hot water tank incentives
- Lead by example by exploring renewable opportunities in new developments, such as the Downtown Saskatoon Library and the North downtown development pilot
- Power generation partnership opportunities
- Standardize policies and plans with the City of Regina and SaskPower to approach challenges and solutions collectively
- Using prairie crop residue and landfill gas for renewable natural gas and hydrogen conversion, respectively
- Virtual net metering with solar resources driving benefits to low-income housing initiatives

Overall, many participants extended their support for developing the Renewable Energy Strategy and what the City has done for emission targets, stating they act as a report card for determining where we are at. This kind of awareness is important for future success and celebrating our achievements. However, it was noted that the City's current targets are becoming outdated and need to be more ambitious in keeping up to European targets that are currently being met. It was

stated that if proper goals are set the community and leaders become more ambitious to succeed; therefore, the City should strive for what is “moderate, measurable and meaningful” when setting targets and designing programs.

Barriers to Renewable Energy

Numerous barriers to renewable energy generation and use in Saskatoon were provided, including the following themes:

Available expertise and workforce: it can be difficult to find the expertise needed to install and repair equipment; ensure the workforce in the renewable energy sector is available and committed to moving forward

Benefits to businesses: for many businesses it comes down to the “bottom line”; businesses currently do not see the benefits with renewable energy and the proposed programs

Collaboration: many individuals, organizations, utility providers and municipalities are setting targets and developing plans independent from one another; a more unified approach is needed across all sectors and the community to generate common goals and succeed in reaching them

Complexity: renewable energy opportunities can be confusing without proper explanations and understanding; concepts must be explained using plain language

Costs: the largest barriers for the community; the installation and maintenance costs do not justify their use; renewable options can appear to be a cheaper solution but once supplemental and operational costs are incorporated it becomes more difficult to justify the total costs; offering incentives will inevitably increase municipal taxes which is a concern for many community members; if carbon pricing is maintained at a federal level then the impacts of these costs are reduced

Education gap: the third most common barrier; the lack of energy literacy within the community stifles initiatives before they can be further explored; there is an overall lack of understanding surrounding the benefits and opportunities for renewable energy; the City needs to frame the discussion in terms of costs versus benefits

Dichotomy between the environment and economy: ideally, they should be interwoven but that is not the case for the local community; if a business case is made that shows how individuals will save money while also providing environmental benefits then there would be greater uptake

ICI sector: immediate changes within the ICI community should not be expected since time is needed to gradually convert to renewable alternatives; net zero is a much more challenging goal for the ICI sector due to many being large emitters

Infrastructure and technology requirements: some systems will be more difficult to install in older buildings, such as Tesla vehicles that require a 300 Amp panel, which many businesses cannot accommodate due to their old infrastructure; older buildings and large distribution centres are not designed to take on the loads of rooftop solar systems and retrofits are just not feasible

Land locations: the availability of land limits the scale of renewable energy opportunities within Saskatoon; this depends on the technology being explored and the connectivity to the site

Policies: timely changes to City policies are required to reach our renewable goals

R*enewable energy intermittency*: one of the largest barriers for renewable energy adoption is the high seasonal volatility and how generation does not match peak electricity demand; solar power generation occurs mainly in the summer, however electricity demands are at their highest during winter nights when solar generation is at its lowest

Priorities: there are more pressing priorities that prevent the community from exploring renewable energy opportunities further; especially important for businesses that are just trying to stay open during the pandemic or do not own their building and need to negotiate with their landlords

Provincial government: legislation is a barrier overall; currently sets a bad example in setting goals that do not reflect our national goals when our provincial emissions are three times the national average; the provincial government needs to assist cities in reaching their targets

Realistic targets: targets must be tangible in order for the community to adopt them; set a metric that the City can measure their progress and adjust their programs when they are not succeeding; every program must evolve with our changing needs and no program will be a one-stop solution

Renters and property ownership: residents and businesses that do not own their properties do not benefit from renewable energy generation projects and do not have the ability to influence the use of renewable energy amongst their property managers

Risk aversion: there is a need to find solutions now rather than later to meet current targets; steps should be taken to learn and implement even when mistakes are made; this process should include testing the impacts to the grid without falling back on the process being too complicated or having too high of expectations; exploring “distributed energy sandbox” approaches allows for projects to be scaled so they are small enough to learn from while not being big enough to generate large mistakes

Simple: the City needs to make it easy to participate in the proposed programs; have turn-key suppliers available that are a one-stop-shop for services; opportunities that do not reach the full energy demand are often overlooked; make energy choices simple and convenient for all consumers; roll in technologies like co-generation into the SaskPower network so they are standardized for energy consumers

Solar access: property owners who install panels are not protected from adjacent property owners limiting their access to sunlight; this is especially evident in the Broadway district where builders must build up, which adds to height discrepancies

Training: proper training must be made available to current and future tradespeople; the City could help to support education centres (ex. Saskatchewan Polytechnic) to develop resources and stimulate the job market

Uptake for those not informed: most people who currently have solar panels tend to be more engaged in renewable energy projects and discussions; how do you reach those that are not interested

Utility provider: the second most common barrier identified by participants; many participants expressed their concern that SaskPower plays a critical role in our province’s energy future but they are not doing enough to reduce emissions and meet targets; there is also a lot of frustration within the community surrounding the recent changes to the net metering program

Wind power: some respondents identified the strong potential for wind energy generation, however it was noted that this potential would require greater lobbying of SaskPower to acquire permission for these ventures.

Role of the City in the Energy Sector

When asked what role the City should adopt when it comes to renewable energy, the majority of participants expressed the need for the City to adopt all four of the proposed roles: *Leading by Example*, *Investor*, *Regulator*, and *Encourager*. Participants preposed that because the goals and actions related to reducing emissions and climate change are so large, they need to be addressed through a variety of roles and programs. Participants recognized that although ideally all roles should be adopted, internal capacity and the ever-evolving advancements in the renewable energy sector could make this difficult to accomplish.

Most participants encouraged the City to lead by example in the renewable energy sector to demonstrate success and encourage the community to take a more active role in renewable energy. Participants identified that Saskatoon is in a unique position in having its own distribution utility company, Saskatoon Light & Power, that handles a portion of the city's power. Typically, cities are not involved in the distribution and supply of power; however, it was noted that the City and Saskatoon Light & Power can create their own path towards incorporating renewable alternatives. It was suggested that third-party agencies could assist and work with utility providers and municipalities to implement and administer programs. This process would need to actively involve our utility providers and shift the administration and responsibility of some programs to third-party agencies for the programs to be effective.

As an *Investor*, participants noted that investing in renewable energy is costly and utility providers cannot assume all the costs for the premiums without passing them onto their customers. Ideally the City would be able to provide some incentives to spearhead the community's transition to renewables, but this would require significant capital investments. SaskPower plays an important role in helping Saskatoon achieve its renewable energy goals and emission targets, so communicating and partnering with them on future initiatives should be a priority. SaskPower expressed interest in forming funding and logistical partnerships with the City in the future, depending on the opportunities that are presented.

Regarding the City being a *Regulator*, it was noted that regulation is especially important in the ICI sector. Participants also identified the opportunity to partner with the City of Regina for building standards and increasing their collective efforts in regulation. The City could take a "*Sustainable Cities Approach*" in bundling other items with renewable energy projects, such as encouraging hail-proof roofs in conjunction with solar installations.

Our Role in Renewable Energy – Leading By Example

When presented with the proposed City-led programs and initiatives, most participants were supportive and commended the City for leading the movement towards renewable energy in a meaningful way. Numerous participants reiterated the need for the City to lead by example to spark interest in the community in taking on similar initiatives. However, one participant suggested the City should ensure they can achieve the large-scale goals and emissions reductions within the timeframe set by the Low Emissions Community Plan to ensure their expectations are not too high. To achieve these high goals, it is important to engage with the public to determine their interest in

renewable energy. Also, partnerships with community organizations and utility providers should be established to initiate greater uptake in future programs.

Another stakeholder group suggested that the estimated benefits from the proposed programs in the Strategy would be significantly less than if the City shifted their focus towards improving energy efficiencies within the community. Greater emission reductions and more positive return on investments would be gained through improving efficiencies; however, it was recognized that energy efficiency retrofits are not as appealing nor public facing when compared to renewable energy projects, such as solar and wind.

Participants identified there is a lot of potential in wind generation due to it being cost effective by the strong and consistent prairie winds patterns; however, the barriers to wind generation included the potential for too much wind generation with not enough load as well as the challenges in storing this energy for later use.

Many participants supported landfill gas expansion and suggested including wastewater treatment and other renewable natural gas opportunities. Gas produced through landfill and wastewater treatment processes can either be converted into biomethane and used in vehicles to generate credits through the national Clean Fuel Standard or they can be blended into the natural gas system in conjunction with SaskEnergy.

Opinions on hydropower at the Saskatoon Weir varied greatly, with some participants in direct opposition to the project and others highly supportive. Those that opposed the project stated it was too small-scale to benefit the City, the project was not economically beneficial to pursue, and expressed their apprehension for the structural integrity of the Saskatoon Weir. Those in support were excited about the tourism/leisure opportunities the site could provide and the potential for the site to be a destination in Saskatoon.

Some participants were in favour of district energy and combined heat and power systems, stating there is a lot of potential within this industry to combine geothermal wells and distribute heat across communities. The challenge is having enough wells available to heat and cool the number of buildings, which can drastically increase capital costs unless it is offered as a utility service to the surrounding developments. This would also open a new market in the selling of these services, which requires further research.

When asked to rank their support for the City-led initiatives, the Energy Management Task Force provided the following based on their average score out of five:

1. Site-scale solar on municipal buildings (4.5)
2. Energy storage and renewable energy procurement (3.6)
3. Utility-scale solar (2.9)
4. District energy and CHP (2.8)
5. Hydropower at the Weir (2.4)

Other suggestions for City-led initiatives included the following:

- Beneficial electrification of City fleet vehicles, golf carts and busses
- Biogas recovery from sewage, wastewater, landfill, and organic waste
- Blending renewable natural gas directly into the SaskEnergy gas system

- Cogeneration opportunities
- Develop and implement a carbon cap and trade system
- Developing policies around geoexchange
- Energy benchmarking
- Energy efficiencies
- Energy labeling
- Explore the national Clean Fuel Standards for generating credits from the offsets
- Renewable energy storage systems similar to initiatives within the City of Regina
- Working with utility providers to procure energy from renewable sources, like a renewable energy credit system

Our Role in Renewable Energy – Investor

Participants expressed the need for strong incentives to implement projects within the community, and costs were viewed as being the largest barrier for uptake. This is especially important in the residential sector, where the distribution of wealth varies greatly. Incentives should not just be targeted towards those who can already pay for the project, but rather towards renters, income-qualified and structurally excluded groups, centering equity, opportunity, and energy security in the design of incentive programs.

Rebates were generally viewed as beneficial for the community, but it was recognized that the costs associated with renewable energy technologies have reduced considerably over the last decade. Rebates also have benefits over net-metering since they are more accessible to all income groups and more marketable to the community. However, rebates must be properly advertised with their benefits and steps to accessing them clearly defined to facilitate their wide acceptance.

The City's Home Energy Loan Program (or PACE program) was generally viewed as a benefit in making the considerable investment for homeowners and businesses more feasible. It was suggested that the City should have the necessary capital available in case some participants default on the financing program. Another participant identified that businesses and the ICI sector commonly avoid making multi-decade partnerships, due to the elevated rates of change in the industry generating more risk.

When asked whether a City-wide rebate/grant program for solar PV installation would be of benefit, most participants stated that it would. One of the largest barriers identified was separating out the costs for maintaining the grid from the costs for energy, so that actual costs can be realized. Participants asked whether the program would focus on generating broader or greater adoption for solar energy then what we currently have, since the end goal would determine the logistics of the rebate program.

Many participants expressed a strong frustration within the community and some industry experts towards the more recent changes made to SaskPower's net metering program in unison with the removal of the provincial solar rebate program, stating these changes greatly inhibited the solar industry and halted the overall uptake or solar power within the community. This is mostly due to the payback periods being significantly longer, the loss of jobs within the industry, and the reduced return on investment for potential applicants. Many participants supported Saskatoon Light & Power maintaining their current net metering program and encouraged them to continue the program.

Suggestions for other financial incentive programs included the following:

- 20-year municipal debentures at 2%
- Incentives being offered on a declining scale to decrease City spending over time
- Incentives that are tailored towards the business community and low-income qualified
- Property tax incentives for developers/owners that are based on GHG reduction
- Provide incentives for new builds to install hook-ups for solar panel systems
- Take advantage of federal incentives
- Working with Credit Unions to further support community values and become vendors

Our Role in Renewable Energy – Regulator

Numerous participants asked why there were not mandates for renewable energy in the City's development standards. It was suggested that mandates would establish requirements that would need to be followed rather than providing suggestions that would often be ignored. Mandates also have the potential to bring in more progressive contractors/developers that want to distinguish themselves by reducing their environmental footprint. However, one participant suggested that the goal of the City should be to incentivise developers and contractors so that there is no longer a choice in installing renewables. If renewable energy makes logistical and financial sense for the then it would be more widely adopted.

When asked to rank the proposed policies and bylaws, the Energy Management Task Force provided the following ranking out of five:

1. Streamlined solar administration (4.6)
1. Renewable energy development standards (4.6)
3. Solar easement policy (4.3)
4. Land-use planning (3.5)

Suggestions for other programs or improvements included the following:

Building code requirements: requiring renewable energy alternatives and energy efficiencies in new builds helps to drive significant change; however, building codes can be challenging without an appetite for national adoption; Saskatoon taking on new codes could further add to the confusion

Build support: build public and industry support for current initiatives by encouraging renewable energy installations (ex. North downtown development pilot); if the community could see a whole neighbourhood generating renewable energy it could help visualize the overall benefits

Indigenous inclusion: Indigenous reconciliation goes hand and hand with environmental reconciliation; Indigenous people are climate leaders and should be included within the conversation

Lack of EV charging opportunities: especially important for apartment and condominium projects where the lack of fast-charging infrastructure is more apparent; not tied directly to residents but rather a service offered by the developer; some municipalities have proposed bylaws for a percentage of parking to have EV charging available; this will most likely require mandates

Limitations to building developments: there could be hesitation from businesses not being able to build up; this program could cause some to feel that the City is limiting solar access and geoexchange and consequentially limiting infill development

Simplify when possible: anytime a permitting process can be simplified and more cost effective it is more beneficial to all involved parties

Our Role in Renewable Energy – Encourager

When asked how important education is in helping to spur renewable energy in Saskatoon, most participants stated it was very important. It was suggested that having a better-informed community would not only increase uptake in renewable energy, but also normalize its use across the community and improve the uptake of other sustainable City initiatives. However, numerous participants suggested that education programs can only succeed with corresponding policy changes. Without the pressing need to change it is too easy to ignore education and awareness opportunities. The combination of educational and policy changes drives the community to realize they too have a role and have the tools to make the changes needed. It was suggested that providing developers with educational opportunities allows them to adhere to policy changes more easily and act on their own. Whether the participant is a resident, business, or developer, they need to fully understand the changes being implemented and their role in the process.

Participants representing the business and ICI sectors acknowledged that members who are not already aware of renewable energy opportunities are not as interested in learning or investing in them; therefore, marketing and educational opportunities tailored towards these sectors are essential for greater uptake. Education should focus on the financial benefits, advertising/marketing opportunities, and benefits to businesses. It was suggested that once businesses have installed renewable alternatives and the benefits are realised, they become strong advocates for their use; therefore, showcasing success stories allows potential participants to see the benefits more clearly by making the daily use of renewable energy more relatable.

When asked to rate the following educational tools, the Energy Management Task Force provided the following:

1. Information on your electricity bills (7.9)
2. Home/Building Energy Rating and Disclosure (7.7)
3. Solar and Energy Mapping Tool (7.2)
3. “One-Stop-Shop” Website (7.2)
5. Sharing Success Stories (7)
6. Training, Workshop or Coaching Sessions (6.3)
7. Public Pamphlets and handouts provided at Civic Centre (2.8)

To improve community awareness, participants proposed the following actions:

Common approaches: collectively target heating, renewable alternatives, and energy efficiencies into one network so benefits can be realized across the industry

Direct interaction with businesses: demonstrate and communicate the actual benefits of renewable energy to businesses; communicating directly (i.e., face-to-face, open house forums, etc.) with businesses is critical for relationship building

Educating leadership: we need education and awareness programs that target community leaders

Framing the discussion: information must be applicable to all of Saskatoon’s demographics and what they are looking for; the community will base their decision on how easy it is and how much it

will save them; education should focus on what the community can do to change their behaviours; tailor the information to residents and the business community differently

Innovation challenges: support students in exploring opportunities through innovation challenges

Partnerships: identify other organizations that can support/promote the initiatives; many solar companies have invested interest in educating the community; partner with school divisions to integrate educational material into their curriculum

Showcasing success: sharing success stories within the community has been shown to promote greater awareness by communicating the opportunities and impacts of local projects; especially important for the business and ICI sectors

Simple information: providing information that is easily understood and able to remove apprehension towards renewable energy use is critical

Educational gaps that were identified by participants including the following:

- Community energy planning
- Comparing different energy sources
- Complimentary roof assessments
- Costs and return on investment
- Difference between power and energy
- Energy and all its forms
- Energy auditing
- How individual action can lead to change
- How serious climate change is for our community and the world
- How to speak with developers and contractors about renewable energy opportunities
- How to improve efficiencies in practise
- Larger-scale changes must occur outside of local government
- Provide a trustworthy source of information that debunks misinformation
- Provide opportunities to see renewable energy use in action, from guided tours of solar installations to connecting with schools
- Renewable targets and goals for all levels of government
- The role natural gas plays and what other options are available for reducing emissions
- What are the responsibilities of the City, crown and province in regards to renewable energy and communicating its benefits
- What are the steps involved in implementing your renewable retrofit
- What does the strategy mean for the City in regards to costs and the mill rate
- What does the strategy mean for the environment
- Where are residents, businesses, and the ICI sector at in producing their own energy currently
- Where are our existing sources of heating
- Where is the community at in achieving their goals to net zero

Final Considerations

When asked for their advice in implementing the Strategy or for any additional comments participants provided the following:

Efficiencies first: if the City wants to meet 80% reduction targets for 2050 then 80% should come from energy efficiency measures and the remaining 20% should derive from renewable alternatives

Employment opportunities: as the industry shifts towards renewable alternatives so does the job market; there are significant employment opportunities that the community needs to be aware of especially for tradespeople and Indigenous people

Economics versus environment: economics cannot be the sole reason for exploring renewable opportunities; there is a need to quantify the economic benefit of resiliency; exploring small-scale energy solutions/producers can increase the local economic participation and produce greater economic benefits

Energy versus environment: the community tends to view renewable energy and fossil fuel use as antagonistic; there needs to be a better cohesion between the two

From payback to responsibility: not every program needs to incentivize individuals to participate, rather a paradigm shift is needed to make the community aware of their roles and opportunities

Pilots first approach: use pilot projects to both test for opportunities and demonstrate successes to the community

Saskatoon Light & Power: negotiations need to be reopened with the provincial government to discuss the limitations the 1958 boundaries place on our local utility provider; operating their current net metering program is important and it needs to continue

Scaled barriers: do not just focus on barriers in Saskatoon but examine provincial barriers as well;;there is opportunity for Saskatoon and Regina to look at their specific barriers and combine their efforts to lobby the provincial government for changes to specific pieces of legislation, residents of our province should be able to see similar initiatives if they move to another city,;an example is coordinating differing municipal building codes to avoid confusion for vendors/suppliers

Simple: community adoption of renewable energy needs to include turn-key opportunities to increase uptake; create a streamlined process for people to get involved in easily

Use current methods/technologies: reduce the time and energy required for developing program elements by exploring best practises in the industry and within other cities; some new technologies can take up to 20 years to analyze their impacts; for example, adopting the Solar Score Card to examine solar manufacturers for their use sustainable solar materials and reducing their environmental footprint; recycling is critical for the success of the Strategy so that the programs work in conjunction with City waste diversion targets

Utility provider: need to define their service and costs more concretely; need to be more transparent with their customers to let them know where their cost structure and service costs are moving

3.2 Survey

Administration conducted an online stakeholder survey from April 15th to May 6th, 2021. The survey comprised a total of 19 closed- and open-ended questions to identify their support for the proposed programs and to determine any associated opportunities or barriers. Respondents were able to write-in an “other” preference for numerous questions and provide explanations for their preferences.

3.2.1 Intended Audience

The survey was intended for all Low Emissions Community Plan Stakeholders as well as specific Subject Matter Experts.

3.2.2 Marketing Techniques

A variety of marketing techniques were employed to reach the intended audience.

1. City Website
    a. Updates to the Engage Page were made to encourage participation in the online survey.
2. Email
    a. Personalized emails were sent asking for their participation and to share the information with their members.

3.2.3 Analysis

The results were analyzed for the following indicators:

- Most popular programs and recommendations (count)
- Thematic analysis of reasoning offered for inclusion of certain program components over others
- Program components that might improve or reduce accessibility and uptake

Mixed methods were used to analyze the data. Qualitative methods included the thematic analysis and open coding of responses.

3.2.4 What We Heard

Demographics

A total of 58 individuals participated in the survey with 85% operating in Saskatoon. The largest group of respondents were those involved in the energy sector (29%), followed by professional or technical consultants (17%), residential or commercial construction (16%), and environmental (12%). Other sectors that were represented included:

- Agricultural
- Education
- Government
- Hospitality
- Installation companies
- Not-for-profit organizations
- Processing and manufacturing
- Real estate or property management
- Transportation
- Utility providers

Importance and Barriers

When asked on a scale of one to five how important it is that the energy they consume comes from low-carbon emitting and renewable energy alternatives, the average participant responded, “Somewhat Important” (3.2 ± 1.8). Further analysis indicated a high degree of variance in the

responses, meaning most participants either strongly supported or strongly opposed low-carbon emitting and renewable energy alternatives.

Out of the proposed barriers to community-wide renewable energy adoption, respondents identified the following in order of their importance:

1. Project costs – renewable energy systems require significant capital investment (63%)
2. Return on investment – savings or revenue generation may be low and result in a long payback period (61%)
3. Limitations to selling power – there are limited opportunities to sell power at a larger scale (43%)
4. Access to capital – limited availability for loans and capital funds to support renewable energy projects (34%)
5. Knowledge and Awareness – the benefits are not well understood and there is little accessibility to resources and tools (23%)
6. Capacity Building – organizations do not possess the internal capacity and resources to take on such projects (14%)
6. Project Complexity – time, skills, or other capacity limitations make them challenging to participate in (14%)
7. Land Use – medium to large-scale renewable energy generation systems require the use of land space for upwards of 20 to 30 years (9%)

Other suggestions for barriers that were not included in the proposed list were:

- Additional costs of engineering assessments and upgrades for building permit requirements that other jurisdictions do not require
- Failure of leadership to lead by example and be innovative
- Lack of competition within the market
- Lack of confidence in current City leadership to be able to employ sufficient business outcomes to make this a reality
- Lack of data on utility costs of service, reliability projections and return on investment
- Lack of enabling legislation for municipal governments
- Lack of understanding on how our power system works and the inability to be fully dependant on renewables

  "There is a lack of sophisticated understanding of how the power system works. At this time (even with batteries) renewables (excluding hydro) cannot provide 100% of your electricity while still matching the cost and reliability of a grid-mix supply."
- Limited involvement of the utility providers which further limits innovation and purchasing of clean energy
- Misalignment between goals of provincial government/crown corporations and municipal government
- Regulations and safety requirements

  "The electricity industry is an incredibly heavily regulated industry with extremely high requirements for operations and safety. If a person/group wants to participate in that industry, they must be prepared to deal with and operate within all the complicated regulations associated - it's not a cottage industry"

- Time/costs to receive permits and permissions from the City/complicated application and approval process
- Uncertainty in effectiveness of renewable energy alternatives and whether they produce a net benefit for the environment (ex. the trade-offs for high versus medium efficiency furnaces)

Comments surrounding barriers to renewable energy use and generation in Saskatoon included the following themes:

Access to grid: it can be very difficult to access the power grid for larger scale projects, especially due to the resistance by the provincial government and utility provider

Barriers must be understood and acted on: if there are too many barriers the community won't take on projects; barriers should be well understood to facilitate the removal of as many barriers as possible; barriers are already decreasing

Changes are not needed: one respondent suggested that the use of natural gas and oil is more economically feasible and environmentally friendly than the net waste of resources chasing renewables

Change is needed quickly: leadership and our community do not realize the need for a speedy transition to renewable alternatives to curb the exponential growth of our population and emissions

Clarify terms: specify whether the goal is to move towards zero emissions or renewable options

Costs vs. benefits: the return on investment for renewable energy is very low, so cheap and reliable power sources are needed; costs for the industry are prohibitive

Diversity in utility providers: need favorable regulations from the provincial government to allow utility providers other than SaskPower to work with energy users to identify and develop clean energy and GHG reduction projects

Efficiency measures: efficiency measures should be taken first to improve our energy consumption in the city more quickly; sustainable practises outweigh new technologies in reaching our targets

Lack of awareness: it was suggested that many residents within Saskatoon Light and Power's jurisdiction assume net metering has also changed for them due to the recent provincial changes

Long payback periods: some participants believe that renewable energy has a long payback period (10 years or more) with little certainty what grid feed-in opportunities will be available

Provide more information: access to feasibility studies and/or structural assessments prior to committing to a project is critical; this could be incentivized in the form of a free assessment prior to the onset of a project

Selling power: the limitations to net metering and selling power are a real barrier

> *"The PGPP (Power Generation Partner Program) programs that are out there make very little financial sense with the rate that the program owner are willing to pay for power. Net-metering at 0.5:1 also makes for a tough business case."*

Solar and wind are unreliable: the return on investments makes less sense for solar and wind

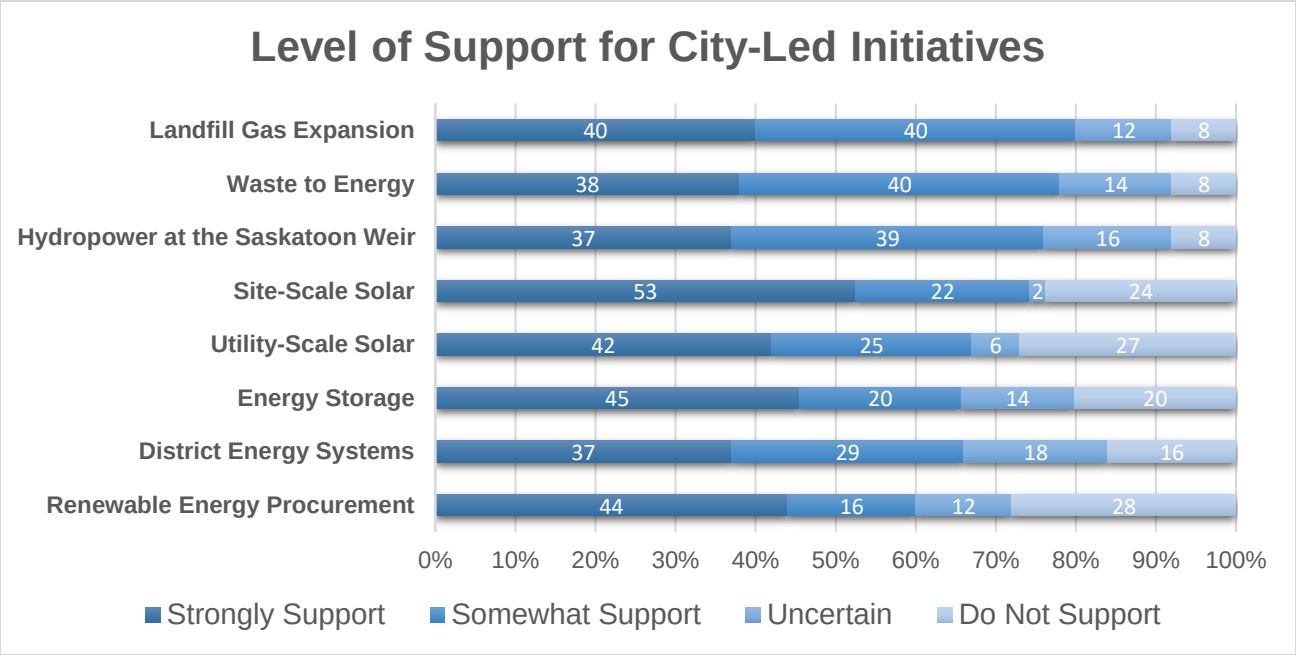
> *"Wind and Solar energy production have not proven to be effective replacements of conventional energy production, but I think they can be a supportive measure when it comes to power consumption. Solar and wind components could be added to existing buildings, supplementing the use of passive systems within any number of large buildings, especially those with power being at night - i.e. - security systems, lighting, signage, etc."*

Support for current net metering: many respondents expressed their thankfulness for the City of Saskatoon and Saskatoon Light and Power keeping their net metering at 1:1 buy/sell ratio; any changes to this ratio would negatively impact participant's return on investment; especially important for keeping the solar industry alive in Saskatoon

Our Role in Renewable Energy – Leading By Example

Out of the proposed City-led programs being explored, respondents strongly supported or somewhat supported the proposed initiatives in the following ranking:

Figure 1: Level of Support for City-Led Initiatives



It should be noted that although the solar initiatives obtained some of the highest amount of support (site-scale solar = 74% and utility-scale solar = 67%), these categories also included the largest amount of variance due to the greater amounts of negative responses from participants (site-scale solar = 24% and utility-scale solar = 27%). This trend was also seen qualitatively in the Meetings, where numerous participants communicated the opportunities and challenges in solar projects as not being well understood.

The initiatives with the most amount of "uncertainty" were district energy systems (18%), hydropower at the Saskatoon Weir (16%), waste to energy (14%), and energy storage (14%). This indicates the need for greater community education and awareness efforts prior to the implementation of these initiatives. Comments from respondents supported this need, suggesting that to properly weigh the benefits of certain programs over others an overall better understanding is needed.

Suggestions for other City-led initiatives included the following:

- Agrosolar combining solar PV with agriculture for green houses and solar fences
- Biofuel stations, charging stations (level 2) and electric vehicles for downtown use
- Biomass power generation with on-site CCHP capabilities
- Business and residents could subscribe to a renewable energy service that feeds the grid in exchange for a reduced power bill
- Electrification of City vehicles and equipment
- Eliminating lighting overnight and when not needed
- Focus on energy saving and efficiency measures
- Geothermal applications
- High-density buildings/planning
- Hydrogen fuel cells, production, and use
- Landfill gas to renewable natural gas and avoid the conversion to power
- Nuclear energy
- Small modular reactors
- Wind, either community-scale or larger

Risks that respondents provided for City-led initiatives included the following themes:

Alignment with utility provider: ensure the initiatives align with SaskPower's future goals and actions; if they plan to be 100% renewable then there is no need to invest in programs that do not accelerate their plan

All things considered: the economics, safety and environmental impacts must all be thoroughly researched before committing to any of the programs

> *"Need to assign a price per metric tonne to carbon reduction to get a true comparison of using renewables vs traditional fossil generated electricity."*

Asset and maintenance considerations: the City needs to consider the capital costs and future upkeep for each of the programs represented within the Strategy

> *"Substantial projects will increase your total assets under management substantially, while several assets already have large deferred maintenance, this is a major risk imo, because these new assets will not likely have adequate annual capital to keep modernized through their lifespan."*

Costs: the costs to the taxpayers should be a major factor; it was suggested that renewable energy generation can be incredibly expensive

Environmental impacts: there may be direct and secondary environmental impacts to using renewable energy, such as the processing of solar panels and batteries being carbon intensive thereby offsetting any benefits that the intermittent power generation provides

> *"Solar panels are going to be our next environmental disaster that we will have to clean up in the next 20 years. Mining of the minerals destroys the earth."*

> *"Increasing energy production increases GHG emissions, no matter what technology .. if not in Saskatoon, then at the source's extraction sites for the minerals used. Conservation should attempt to create sustainable use."*

Glare: glare from solar panels can be extremely bright and blinding for vehicles and air traffic, so keep all solar installations away from the airport and major flight paths

Government support: it will be challenging to pursue options that require senior levels of government and utility support (i.e., SaskPower)

Land use: all energy projects must properly consider land use at the onset of their development

> *"Using land efficiently and with respect to future generations must be considered for renewable energy and battery energy storage. Solar for instance, takes up a considerable amount of land per MW of capacity."*

Reliability: numerous respondents suggested renewable forms of energy generation are not reliable and consistent sources of energy; solar is viewed as not being a reliable form of energy generation

The Saskatoon Weir: some respondents view hydropower at the Saskatoon Weir as a hazard with many environmental impacts, such as separating the river and inhibiting wildlife movement

Our Role in Renewable Energy – Regulator

Respondents ranked the following proposed regulation and policy initiatives in order of their support:

1. Simplified solar administration process (78%)
2. Renewable energy development standards (74%)
3. Land-use planning (72%)
4. Solar easement policy (58%)

Suggestions for other regulations or policies included the following:

- Community-scale wind regulations
- Development standards targeting reducing energy consumption
- Distributed energy policies
- Emphasize needing clear south-facing space for solar installations
- Energy efficient development standards
- Increasing lot sizes for future builds to support wind, geothermal, and solar installations
- Permitting process for projects should include development, electrical and building standards/policies
- Power purchase agreement opportunities
- Setting specific targets for renewable energy that consider the total energy being supplied
- Sufficient bonds in place to deal with end-of-life disposal costs for solar installations
- Waste policies for solar and wind systems following their lifecycle

Respondents provided numerous risks and concerns that should be considered for the proposed policies and regulations being explored, including:

Administrative costs: onerous regulations/programs can lead to a lack in uptake; must look to reduce "red tape" as much as possible' saving administrative costs should be considered a priority

> *"Probably best the city stay out of all of this as it is not really proper for tax money to be used paying inflated wages with no results - leave the market to decide - mostly stay out of it so not bloated bureaucracy is created"*

Liabilities: as more homes install solar there could be variabilities in installation quality that could impact the property's resale value; the programs should encourage quality workmanship that follows current standards

Multi-unit housing considerations: renewable energy generation in multi-unit housing needs to be treated differently

> *"The issue is with renewable energy generation being able to impact each unit (condo, office, apartment). Due to the fact that there are multiple electrical meters actually wiring differently to impact each tenant isn't possible. Less then 1% of the multi-unit dwellings had solar in California in 2020. California put out grants to have companies develop a way to overcome this. It is by way of virtual grid platform. This technology is now being implemented in United States rapidly."*

Simplicity: making policies and regulations too simplified creates the potential for participants to cut corners if they know there is limited oversight/permitting

Solar access: especially prominent in older neighbourhoods where City-owned trees need to be trimmed back

Support from developmental community: there is the potential for the development community to strongly oppose any added regulations or policies, especially if initiatives do not have political support; yet some respondents felt that greater restrictions/requirements are needed

> *"Saskatoon Land Use has historically sold land to developers with few restrictions and no overall plan that they care to follow. This has to change. Our leaders need to *take change* and have a real plan."*

Standards versus guidelines: it cannot be both or else there is no accountability; bylaws requiring developers to adhere to energy efficiency standards and following proper testing/permitting processes are needed

Our Role in Renewable Energy – Investor

When asked whether a city-wide rebate/grant program for solar PV installation that was facilitated by the City would be beneficial, the majority of respondents stated it would be (57%).

Respondents provided suggestions for other renewable energy incentive programs that they felt the City should be considering, including:

- Feed-in tariffs
- Focus more on disincentives rather than incentives
- Home Energy Loan Program/PACE financing will really assist in increasing uptake
- Incentive programs that are payable over long-term property relief (i.e., payback through conservation savings)
- Offer price incentives centered around land use to help steer more investment in the City's preferred criteria
- Incentivize building owners to install wind and solar on their buildings
- Payout on supplemental generation (ex. British Columbia)
- Preferential pricing for renewable energy generation

- Promoting solar gardens
- Promoting renewable energy co-ops
- Value of renewable energy should not be less than that produced by non-renewable sources
- Virtual net-metering

Risks or concerns associated with incentives that were identified by respondents included the following themes:

Administrative costs: the focus should be shifted to removing administrative costs and approval roadblocks

Better opportunities than solar: many respondents expressed their support for other initiatives over solar energy

> *"If the goal is to encourage more people to put solar on their roof, then fine. Just realize that there are far more cost effective ways to procure renewables. These incentives are subsidized by the rest of the customers - including those who can't afford their bills - let alone could consider installing solar. Make sure you have a plan for when you inevitably cancel the incentive."*

Costs are not the City's: many respondents felt that City taxes should not fund incentives; power production should not be a City responsibility but rather the responsibility of the utility provider

> *"The city should stay away from giving grants of rebates. This is very capital inefficient and would cause the tax payers to pay the bill."*

> *"Tax payers should not be paying for this. We are way over taxed as property owners. Power isn't a city issue. This is under the authority of the province."*

Equity: numerous respondents called for the City to ensure incentives/rebates are equitable and there are programs for all income categories; energy poverty is already an issue; rebates tend to help the wealthy and not those experiencing poverty and being marginalized

Overloading the system: too much solar will put increased loads on a system that is not designed to handle them; there needs to be an instant amount of available power equal to the solar capacity within Saskatoon to deal with the reduced solar output and increased demand

Protections: it was suggested that rebates protect contractors so if a grant format is chosen there should also be a provision to protect contractors; the payouts of rebates should only be given once a bi-directional meter is installed to ensure all contracts that are being subsidized have followed through

Preferential pricing: there is potential for backlash and frustration among participants with preferential pricing; the City should properly weigh options before initiating this form of program

Simple: any rebates or grant program should be easy to use to increase uptake

Our Role in Renewable Energy - Encourager

Out of the suggestions for the best ways to educate the community on renewable energy opportunities respondents identified their support for the following:

1. Savings calculator (53%)
2. Training opportunities (44%)
2. On your electricity bill (44%)
3. Website/app (38%)
4. Public-facing solar and energy mapping (36%)
5. Profiling success stories (33%)
5. Demonstrations (33%)
6. Through suppliers, distributers, and retailers (27%)
7. Pamphlets (11%)
7. Checklists (11%)

Other comments and suggestions for ways to educate the community provided by respondents included:

- Avoid suppliers, distributers, and retailers with little concern for consumer protection
- Information should contain the realistic costs and impacts of renewable energy systems
- This process will take decades so having a variety of methods and tools will be a benefit

When asked if there were any education gaps within their industries relating to renewable energy adoption, respondents identified the following:

- Costs of installation, maintenance, and operation
- Climate change and its impacts
- Education for relators to view renewable energy as a benefit rather than a liability
- Electric vehicle integration with renewables
- Energy literacy
- Government and utility provider roles in the energy sector
- How can they integrate renewable energy in their homes/businesses?
- Preferred contractors
- Return on investment, long-term energy savings and reduced monthly costs
- What easy steps can be taken to improve energy efficiencies in a home/business?
- Where to start with renewable energy generation projects?

When asked if respondents were aware of any renewable energy related training opportunities or accreditation program in their field, many respondents said they were unsure (47%) or did not know of any (42%). The programs that were provided included:

- Association of Energy Engineers: Renewable Energy Professional
- Canadian Renewable Energy Association working groups
- North American Board of Certified Energy Practitioners for solar PV installation credentials
- Trained electrician and contractor certification
- University of Saskatchewan School of Environment and Sustainability

Other suggestions for encouraging renewable energy adoption included the following:

- City leading by example through early adoption
- Financing programs such as Home Energy Loan Program/PACE
- Friendly competitions between cities

- Green building certifications and mandates
- Increased utility rates and carbon tax
- Installing solar equipment in places where it is too costly to run power
- Making programs and options more affordable
- Organized rebate and incentive programs
- Simple and efficient permitting and net-metering process
- Support from the province and utility provider
- Using energy monitors to temporarily allow participants to track loads and find issues
- Working with the community to ensure everyone has a role in the way energy is generated

Final Thoughts

Respondents provided their final comments, which were summarized into the following themes:

Be a leader: think outside the box to develop multidisciplinary solutions

Costs: some respondents felt that tax-payer dollars should not be spent on initiatives other than the basic necessities for living in a city

> *"In most cases people and businesses will move towards renewable energy due to economical reasons (i.e. reduce operating costs, generate new revenue, use land, take advantage of incentives). The City shouldn't try and hinder but rather encourage and support renewable energy."*

Create a strong foundation: efforts should be focused on long-term programs that are well-thought-out so the community can integrate renewable energy more easily; having employees dedicated to the programs would be of benefit

Efficiency over generation: numerous respondents suggested educating the community on how to make efficiencies in their home or business rather then renewable energy options

> *"If the goal is emissions reductions you should be focused on emissions reductions, and not this indirect target of renewables. Renewables are far from the only method to reducing emissions."*

Energy poverty: energy poverty is an important issue; the City needs to focus funding for projects that are efficient while also providing those who are disadvantaged the means to participate

> *"Energy poverty is a real issue in areas such as California and Ontario that have spent enormous amounts of money on green energy. Ontario has had to borrow 60 billion dollars to subsidize the power bills. We need to learn from their mistakes. Green energy is very costly and unreliable power sources."*

Focus on removing barriers: program uptake will be limited if financial and administrative barriers exist

Grid adaptability: having an expandable and adaptative grid is critical to support the amount of solar installations feeding into it

Hybrid projects: hybrid projects should be explored (i.e., combining wind, solar and storage) to help alleviate concerns with the variability in forms of renewable energy generation

Move beyond sustainability: the City should focus on smart policy development and consider how renewable energy could integrate into urban planning, architecture, Indigenous relations, building design, real estate development, biodiversity and environmental improvement

Supplement with renewables: numerous respondents commented on renewable energy generation not being able to keep up to our current energy demands, therefore renewable energy generation should be considered as a supplemental source rather than stand-alone

> *"Solar energy should be considered a supplement to renewable energy production. It is unreliable as an energy source all on its own. It should be used in a utilitarian capacity to power low energy passive systems within homes, schools, and most buildings. Wind energy generation can also be used on existing buildings, particularly where natural jet streams are created by adjacent structures, increasing the force of the wind, between buildings. This, would be a good use of these specific, but unreliable energy sources."*

Support: many respondents expressed their support for the Strategy and proposed initiatives

> *"This is an important strategy. look forward to seeing the results"*
>
> *"Saskatoon is a leader :)"*
>
> *"We are very excited about some of the topics that Saskatoon is thinking about! We started our business in 2019 and it has been a struggle in regard to solar installs ever since. We ended up diversifying into roofing and electrical work as well which has really supported us. We are resilient though and this only reassures us that Solar has a bright future here in Saskatoon and Saskatchewan! Thanks"*

Utility provider: there is frustration amongst the community in regards to the restrictions that the current utility provider has implemented; current utility policies/programs have all but eliminated private investment in the renewable energy sector; allow private investment in renewable energy projects to move the green energy strategies forward

> *"To date, renewable power generation, transmission and distribution policies of SaskPower has been a very significant obstacle to IPPs attempting to generate and market renewable electricity in Saskatchewan, including Saskatoon."*

Follow-up Questions

Numerous questions were asked by respondents, including:

- Are there risks of solar easement being at odds with urban forestry programs?
- How can businesses and renters that do not own their properties benefit from renewable energy programs?
- How do businesses and property owners retrofit or add to 100-year-old buildings that are not up to current codes?
- What happens to the waste from solar panels and batteries when their lifecycle is complete?
- Will the impacts of solar access limit development standards, tree plantings, and effect neighbourhood designs?

3.3 Informal Comments

Residents were invited to provide their comments on the Renewable Energy Strategy via the Engage Page forum and directly to the project lead through email.

3.3.1 Intended Audience

The public and community members were welcome to provide their feedback.

3.3.2 Marketing Techniques

No marketing techniques were used.

3.3.3 Analysis

Thematic analysis was used to capture common themes and summarize the feedback provided.

3.3.4 What We Heard

A total of nine posts on the Engage Page forum and three individual emails were summarized into the following themes:

Define goals: emissions-free energy is a climate goal while clean energy is a health and environmental goal; renewable energy can be viewed as a brand

Fossil fuel and oil have a role: it would be a disadvantage to not consider the role fossils fuels have and will have in the transition to renewable energy opportunities

> *"Fossil oil and gas has brought many improvements to our quality of life and safety, and it has a role to play in the transition. But, we can't afford to emit carbon any longer… One day, we can move beyond the constraints of fossil energy. Let's build a city that exports its abundance of renewable energy in many forms!"*

Support wildlife and biodiversity: programs must consider the effects to local wildlife species when being developed; creating a solar farm that covers active habitat is less environmentally friendly although still considered green from an emissions perspective

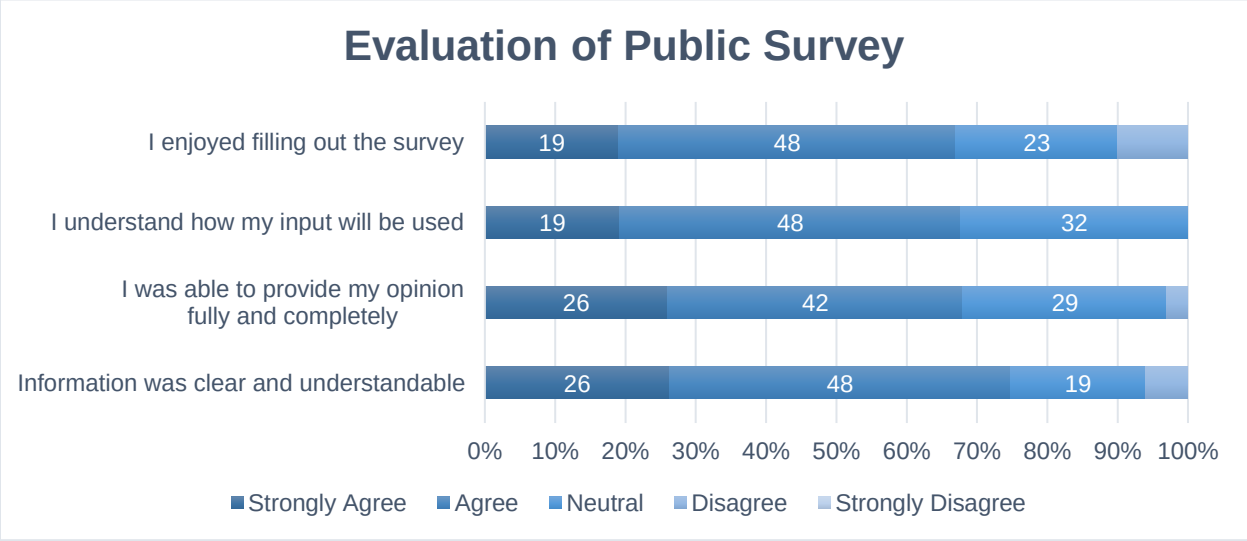
Suggestions for other programs to be considered included the following:

- Continuing and enhancing the net metering program
- Ensure small solar producers can export to the grid preferentially and are paid at a rate that is enough to receive a small profit
- Green rooftops that create habitat for wildlife and increase the energy efficiency of a building
- Implementing building standards that ensure new homes are rooftop solar ready
- Maintaining and planting native urban trees to reduce urban heat, which has been shown to reduce summer temperatures by up to 15°C
- Virtual net metering for multi-residential and commercial buildings to encourage installation of PV arrays

3.4 Evaluation

Participant evaluation through the survey indicated support for both the level of engagement conducted and the opportunities provided. 74% of participants agreed or strongly agreed with the information that was provided being clear and understandable, with 68% feeling they were able to provide their opinions fully throughout the process.

Figure 2: Evaluation of Survey



Comments provided by participants were supportive of the process:

> *"I think this survey was very well done. It shows the City of Saskatoon is willing to engage with the public."*

> *"We are very excited about topics discussed and programs being developed!"*

However, some respondents expressed the need to keep all costs and administration expenses down as best as possible:

> *"The priority for the city needs to be keeping the costs down. Tax payers can't afford anymore tax increases."*

> *"This was a very pointed survey that has been 'cooked' to obtain the result the bureaucrats want - which is more bureaucracy and bloated costs borne by ratepayers."*

3.5 Data Limitations

Due to the public health orders related to the COVID-19 pandemic, all engagement activities were restricted to virtual meetings and surveys with the community. The goal of this phase was to identify a range of perspectives, needs and concerns across sectors to help inform refinement of the options. The sample size within the Meetings potentially limits the validity of the results in terms of providing a full representation of the population under consideration; however, the results provide the best available indication of how participants perceive the program elements of the Strategy.

Additional considerations for low-income, Indigenous and equity groups will need to be incorporated into future engagement opportunities. Online engagement has its limitations in not being as inclusive to those individuals with limited to no internet access, including low-income groups.

Multiple avenues were available to the public for providing input to help mitigate potential issues of inclusivity due to the inability to conduct in-person activities; however, engagement practises and procedures were limited due to the COVID-19 pandemic, especially in conducting physical meetings with participants.

4 Next Steps

The next steps for development of Renewable Energy Strategy are described below:

Phase 0: Involvement of Low Emission Community Plan Stakeholders

- Determine the level of interest of past Low Emission Community Plan Stakeholders

Phase 1: Options Identification

- Identify renewable energy initiatives that may work in Saskatoon
- Identify opportunities and barriers associated with the Strategy and proposed programs

Phase 2: Selecting Preferred Initiatives

- Identify community preferences to help inform the selection of recommended programs
- Prioritize recommended programs
- Further identify new program elements that enhance opportunities and mitigate barriers

Phase 3: Close the Loop

- Share components of the Strategy and recommended programs to identify any concerns
- Validate key findings with the community