

EXTERNAL



REPORT

Smart Metering Entity (SME)

MDM/R Report

4th Quarter 2015

October to December

Issue 10.0 - January 29, 2016

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1. Introduction

1.1 Purpose

The purpose of this report is to provide a quarterly update to the Ontario Energy Board on the ongoing operations of the Meter Data Management and Repository (MDM/R). This report includes the following updates:

- MDM/R Operation and Processing Performance;
- MDM/R Service Levels for both Critical and Non-Critical Services as set out in Appendix A of the “MDM/R Terms of Service”;
- Initiatives and Software Testing;
- Additional Risks and Issues; and,
- Roles and Responsibilities of the SME as set out in Article 2.2 of the “Smart Metering Agreement for Distributors”

1.2 How to Use this Document

This report presents information and status updates on MDM/R operation and processing performance (in Section 2), MDM/R Service Levels (in Section 3), and Initiatives and Software Testing (in Section 4). The report focuses on quarterly updates for the MDM/R including updates on the Roles and Responsibilities of the SME through the end of the indicated month. More information about the provincial Smart Metering Initiative and the MDM/R is available on the websites of the Ministry of Energy (<http://www.mei.gov.on.ca/>), the Ontario Energy Board (www.ontarioenergyboard.ca/OEB/Industry) and the IESO/SME website (<http://www.smi-ieso.ca/>).

Each section of this report provides updates as required by the Ontario Energy Board in connection with MDM/R operations and performance, service level attainment, initiatives and software testing, as well as risks and issues.

2. MDM/R Operation and Processing Performance

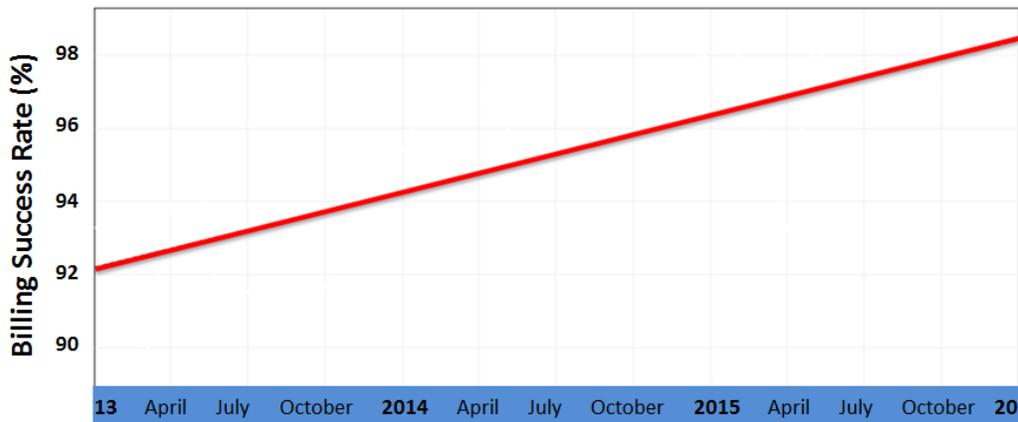
2.1 Performance

The MDM/R production environment remains stable and reliable, processing reads from over 4 million meters for 70 LDCs on a daily basis. The SME continues to respond to and address LDC support, service requests, and issues in a timely manner.

In the fourth quarter, from October 1st to December 31st, 2015, the MDM/R had one of its most operationally stable and reliable periods, by **meeting and exceeding** service levels for 100.00% of meter reads, 100.00% of billing quantity requests, and 100.00% of master data updates.

The SME published LDC-specific Performance Metrics reports for the months of October, November, and December 2015. The Performance Metrics reports provide each LDC with information related to their organization's meter read, synchronization, and billing performance. LDCs have been effectively using this information to improve the quality and timing of their data submissions to the MDM/R. As an example in the graph below, the average number of successful billing requests submitted by LDCs has increased by more than 6% since 2013. Successful billing responses are proportional to the overall quality of underlying meter data submitted by an LDC.

MDM/R Billing Success Rate (%)



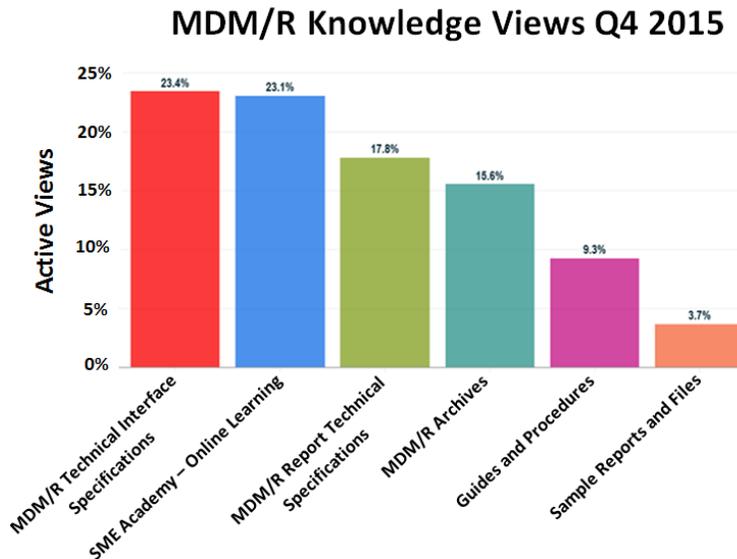
An SME Steering Committee meeting was held on November 24th, 2015. The SME encourages the LDC community to participate during the pre-scheduled SME Steering Committee meeting open calls where LDCs are given the opportunity to provide feedback and suggestions to the SME. For convenience, the SME has also provided a method for LDCs to communicate feedback and suggestions through email. The next call was scheduled for January 19, 2016.

2.2 LDC Training

During the fourth quarter, the SME delivered two webinars regarding the MDM/R CSAE-3416 Audit Report (see Section 2.3 below).

In addition to classroom taught sessions, the SME Academy has grown to nearly 20 interactive e-Learning courses and, as a result of growing popularity with LDCs, the SME Academy is now the

second largest knowledge topic accessed in the MDM/R Knowledge Base (see chart below). These courses, which include GUI navigation, MDM/R synchronization, billing, and troubleshooting techniques, enable LDCs to train employees at their leisure and provide more flexibility for re-training or training of new employees. LDCs are taking advantage of these new resources and are encouraged to recommend additional training topics that would be used in new e-Learning courses.



2.3 Other Activities

MDM/R Reports

The SME continues to enhance the ongoing operational MDM/R reports based on feedback received from the LDC community. LDCs are encouraged to propose and submit opportunities for other changes or improvements which can be done through their Service Desk agent and the MDM/R Change Management process. Examples of recent improvements include:

- A Billing Report that was enhanced to provide more meaningful billing delivery detail information to LDCs.
- A Data Collection report, that reports zero consumption data to LDCs, was reintroduced after significant performance improvements. This report allows LDCs to identify potential meter issues and take action in a timely manner.

MDM/R CSAE-3416 Audit

An independent audit of MDM/R operations is conducted annually to provide reasonable assurance to the MDM/R service recipients and their auditors that the IESO's internal controls governing the operation of the MDM/R are suitably designed and operating effectively. In November, the IESO received a clean audit which was conducted according to the Canadian Standard on Assurance Engagements for Reporting Controls at a Service Organization, set out in the CPA Canada Handbook – Assurance ("CSAE3416").

SME License Renewal

The SME license and the SME/Distributor Agreements are set to expire in January 2016. The IESO will be applying to the OEB for an extension to the SME license and the SME/Distributor Agreements.

2.4 2015 Key Accomplishments

The SME had a successful and productive year through Technical Enhancements, LDC Mergers, LDC Self-Serve and Reporting enhancements, Training, and Big Data Initiatives. Specific accomplishments include:

MDM/R Enhancements

Infrastructure upgrades and an upgrade of the MDM/R software platform from Energy IP version 7.2 to version 7.6.

- These enhancements provide significant improvements including improved data throughput, stability, as well as code fixes.

Data Mart

Architecture and development of a high availability data store to support a growing number of web services requests.

- The Data Mart will provide LDCs with a means to extract large amounts of data with no downtime and no impact to the MDM/R and its operations.

LDC Mergers

The SME Developed and implemented a custom tool to support two separate LDC mergers.

- This custom tool allows merging LDCs to maintain customer data history under the acquiring LDC.

MDM/R Service Desk tool Enhancements

Online GUI User Validation, LDC Service Request and Report delivery, Digital Forms, Training Registration, Surveys, and Security Enhancements.

- These enhancements provide a more user-friendly interface between LDCs and the MDM/R and help reduce operational costs.

The SME Academy

A repository of interactive e-learning courses to assist LDCs with MDM/R training needs.

- This is expected to reduce training costs for LDCs and Agents

Foundation Project

- An exploration on how IESO can enhance the value of the MDM/R through additional and essential locational data that sets the foundation for meaningful insights and analysis.

Meter Data Access Platform

- The SME provided technical insight into a business case led by the Ministry of Energy that would take the Foundation project recommendations to the next level for a provincial electricity data warehouse that can connect different sets of data (e.g. property, generation, commercial) together with MDM/R data, to create actionable insights.

3. MDM/R Service Levels

The Service Level Performance Chart presents two summary levels:

I. Critical Service Level Summary,

The Critical Service Level Summary section includes processing metrics for Automatic Meter Read Processing, Billing Quantity Response Processing, Automatic MMD Incremental Synchronization Processing, MDM/R Graphical User Interface, Meter Read Retrieval Web Services, Reporting, Vendor Service Desk Incident Response, and Vendor Service Desk Service Requests.

II. Non-Critical Service Level Summary

The Non-Critical Service Level Summary section includes processing metrics for Meter Read Retrieval Web Services, MDM/R Availability, and Service Requests. The table also includes a Service Level breakdown for each month along with a quarterly summary¹.

| Critical Service Level Summary | | Oct-2015 | Nov-2015 | Dec-2015 | 4th Quarter |
|--|--|---------------|---------------|---------------|---------------|
| Automatic Meter Read Processing | Intervals Loaded | 3,162,729,923 | 3,071,084,461 | 3,164,090,271 | 9,397,904,655 |
| | Intervals Loaded on Time | 3,162,729,923 | 3,071,084,461 | 3,164,090,271 | 9,397,904,655 |
| | % Intervals Loaded on Time | 100.00% | 100.00% | 100.00% | 100.00% |
| | Number of incidents resulting in accumulated delay >240 minutes ² | 0 | 0 | 0 | 0 |
| Automatic Billing Quantity Processing | BQ Requests | 3,872,288 | 6,157,999 | 4,346,263 | 14,376,550 |
| | BQ Requests Fulfilled on Time | 3,872,288 | 6,157,999 | 4,346,263 | 14,376,550 |
| | % Requests Fulfilled on Time | 100.00% | 100.00% | 100.00% | 100.00% |
| | Number of incidents resulting in accumulated delay >240 minutes ² | 0 | 0 | 0 | 0 |
| Automatic MMD Incremental Synchronization Processing | Data Elements Requested | 1,507,047 | 1,265,846 | 1,056,831 | 3,829,724 |
| | Data Elements Loaded on Time | 1,507,047 | 1,265,846 | 1,056,831 | 3,829,724 |
| | % Data Elements Loaded on Time | 100.00% | 100.00% | 100.00% | 100.00% |
| | Number of incidents resulting in Data Elements loaded outside of agreed Service Level target ² | 0 | 0 | 0 | 0 |
| MDM/R Graphical User Interface | Availability | 100.00% | 100.00% | 100.00% | 100.00% |
| | Number of incidents resulting in MDM/R Graphical User Interface availability outside of agreed Service Level target ² | 0 | 0 | 0 | 0 |
| Meter Read Retrieval Web Services | Availability | 99.83% | 99.87% | 100.00% | 99.90% |
| | Number of incidents resulting in Meter Read Retrieval Web Services availability outside of agreed Service Level target | 0 | 0 | 0 | 0 |
| Reporting | Percentage completed on time | 98.01% | 99.98% | 99.99% | 99.33% |
| | Number of incidents resulting in Reporting percentage completion outside of agreed Service Level target | 13 | 0 | 0 | 13 |
| Vendor Service Desk Incident Response | Response Time | 100.00% | 100.00% | 100.00% | 100.00% |
| | Number of incidents resulting in Vendor Service Desk Incident Response Time outside of agreed Service Level target | 0 | 0 | 0 | 0 |
| Vendor Service Desk Service Requests | Resolution Time | 100.00% | 100.00% | 100.00% | 100.00% |
| | Number of incidents resulting in Vendor Service Desk Request resolution time outside of agreed Service Level target | 0 | 0 | 0 | 0 |

¹ Percentages are rounded to the second decimal place for each metric.

| Non-Critical Service Level Summary | | Oct-2015 | Nov-2015 | Dec-2015 | 4th Quarter |
|--|---|----------|----------|----------|-------------|
| Meter Read Retrieval Web Services | Response Time | 99.83% | 99.76% | 99.79% | 99.79% |
| | Number of incidents resulting in Meter Read Retrieval Web Services response time outside of agreed Service Level target | 0 | 0 | 0 | 0 |
| MDM/R Availability | Availability | 100.00% | 99.92% | 99.93% | 99.95% |
| | Number of incidents resulting in MDM/R Availability outside of agreed Service Level target | 0 | 0 | 0 | 0 |
| Service Requests | Resolution Time | 100.00% | 100.00% | 100.00% | 100.00% |
| | Number of incidents resulting in Service Requests resolution time outside of agreed Service Level target | 0 | 0 | 0 | 0 |

Disbursement of the Service Levels Credit Account

The OEB decision on the Accounting Order dated May 14th, 2013 requires the SME to apply to the OEB to clear the approved ‘Service Level Credits’ variance account on the earlier of (i) the date on which the balance in the variance account meets or exceeds \$2 million or (ii) January 26, 2016. As stated in the SME Distributor Agreement “As part of its application, the SME will ask the Board to approve the allocation of service level credits amongst MDM/R service recipients as determined by the SME Steering Committee.”.

At the SME Steering Committee (SSC) meeting on September 15th, 2015, the SME presented a framework for the allocation of the service level credits among active service recipients. The SME Steering Committee approved the framework which will be applied to the SLA credits for the period of May 1st, 2013 to December 31st, 2014.

The SME will structure the application to the OEB to clear the variance account based on the approved framework for a plan to disburse the amounts in January 2016.

4. Initiatives and Software Testing

MDM/R Data Mart and Web Services Facility Project

The SME is currently conducting final testing and data validation activities. Following the successful completion of the internal testing and data validation phase, the SME will initiate a pilot project. This pilot, with a limited number of LDCs, is projected to be launched in Q1 2016 where LDCs will test the new facility and provide feedback to the SME. The transition of LDCs to the new Web Services Facility and Data Mart is expected to be non-disruptive from an application perspective, but will require the setup of new IPs and DNS names as previously completed under the MDM/R Refresh Project. Following the successful completion of the pilot phase, the SME will communicate a detailed transition plan to all LDCs including preparation for the connectivity of the remaining LDCs in Q1 2016.

Transitioning to the Data Mart and Web Services Facility will allow LDCs and their agents to retrieve large amounts of data more quickly which supports new and evolving value-added data services.

LDC Merger Utility Project

To support the mergers and acquisitions of LDCs, the IESO developed a custom utility to re-assign historical MDM/R data from one utility to another. To date, the SME has completed two successful mergers. Each merger is tested multiple times in an isolated testing environment, and the final merge is performed during weekend maintenance outages with no impact to other LDCs.

Currently the SME is supporting Cambridge and North Dumfries Hydro, and Brant County Power who have a scheduled merge date of January 17, 2016.

The SME will continue to provide full support to Hydro One and other LDCs with the two additional mergers planned for 2016.

Building the Foundation to Enhance the Value of MDMR Electricity Consumption Data (“Foundation” Project)

Ontario has made a significant investment in smart meters and in the central repository for high quality, consistent residential and small commercial electricity consumption data. To build on this investment, the IESO began investigating how to enhance the value of the data set within the MDM/R.

On November 4th, 2015, the IESO published its final recommendations report. The final Foundation recommendations are broken down into the following three areas:

- Addition of Address and Occupant Change Information into the MDM/R
- De-identifying Information for Disclosure to Third Parties, and;
- A Framework for Third Party Access.

To date, no specific plans have been made for the implementation of the Foundation project recommendations.

<http://www.ieso.ca/Pages/Participate/Stakeholder-Engagement/Foundation.aspx>

MDM/R Data Access Platform (MDAP) Business Case Development Project

In the Fall of 2014, The Ministry of Energy, the Advanced Energy Center (AEC) and the IESO ratified the Project Definition Document to develop a business case for a provincial electricity data warehouse also known as the MDM/R Data Access Platform (MDAP).

This business case considers additional data (e.g. property, generation, commercial), together with MDM/R data, to create actionable insights for Ontario. While respecting privacy and security requirements, it also considers new interfaces and functionality to enhance non-customer access to data by current users and enable access to new classes of users such as researchers, OEB, Ministry, IESO Planning & Conservation, and other parties.

5. Additional Risks and Issues

There are no additional risks or issues to report.