

Advanced Metering Infrastructure Customer Participation Policy

ISSUE

Saskatoon Light & Power (SL&P) and Saskatoon Water have been implementing an Advanced Metering Infrastructure (AMI) program that will automate meter reading through the use of smart meters and communication modules. SL&P has completed the installation of its meters and Saskatoon Water expects to have the majority of its infrastructure completed by the end of 2022.

To date, approximately 230 electric and water customers (0.2%) have requested that AMI meters not be installed in their homes for a variety of reasons.

City Council's direction will be needed to establish a customer participation policy to address this matter. Accommodating customers by letting them opt out of the AMI metering program would require the City of Saskatoon (City) to run a separate program for non-AMI meters. This would add additional operating costs and would reduce benefits from the AMI system.

BACKGROUND

City Council, at its meeting held March 23, 2015, considered the AMI business case, and approved the implementation of the system. Administration was directed to proceed with purchasing and installing the necessary equipment and software.

In May 2016, City Council also approved the implementation of a Smart Supervisory Control and Data Acquisition system that would utilize the information from the electricity meters to better manage the electrical distribution system.

In July 2016, Corporate Revenue began using the data from the AMI-capable meters to bill customers based on their actual usage each month.

In September 2018, City Council also approved the implementation of an Outage Management System that would utilize the information from the electricity smart meters to detect and help communicate power outage information to customers.

Implementation of this additional component is nearing completion and a report is planned for Fall 2021.

In June 2019, the Standing Policy Committee on Environment, Utilities and Corporate Services received an update report on the AMI project and asked for further detail on the data being collected and how the City intends to use that information. A separate report is being prepared to provide this information.

Current Status

The final phase of the AMI project includes the installation of the remaining water communication modules (24% remaining). More details on the AMI deployment can be found in Appendix 1. Participating customers receive significant benefits from the system including accurate monthly utility bills. A full list of AMI benefits can be found in Appendix 2.

Approximately 230 customers (0.2%) have indicated that they are not willing to receive a smart meter or communication module. This number may increase as the final customers are contacted by the utilities.

To comply with Measurement Canada regulations, any customers that did not accept a smart electricity meter were instead given a new “non-smart” (i.e. non-communicative) meter. Non-participating water customers are continuing to use their existing scan pads for manual meter reads.

Public Engagement

In 2014, open houses were held for the AMI project during which information regarding the project, schedule, technology, data security and privacy, and impacts to the City were shared. Many positive comments were received, but there were concerns expressed over radio frequency emissions and protection of privacy.

From 2018 through to 2020, direct engagement by telephone was conducted with non-participating electric and water customers to gather feedback. The following results were found:

- Of the 167 electric customers contacted, 56 changed their mind and accepted a smart meter. Of the remaining customers, 32% reported potential health concerns as their main concern.
- Of the 100 water customers contacted, 22% reported potential health concerns as their main issue.
- Some customers also indicated they would be willing pay a fee to opt out.

More information on public engagement can be found in Appendix 3.

City of Saskatoon’s Current Approach

The AMI billing system was activated in 2016 providing the following benefits to participating customers:

- Accurate monthly bills based on actual usage instead of estimated usage between quarterly meter reads;
- Automated actual reads have eliminated the need for customers to submit their own meter reads as they are now done remotely;
- Opportunity to track and understand how much electricity and water is being used so that changes in personal usage can be made to save money and reduce environmental implications; and
- Early detection of electrical connection issues or water leaks when irregular usage is recorded.

The City has encouraged customers to participate in the program by providing information to customers through telephone and the City’s website. Customer preference to not participate in the program have been accommodated but the possibility for a future program participation policy has been discussed.

All administrative and operational costs associated with customers opting out of the AMI program have been covered by the City so far. Details of costs that could be incurred for non-participating customers can be found in Appendix 4.

Approaches in Other Jurisdictions

AMI technology has been in the marketplace for over 15 years with most Canadian electric, water and natural gas utilities having either completed deployment, currently deploying, or considering the deployment of AMI systems.

Some utilities require all customers to participate in the AMI program (receive smart meters), while other utilities provide options for customers to opt out and in some cases pay an additional fee to cover associated costs (administrative costs, manual meter reads, and regular meter verifications).

SL&P conducted a survey of electrical utilities in Canada and received fifteen responses. Full details on jurisdictional research can be found in Appendix 5. It was found that ten (67%) respondents had implemented AMI at this time. Of these ten utilities:

- 82% had an opt out program.
- 60% have a monthly fee for manual reads, mostly to recover costs.
- 40% have administration fees.
- 20% allow customers to submit self reads with varying intervals of verification.

Within Saskatchewan, there are no known electric or gas utilities that have a formal policy to allow customers to not participate in their AMI programs. SaskEnergy has finished deploying AMI and only about 0.125% of customers refused the new meter. Most recently, the City of Prince Albert decided to not allow water customers to opt out of receiving AMI. Other water utilities are in the early stages of AMI implementation in Saskatchewan.

TRIPLE BOTTOM LINE EVALUATION

Appendix 6 provides a Triple Bottom Line (TBL) assessment in accordance with the City of Saskatoon's Triple Bottom Line Council Policy that came into effect on January 1, 2020. 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
- Option C: Mandatory AMI Program Participation

The evaluation was completed in collaboration with Corporate Revenue, SL&P, Saskatoon Water, and Sustainability, and compared the four options using an environmental, social, economic, and governance lens.

According to the analysis in Appendix 6, Option C to mandate AMI program participation scored the highest in three categories included in the TBL review (i.e. Environmental Health, Economic Benefits, and Good Governance categories), and Business As Usual scored the highest in the Social Equity category. A summary of the total scores in each category is provided below:

	Business As Usual	Option A	Option B	Option C
Environmental Health	-9	-9	-9	15
Social Equity	11	0	4	9
Economic Benefits	-1	7	-1	29
Good Governance	12	14	14	20
Total TBL Score	13 Points	12 Points	8 Points	73 Points

All options were evaluated based on the impact for the concerned resident only as aggregate impacts are unknown without final non-participation rates.

OPTIONS

Business As Usual

Under this option, all electric and water customers would continue to have the option to defer participation in the AMI program.

Without a clear policy in-place, the number of non-participating customers may grow as many customers have already failed to respond to repeated requests from the utility to provide access into their houses during the water meter upgrade phase of the project. This has resulted in added costs and delays in deployment as there are no consequences for customers failing to respond or participating in the program.

Advantages of this option are:

- Customers will continue to have the option to opt out without any additional financial charges.

Disadvantages of this option are:

- The City will incur costs to maintain two separate meter systems.
- There is no financial impact for customers from non-participation which can increase non-participation rates, delay deployment, and increase overall project costs.
- Non-participating customers will not realize AMI system benefits. Cumulative AMI system benefits may also be compromised.

More customers may choose to not participate in the program due to lack of financial impact. A full time Meter Reader may need to be retained, resulting in operation of a fleet vehicle to read meters manually, with estimated emissions of 5 tonnes of CO_{2e} per year.

Option A: AMI Program Non-Participation Option with City Meter Reads

Under this option, all electric and water customers in good standing (i.e. customers who routinely pay their bills, not on arrears, and provide access to their meters) would be given the option to not participate in the program effective immediately. These customers would have a separate style of meter that does not have communication capability to the AMI system. Meters of non-participating customers would be read monthly by the City. Initial administrative charges would include one-time charges of \$205 for electric customers and \$240 for water customers. This will also apply to customers who have already requested and received a non-smart meter. Customers would also be charged an ongoing fee of \$25 per month, per existing City Bylaw, for the City to provide manual meter reading services. Detailed costs are itemized in Appendix 4.

Advantages of this option are:

- Customers who oppose the AMI system would have a choice and feel supported.
- The City would recover costs to maintain two separate meter systems.
- The City and customers would continue to receive accurate monthly bills.

Disadvantages of this option are:

- Non-participating customers will not realize AMI system benefits. Cumulative AMI system benefits may also be compromised.

A full time Meter Reader would need to be retained, resulting in operation of a fleet vehicle to read meters manually, with estimated emissions of 5 tonnes of CO_{2e} per year.

Option B: AMI Program Non-Participation Option with Customer Self-Reads

Under this option, all electric and water customers in good standing would be given the option to not participate in the program effective immediately. These customers would provide monthly self-reads verified by the City semi-annually. Initial administrative charges would include one-time charges of \$205 for electric customers and \$240 for water customers. This will also apply to customers who have already requested and received a non-smart meter. Customers would also be charged an ongoing fee of \$25 per semi-annual meter read, per existing City Bylaw, to provide manual meter reading services.

Advantages of this option are:

- Customers who oppose the AMI system would have a choice and feel supported.
- The City would recover costs to maintain two separate meter systems.
- The City and customers would continue to receive accurate monthly bills.

Disadvantages of this option are:

- Administration of the program and billing will be more difficult as there is no assurance that customers would provide self-reads on time.
- Non-participating customers would not realize AMI system benefits. Cumulative AMI system benefits may also be compromised.

More customers may choose to not participate in the program due to lower annual cost. A full time Meter Reader would need to be retained, resulting in operation of a fleet vehicle to verify meter reads manually, with estimated emissions of 5 tonnes of CO_{2e} per year.

Option C: Mandatory AMI Program Participation

Under this option, all electric and water customers will be required to receive AMI-enabled smart meters and communication modules (no option to opt out of the program).

Advantages of this option are:

- Least cost option to the customers and the City.
- The City will not need to maintain two separate meter systems, and therefore, there will be no additional costs to customers.
- The City and customers will realize all AMI system benefits.
- This is the preferred option under the Triple Bottom Line Assessment.

The main disadvantage of this option is that customers who do not want AMI-enabled smart meters and communication modules will not have an option to opt out.

RECOMMENDATION

That the Standing Policy Committee on Environment, Utilities and Corporate Services recommend to City Council:

1. That Option C, Mandatory AMI Program Participation, be approved to require customers to participate in the AMI program; and
2. That a new Advanced Metering Infrastructure Participation Administrative Policy, as outlined in this report, be prepared.

RATIONALE

The recommended alternative (Option C) is a direct approach to support AMI deployment efficiencies, system benefits, and future investments and initiatives that rely on having smart meters and water communication modules installed at homes. While Option A and Option B offer cost neutral alternatives to the City, they also introduce uncertainty in final AMI non-participation rates which can impact overall project benefits and outcomes.

Feedback from customers who had opted out of receiving smart meter infrastructure indicated that health concerns from radio frequency emissions and data privacy were their top reasons for deciding to not participate. Comments on these concerns are as follows:

- Health Impact – Smart meters operate in the 900 MHz band which classifies them as radio waves found in the lower end of the radiation spectrum. Radio waves are non-ionising and harmless to citizens. Radiation emitted from radio waves are lower than those emitted from common household items such as cellphones, microwaves, equipment remotes, Wi-Fi, etc. Furthermore, smart meters only transmit data for very short durations each day (i.e. less than 30 seconds cumulative each day) and are located further away from people than typical household items. Subsequently, Health Canada has clarified that smart meters pose no health risks. More information can be found in Appendix 7.
- Data Privacy and Security – Smart meters record energy consumption and diagnostic alarms/events at routine intervals. Recorded data is encrypted, contains no personal information, and is transmitted through the meter vendor supplied proprietary secure local area network (LAN). The City utilizes a private and secure LTE wide area network (WAN) from SaskTel to transmit smart meter data to the City billing systems. Both LAN and WAN systems follow best industry practices in ensuring data privacy and security.

Option C simplifies the deployment process for the remaining water communication modules. Cost savings will be realized through the avoidance of having to operate and maintain two separate metering systems.

FINANCIAL IMPLICATIONS

Costs continue to be incurred to support customers who have not participated in the AMI program. Without a participation policy, delays have been experienced throughout smart meter and water module deployment. Water customer communication module

installation rates are anticipated to increase with a participation policy, which will save the City money by decreasing the time to complete deployment.

SUSTAINABILITY IMPLICATIONS

Implementation of the AMI system allows the City to reduce greenhouse gas emissions and improve triple bottom line outcomes. It also allows customers to monitor and track their energy and water use to understand their consumption patterns. A web-presentment tool using AMI data will be made available to customers in the near future. This education and awareness support can facilitate behavior changes and improve home efficiency that leads to more conservation. AMI metering can also help detect and repair system leaks and prevent waste. Reducing water and energy use, improving home efficiencies, and repairing leaks are all actions identified in the Low Emissions Community Plan. Reducing consumption also helps defer the need to expand the capacities of the water and energy systems, and by reducing peak demand, increase the resiliency of those systems.

ADDITIONAL IMPLICATIONS/CONSIDERATIONS

There are no CPTED implications or considerations.

COMMUNICATION ACTIVITIES

With approval of Option C, the information will be made available to the public via the City's webpage. Current non-participating customers will be notified in writing and the City will schedule the necessary replacement.

APPENDICES

Appendix 1 – Advanced Metering Infrastructure Status Update

Appendix 2 – Advanced Metering Infrastructure Benefits

Appendix 3 – Non-Participation Customer Engagement

Appendix 4 – Non-Participation Cost Analysis

Appendix 5 – Jurisdictional Research

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

Appendix 7 – Health Canada Information

Report Approval

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