Appendix 6 – Triple Bottom Line Review – Advanced Metering Infrastructure Customer Participation Policy

Process and Methodology

Administration used the City of Saskatoon's (City) Triple Bottom Line (TBL) Decision Making Tool in order to comply with *Council Policy C08-001 - Triple Bottom Line* while reviewing options for the proposed Advanced Metering Infrastructure (AMI) Customer Participation Policy.

When conducting a TBL analysis, it is appropriate to compare and/or evaluate multiple options. As such, the following options were reviewed:

- Business As Usual;
- Option A: AMI Program Non-Participation Option with City Meter Reads;
- Option B: AMI Program Non-Participation Option with Customer Self-Reads; and
- Option C: Mandatory AMI Program Participation.

In conducting the analysis, the Administration relied on the expertise of the Project Team and Subject Matter Experts from the Corporate Revenue, Saskatoon Light & Power, Saskatoon Water, and Sustainability. Market research on advanced metering infrastructure benefits and uses was also consulted.

This review is meant as a high-level assessment to identify the initiative's environmental, social, economic, and governance outcomes, as well as to identify opportunities to achieve even greater sustainability benefits. The results are meant to support ongoing decision making, rather than be relied upon as a fixed sustainability evaluation.

Caveats and Limitations:

- Some TBL areas were considered out of scope, including items that were not contingent on and/or influenced by the initiative.
- The narrow scope of the project has impacted the initiative's ability to achieve higher TBL outcomes in certain areas as they were largely unrelated: Environmental Health and Integrity Indicators related to the broader environment and community, and Social Equity and Cultural Wellbeing Indicators related to diversity, inclusion, civic participation and recreation.
- Assessment of options were done considering the program impacts on an affected resident/household. Collective impact of Options is difficult to estimate as it is dependent on number of participant customers.

Results & Findings

Overall, the results of Administration's TBL review indicate that:

- Option C would achieve greater TBL benefits than the other proposed options.
- There are additional opportunities that could be explored to enhance the TBL outcomes of the initiative (see the "For Further/Future Consideration" sections later in this document).
- No additional resources are required to achieve TBL outcomes.

A summary of results for each TBL principle and indicator are included in the subsequent section of this document. To provide context, a numerical description of the outcomes are shown in the following table:

TBL Score	TBL Outcome
Below 0%	Not Meeting Expectations
0-19%	Needs Improvement
20-39%	On-Track
40-59%	Meeting Expectations
60-79%	Exceeding Expectations
Above 80%	Leading the Way

Principle: Environmental Health and Integrity

TBL Outcome - by Principle:

Business As Usual (BAU): Not meeting expectations
Option A: Not meeting expectations
Option B: Not meeting expectations
Option C: Exceeding expectations

TBL Outcomes - by Indicator:

Indicator	Business As Usual	Option A	Option B	Option C
Renewable Energy	On track: • Legacy (i.e. non-smart) meters have limited capabilities which restrict awareness and real time monitoring of renewable energy added to the grid. Manual accounting of renewable energy will continue which meets basic needs.	On track: • Same as BAU.	On track: • Same as BAU.	Exceeding expectations: • AMI meters allow for real time monitoring of renewable energy generation which supports future renewable energy integration through better monitoring and accounting of energy.
Conservation of Resources	Not meeting expectations: • Inability to read meters as frequently. • Reliance on periodic reading and read estimates. • Unable to quickly detect water leaks. • Granular consumption behaviors are not visible.	Not meeting expectations: • Same as BAU.	Not meeting expectations: • Same as BAU.	Exceeding expectations: • Daily read of meters supports quick water leak detection. • Improves energy use awareness.

Climate Change Mitigation and Adaptation	Not meeting expectations: • Reduces resident's ability to conserve and audit their impacts	Not meeting expectations: • Same as BAU.	Not meeting expectations: • Same as BAU.	Exceeding expectations: • Transportation emission reductions associated with meter reading, basic diagnosis fully achieved. • Improves energy use awareness.
Green Buildings and Sustainable Land Use	Not meeting expectations: • Not collecting data for future planning, revenue.	Not meeting expectations: • Same as BAU.	Not meeting expectations: • Same as BAU.	On track: • Designers will have access to AMI data for solar design considerations.
Sustainable Transportation	Not meeting expectations: • Not collecting data for neighbourhoods who are drawing on electrical network for electric vehicles (EVs). Distribution system loads partially hidden.	Not meeting expectations: • Same as BAU.	Not meeting expectations: • Same as BAU.	Exceeding expectations: • Enables the adoptions of EVs as electrical distribution system loads are fully visible. • Supports future Time-Of-Use billing for managing EV loads.
Healthy Ecosystems	No Impact:	No Impact:	No Impact:	No Impact:
Clean Air, Water, and Land	No Impact:	No Impact:	No Impact:	No Impact:
Waste Reduction and Diversion	No Impact:	No Impact:	No Impact:	No Impact:
Storm Water Management	No Impact:	No Impact:	No Impact:	No Impact:
Sustainable Food System	No Impact:	No Impact:	No Impact:	No Impact:

For Further/Future Consideration

- Impact of the AMI system on building design is unknown. Increased awareness of energy and water consumption could influence future building design and requirements.

Principle: Social Equity and Cultural Wellbeing

TBL Outcome - by Principle:

Business as Usual (BAU): On track
Option A: Needs improvement
Option B: Needs improvement
Option C: On track

TBL Outcomes - by Indicator:

Indicator	Business As Usual	Option A	Option B	Option C
Equity and Opportunity	Meeting expectations: • Residents continue to receive existing levels of service at no added cost. • Provides options to those who feel AMI is an issue in their lives.	On track: • Residents have an option with added cost. • Existing service levels are maintained at added cost.	On track: • Residents have an option with added cost. • Existing service levels are maintained at added cost.	Needs improvement: • Residents who feel AMI is an issue will have no option. • All residents receive same level of service at no added cost. • Income is irrelevant as all residents get consistent service and benefits.
Diversity and Inclusion	No Impact:	No Impact:	No Impact:	No Impact:
Heritage, Arts, and Culture	No Impact:	No Impact:	No Impact:	No Impact:
Self Sufficiency and Living with Dignity	On track: • Utility costs remain unchanged.	Not meeting expectations: • Utility costs increase significantly.	Not meeting expectations: • Utility costs increase marginally.	On track: Utility costs remain unchanged.
Health and Wellbeing	Not meeting expectations: • Opting out of a tool to become more efficient and responsible, and to save income. AMI helps address effects of climate change. • Provides options to residents who feel AMI is an issue in their lives.	Not meeting expectations: • Same as BAU.	Not meeting expectations: • Same as BAU.	Not meeting expectations: • AMI enables implementation of smarter technologies that can broadly impact quality of life (renewable energy, water and energy conservation etc.). • Some residents continue to feel AMI is an issue in

				their lives and they will not have an option.
Safety and Resiliency	Needs improvement: • Legacy meters are unable to detect leaks and require manual reading. Leak detection can minimize property damage, while remote reading improves people safety.	Needs improvement: • Same as BAU.	Needs improvement: • Same as BAU.	Meeting expectations: • AMI meters can detect leaks and avoid manual reading. Leak detection can minimize property damage, while remote reading improves people safety. • AMI meters provide visibility on energy and water use and can assist in the detection of criminal activity. • AMI systems provide information to improve outage detection and response.
Civic Participation	No Impact:	No Impact:	No Impact:	No Impact:
Recreation	No Impact:	No Impact:	No Impact:	No Impact:

For Further/Future Consideration

- None

Principle: Economic Benefits

TBL Outcome - by Principle:

Business as Usual: Not meeting expectations
Option A: Needs improvement
Option B: Not meeting expectations
Option C: Meeting expectations

TBL Outcomes - by Indicator:

Indicator	Business As Usual	Option A	Option B	Option C
Innovation	Not meeting expectations: • AMI provides the City with information for innovation. AMI information can help industry and citizens innovate. Legacy meters provide less information.	Not meeting expectations: • Same as BAU.	Not meeting expectations: • Same as BAU.	Exceeding expectations: • AMI meters are necessary for smart grid implementations. • All businesses will have access to energy and water use information to self-innovate and create individualized programs.
Sustainable Procurement	No Impact:	No Impact:	No Impact:	No Impact:
Financial Planning and Resourcing	Not meeting expectations: • Non-participation numbers will wary over time. Difficult to manage asset and resource needs. • City will have to maintain two separate meter systems. • Some AMI benefits likely to be lost. • Non-participation customers result in added costs. • Legacy meters wouldn't give visibility for behind the meter generation.	Needs improvement: • Similar as BAU, with significantly less non-participation rates. • Most AMI benefits likely to be realized.	Not meeting expectations: • Similar as BAU, with less non-participation rates. • Some AMI benefits likely to be realized.	Meeting expectations: • Assets are standardized and easier to manage. Meter reading resource complexities are avoided. • Only one-meter system needs to be supported. • AMI benefits fully realized. • Promotes additional opportunities such as Capacitive voltage reduction and other smart grid initiatives which provide financial savings.
Affordability for Users	On track: • Existing service levels are maintained at no added cost. Residents	Not meeting expectations: • Existing service levels are maintained at	Not meeting expectations: • Existing service levels are maintained at slightly higher	Exceeding expectations: • Enhanced service levels are provided at no added cost. Residents will be able

	will not be able to monitor their energy.	higher cost. Residents will not be able to monitor their energy.	cost. Residents will not be able to monitor their energy.	to monitor energy use and get accurate monthly bills.
Support the Local Economy	Needs improvement: • Limited by scope of project.	Needs improvement: • Same as BAU.	Needs improvement: • Same as BAU.	Needs improvement: • Same as BAU. • AMI can help manage water and electrical usage
Asset Management	On track: • Maintains legacy asset management programs where applicable.	On track: • Same as BAU.	On track: • Same as BAU.	Meeting expectations: • AMI meters allow connectivity for smart applications. • AMI allows us to easily plan and maintain assets in a better manner, helps with diagnostics on loading and utilization.
Skills and Training	On track: • Legacy meters offer minimal data for research.	On track: • Same as BAU.	On track: • Same as BAU.	Exceeding expectations: • AMI aggregate data is valuable for community research for energy system optimization.
Labour Rights and Employment	Needs improvement: • Legacy meters need to be manually read requiring frequent visits to homes. This exposes staff to road, environmental/weather, animals and disgruntled customer hazards. • Maintains some manual meter reader crews to read legacy meters.	Meeting expectations: • Like BAU but with significantly reduced number of sites to visit.	Needs improvement: • Like BAU but with reduced number of sites to visit.	Meeting expectations: • AMI reduces the need for onsite visits which may have hazards – environmental/weather, animals, and disgruntled customers. • Meter reader crews can be reassigned.

For Further / Future Consideration

- Impacts of AMI data for carbon pricing accounting and economy stimulation are unknown.

Other Notes

- A detailed budget/financial analysis for each option is included in the body and appendices of the report.

Principle: Good Governance

TBL Outcome - by Principle:

Business as Usual: On track
Option A: On track
Option B: On track
Option C: Meeting expectations

TBL Outcomes - by Indicator:

Indicator	Business As Usual	Option A	Option B	Option C
Ethical and Democratic Governance	On track: • Legacy meters lack granularity in data. • This option is based on feedback received from residents.	On track: • Same as BAU.	On track: • Same as BAU.	Meeting expectations: • AMI provides data to customers that is granular, can be traced and is more transparent. • AMI was pursued for financial, conservation and accountability values. However, we do value people and listen to their opinions.
Effective Service Delivery	Needs improvement: • Service costs will not be recovered and may over time be unreliable/less effective.	On track: • Service costs will be recovered and maintain existing levels.	On track: • Service costs will be recovered for modified service levels.	Meeting expectations: • AMI will increase our services and reliability. • AMI helps improve City awareness on water leaks.

	• Retains existing service levels at no added cost.	• Retains existing service levels at added cost.	• Modifies service levels at small added cost.	• Provides increased services at no added cost.
Education, Communication, Engagement, Capacity Building	On track: • Available data may be limited and can compromise engagement opportunities. • Customers won't have access to the data, web presentment tools.	On track: • Same as BAU.	On track: • Same as BAU.	Exceeding expectations: • AMI data can be used for community and public engagement. • AMI enables web presentment of consumption data for self serve.
Monitoring, Reporting and Compliance	On track: • Lack of granularity and transparency in data limits the ability to make informed decisions.	On track: • Same as BAU.	On track: • Same as BAU.	Meeting expectations: • AMI provides granular and transparent data that can be tracked over time. This supports informed decision-making practices. • Easier to catch and deal with incidents with frequent and granular data provided through AMI.
Agility and Adaptiveness	On track: • Maintains existing service levels.	On track: • Same as BAU.	On track: • Same as BAU.	On track: • AMI could result in faster response times for residents.
Roles, Responsibilities and Rewards	On track: • Existing practices are maintained.	On track: Same as BAU.	On track: Same as BAU.	On track: Same as BAU.

For Further/Future Consideration

- None