

Review of Saskatoon's Recommendations Report for a Low Emissions Community

Report to Council – Nov 6th, 2018

Executive Summary

Based on the Intergovernmental Panel on Climate Change's (IPCC) latest Special Report, in order to stabilize global warming at less than 2°C it would require unprecedented efforts to cut fossil-fuel use in half in less than 15 years and eliminate their use almost entirely in 30 years. Addressing this monumental challenge requires all levels of government to act - including municipalities.

By focusing on climate mitigation actions within their direct control or direct influence, a municipality avoids issues of jurisdictional responsibility, often has a more direct funding source, and ensures that those actions only within the municipal realm are addressed. A secondary focus, should see municipalities strategically leveraging their influence to maximize GHG reductions when there is an urgent need to act.

The climate actions in Saskatoon's City draft strategy Recommendations Report for a Low Emissions Community ("Recommendations Report") are expansive (i.e. 61 corporate actions, 26 community actions, and 181 policy & enabling initiatives) and address the vast majority of key municipal climate actions within Saskatoon's direct control or direct influence including:

- Expansion of landfill gas capture and use,
- Pay as you throw,
- Residential curbside organics pick-up,
- Comprehensive corporate building and infrastructure audit and retrofit plan,
- LED streetlights,
- Corporate building standard,
- Electric vehicle policy and infrastructure,
- High occupancy vehicle (HOV)/bus lanes,
- (Indirectly addresses) Strategic infill, densification, community services, and transit-oriented development,
- Parking policies,
- Active transportation, and
- Property Assessed Clean Energy (PACE).

The numerous actions that involve Saskatoon Light & Power (SL&P) leverages the fact that they have a municipal utility which gives the City greater influence over their community-based electricity.

Staff approach to date to creating the Recommendations Report follows best practice but should ensure modelling also takes into account new climate actions implemented since the inventory

(2014) including actions in relevant plans such as the Growth Plan. This will better quantify how close Saskatoon will come to meeting their GHG reduction target.

Other municipal climate actions that could be considered in the Recommendations Report include:

- Commercial food waste reduction plan involving a step by step approach to eventually either requiring a separate organics bin for commercial businesses or banning commercial food waste from the landfill,
- On-bill energy efficiency and renewable energy financing,
- Active transportation infrastructure,
- Promoting existing energy efficiency programs, and
- Single-occupancy vehicle financial disincentives (i.e. Road tolls).

Other suggestions that relate directly to the Recommendations Report content, include:

- Prioritizing climate mitigation actions using technology that has proven costs, energy savings and GHG reductions,
- Relevant climate mitigation actions should consider Saskatoon's specific context – specifically, air source heat pumps, even if cold climate, are not likely to result in GHG emission reductions given Saskatoon's cold climate and Saskatchewan's GHG intensity, and
- Many community climate actions prioritized in the Recommendations Report due to their cost effectiveness will require community-wide financial incentive programs. Accessing a long-term and directly applicable funding source, such as the electricity rate base through SL&P, would be essential to implement these programs.

The following recommendations are not based on the Recommendations Report content per say. They are focused recommendations in literature for successful GHG reduction plan implementation:

- A strong mandate and the ability to work horizontally and vertically within the organization is provided to staff responsible for actions contained in the plan. Buy-in and leadership from high-level staff and council is also key to enable success.
- Adequate funding must be provided for plan implementation.
- For SL&P to play a key role, inferred in many Recommendations Report actions, the utility must be given an energy efficiency/renewable energy mandate, aligned incentives, and access to adequate funding to implement such programs. An ideal funding solution would allow SL&P to use the rate base to fund energy efficiency programs (similar to SaskPower).

The province has a role to play in helping Saskatoon meet their GHG reduction target by:

- Enabling a Property Assessed Clean Energy (PACE) program through legislation,
- Providing SL&P with the mandate, the incentive, and access to rate-based funds to allow them to run effective clean energy and energy efficiency programs, and
- Providing climate mitigation program funding for municipalities.

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Preamble

This report was written by Gorecki Climate & Energy Consulting for the Saskatoon Environmental Advisory Committee (SEAC) as a review of the City of Saskatoon's draft strategy Recommendations Report for a Low Emissions Community (Saskatoon's Climate Change Mitigation Business Plan) (henceforth referred to as "Recommendations Report").

1 Context

Scientific consensus finds it is extremely likely (95 per cent probability or higher) that human activities, particularly emissions of carbon dioxide, are causing a sustained and unequivocal rise in global temperatures humans (Stocker, 2013). The City of Saskatoon has and will continue to be impacted by this changing climate. Municipalities, including the City of Saskatoon, have an important role to play in reducing their contribution to global GHG emissions to reduce the effects of future climatic changes.

1.1 Need to Act

On June 26, 2017, City Council set GHG Emissions Targets for Saskatoon based on the 2014 inventory as follows:

1. 40% reduction in GHG emissions for the City as a corporation by 2023; and a reduction of 80% by 2050.
2. 15% reduction in broader community emissions by 2023 and a reduction of 80% by 2050.

The City GHG reduction targets were set based on global climate science, as opposed to being built from the bottom-up based on what is feasible for the municipality. The targets were based on the Intergovernmental Panel on Climate Change's (IPCC) recommendation at the time to reduce GHG emissions by 80% by 2050¹. The IPCC recommends a long-term goal to keep the increase in global average temperature to well below 2 °C above pre-industrial levels (limit the increase to 1.5 °C) since this would substantially reduce the risks and effects of climate change.

The wide range of potential climate change impacts, include increased risk of flooding and drought, increased strain on water resources, more frequent and intense heatwaves, more frequent wildfires and intense storms. In addition, rising temperatures and changing precipitation patterns may increase the risk of certain illnesses and diseases, introduce new invasive species to the region, and result in changes to wildlife habitat. An increase of 2 °C above pre-industrial levels risks exceeding

¹ Based on 2010 levels of GHG emissions.

natural tipping points such as thawing of large areas of permafrost that are expected to cause significant irreversible negative changes in our climate.

The IPCC's latest Special Report, "Global Warming of 1.5 °C", released in 2018, lays out various pathways to stabilize global warming at 2.7 degrees Fahrenheit (1.5 °C). These pathways require unprecedented efforts to cut fossil-fuel use in half in less than 15 years and eliminate their use almost entirely in 30 years.

The IPCC also reported that 1.5°C temperature increase could be reached in as little as 11 years—and almost certainly within 20 years without major cuts in greenhouse emissions. Even if such cuts were to begin immediately it would only delay, not prevent, 2.7 degrees Fahrenheit of global warming.

1.1 Costs of Inaction

Based on the National Round Table modelling, completed in 2012, the economic impact of climate change, with no mitigation efforts, on Canada could reach: \$5 billion per year in 2020 and between \$21 and \$43 billion per year in 2050 (National Round Table on the Environment and the Economy, 2011).

The impacts of climate change and extremes of weather and climate events have the potential to affect every aspect of life in Saskatoon, including municipal infrastructure and services, private property, the local economy, the natural environment, and the health, safety and well-being of Saskatoonians. Changes in Saskatoon's climate are already evident; mean annual temperature has increased by 2.3°C between 1976 and 2005 (Prairie Climate Centre, 2018).

1.2 Benefits of Taking Action

Municipal climate mitigation actions can benefit communities in multiple ways beyond mitigating the impacts of climate change such as:

- Improving the quality of life for residents (e.g. increased transit results in greater mobility for seniors and low-income residents);
- Saving communities money (e.g. more efficient municipal buildings reduce utility costs);
- Produce a cleaner, healthier community. (e.g. biking and walking improves overall health and air quality);
- Increase community resilience to energy prices (e.g. more efficient buildings shield the City, residents, and businesses from future energy cost increases);
- Building resilience to potential future regulations (e.g. supporting municipalities and citizens change their behaviour and technology to decrease costs from carbon pricing); and
- Fostering a strong sense of community pride (e.g. the community spirit generated by implementing a large innovative clean energy project).

1.3 Municipal Influence on GHGs

FCM estimates that municipal governments have direct or indirect control over approximately 44 per cent of Canada's GHG emissions (EnviroEconomics, 2009). With this level of influence, municipal action is important to effectively reduce Canada's GHG emissions.

A municipality's ability to influence GHG emissions from different technologies or behaviours largely depends on their jurisdictional responsibility, and access to funding. It is not simply that municipalities have a limited tax base, but often paying for climate actions should come from funding sources that are tied to those who benefit from the action. For some climate actions, it is important that other level of government act to achieve GHG reductions in a particular sector. This should be balanced with, a secondary focus of, municipalities strategically leveraging climate actions over which they have any influence to maximize GHG reductions as there is an urgent need to act.

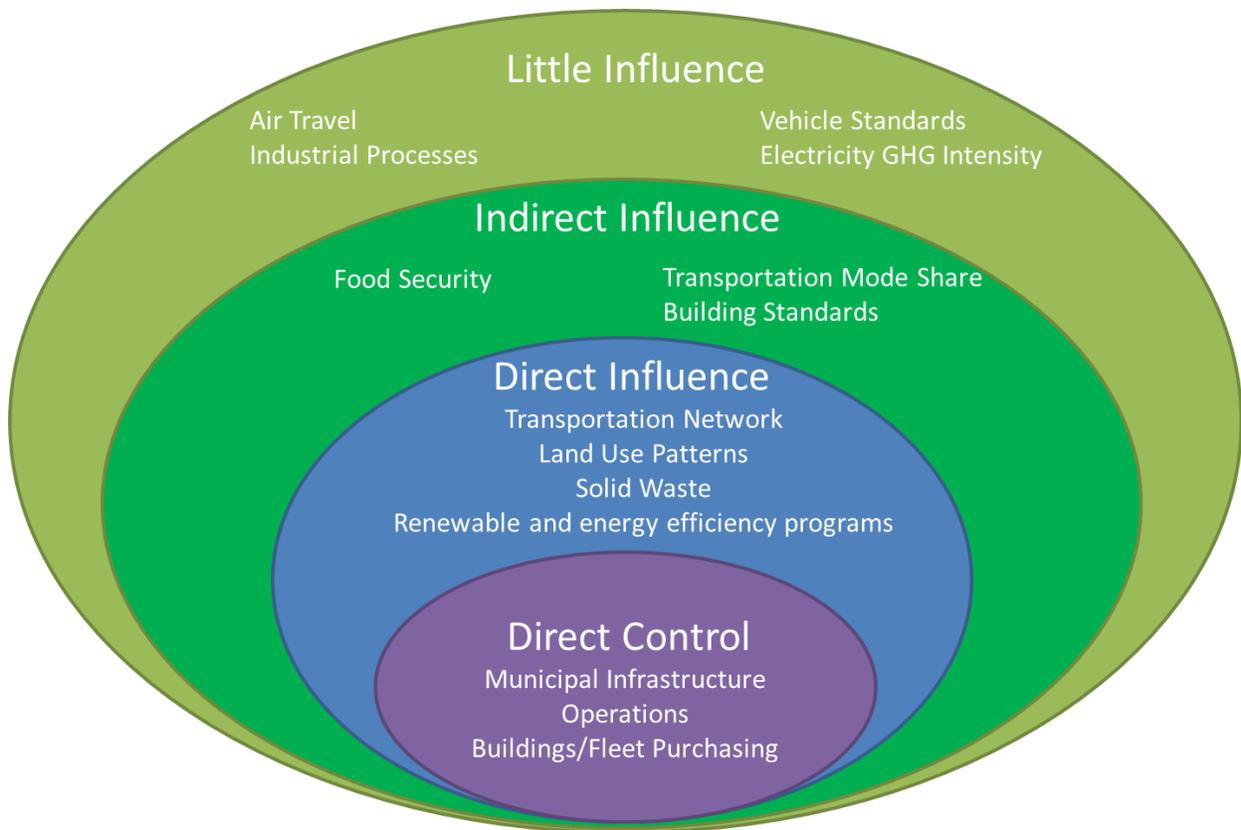
Using buildings as an example, provincial government can use utility rates to pay for energy efficiency programs, has the clear legislative authority to improve the building code², and to reduce the GHG intensity of the grid. These are key levers to reduce GHG emissions from buildings. Within direct control for municipalities are their own buildings and infrastructure. Municipalities also ensure adherence to the building code which also offers a unique point of contact to influence new buildings and renovations prior to their commencement. In sum, major community-wide emissions reductions require action from all levels of government.

Municipal ease of influence can be divided into four categories (see Exhibit 1):

- Direct control - A municipality can take action independently without support and approval from other levels of government (e.g. municipal facilities);
- Direct Influence – A municipality directly influences the reduction of emissions through the implementation of a tool or action (for example, land use planning or transit);
- Indirect Influence – A municipality indirectly influences the implementation of a tool or action (e.g. transportation mode share); and
- Little Influence – A municipality completely relies on external forces to see the tool or action implemented in their community (e.g. the emission performance of local industrial activities).

² Municipalities do not have jurisdiction to impose a requirement in some provinces in Canada. It is unclear whether they have this authority in Saskatchewan.

Exhibit 1 Levels of Municipal Influence on GHG Emissions, specific to the City of Saskatoon



Municipal climate actions in the “direct control” and “direct influence” categories are actions no other level of government has authority/mandate to implement. Municipalities provide public transit, manage landfills, and plan our transportation networks and land-uses. Consequently, it is essential their GHG reduction plans focus on these priorities as no other level of government will implement – henceforth known as “municipal-only actions”.

2 Plan Review

This section outlines insights from reviewing Saskatoon’s Recommendations Report for a Low Emissions Community and the associated appendices (A through H) that contain the numerous climate mitigation actions including corporate, community and policy and enabling initiatives. Section 2.1 (below) highlights important strengths of the Recommendations Report that should be maintained as the draft report evolves. Section outlines opportunities to improve the ability of the City of Saskatoon to effectively reduce GHG emissions in the long-run.

It should be acknowledged that the Recommendations Report is in its early stages – a long list of actions has been identified and many of them have had their costs and GHG impacts quantified. There are many steps remaining in the process prior to it becoming a GHG reduction plan including

(at minimum): more detailed modelling of actions identified and how close they will bring the City to their GHG reduction target, determination of which actions are to be included in the plan, identification of who is responsible and a timeline associated with each action, as well as a monitoring plan.

2.1 Report Strengths

Saskatoon's Recommendations Report for a Low Emissions Community has multiple strengths that will help put the City on a deep emissions reduction trajectory. This section of the report highlights some of the key strengths of the Recommendations Report based on the consultant's experience and SEAC's input.

2.1.1 Plan Development Approach

The City of Saskatoon's approach to developing the GHG reduction plan through internal staff will help ensure better internal buy-in, knowledge, and implementation of the plan. As a first cut, key parameters are considered such as: staff, capital and operational costs, and total lifetime emission reductions. The focus on cost effectiveness (i.e. \$/tCO₂e) is essential to be able to prioritize climate actions according to their impact per dollar spent.

Subsequently, consultants are being engaged to conduct modelling to better triangulate whether Saskatoon will meet their community target. This is a good use of resources to bring in more technical external expertise. This next step for Saskatoon's Recommendations Report for a Low Emissions Community is important, as the rank order of \$/tonne or total emissions reductions may change dramatically with additional modelling.

Additional modelling should also consider key climate mitigation actions included in other plans such as the Growth Strategy, and the Active Transportation Plan. Climate mitigation actions in the Growth Strategy (e.g. high density/infill development near transit corridors or mixed-use development), if modelled and implemented correctly, are likely to produce significant GHG emission reductions from a business-as-usual trajectory.

It is also important to model these climate actions identified in other plans (anything post-2014 or post-inventory) to understand how they will contribute towards meeting the City's GHG reduction targets. This will provide staff and council a better understanding on how close their existing plans and the actions identified in Saskatoon's Recommendations Report for a Low Emissions Community will get them to their GHG target.

Provincial and federal policies (e.g. SaskPower’s commitment to double renewable energy by 2030) should also be modelled acknowledging that commitments from multiple levels of government are required to meet ambitious GHG reduction targets.

2.1.2 Expansive and Extensive Actions

The actions identified in the Recommendations Report are obviously the product of expansive and extensive research due to the number and detailed nature of the actions (i.e. 61 corporate actions, 26 community actions, and 181 policy & enabling initiatives).

2.1.3 Leverages Saskatoon Light & Power

It is uncommon for a municipality to have an electricity utility - such as with the case with the City of Saskatoon and Saskatoon Light & Power (SL&P). This is an important relationship when considering GHG reduction actions for the City of Saskatoon residential, commercial and industrial buildings constitute 56% of the community GHG inventory. Having a municipal utility gives the City greater influence over their community-based electricity, and potentially access to funds (see Section 4 for further discussion) to pursue electricity-related action items.

Many of the actions listed in the Recommendations Report leverage the fact that Saskatoon has a municipal electricity utility. The actions related to community-based electricity energy efficiency, distributed generation, energy storage and demand response will all require participation from Saskatoon Light & Power (SL&P). Lessons learned could be taken from other municipal utilities such as Medicine Hat, or Nelson. Both of these utilities have been given a mandate from the City to implement their own energy efficiency programs that compliment customer access to existing programs with larger utilities (e.g. HAT Smart Rebates and EcoSave program).

2.1.4 Key Municipal Climate Actions

A survey of over 50 municipalities found some GHG reduction actions were being successfully implemented and others had less likely of a chance of being implemented. The majority of communities are successfully implementing planning and policy measures (e.g. land use policies such as an infill strategy, complete streets policies, design standards) as well as solid waste diversion and landfill gas projects. All of these project types are included in the Recommendations Report. Those actions less likely to be implemented include the use of local financial incentives, renewable energy, district energy, and combined heat and power projects (Community Energy Association, Quality Urban Energy Systems of Tomorrow (QUEST), 2015).

The Recommendations Report addresses important climate actions over which the City has “direct control” or “direct influence”. These key actions either lie directly in municipal purview and/or generate medium to high GHG reductions. The following subsections outline some of these key

actions that are indeed included in the Recommendations Report and should remain in the report due to their strengths.

2.1.4.1 Waste

- Expansion of landfill gas capture and use – These projects tend to be low cost with high GHG reduction benefits and lie solely within municipal government responsibility. They can also prepare the City for future regulation as some provinces/states now require these systems for climate mitigation purposes.
- Pay as you throw – Requiring consumers to pay per size of unit of garbage receptacle sends the message that landfills are not infinite and effectively reduces residential waste disposed – studies show increased waste diversion between 8 and 38 percent (Kelleher, 2005). In 2005, over 200 communities in Canada and over 6,000 in the United States finance their waste disposal through variable fees charged directly to the households (Kelleher, 2005).
- Residential curbside organics pick-up – While not in the action items listed in the Recommendations Report, residential curbside organics pick-up has recently been approved by Council. It can be one of the most effective ways to reduce waste related GHG emissions. It should be included Recommendations Report as an action item already approved between the 2014 (the inventory date) and 2018. The value of including mitigation actions approved between the inventory and present is council and staff will have a better understanding of how close with City will come to meeting their GHG targets.

2.1.4.2 Buildings and Streetlights

Reducing energy consumption in City-owned buildings and other infrastructure allows dollars to be liberated from operational budgets and directed towards other climate mitigation actions (once the capital investments have been paid off). These initiatives can result in good sized corporate GHG emission reductions and have been thoroughly addressed in the climate action plan via:

- Comprehensive corporate building and infrastructure audit and retrofit plan,
- LED streetlights, and
- Corporate building standard.

2.1.4.3 Electric Vehicle Policy and Infrastructure

As an action, the City is proposing to install electric vehicle charging stations at key public services buildings. As electric vehicles gain market share and the GHG intensity of electricity declines overtime, municipal contribution to EV infrastructure is becoming more important. Installation of EV charging stations could be undertaken by any level of government but at minimum makes sense to offer these charging stations at municipal facilities especially when the City plans to charge for

electricity at these stations to ensure they will pay for themselves in a fairly short period of time (assuming a certain uptake for electric vehicles is achieved).

Bylaws to require EV charging stations in new multi-family dwellings will ensure EV choice is more available to all residents. The Recommendations Report suggests that new developments be EV charger ready and proposes not to actually require developers to install charging stations at this point in time. This policy could be strengthened to require that developers include a certain ratio of level two charging stations in all new City developments.

2.1.4.4 Traffic Management Policies

Traffic and roadway management strategies are also included in the Recommendations Report. High-occupancy vehicles (HOV)/bus lanes can provide strong incentive to carpool or use transit during congestion periods. They can also effectively penalize single-occupancy vehicles in increasing their commuting time by reducing the amount of roadway available to them. This is another key “municipal-only” action.

2.1.4.5 Land-use Policies

Identifying how the Growth Plan affects Saskatoon’s GHG trajectory may be essential in keeping strategic infill, densification, community services, and transit-oriented development top of mind for development.

It is essential for timely implementation of these actions as it is difficult to change urban form after it is in place and it is under direct influence from the municipality. Saskatoon has one of the lowest population densities of all large Canadian cities (based on 2011 census data at 50 people per square kilometer). If Saskatoon wishes to meet their long-term GHG reduction target, densification is an important strategy particularly in neighbourhoods with good access to services and/or access to efficient and frequent public transit.

2.1.4.6 Parking Policies

Policies to increase the cost of parking or limit parking availability can be important drivers to make single occupancy car use less comfortable (e.g. may have to walk a far distance to access destination), more costly (as compared to public transit or active transportation), and the revenue generated can be used to help fund expanded transit. The Recommendations Report includes an action item that proposes to, “develop parking policies that reduce private vehicle use (i.e. ensure new and existing parking spaces are used efficiently; higher parking rates for private vehicle use; reduced parking fees for green vehicles, carpoolers, and car-shares)”. It is laudable that this action is

included but it could be strengthened by committing to higher parking fees in key areas to promote public transit use and active transportation. This commitment is recommended as this is often an element that is dropped as it is seen as politically contentious.

2.1.4.7 Active Transportation

Focusing on encouraging modal change towards increase walking, biking and other active strategies is an important element in transportation demand management and can also, ultimately, increase public transit use. Educational elements related to active transportation have been included as action options in Saskatoon's Recommendations Report for a Low Emissions Community.

2.1.4.8 Property Assessed Clean Energy (PACE)

It is a strength of the plan to include Property Assessed Clean Energy (PACE) as an action item - recognizing the potential for GHG emission reductions by enabling projects that mere financial incentives could not. See section 6 for more discussion on the need for provincial government legislative change and support to enable PACE in Saskatchewan.

Property Assessed Clean Energy

PACE is a unique financing opportunity for energy efficiency and renewable energy upgrades made to properties. The defining feature of PACE is repayment of the financing as an assessment, or supplemental charge, on the property's regular tax bill. The loan therefore remains with the property even through a sale. This is similar to Local Improvement Taxes that have been used for decades for upgrades such as sidewalks and sewers, but in this case the repayment is based on an upgrade to a single property. Because PACE is typically in the senior lien position, the loan is seen to be quite secure and therefore lower interest rates can be offered.

The reason PACE financing was created in the first place was to overcome a classic barrier to energy efficiency – uncertainty whether a property owner will own a property long enough to recoup their costs through energy savings. Because the loan is tied to the property, the term may be extended over twenty years or more. Longer terms lessens monthly payment costs allowing more projects to be cash flow positive enabling comprehensive retrofits with significant energy savings.

Financing approvals are simplified as underwriting is centered on the property and well known cost effective upgrades, therefore no corporate financials, personal guarantees, equity investments or other onerous conditions are required.

PACE does not affect the borrowing capacity of the property owner. As property tax payments and obligations are not capitalized, they do not result in additional debt. There are no negative effects on the property owner's cash flow or earnings and borrowing capacity can be used for core business investments.

Because PACE is included on the property tax assessments, municipalities have an administrative role to play. Additional costs can be covered through an interest adder on the loan. Municipalities usually have to adopt a bylaw to enable PACE within their jurisdiction.

2.2 Opportunities for Improvement

The following section outlines potential areas for improvement in Saskatoon's Recommendations Report.

2.2.1 Additional Reduction Actions for Consideration

While the Saskatoon's Recommendations Report for a Low Emissions Community is extremely comprehensive, we found some areas where GHG reduction actions could be added or enhanced to contribute to further GHG reductions and move the City closer to meeting their GHG reduction targets.

2.2.1.1 Commercial Food Waste Reduction Plan

Other Canadian communities have or are planning a stepwise approach to diverting commercial food waste from the landfill. An optimal approach begins with voluntary, progresses to financial incentives, and finally to a mandatory requirement to remove food waste from the landfill. The progressive approach begins with education in the first step, subsequently a financial incentive (or a greater financial incentive) will be introduced by lowering the tippage fees for organics from commercial sites and raising garbage tippage fees. Finally, the municipality either mandates a separate organics bin for commercial businesses or mandates that organics be separated from the garbage stream. This bylaw has been enforced by very high tippage rates (double) for anyone who delivers waste to the landfill that contains organics. The regional district of Nanaimo achieved a 33-48% commercial organics diversion rate through the above approach (Government of British Columbia, n.d.).

2.2.1.2 On-bill financing

If legislative hurdles and/or lack of political desire are hampering the availability of PACE, another option is evaluate the possibility for on-bill financing – where a utility offers a loan for energy efficiency or renewable energy projects to residents or businesses which is repaid through their a line item on their utility bill. A review comparing PACE and on bill financing should consider the timing of each option given the existing legislative context in Saskatchewan.

2.2.1.3 Active Transportation Infrastructure

Reviewing the Active Transportation Plan was out of scope for this contract. Perhaps active transportation infrastructure investments have been adequately addressed through Saskatoon’s Active Transportation Strategy, but infrastructure enhancements can be important to ensure conductivity key active transportation routes to incent behaviour. Active transportation infrastructure projects, planned or desired, should also be considered in the GHG modelling and prioritization process.

2.2.1.4 Promoting Existing Energy Efficiency Programs

An inexpensive supportive measure that can achieve decent reductions is to market existing energy efficiency and clean energy programs - if they already exist in the province. This increased targeted marketing can increase program uptake in Saskatoon and thereby increase GHG emissions reductions without offering a full scale energy efficiency program.

2.2.1.5 *Single-Occupancy Vehicle Disincentives*

Saskatoon's bridges could allow for effective road tolls as a transportation demand strategy - if there is political appetite. Road tolls are a successful tool for reducing congestion and GHG emissions, and enhancing public transit. London's downtown road toll has been held up as a success story due to the following impacts:

- 38 percent increase in bus passengers and 23 percent more public transit provided due to more space on the roads and more funding generating by the toll,
- 30 percent reduction in congestion and volume of traffic reduced by 15 percent, and
- 19 percent reduction in CO2e emissions (European Commission, n.d.).

The charge raises £122 million (~\$205 million CDN) annually which is then spent on improving transport, including providing more buses, improving road safety and implementing energy efficiency in transport.

2.2.1.6 *Water Leak Detection*

While saving water generally doesn't translate to large GHG emission reductions, there are multiple action items that relate to water conservation. City staff should consider that a major lesson learned in the Columbia Basin, through their Water Smart program - water loss through system leakage constitutes the single largest community water demand up to 30 to 40 percent in most Basin communities (Columbia Basin Trust, 2016). Leak detection and repair in the distribution system may be the most effective water demand side strategy.

2.2.2 Methodology

2.2.2.1 *Prioritize and aggregate*

Based on a survey of existing greenhouse gas reduction plans, those plans most likely to be implemented have approximately between 15 and 50 actions were SMART (Specific, Measurable, Attainable, Relevant, and Time-bound), assigned accountability, and estimated resources and financial considerations such as cost or benefits (Community Energy Association, Quality Urban Energy Systems of Tomorrow (QUEST), 2015).

As the City of Saskatoon action options going into the strategy are expansive and extensive, prioritization and aggregation of the action items will be essential to ensure successful plan implementation. Some small detailed actions with low cost and low GHG reductions may be best aggregated into higher level actions. The current number of action options (~250) will need to be consolidated and/or prioritized in order to develop a realistic and feasible plan.

2.2.2.2 Model Multiple Scenarios

Note: It was out of the scope of this contract to review about the proposed Bus Rapid Transit and associated Transit plans.

Beyond enhanced marketing of the ecompass, only one action item addressed transit; the action item in question listed “continue to create improvements to transit - including through conventional buses, bus rapid transit (BRT), and light rail” and had only 1000 tonnes of GHG emissions associated with the action.

The next steps in modelling, should reconsider their transit emission reduction estimates given their initial estimates for GHG emission reductions are quite low as well as model multiple scenarios with different assumption parameters. It is assumed that their current transit action, and associated GHG reduction estimate, considered BRT and light rail. It is recommended that multiple transit scenarios should consider varying ridership enhanced marketing, faster transit times (e.g. due to HOV lanes) and more frequent service, resulting in higher ridership, increased GHG reductions, and potentially better cost effectiveness. Staff may also want to consider elevating GHG reduction actions that meet other objectives, like increased mobility and equity, as is the case with public transit.

If possible, modelling should also consider innovations in right-sizing transit vehicles which would reduce the GHG impacts of less popular routes but allow the City to continue to offer the same level of service.

2.3 Other Considerations

Beyond additional GHG reduction actions and some methodology suggestions, there a couple of high-level improvements to help increase the odds of implementation.

2.3.1 Prioritize Tested Technology

Some of the high-ranking community actions in the Recommendations Report (when considering “lowest investment per tonne of emissions reduced”) revolve around the installation of “early technology (i.e. in the “innovators” stage of the innovation adoption lifecycle). Examples of early technology in the Recommendations Report include: distributed energy storage systems, microgrid projects, utility-scale energy storage, and smart grid. The early technologies tend to have greater uncertain for costs, energy savings, and/or energy generation. These action items should be flagged and potentially prioritized after projects with more certain costs and technologies.

2.3.2 Make Actions Saskatoon-Specific

Technology should also be screened to consider Saskatoon’s climate and other unique characteristics. As many actions were taken from best practices across the country, air source heat pumps were identified as an action item. Even with recent innovations, air source heat pumps do not operate efficiently past -25°C. Also given Saskatchewan’s electricity grid intensity, they must roughly surpass coefficient of performance of 4.5 to 5.2, on average, in order to have the same level of GHG emissions as the most efficient natural gas furnace on the market³. That level of performance is not currently available.

2.3.3 Reduce High Reliance on Financial Incentives

Numerous community initiatives, highlighted as “lowest investment per tonne of emissions reduced”, would either require the City of Saskatoon to fund a financial incentive program for technology and behavioural change. There is precedence for some municipalities to choose to provide top-up incentives to existing utility programs, but, unless run through a municipal utility (and funded through the rate base), programs are often short-lived and insufficiently funded. These characteristics run counter to what is required for effective long-term technological and behavioural change programs. Note some of the programs identified relate to natural gas use therefore cannot be run through SL&P.

3 Planning for Implementation

Sections 3,4, and 5– Planning for Success, Funding and Provincial Government Dialogue – do not address specific content in the Recommendations Report. Rather it is advice, that if realized, increase the chances of successful implementation of climate mitigation actions.

Plans that are successfully implemented provide a strong mandate to staff responsible for actions contained in the plan, and ensure buy-in and leadership from high-level staff and council. To undertake deep cuts in GHG emissions, the plan’s development and implementation must span City departments, as there is no small group inside city hall that has the intellectual, political and financial

³ These are based on calculations undertaken by Gorecki Climate & Energy Consulting and are based on GHG intensity of natural gas combined cycle electricity (assumed to be Saskatchewan’s marginal electricity source), GHG intensity of Saskatchewan’s electricity grid average, and consumption average taken from Environment Canada’s National inventory report: greenhouse gas sources and sinks in Canada.

capital to take on the whole task. Strong municipal climate mitigation programs have a central coordinating bureau, a strong mandate, and the authority to work horizontally across departments.

4 Funding

Adequate funding must be provided for plan implementation. While some minor components of the plan may be contingent on securing outside or grant funding, there needs to be a resourcing plan associated with a GHG reduction plan that is going to be successfully implemented. In a survey of 50 GHG reduction plans, funding was deemed to be one of the top determinants of success (Community Energy Association, Quality Urban Energy Systems of Tomorrow (QUEST), 2015).

Prior to detailed modelling, many of the community actions ranked highest when considering “lowest investment per tonne of emissions reduced” would logically (based on precedent in other communities) be run as community-wide programs through SL&P. This would prove difficult unless SL&P is provided with the mandate, aligned incentives, and access to adequate funding to implement such programs. An ideal funding solution would have the provincial government empower SL&P with the mandate to run energy efficiency programs and the legislative authority⁴ to fund energy efficiency programs by treating them as expenses and including them in a future rate case. Even with this solution, SL&P may have a disincentive to run programs that may reduce electricity consumption unless rate design decouples revenue from energy throughput.

Financing for corporate energy efficiency retrofit, and even new building projects, could continue to be covered by engaging an Energy Service Company (ESCOs) thereby enabling other capital projects. After the cost of financing is covered, many communities set aside the operational dollars saved through these projects in a climate mitigation fund, which can be used to fund other actions within Saskatoon’s Recommendations Report for a Low Emissions Community.

5 Provincial Government Dialogue

Many municipal GHG reduction actions are dependent on provincial programs and policies. As such, ongoing dialogue and support from the province is critical in municipal GHG reduction targets. Council can play an important role in engaging the Saskatchewan provincial government in dialogue to enable Saskatoon’s Recommendations Report for a Low Emissions Community through the following:

⁴ Perhaps this is in place now it is outside the scope of this contract to review existing Saskatchewan law as it relates to SL&P.

- Encouraging them to enable PACE, at minimum through legislation, ideally with a central coordination program administrator and seed investment funding. PACE can act as a means to empower municipalities to support clean energy in their jurisdictions. The message needs to be clear that without provincial government legislative change, the program is not possible.
- Provide SL&P with the mandate, the incentive, and access to rate-based funds to allow them to run effective clean energy and energy efficiency programs to compliment SaskPower's programs to which their customers already have access to.
- Express the need for municipal climate mitigation program funding. An ideal means to fund these projects in a constrained fiscal environment, is through carbon pricing dollars collected and redistributed through a climate mitigation program and technology fund.

6 Conclusions

The first draft of the work towards a GHG reduction plan is complete. More work must be done including:

- additional modelling,
- action item refinement,
- allocation of responsibility and timeframe for each action,
- outline a monitoring plan especially towards achievement of the GHG reduction targets, and
- resource allocation.

It is laudable to commit to an ambitious GHG reduction targets, but council must also be willing to commit to sufficient funding, implement appropriately ambitious policies, and empower high-ranking city staff to deliver on climate actions. Too often municipalities commit to ambitious GHG reduction targets but do not undertake adequate planning, staff enablement and resource allocation.

Ongoing dialogue and engagement with provincial officials is critical to meet GHG reduction targets, particularly community-based targets. This includes PACE programs, distributed generation and efficiency programs, and climate mitigation funding.

Finally, the City should not get distracted with small projects, pilots, or technologies with highly uncertain costs when the big emission reduction opportunities have not been achieved.

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