



Calgary

City Auditor's Office

Utility Billing Audit

September 5, 2017

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The City Auditor's Office completes all projects in conformance with the *International Standards for the Professional Practice of Internal Auditing*.

Executive Summary

The Business Units of Water Services and Water Resources (collectively known as the Water Utility) are responsible for managing the quality and delivery of Calgary's water supply – from the river, to the taps and back to the river. Water, wastewater and stormwater services are funded through utility billing; its revenue is the largest non-tax related source of revenue to The City. In 2016, revenues for water, wastewater and stormwater services were over \$662.3 million. Although the responsibility for billing water consumers has been contracted to Enmax Encompass Inc. (ENMAX)¹, The City has overall accountability. Water revenue is required to deliver water, wastewater and stormwater services to customers. Effective management of revenue is important to The City, and this is acknowledged by the Water Utility in their commitment to “continually improve on financial plans and practices to manage financial health” and “leverage tools and technology to support operations and realize efficiencies”².

The objective of this audit was to provide assurance on the completeness and accuracy of the utility billing process. The audit focused on the Water Utility monitoring controls and processes that support complete and accurate water billing, conducted by ENMAX. The audit's timeframe reviewed was January 1, 2016 to May 30, 2017.

The audit determined the Water Utility's current controls and processes provide only partial effectiveness in supporting the Water Utility business objective that the water billing conducted by ENMAX is complete and accurate. Controls conducted by the Finance Department involving daily revenue follow-up and monthly revenue checks, and the annual rate change process are designed and operating effectively. However, these processes are not designed to ensure accuracy or completeness of billing on an individual customer accounts basis.

Over the past two years, the Water Utility have developed new technological tools and processes relating to water billing. These advancements include automating data entry and transfer of meter account information to ENMAX and creating exception reports to allow the Water Utility to compare water billing data to information in The City's databases. While these new advancements provide improvements, further enhancements and implementation of additional controls are recommended. These recommendations include:

- Confirmation of data changes that will impact customers' water billing specific to:
 - Water billing for residential meters, both new installations and removals; and,
 - ENMAX's application of temporary bill adjustments to customers' billing.
- Implementation of an effective exception reporting process to support comparing water billing data to The City's databases; analyzing billing data in its entirety provides greater confidence that billing is complete.

The City's contractual agreement with ENMAX sets out service level expectations, including providing reports of water consumption irregularities and meter anomaly to the Water Utility. To date, the Water Utility has not received all reporting outlined in the contract agreement with ENMAX. Absent or incomplete reporting can result in delays in identifying inaccurate billing which can create delay in receipt of revenue, unexpected financial burden on customers, and reputational risk to The City.

We raised three recommendations to support the Water Utility in their accountability to Calgarians and provide The City with assurance that water billing is accurate and complete.

¹ Enmax Encompass Inc. is part of the ENMAX group of companies.

² 2015-2018 Action Plan, The City of Calgary

The Water Utility has agreed to all recommendations and committed to implementing the recommendations by August 31, 2018. The City Auditor's Office will follow up on all commitments as part of our ongoing recommendation follow-up process.

1.0 Background

Water Resources and Water Services (collectively known as the Water Utility) manage the quality and delivery of Calgary's water supply – from the river, to the taps and back to the river. The Water Utility protects public health by ensuring a clean and reliable supply of water and by treating wastewater, and provides these services to over one million Calgaryans and residents of the region.

Water and wastewater services are funded through utility billing rather than through property taxes. Revenue from billing for water and wastewater services is the largest non-tax related source of revenue to The City. In 2016, revenues for water, wastewater services and drainage were over \$662.3 million, and a 10.25% increase over 2015 revenues. The revenue is collected and forwarded to The City by contractual agreement with ENMAX. Water rates and service charges are set by the Water Utility Bylaw and published on The City's internet site. ENMAX earns a fee for managing customer interactions, data management, billing, collection and remittance of revenue.

Recognizing the importance of utility revenue to The City and role in Council's priority of being a well-run city, Utilities & Environmental Protection (UEP) Department, which includes the Water Utility, committed to being "as efficient and effective as possible, reducing costs and focusing on value-for-money" in the 2015-2018 Action Plan. Strategies to achieve the objective include "continually improve on financial plans and practices to manage financial health" and, "leverage tools and technology to support operations and realize efficiencies". Recent initiatives include improving the process efficiency of meter installation information transferred through mobile technology, and designing and implementing Quality Assurance/Quality Control (QA/QC) processes to confirm and locate water meter assets. The City Auditor's Office conducted advisory activity at the request of the Water Utility in 2012, which focused on the completeness of billing data. The audit has considered the advisory work completed as part of the audit planning process.

2.0 Audit Objectives, Scope and Approach

2.1 Audit Objective

The objective of this audit was to assess the effectiveness of The City's controls over the completeness and accuracy of utility billing. The objective was achieved by assessing the design and operation of The City's controls that mitigate the risks that:

- Billable customers are not billed for consumption;
- Metered customers are significantly overcharged; and,
- Metered customers are significantly undercharged.

2.2 Audit Scope

The audit examined The City's controls and activities in place to mitigate the risk of incomplete and inaccurate utility billing from January 1, 2016 to May 31, 2017. The audit focused on billing for water services.

The audit scope is limited to the activities that are undertaken by The City to provide a high level of confidence that all metered customers who should receive a water billing, do, and the water billings are accurate.

The audit did not assess ENMAX's processes and associated controls such as:

- Meter readings;
- Customer records or billing system calculations;
- Issuing of bills, including timeliness; and,
- Collection of billing revenue.

2.3 Audit Approach

The audit approach involved:

- Interviews and document analysis that assessed the effectiveness of the design of controls and activities that mitigate the risks; and
- Data analysis to confirm the effectiveness of the operation of the controls and activities.

We would like to thank staff from the Water Utility and Finance for their assistance and support throughout this audit.

3.0 Results

We assessed the Water Utility's processes and associated controls over activities around meter and account-set up, terminations, rate adjustments, and billing accuracy. Since 2013, the Contract for Utility Billing and Customer Care Services between ENMAX and The City of Calgary (The Contract) defines the responsibilities, accountabilities, and service expectation for water billing. ENMAX "will perform billing, collection and customer care services in respect of utility charges incurred by Customers"³; though the provision of water, and water meters installation and maintenance are the responsibility of The City. The City is accountable to customers to ensure that ENMAX provides accurate and complete water billings.

The City's current approach provides confidence that at a high-level, water billing is complete and accurate. Finance conducts regular reviews of the water revenue and the Water Utility has a verification process to confirm that the annual rate change is completed. Our review confirmed that these processes and associated controls are effective in design and operation.

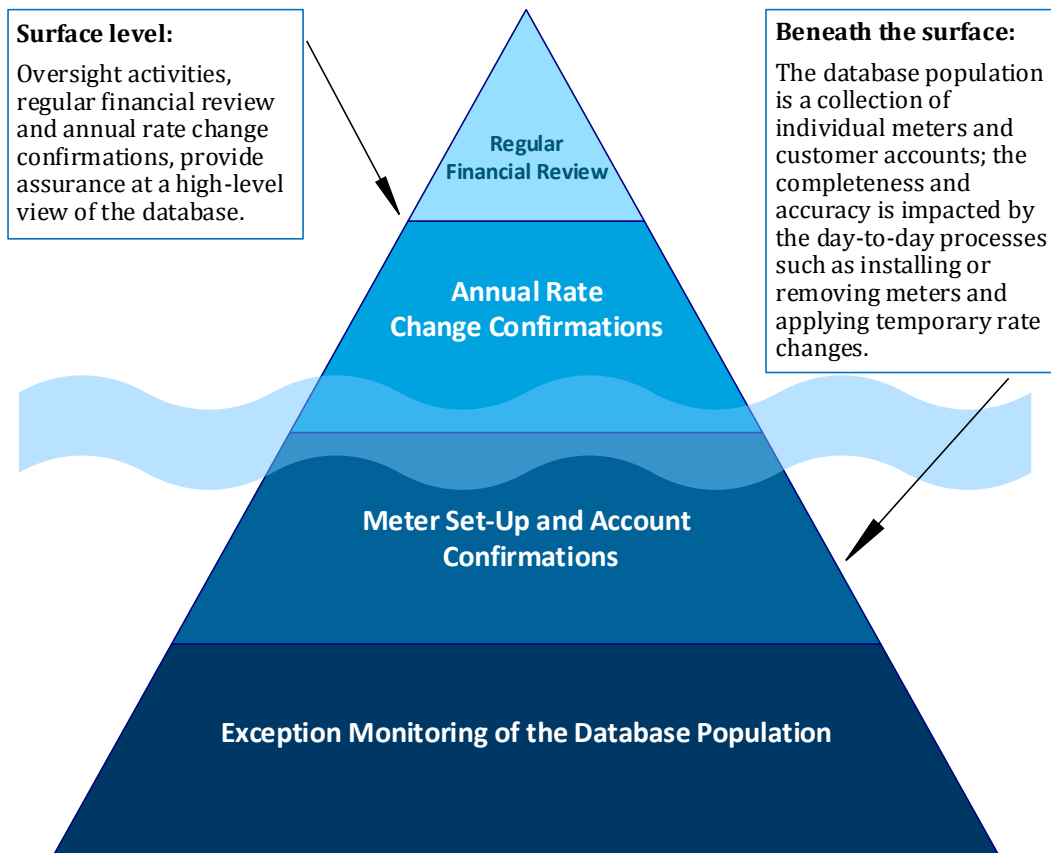


Diagram provided for illustration purposes only.

However, our review confirmed that at an individual account level, current processes and associated controls provide a lower level of confidence that water billing is complete and accurate. The diagram depicts these two levels of confidence: high level assurance that billing is taking place, and at the appropriate annual rate (surface level), but limited assurance over the completeness and accuracy of individual customer billing and accounts that make up the database (beneath the surface).

³ Contract for Utility Billing and Customer Care Services between Enmax Encompass Inc. and The City of Calgary

3.1 Meters and Billing Completeness

We reviewed The City's controls regarding account set up and termination, and The City's processes to identify exceptions (accounts not included in the billing cycle) to mitigate the risk that customers are not billed for water consumption. Our review confirmed the Water Utility's process provide a lower level of confidence and limited assurance of completeness at the individual customer account level.

3.1.1 Account Set-Up

We assessed the Water Utility's process to update ENMAX with new meter installation and customer account information. At the time of our review, the Water Utility were planning to automate parts of the current process. We reviewed the current process and the planned process. Under the current process, the Water Utility record meter installations manually, and transmit the data by email or fax to ENMAX. Plans to automate the process replace manual forms with electronic applications; the meter installation and customer information will be entered at the job site, and the information will be transmitted to ENMAX electronically. The Water Utility do not currently monitor the meter billings to confirm that newly installed meters are billed appropriately, and ENMAX does not confirm receipt of meter installation information or commencement of meter billing. The Water Utility therefore have limited confidence that meter installations are received by ENMAX or that water billing is complete. Regardless of the approach taken by the Water Utility, manual or electronic, we recommend the Water Utility design and implement a process to confirm new meters are included in the billing cycle (Recommendation 1).

3.1.2 Account Termination

We assessed the Water Utility's process to inform ENMAX when a meter is removed and an account is terminated. The Water Utility transmit the information to ENMAX by email or fax; however, the Water Utility do not monitor account terminations by ENMAX and therefore have not mitigated the risk that meter terminations are incomplete and unauthorized. We recommend the Water Utility design and implement a process to confirm requested changes to water accounts (Recommendation 1).

3.1.3 Exception Process

The Water Utility began in 2015 testing a process to compare water billing data to information in the City's GIS database. The test process was focused on missing meters from a revenue risk perspective, while also resulting in replacement of failed or failing meters. However, the process does not yet produce the desired results; the Water Utility determined the process was producing an unacceptably high number of false positives and therefore it is not used operationally. An exception reporting and monitoring process that analyzes the water billing at the individual account level to identify exceptions would provide the Water Utility with improved confidence that the water billing is complete. We recommend the Water Utility design and implement a process to monitor and review exceptions by either fully developing the partially completed process or finding an alternative process (Recommendation 2).

3.2 Billing Accuracy

We reviewed The City's controls regarding revenue, rate changes and temporary bill adjustments, and individual account readings to provide assurance that customers are not significantly over or under-charged. Our review confirmed that the Water Utility has confidence, on a high-level or oversight level, that the billing is accurate (see Diagram on page 9). However, at the individual customer level, the Water Utility's processes do not effectively mitigate the risk of individual customers being significantly over or under-charged.

3.2.1 Rate Changes and Temporary Bill Adjustments

The annual rate change involves coordination with the Finance, the Water Utility and Waste & Recycling Services Business Units. The Finance Business Unit maintains the rate financial model and analysis and provides ENMAX with final rate change validation. ENMAX finalizes the rate change in its system by December and implements the rate change on the first day of the calendar year. Once implemented, ENMAX provides the Water Utility with two samples of the customer billings from each rate category (i.e. residential, commercial, wholesale, etc.) to confirm the rate change. The Water Utility complete the sample review to validate rate accuracy and ENMAX provides the Water Utility with confirmation of the rate change. We assessed the process to complete the 2017 annual rate adjustment applied to the whole customer population and confirmed the process is designed effectively to mitigate the risk that water billing is incomplete or inaccurate. The process is designed to provide assurance that the annual rate change is accurate.

The Water Utility monitor the impact that weather changes have on the integrity of water infrastructure. During winter, when a risk of ground-freeze is identified, the Water Utility request those water customers in affected areas to run water from a faucet in the residence to prevent pipes from freezing and bursting. The Water Utility maintain a list of impacted customers, and informs ENMAX that the impacted customers must receive an adjusted water billing to compensate for the additional water consumption. However, the Water Utility do not verify temporary bill adjustments completion and timeliness and ENMAX does not provide confirmation of the bill adjustment. There is a gap in the design of the process; the Water Utility do not have assurance related to individual account accuracy. In section 4.1, we recommend the Water Utility implement a process to confirm that temporary bill adjustments are appropriate and timely; this will provide the Water Utility with greater assurance over the accuracy of billing (Recommendation 1).

3.2.2 Revenue Monitoring

We reviewed the processes undertaken by the Finance Business Unit (Finance) that provide assurance that the water revenue is complete. Finance has staff dedicated to support the Water Utility, monitor the revenue received daily from ENMAX, provide month over month trending, and review of ENMAX's Key Performance Indicators (KPI) such as the number of monthly meter readings completed. The processes designed provide a high level of assurance that the overall water consumption revenue aligns with the level of water consumption (see Diagram on page 9). Finance monitoring is designed and operating effectively to identify missing billings cycles, annual rate errors, or a significant change in meter reading activity.

3.2.3 Individual Accounts

As per The Contract, ENMAX provides reports to The City, such as the monthly KPI summaries provided to Finance. ENMAX is also responsible to monitor the water meter readings, identify anomalies, and provide timely notification to the Water Utility in order

that individual account issues can be identified and corrected. The Contract states ENMAX will take daily action to identify meters that have been estimated for more than two months and provide a monthly report to The City. The Contract also states that “*Zero consumption reads will be accepted for a period of three months before a Water Consumption Check is created*”. Estimated meters do not provide an exact measure of water usage or accurate water billing. Meters that report zero water consumption can be an indication of a meter failure and the Water Utility may need to replace it in order that The City receives all water revenue in a timely manner.

Our review confirmed that the Water Utility has not consistently received complete reporting from ENMAX as per the terms of the Contract. Regular reports that the Water Utility can rely on are critical to the Water Utility’s operation; our discussions with the Water Utility confirmed the reports are a call to action and staff are dispatched to investigate possible meter failures when meter errors are identified. Through a joint committee, improved reporting was identified as a goal. However, since this goal was agreed, over 12 months have passed without a solution. We recommend the Contract Owners & Contract Managers Committee (COCM) work out a timeframe with ENMAX to obtain necessary reports, either the reports stated in The Contract, or alternate reporting that provides assurance regarding billing accuracy and timeliness (Recommendation 3).

4.0 Observations and Recommendations

4.1 Confirmation of Account Changes

The Water Utility does not conduct follow up and monitoring activities to confirm that requested changes to water accounts have been made by ENMAX, including new meters, removed meters and specified temporary rate changes. Although ENMAX is responsible for billing, The City has a vested interest to ensure changes to the accounts are accurate. Without confirmation, the Water Utility do not have assurance that new meter information and temporary rate change information was received by ENMAX and incorporated into the next water billing cycle.

The Water Utility send water meter installation information to ENMAX in order for the water meter account to be set-up and commence billing. The process to send information to ENMAX is currently manual (printing information, scanning work orders, faxing meter installation information). ENMAX does not provide information receipt confirmation to the Water Utility, or confirmation that billing has commenced. Since 2016 the Water Utility have been working on a new process (Meters-to-Cash) that will eliminate many manual processes; meter installation information will be transmitted to ENMAX electronically. However, additional information will still be required to confirm that ENMAX completed the process and have initiated water billing for the new account. Between January 2015 and December 2016, ENMAX recorded 12,336 residential meters installed.

The Water Utility also do not conduct monitoring activities to confirm that ENMAX applies seasonal temporary bill adjustments to customer billings in accordance with the Water Utility's instructions. The Water Utility maintain a list of water customers located in areas prone to ground-freeze during the winter months. In order to protect the customers from freezing water lines and the damage that may result to the customer as well as The City's Infrastructure, the Water Utility developed a "Run-Water" program. The affected customers are asked to run a thin stream of water from a faucet in their home continuously until they are notified that there is no longer a risk of freezing. As additional water consumption results from this approach, the customers' billings are adjusted. ENMAX manually adjusts the accounts affected by the Run-Water program. Each year, the number of impacted customers for this program depends on winter temperatures. In 2016, 1,153 addresses throughout the city were impacted. Temporary changes applied through billing adjustments are not confirmed by ENMAX.

As The City assumes a level of accountability to support accurate billing, implementing a risk based verification approach could effectively mitigate the risk exposure. Specifically, verifying account changes on a sample basis that ENMAX has made requested changes to water accounts would provide the Water Utility greater assurance over the completeness and accuracy of billing.

Recommendation 1

Water Resources' Customer & Strategic Services Manager design and implement a process to confirm on a sample basis that requested changes to water accounts have been incorporated into an appropriate and timely billing cycle.

Management Response

Agree.

Action Plan	Responsibility
<p><u>Part 1:</u> The Water Utility will implement the Meter Management System (MMS,) the first phase of the Meters-to-Cash Program, to support quality control/quality assurance and ensure billing accuracy. With implementation of the MMS, the Water Utility will:</p> <ul style="list-style-type: none"> • Develop monthly reports that compare changes in the MMS to information in the ENMAX billing system to identify and address unprocessed transactions; • Develop and implement an electronic receipt process with ENMAX to confirm that meter and billing information that has been sent to ENMAX is entered into the billing system. <p><u>Part 2:</u> The Water Utility will work with ENMAX to develop a process to confirm that bill adjustments for temporary seasonal programs like the Run-Water Program are entered in a timely manner. The Water Utility will use a sample based approach to ensure accuracy.</p>	<p><u>Lead:</u> Part 1: Leader, Meters and Cross Connection Control Part 2: Leader, Customer Strategy</p> <p><u>Support:</u> Leader, Customer Strategy; Leader, Operational Coordination; Leader, Meters; Meters-to-Cash Steering Committee; Manager, ENMAX Customer Care; Leader, UEP Technology; Finance</p> <p><u>Commitment Date:</u> Part 1: June 30, 2018 Part 2: January 31, 2018</p>

4.2 Monitoring Exceptions

The Water Utility does not have an established exception reporting process to support prompt identification and corrective action on issues related to incomplete billing. An exception process, combined with follow up actions, could identify addresses which receive water services, but are not part of billing cycle, and therefore provide the Water Utility with assurance and confidence on billing completeness.

The Water Utility has begun to develop a process that compares water billing data from ENMAX's database to information in the City's GIS database (QA/QC process). This approach upon greater refinement may successfully isolate exceptions (i.e. locations where a meter is not included in billing cycles, or a meter is missing). The QA/QC process has been used on a test basis during 2015, 2016 and into 2017. There was also a review of consumption data for one postal code which included a sample of 85 potential exceptions for one postal code. This identified five failed or failing meters that needed to be replaced. The QA/QC process has not been used in operations (either across the city as a whole, or on a repeatable basis) as the comparison of data is currently producing up to 1800 addresses requiring further investigation to determine the validity of the exception. The Water Utility acknowledge the QA/QC process requires more refinement before it can be utilized as part of an exception reporting process, and are continuing to develop the data comparison.

Development and implementation of an effective exception reporting process would provide the Water Utility with greater assurance that the billing is complete.

Recommendation 2

Water Resources’ Customer & Strategic Services Manager design and implement a process to monitor and review exception reports to ensure that possible exceptions are investigated, followed-up to resolution and fully documented, through either:

- Fully developing the trial QA/QC process to form the basis of a city wide exception identification and follow up process, or,
- Collaborating with ENMAX to develop an alternative methodology of identifying exceptions in the billing cycle.

Management Response

Agree.

Action Plan	Responsibility
<p>The Water Utility will improve the use of exception reporting to investigate, address and resolve billing issues.</p> <p>The Water Utility will:</p> <ul style="list-style-type: none"> • Build on the test QA/QC process to identify issues with missing meters; • Review, in collaboration with ENMAX, all exception reports currently specified in the contract to assess effectiveness and recommend improvements; and, • Use the information from the review to develop and implement, in collaboration with ENMAX, an improved exception reporting process that will identify and track meter and billing issues to ensure timely resolution. 	<p><u>Lead:</u> Manager, Customer & Strategic Services</p> <p><u>Support:</u> Leader, Customer Strategy; Leader, Meters; Leader, UEP Technology; Leader, Operational Coordination; Meter, Data & Customer Management Committee; Manager, ENMAX Customer Care; Finance</p> <p><u>Commitment Date:</u> August 31, 2018</p>

4.3 Contract Management

The Contract for Utility Billing and Customer Care Services between Enmax Encompass Inc. and The City of Calgary is not currently delivering all specified services and reports, which is limiting the Water Utility’s assurance that Calgarians are appropriately billed.

The Contract does not explicitly assign responsibility for billing accuracy, instead stating “*Encompass will perform billing, collection and customer care service in respect of utility charges incurred by Customers*” and setting the following service expectations of ENMAX related to billing accuracy (Schedule A-1):

- *Encompass to produce and action the daily Too Many Estimate Report that identifies meters that have been estimated for more than 2 months.*
- *Monthly Too Many Estimates Report and weekly Large Accounts Issue Tracker is shared with the City of Calgary to manage issues proactively.*

- *Zero consumption reads will be accepted for a period of 3 months before a WCON (Water Consumption Check) is created.*

Since the start of this current contract (2013), the Water Utility has not received regular or complete Zero Consumption or Too Many Estimates reports or alternative reporting to address those issues. This gap in information increases the risk that inaccurate billing is not promptly identified and rectified. For example, in mid-2016, the Water Utility experienced a number of meter read failures due to faulty Encoder Receiver Transmitters (ERTs) on water meters. The Water Utility identified accounts where estimated reads continued for “*a number of months*”⁴ and were not identified, resulting in large retrospective customer bills. Our audit work identified one Service Request due to “Too Many Estimates” and confirmed the meter had been significantly under-estimated for 10 months. Without monthly information, it is not clear whether The City or ENMAX was responsible for the delay. Inaccuracies in billing can create delay in receipt of revenue, unexpected financial burden on customers, and reputational risk to The City.

Contract issues are discussed at monthly and quarterly meetings of the Meter Data & Customer Management (MDCM) and the Contract Owners & Contract Managers (COCM) Committees respectively. Reinforcing contractual expectations through these Committees will provide the Water Utility with further information with which to monitor meter and billing issues and improve overall response time by both partners.

Recommendation 3

COCM Committee to negotiate a timeframe with ENMAX for providing the report as stated in the contract or an alternative reporting which provides assurance regarding billing accuracy and timeliness.

Management Response

Agree.

Action Plan	Responsibility
<p>The Water Utility will collaborate with ENMAX through the COCM to ensure that reporting supports billing accuracy and timely resolution of billing issues. Any changes will be reflected in the contract to support effective contract management.</p> <p>The Water Utility will work with ENMAX to:</p> <ul style="list-style-type: none"> • Review the benefits and challenges with the Too Many Estimates and Zero Consumption reports as specified in the contract; • Use the findings from the review to develop and implement an effective reporting tool that provides assurance that billing is accurate and ensures timely resolution if issues arise; and • Confirm in writing, and obtain approval from the COCM, if amendments to the terms of the contract are required to accurately reflect the agreed upon reporting process. 	<p><u>Lead:</u> Manager, Customer & Strategic Services</p> <p><u>Support:</u> Leader, Customer Strategy; Leader, Meters; Leader, UEP Technology; Manager, ENMAX Customer Care; COCM Committee; Finance</p> <p><u>Commitment Date:</u> August 31, 2018</p>