

City of Mississauga

Internal Audit Report

CORPORATE SERVICES DEPARTMENT
FACILITIES & PROPERTY MANAGEMENT DIVISION
ENERGY MANAGEMENT & FACILITIES MAINTENANCE SECTION
UTILITY MANAGEMENT DATABASE ADMINISTRATION AUDIT

November 17, 2022

City Manager's Department
Internal Audit Division

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FACILITIES & PROPERTY MANAGEMENT DIVISION
ENERGY MANAGEMENT & FACILITIES
MAINTENANCE SECTION
UTILITY MANAGEMENT DATABASE
ADMINISTRATION AUDIT**

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**Corporate Services Department
Facilities & Property Management Division
Energy Management & Facilities Maintenance Section
Utility Management Database Administration Audit**

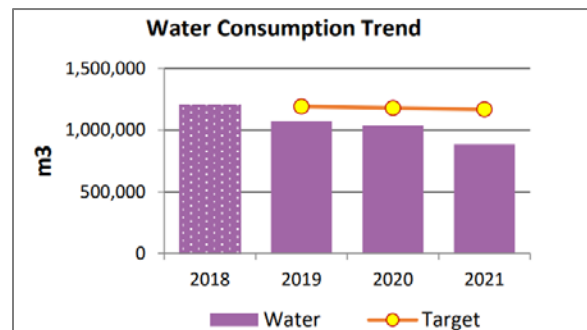
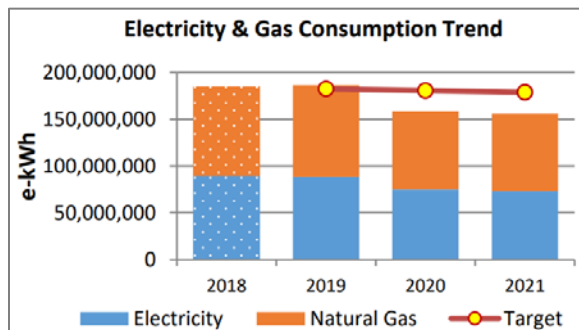
BACKGROUND

With a utilities (water, electricity, and natural gas) budget of \$20 million for 2021, Energy Management is responsible for monitoring and reporting on utility consumption in over 375 City-owned and operated buildings (varying in size, age, complexity and usage) as well as site services (e.g. electricity and water) for 360 parks and 328 paved parking lots.

Energy Management is comprised of two (2) teams – Utilities Management (3 full-time non-union staff) and Energy Programs (4 full-time non-union staff) with an administration budget of approximately \$1.4 million for 2021.

The Utilities Management team is responsible for monitoring utility consumption and cost reduction by setting targets, reviewing billing and reporting on variances between actuals and the budget. To help manage utility billing review, the team uses tools along with manual procedures to receive, process, validate, and pay thousands of invoices each year, as well as assess utility usage and provide data to applicable stakeholders.

Energy Management produces an Annual Energy Report (reported externally) illustrating the utilities consumption and the City-wide savings. The graphs below, provided by management, outline the consumption for City-wide facilities by utility between 2018 and 2021.



SCOPE

The audit examined the adequacy of processes and controls around the administration of utilities (i.e. electricity, water and natural gas) consumption and billing at the City, including processing and monitoring of data, management of payments, data analysis and reporting in the period between January 2021 and June 2022.

Out-of-scope

As the focus was on the billing database and the process around reviewing billings and payments, the scope did not include risks and issues related to procuring energy, new projects, use of renewable energy, measuring emissions, and energy conservation and efficiency. Utility budgets not related to building usage (i.e. fleet) were also excluded from this audit.

OBJECTIVES

The audit was conducted in accordance with the International Standards for the Professional Practice of Internal Auditing and was guided by a risk assessment performed in June 2022 in partnership with the section's management team. The audit focused on the review of the adequacy of internal controls that help mitigate relevant risks related to the following business objectives:

- A) To ensure utility bills are recorded and validated (for completeness and accuracy) in a timely manner and are adhering to the established rates.
- B) To ensure billing adjustments were performed, if required.
- C) To monitor and analyze utility consumption as an input to savings initiatives and for reporting purposes.
- D) To ensure the utility management system gathers and retains detailed, accurate, and complete data.

SUMMARY OF OBSERVATIONS

The controls and processes in Utilities Management for managing utility billing and consumption are generally well-established. Most processes are documented (i.e. process maps, Standard Operating Procedures, etc.) and the documentation is complete, accurate and reviewed periodically. Additionally, the information in the various document and data management systems is backed up periodically and retained as per the retention guidelines.

However, some controls related to bill validation need to be further reinforced and reconciliation controls need to be implemented to streamline the process, reduce errors and proactively identify potential issues and trends.

A detailed list of observations and recommendations was provided to management. Appendix A outlines the detailed recommendations and the action plans proposed by management. The main observations and recommendations are summarized below.

Re-evaluate and assess the bill data inaccuracies flagged by the bill validation tool

On a monthly basis, the Utilities Management team runs a billing validation process to ensure bill data for electricity, water and natural gas is accurate. A combination of commercial off-the-shelf software and in-house developed tools in Excel are used to validate the billing data, and potential data inconsistencies are flagged for further investigation. The audit noted some concerns related to the reliability and usefulness of the issues identified by the in-house developed validation tool, such as inconsistent formulas resulting in issues not identified, a significant proportion of false positives resulting in unnecessary analysis, and false negatives identified manually resulting in issues. The inconsistencies result in process inefficiencies and the risk that real issues potentially go unnoticed.

Furthermore, the current validation process checks the bills individually, without checking integrity with previous bills. The audit noted some other possible integrity checks have not been implemented, including but not limited to continuity of billed electricity meters and consistency of data headings.

While other tools are being utilized, the dependency on the validation tool to identify issues is core to the value of the process; therefore, it is crucial that appropriate integrity checks are implemented and the flags generated from this tool be accurate and updated periodically to address relevant issues.

Ensure the validation tool is streamlined and secure

As mentioned in the observation above, in-house developed tools in Excel are used to validate the bill data, from the commercial off-the-shelf software implemented in the area. This software has a validation module which is suppose to perform this task; however, management indicated that it is not currently suited for Ontario rates and it would be costly to customize. As a consequence, they created the in-house Excel tool to fill this gap.

However, the primary developer of the tool did not document its functionalities prior to leaving the City, other than an operation manual that is not tailored to support any maintenance that could be needed. The tool has grown in complexity and is being maintained on a best-effort basis by Utilities Management staff.

In principle, business users should refrain from developing complex spreadsheets for critical tasks or, when imperative to do so, seek support from specialists in the IT Division.

Validation is a critical part of the process and the validation tool did not address security, reliability and integrity risks such as key data and formulas not locked/protected from editing, lack of integrity checks for overwritten or incorrect formulas, regulated rates not updated, etc.

Ensuring that the validation tool is streamlined and secure by utilizing a single comprehensive tool where inputted data can be validated, tracked, analyzed and reported on increases the integrity of the data and validation process.

Enhance and formally establish the reconciliation process

A comprehensive, formal reconciliation of the billings and payments has not been established. In reviewing the existing process design, the audit noted concerns such as specific procedural documentation (i.e. Standard Operating Procedure) is not available to guide staff on completing a reconciliation, files related to the reconciliation process are not stored in a central location, and there is no follow-up on the actual amount credited/debited due to previous balances/credits to be issued by the utility company.

In this regard, management advised that an informal review is performed by staff and the Supervisor performs a secondary review. Formal evidence of this analysis is not available; however, issues such as rounding errors, previous credits not applied and bills not paid have been identified and tracked.

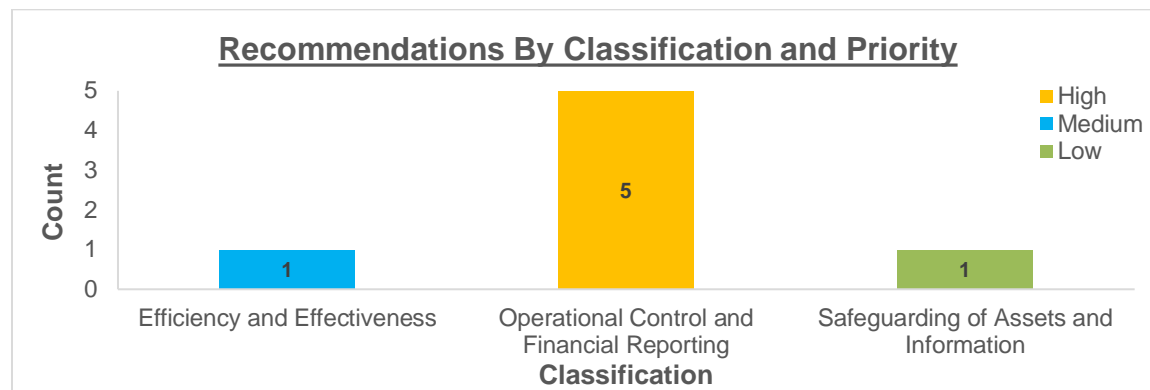
Even though this informal process has identified some issues, the absence of clearly defined, formally documented processes and clarity amongst staff may result in less than optimal

process, inconsistent recording of information, delayed reconciliations, and possible losses going unnoticed. Furthermore, not having all documents stored in a central location and available to staff that require them as part of their job duties increases the risk of single point of failure, data loss and unavailability, and may result in a missed opportunity to follow up on previous balances/credits to be issued by the utility companies.

CONCLUSION

The control environment in Utilities Management is generally well-established in areas such as business continuity processes, monitoring and reporting on consumption of utilities, and backing up and retention of data; however, some areas need improvement, particularly the tools utilized to validate utility bill data and monitoring of the reconciliation process. Our recommendations are intended to ensure that appropriate user controls are implemented in the tools utilized in order to foster accountability, reduce administrative costs, and minimize errors.

A total of seven (7) recommendations resulted from this audit. The table below summarizes the recommendations by classification and priority.



Details of the audit recommendations and management comments may be found in Appendix A.

Management has agreed to all seven (7) recommendations. One (1) will be completed by Q1 2023, one (1) will be completed by Q2 2023, four (4) will be completed by Q3 2023, and the remaining one (1) will be completed by Q4 2023.

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IT Auditor

**Corporate Services Department
Facilities & Property Management Division
Energy Management & Facilities Maintenance Section
Utility Management Database Administration Audit
Summary of Audit Recommendations**

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Rec	Recommendation	Priority (H/M/L)	Comments/Status	Classification
1	That Utilities Management review and periodically assess the flag criteria for the validation tool.	High	<ul style="list-style-type: none"> The current validation tools' flag criteria will be reassessed individually for each utility. Flags and headings will be detailed to describe the checks performed. The bill validation tool's flag criteria will frequently be reassessed to determine if the criteria is to be modified based on the resulting categorized comments (i.e. no issues). Comments to include reference to issues identified in other bill validation processes and tools. The team is in the process of carrying out an industry review of alternative solution providers to potentially replace the existing provider for a solution that meets all requirements, including built-in validation tools. <p>To be completed by September 30, 2023.</p>	Operational Control and Financial Reporting
2	That Utilities Management perform a continuity analysis (e.g. continuity of billed meters) on the data provided by the utility company for reasonable assurance that the data is accurate.	High	<p>A check of meter reading continuity for each account will be carried out at the end of each calendar year where the data is available.</p> <p>To be completed by March 31, 2023.</p>	Operational Control and Financial Reporting
3	That Utilities Management utilize a single comprehensive tool that meets the needs of the business – one where data can be inputted, validated, tracked, analyzed and reported on. In the absence of such tool, appropriate user controls be put in place to protect data and gain reasonable assurance of the validation process.	High	<ul style="list-style-type: none"> A template will be created to ensure that the formulas do not change. Formulas will be locked or an alternative method will be established to ensure same. All files will be password restricted to ensure only the Utilities Management team has access. The team is in the process of carrying out an industry review of alternative solution providers to potentially replace the existing provider for a solution that meet all requirements, including built-in validation tools. <p>To be completed by September 30, 2023.</p>	Operational Control and Financial Reporting
4	That Utilities Management standardize and formally document relevant processes related to	High	<p>A Standard Operating Procedure (SOP) will be created to document the reconciliation process and staff will be trained on same. Templates will be created to ensure consistency.</p>	Operational Control and

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	reconciliation (i.e. create an SOP, use standard templates to download and analyze data, etc.). The process needs to be accompanied by periodic training of staff.		To be completed by May 31, 2023.	Financial Reporting
5	That a centralized tracking method be developed to monitor reconciliations and provide oversight.	High	SharePoint will be utilized to save the reconciliation files, track reconciliations, and additional details will be added to the sheets for centralized tracking. To be completed by September 30, 2023.	Operational Control and Financial Reporting
6	That Utilities Management consider establishing a written agreement with the respective utility company to address matters such as providing sufficient notice if/when changes in billing process affect the method of data transmission. With the absence of such written agreement, management will determine alternative mitigating controls to obtain the data in a manner that is secure, maintains the integrity of the data and minimizes administrative costs.	Medium	<ul style="list-style-type: none"> • Management does not believe that utility companies such as Alectra and the Region of Peel would agree to develop a written agreement specifically for the City, as they deal with a large volume of customers and apply specific standards for all their clients. • This has been attempted in the past with involvement from senior management. • In general, these companies do provide the City with sufficient notice of any changes to their process that will affect our processes, and it is up to us to make the necessary changes to our processes to adapt to the changes. • Management will agree to obtain the necessary support from third parties and/or in-house IT services to ensure data integrity is maintained if/when changes are anticipated to occur. To be completed by September 30, 2023.	Efficiency and Effectiveness
7	That Utilities Management work with Information Technology (IT) to establish a process to periodically (i.e. annually) review access to document and data management systems (i.e. network drives, etc.) where utility-related data resides and remove personnel who no longer require access.	Low	<ul style="list-style-type: none"> • Access is being reviewed for SharePoint, EEM Suite, etc. periodically. Network drive access will be reviewed periodically or an alternative method (such as migrating and storing documentation on SharePoint) will be established to ensure access to the data is restricted. • The estimated target date for completion is dependent on IT's resources and availability. To be completed by December 31, 2023.	Safeguarding of Assets and Information