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August 31, 2017
File No.: 101926-1078

VIA Email, Courier and RESS

Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
27th Floor 2300 Yonge Street
Toronto, ON M4P 1E4

Dear Ms. Walli:

Re: Smart Metering Entity (the "SME")
2018 Fee Application
Ontario Energy Board File No.: EB-2017-0290

Pursuant to subsections 78(2.1), (3.0.1), (3.0.2) and (3.0.3) of the *Ontario Energy Board Act*, 1998; subsection 53.8(8) of the *Electricity Act*, 1998; and Ontario Regulation 453/06 made under the *Ontario Energy Board Act*, 1998;, as amended, please find enclosed, in PDF searchable electronic form, the SME's 2018-2022 Fee Application ("**Submission**"). The requisite number of paper copies will follow by courier. All intervenors to the SME's most recent fee proceeding (EB-2012-0100 and EB-2012-0211) and the SME's most recent licence renewal proceeding (EB-2016-0284) have been copied on this Submission.

The current monthly Smart Metering Charge ("**SMC**") of $0.79/meter has been approved to be collected through to October 2018. Through this Submission, the SME is seeking a reduced monthly SMC of $0.59/meter, representing a $0.20 reduction.

There are several procedural matters that the SME wishes to raise with the Board at this time. First, the SME proposes that the Board's Notice of Application ("**Notice**") be given in the following manner:

(a) information about and hyperlinks to this Submission and the OEB-issued Notices, will be posted on the IESO's website at the "IESO News and Notices", "Regulatory Affairs" and SME webpages on the IESO website;

(b) information about and hyperlinks to this Submission and the OEB-issued Notices will be sent to each electricity distribution company that currently charges the SMC to its eligible customers;

(c) information about and hyperlinks to this Submission and the OEB-issued Notices will be sent to all intervenors registered in the SME's most recent fee proceeding (EB-2012-0100 and EB-2012-0211) and all intervenors registered in the SME's recent licence renewal proceeding (EB-2016-0284); and

(d) As the recipients of the IESO's weekly newsletter are not necessarily involved in the collection of the SMC, the SME does not propose to send information about and hyperlinks to this Submission and the OEB-issued Notices in the weekly newsletter.

Second, the SME has included a draft Issues List which the SME believes addresses the issues of relevance to this proceeding and requests that this be posted for comment along with the Notice. The draft Issues List is attached as Appendix "A" for the Board's consideration.

Lastly, the SME requests that it be allowed three weeks to respond to interrogatories.

Please contact the undersigned or Adrian Pye, Senior Regulatory Analyst, if you have any questions or wish to discuss these points further.

Yours truly,

Patrick Duffy

c.c.: Adrian Pye, Senior Regulatory Analyst, *IESO* (via email)
Tam Wagner, Senior Manager, Regulatory Affairs, *IESO* (via email)
Intervenors in EB-2012-0100 and EB-2012-0211 (via email)
Michael Bell, Case Manager, *Ontario Energy Board* (via email)

Enclosure

Appendix "A"
SME 2018 Fee Application
Draft Issues List
EB-2017-0290

1. Is the SME's proposed $178.1 million revenue requirement for the January 1, 2018 to December 31, 2022 period appropriate?

2. Is the proposed SME fee of $0.59 per smart meter per month appropriate?

3. Is the proposed January 1, 2018 effective date for the SME fee appropriate?

4. Is the proposal to include the $7 million projected uncollected SME debt (projected December 31, 2017 balance) in the SME costs appropriate?

5. Are the projections for installed smart meters appropriate?

6. Are the forecast staffing levels appropriate and reasonable?

7. Is the proposal to establish the Balancing Variance Account appropriate?

8. Is the proposal to continue the three existing variance accounts as sub accounts of the Balancing Variance Account appropriate?

9. Is the proposal to continue to carry the balances in the existing Costs variance and Revenue variance accounts forward appropriate?

10. Is the proposal to clear the balance in the Service Level Credits Account appropriate?

11. Is the proposal to retain $2.5 million in the Balancing Variance Account as an operating reserve for the SME appropriate?

12. Is the proposal to return to ratepayers any year-end balance in the Balancing Variance Account, exceeding $2.5 million and which results in a rebate to ratepayers of $0.05 per meter or greater, three months after the filing of the SME's annual report with the Board on April 30th appropriate?

ONTARIO ENERGY BOARD

IN THE MATTER OF subsections 78(2.1), (3.0.1), (3.0.2) and (3.0.3) of the *Ontario Energy Board Act, 1998*;

AND IN THE MATTER OF subsection 53.8(8) of the *Electricity Act, 1998*;

AND IN THE MATTER OF Ontario Regulation 453/06 made under the *Ontario Energy Board Act, 1998*;

AND IN THE MATTER OF an Application by the Independent Electricity System Operator, designated as the Smart Metering Entity, for an Order approving a Smart Metering Charge for the period January 1, 2018 to December 31, 2022

APPLICATION

1. The applicant, the Independent Electricity System Operator (the "IESO"), is a corporation without share capital continued under Part II of the *Electricity Act, 1998* (the "Electricity Act").

2. On March 28, 2007, the IESO was designated as the Smart Metering Entity ("SME") by Ontario Regulation 393/07 made under the Electricity Act. The regulation came into effect on July 26, 2007. The objects of the SME as outlined in the Electricity Act include, in addition to other objects and business activities, to plan, manage, implement, oversee, administer and deliver the provincial government's smart metering initiative.

3. The IESO, in its capacity as SME, hereby applies to the Ontario Energy Board (the "Board") for an order under subsections 78(2.1), (3.0.1), (3.0.2) and (3.0.3) of the *Ontario Energy Board Act, 1998* (the "OEB Act"):

(i) approving a monthly Smart Metering Charge ("SMC") of $0.59 per meter per month, replacing the current SMC of $0.79, for residential and general service <50kW customers to be charged to each licensed electricity distributor ("LDC") for the period January 1, 2018 to December 31, 2022;

(ii) approving the revenue requirement and 5-year SME budget of $178.1 million for the period January 1, 2018 to December 31, 2022;

(iii) permitting the SME to continue to carry the balances in the existing Costs variance and Revenue variance accounts;

(iv) permitting the SME to rebate $0.4 million to LDCs to clear the balance in the Service Level Credits Account;

(v) permitting the SME to establish a new Balancing Variance Account ("BVA") within which to consolidate and track the balances in the existing three variance accounts and have those become sub accounts of the BVA;

(vi) approving the accumulation of $2.5 million in the BVA as an operating reserve; and

(vii) approving that any surplus in the BVA that: (1) exceeds the proposed operating reserve of $2.5 million; and (2) amounts to $0.05 per meter or greater, be rebated back to ratepayers in the third month after the filing of the SME's annual report with the Board on April 30th.

4. The requested SMC will cover the costs of the SME in the conduct of its activities. The SEM is not seeking approval for a rate of return as the IESO is a non-profit corporation.

5. The persons affected by this application are all LDCs licensed by the Board and their respective residential and general service <50kW customers.

6. The SME anticipates that it will operate within the proposed revenue requirement and SMC for the period January 1, 2018 to December 31, 2022 and that it will file an application in 2022 for a new fee to be effective January 1, 2023.

7. The SME proposes that the Board review of the application proceed by way of a written hearing.

8. The SME has filed evidence in support of this application, as identified in the Exhibit List at Exhibit A-2-1. The SME may amend its pre-filed evidence from time to time prior to, and during, the course of the Board's proceeding. In particular, should the SME identify a material change to its application, the SME will advise the Board and update its pre-filed evidence. The SME reserves the right to amend its application accordingly, including making any necessary adjustments to the proposed SMC.

9. The SME may seek to have additional meetings with Board staff and intervenors in order to identify and address any further issues arising from this application with a view to an early settlement and disposition of this proceeding.

10. The SME requests that a copy of all documents filed with the Board by each party to this proceeding be served on the SME and the SME's counsel in this proceeding, as follows:

(a) The SME:

Ms. Miriam Heinz
Senior Regulatory Advisor,
Independent Electricity System Operator

Mailing address:

120 Adelaide Street West, Suite 1600
Toronto, Ontario
M5H 1T1

Tel: 416 969-6045
Fax: 416 969-6383
Email: regulatoryaffairs@ieso.ca

(b) The SME's counsel:

Mr. Patrick G. Duffy
Stikeman Elliott LLP

Mailing address:

5300 Commerce Court West
199 Bay Street
Toronto, Ontario
M5L 1B9

Tel: (416) 869-5257
Fax: (416) 947-0866
Email: pduffy@stikeman.com

DATED at Toronto, Ontario, this 31st day of August, 2017.

INDEPENDENT ELECTRICITY SYSTEM OPERATOR

By its counsel in this proceeding

Patrick G. Duffy

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SMART METERING ENTITY
2018 SMART METERING CHARGE APPLICATION
(EB-2017-0290)

EXHIBIT LIST

Exhibit	Tab	Schedule	Description
A – ADMINISTRATION			
A	**1**	**1**	Application
A	**2**	**1**	Exhibit List
A	**3**	**1**	Background and Legal Authority
B – REVENUE REQUIREMENT, SMART METERING CHARGE AND VARIANCE ACCOUNTS			
B	**1**	**1**	SME Revenue Requirement Attachment 1 – SME Proposed Budget Attachment 2 – 2016 Annual Cost and Variance Account Report
B	**2**	**1**	Smart Metering Charge and Calculation of the Charge
B	**3**	**1**	SME Variance Accounts
B	**4**	**1**	MDM/R Governance and Ongoing Stakeholder Outreach Attachment 1 – Q2 2017 SME MDM/R Report, July 31, 2017
C – EVIDENCE RESPONDING TO BOARD DECISION			
C	**1**	**1**	Third Party Access Implementation Status and Next Steps

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BACKGROUND AND LEGAL AUTHORITY

1. The Smart Metering Initiative ("SMI") means the Ontario government's policies related to its decision to ensure that Ontario electricity consumers are provided, over time, with smart meters. The goal of the SMI is to create a conservation culture and a toolset for demand management based upon the province-wide deployment of smart meters.

2. On July 26, 2007, Ontario Regulation 393/07 came into effect, designating the IESO as the Smart Metering Entity and providing the IESO with the authority to, amongst other things, support the SMI by coordinating and project managing implementation activities for the Meter Data Management Repository ("MDM/R"). The provincial government later amended the IESO's objects through Ontario Regulation 288/14 made under the Electricity Act to also require the IESO to plan, manage, implement, oversee, administer and deliver the SMI or any aspect of the initiative.

3. The SME's MDM/R is a meter data management repository for smart meter data and is utilized to collect, manage, store and retrieve the information and data related to the metering of low volume consumers' consumption or use of electricity in Ontario. It has the capability to receive smart meter consumption data from an LDC's advanced metering infrastructure; validate, estimate, and edit the smart metering data; and transmit billing quantity data back to the LDC for use in customer billing.

4. The MDM/R became operational in 2008 and further development of, and updates to, the MDM/R have occurred since then and new functionality continues to be implemented.

5. The OEB Act provides the Board with the legal authority to allow the IESO (in its role as SME) to recover, through just and reasonable rates, costs related to its role as the SME through a Board order under subsection 53.8(8) of the Electricity Act and subsections 78(2.1) and (3.0.1) of the OEB Act.

6. The IESO Market Rules were amended effective December 12, 2007 to permit the collection of the SMC by the IESO.

7. In EB-2012-0100/EB-2012-0211, the Board ordered that effective May 1, 2013 to October 31, 2018, the SME could levy and collect a SMC of $0.788 per month for each Residential and General Service <50kW customers from all distributors identified in the Board's annual *Yearbook of Electricity Distributors*. The approved SMC covers the SME's revenue requirement to December 31, 2017.

SME REVENUE REQUIREMENT

1. The total revenue requirement of the SME inclusive of financing costs for the period from January 1, 2018 to December 31, 2022 is $178.1 million. The proposed revenue requirement includes costs for operating the MDM/R; a necessary hardware and software refresh (EnergyIP 8.X) that will be completed by the end of 2019; repayment of the remaining debt including associated financing costs; and preliminary provisions for implementing third party access to the MDM/R data as per the 2016 OEB Orders to the SME (EB-2016-0284).

Smart Metering Budget: 2018 – 2022

(In millions of dollars)	2018	2019	2020	2021	2022	Total
Total Operating Budget	28.8	28.8	30.0	29.3	29.4	146.3
Total MDMR 8.x Upgrade Budget	17.2	6.6	1.0	-	-	24.8
Total Uncollected SME Debt	1.4	1.4	1.4	1.4	1.4	7.0
Total Smart Metering Budget	**47.4**	**36.8**	**32.4**	**30.7**	**30.8**	**178.1**

2. The principles supporting the foregoing revenue requirement are as follows:

(a) The period during which the costs will be recovered is from January 1, 2018 to December 31, 2022.

(b) The SME is proposing a 5-year budget and recovery period as this is consistent with current industry norms and with the expected life of information technology assets. The SME recognizes that additions and upgrades to hardware and software solutions will be undertaken during the January 1, 2018 to December 31, 2022 period and these costs are properly attributed to and recovered during this time period.

(c) As a non-profit corporation, the IESO, as the SME, has not included in the SMC, and is not seeking approval for, a rate of return.

3. The 5-year SME budget approved in EB-2012-0100/EB-2012-0211 was $248.6 million, including an operating budget of $148.5 million and $100.1 million of unrecovered MDM/R build costs accumulated as debt prior to the first approved fee recovery period. The costs pertaining to the original build and delivery of the MDM/R have been largely realized. The SME estimates that approximately $7 million of residual debt will remain as of December 31, 2017 and the SME proposes to recover the residual debt in the January 1, 2018 to December 31, 2022 period.

4. At this time, the MDM/R is an established, mature operation which requires ongoing maintenance and refreshes at a rate that is comparable with other similar IT projects. The MDM/R is now well positioned to further leverage the value of the data in the MDM/R for the benefit of ratepayers in Ontario and this is discussed further at Exhibit C-1-1, Third Party Access Implementation Status and Next Steps. The costs to operate the MDM/R make up the majority of the SME's costs.

Operating Budget

5. The SME's proposed budget, included as Attachment 1, includes costs associated with the following:

- Compensation and benefits
- Professional and consulting fees
- Operating and administration
- MDM/R Change Initiative budget
- Financing
- MDM/R 8.x upgrade
- Uncollected SME Debt

Compensation and Benefits

6. The SME currently has 17 FTEs and is proposing to add up to three FTEs over the budgeting period, with one FTE added in each of 2018, 2019 and 2020, as needed. The incremental FTEs will help support third-party access and other change initiatives as later described. Forecast staffing and associated compensation and benefits costs for the budgeting period are shown below.

Full Time Equivalents	2018	2019	2020	2021	2022
Regular	18	19	20	20	20
Temporary	-	-	-	-	-
Full Time Equivalents Total	**18**	**19**	**20**	**20**	**20**

(In millions of dollars)	2018	2019	2020	2021	2022	Total
Compensation & Benefits	3.5	3.7	4.0	4.1	4.2	19.4

7. The compensation and benefits costs include the SME's costs to perform services pertaining to the operation of the MDM/R, including on-boarding and supporting LDCs, overseeing the Operational Service Provider's ("OSP"- IBM) support of the MDM/R, managing the design, testing and implementation of changes to the MDM/R, LDCs communications and training, and all of the other required functions of the SME.

8. The SME will also continue to be supported by resources from the IESO's mainstream business as required, primarily in the areas of finance, settlements, legal, regulatory, information technology, and human resources. This support work will be resourced on a time and material basis and the costs of IESO resources utilized by the SME will be charged to the SME. These costs have been included within the SME's proposed revenue requirement.

Professional and Consulting Services

9. The professional and consulting costs include all externally contracted resources in support of the MDM/R operations. These costs include provisions for the core operating MDM/R services provided by the OSP; other MDM/R change initiatives; the annual CSAE 3416 audit and other audits; privacy and security projects; external legal services; and LDC communications and stakeholder engagements among other requirements. The forecasted professional and consulting costs are shown below:

(In millions of dollars)	2018	2019	2020	2021	2022	Total
Professional & Consulting	15.3	14.7	15.6	14.6	14.6	74.9

Operating & Administration

10. The operating and administration costs of the SME include a forecast for the rental costs of the SME facilities; a portion of the Board's annual operating fees issued to the IESO; registration fees related to the SME license; computer hardware and software costs; training and other staff expenses. The forecast operating and administration costs are shown below:

(In millions of dollars)	2018	2019	2020	2021	2022	Total
Operating & Administration	6.8	7.0	7.2	7.4	7.6	36.0

MDM/R Change Initiative Budget

11. The MDM/R Change Initiative budget includes provisions for MDM/R upgrades, maintenance, and changes outside of the operating costs of the MDM/R. This includes change requests from LDCs, costs associated with facilitating LDC mergers, and new initiatives similar to those described in Exhibit B-4-1, MDM/R Governance and Ongoing Stakeholder Outreach.

12. No provision has been made for material changes to the MDM/R or its operation.

(In millions of dollars)	2018	2019	2020	2021	2022	Total
MDMR Change Initiatives	3.0	3.0	3.0	3.0	3.0	15.0

MDM/R 8.x Upgrade

13. The proposed SME budget includes the cost of a required major refresh (Energy IP 8.x) to maintain vendor support for the MDM/R critical systems and to ensure the MDM/R continues to meet the high level of service required by the LDCs as well as new business requirements in the future. This hardware and software upgrade is a significant technical refresh that will move the MDM/R to the latest version of the EnergyIP platform, upgrade the associated database, and replace the hardware and associated operating system while, at the same time, minimizing the impact to the technical interfaces used by the LDCs. This project will position the MDM/R with a simpler architecture to safeguard against future increases in the costs of maintaining and operating the MDM/R.

(In millions of dollars)	2018	2019	2020	2021	2022	Total
MDMR 8.x Upgrade	17.2	6.6	1.0	-	-	24.8

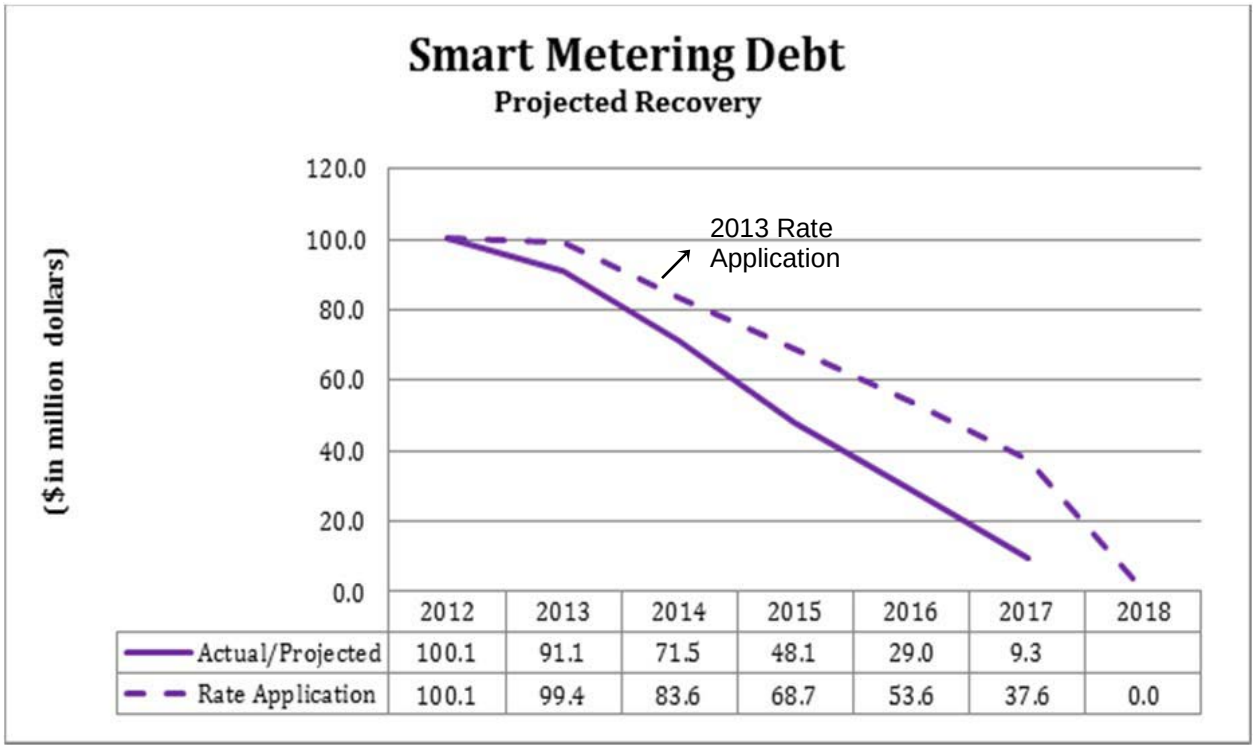
Uncollected SME Debt

14. The 5-year SME budget approved in EB-2012-0100/EB-2012-0211 included $100.1 million of unrecovered MDM/R build costs accumulated as debt prior to the first approved fee recovery period. This initial SME debt of $100.1 million was forecast to be fully recovered by October 2018, when the current SMC is set to expire.

15. The initial SME debt has been reduced ahead of schedule and a forecast of approximately $7 million of residual debt will remain as of December 31, 2017.

16. When the current SMC was approved by the Board, it was anticipated that there would be approximately $40 million of debt remaining at the end of 2017, as shown by the dotted line in Graph 1 below.[1]

Graph 1



	2012	2013	2014	2015	2016	2017	2018
Actual/Projected	100.1	91.1	71.5	48.1	29.0	9.3	
Rate Application	100.1	99.4	83.6	68.7	53.6	37.6	0.0

17. The accelerated debt reduction is due to a combination of factors including lower spending versus budget lower than forecasted interest costs and an increase in the number of meters being served since the current SMC was approved. The lower spending versus budget has been a consistent theme over the past few years as a result of a number of factors, including:

- The SME's conservative business model given the planned transition from the IESO to the EDA (this matter was concluded in the fall of 2015 with the EDA indicating they are no longer interested in assuming governance of the SME).

[1] This graph was included in the 2016 Annual Cost and Variance Account Report to the OEB, submitted on April 28, 2017, and is included as Attachment 2 to this exhibit.

- Financial prudency and effective controls in place, to ensure that projects and resources utilization (permanent, temporary or contractors) are optimally designed around SME's key business priorities and deliverables, at any given time.
- Ongoing and effective LDC support for MDM/R billing, through training, communications and visual service-desk tools (such as a Metrics Dashboard) for LDCs self-help and process automation.

18. The SME is proposing to amortize the remaining $7 million of initial SME debt over the January 1, 2018 to December 31, 2022. Recovery of this remaining debt is included in the proposed SMC.

Financing Costs

19. The SME's financing costs are related to the carrying cost of the uncollected SME debt and financing required for the MDM/R 8.x Upgrade.

(In millions of dollars)	2018	2019	2020	2021	2022	Total
Total Financing Costs	0.2	0.3	0.3	0.2	0.1	1.0

20. Debt financing for the SME is obtained through the IESO's note payable to the OEFC and the IESO's corporate credit facility.

21. In April 2017, the IESO entered into a three-year note payable with the OEFC. The note payable is unsecured, bears interest at a fixed rate of 1.767% per annum, and is repayable in full on June 30, 2020. Interest accrues daily and is payable in arrears semi-annually in June and December of each year.

22. The IESO has an unsecured credit facility agreement with the OEFC, which will make available to the IESO an amount up to $160 million until June 30, 2020. Advances are payable at

a variable interest rate equal to the Province of Ontario's cost of borrowing for a 30-day term plus 0.50% per annum, with repayments and interest payments due monthly.

Smart Metering Budget: 2018 - 2022 (By Category)

Operating Budget

(In millions of dollars)	2018	2019	2020	2021	2022	Total
Compensation & Benefits	3.5	3.7	4.0	4.1	4.2	19.4
Professional & Consulting	15.3	14.7	15.6	14.6	14.6	74.9
Operating & Administration	6.8	7.0	7.2	7.4	7.6	36.0
Total Operating Budget	**25.6**	**25.5**	**26.8**	**26.1**	**26.4**	**130.3**
Total MDMR Change Initiative Budget	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	**15.0**
Total Financing Costs	**0.2**	**0.3**	**0.3**	**0.2**	**0.1**	**1.0**
Total Operating Budget	**28.8**	**28.8**	**30.0**	**29.3**	**29.4**	**146.3**

MDMR 8.x Upgrade

(In millions of dollars)	2018	2019	2020	2021	2022	Total
MDMR 8.x Upgrade	17.2	6.6	1.0	-	-	24.8
Total MDMR 8.x Upgrade Budget	**17.2**	**6.6**	**1.0**	**-**	**-**	**24.8**

Uncollected SME Debt

(In millions of dollars)	2018	2019	2020	2021	2022	Total
Uncollected SME Debt	1.4	1.4	1.4	1.4	1.4	7.0
Total Uncollected SME Debt Budget	**1.4**	**1.4**	**1.4**	**1.4**	**1.4**	**7.0**

SME Revenue Requirement

(In millions of dollars)	2018	2019	2020	2021	2022	Total
Operating Budget	28.8	28.8	30.0	29.3	29.4	146.3
MDMR 8.x Upgrade	17.2	6.6	1.0	-	-	24.8
Uncollected SME Debt	1.4	1.4	1.4	1.4	1.4	7.0
Total SME Revenue Requirement	**47.4**	**36.8**	**32.4**	**30.7**	**30.8**	**178.1**

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BY EMAIL & RESS

April 28, 2017
File No. 101926-1078

Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
P.O. Box 2319
2300 Yonge Street, 27th Floor
Toronto, ON M4P 1E4

Dear Ms. Walli:

Re: Smart Meter Entity Annual Cost and Variance Account Report for 2016 (EB-2012-0100/EB-2012-0211)

On behalf of the Independent Electricity System Operator (the "**IESO**") in its capacity as the Smart Metering Entity ("**SME**"), we are providing the Ontario Energy Board (the "**Board**") with the SME's Annual Cost and Variance Account Report for the year ended December 31, 2016 (the "**2016 Report**"). The enclosed 2016 Report represents the SME's fourth annual filing with Board for the Smart Metering Charge (the "**SMC**") that is in effect from May 1, 2013 to October 31, 2018.

The enclosed 2016 Report addresses the matters identified in section 1.4(d) of the approved Settlement Agreement dated March 28, 2013 (the "**Settlement Agreement**") and section 6 of the Accounting Order dated May 14, 2013 (the "**Accounting Order**") in EB-2012-0100/EB-2012-0211.

As described in the 2016 Report the SME will file an application for a new Smart Meter Charge by September 2017 and seeking an effective date of January 1, 2018.

By copy of this letter, we are providing the 2016 Report to all Board approved intervenors in EB-2012-0100/EB-2012-0211 as required by the Settlement Agreement and the Accounting Order. The Settlement Agreement states that intervenors are to have an opportunity to submit comments on the 2016 Report to the Board.

We trust the foregoing will be satisfactory. If you have any questions, please contact the undersigned at the address above.

Yours truly,

Patrick G. Duffy

PD/
c.c.: Sorana Ionescu, *IESO*
Adrian Pye, *IESO*
Registered Intervenors for EB-2012-0100/EB-2012-0211
encl.

2016 Annual Cost and Variance Account Report

The following SME Annual Cost and Variance Report provides an overview of the SME's financial status as of the end of 2016, high level considerations on the SME operations covering the remainder of the current SMC period, and recommendation for the next steps on a new SMC submission with supporting analysis and rationale.

More specifically, the 2016 Report provides:

1. **Financial Results** – for the fiscal year ending 2016, the SME's budgeted and actual revenue and the budgeted and actual costs (Table 1 – 2016 SME Cost Variance Summary) with an explanation for any material variances.

2. **Smart Metering Debt** - providing the historical and projected position on the SME Debt recovery (Table 2 – Smart Metering Debt – Projected Recovery)

3. **Service Level Credit Balance** – providing current service level credits and the total balance in the Service Level Credit variance account.

4. **Smart Metering Charge (SMC)** - providing the rationale for the continued use of the current Smart Metering Charge until the end of 2017 and the plans to apply for a new SMC by September, 2017

5. **Accounting Changes** – providing an update of the IESOs adoption of rate regulated accounting and the impact on the SME

6. **SME Variance Account Report** – providing the balances of the Costs Account, the Revenue Account and the Service Level Credits Account in the form of the Sample Report set out by section 5 of the Accounting Order (Table 3 – SME Variance Account Report)

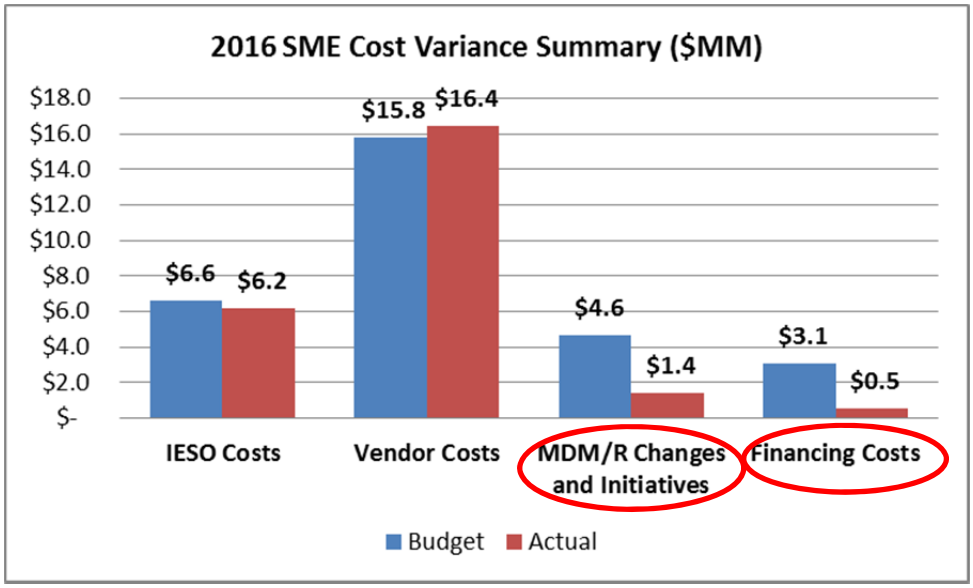
7. **Appendices** – This includes the **SME Annual Cost Report** which provides a breakdown of actual and budgeted revenues and cost with variance explanations in the format of Appendix C to the Settlement Agreement (Table 4 – SME Annual Cost Report), the **Smart Metering Statement of Financial Position as of December 31, 2016** (Table 5 – SME Statement of Financial Position) and a **reconciliation of the SME Annual Cost Report and the IESO Audited Financial Statements** (Table 6 – 2016 SME Financial Report Reconciliation to IESO Audited Financial Statements).

1. Financial Results

Smart Metering revenues collected in 2016 were $46.7MM, which is $1.4MM higher than the budgeted $45.2MM included in the Smart Metering's rate application in EB-2012-0100/ EB-2012-0211. This is due to the increased number of smart meters in use in the province as noted in the *2015 Yearbook of Electricity Distributors* published by the OEB.

Smart Metering expenses for 2016 were $24.6MM, which is $5.5MM less than the budgeted amount for 2016 of $30.1MM included in the SME's rate application. A summary and explanation of any material variances for each variance category is below and shown in the following table (Table 1 – SME Cost Variance Summary).

Table 1 – 2016 SME Cost Variance Distribution



The following is a summary and explanation of material variances:

- **MDM/R Changes and Initiatives were $1.4MM for the year which is $3.2MM lower than planned**
  - The MDM/R 7.7 upgrade including deployment, testing and resources was able to deliver a successful implementation ahead of schedule. In addition efforts dedicated to meeting the requirements of the OEB order (EB-2015-0297), specifically the collection of the additional information from the LDCs (postal codes, distributor and commodity rate classes and occupant change date) deferred the start of major technical projects such as the MDM/R 8.x upgrade strategy. Also, no significant effort was applied to the Toronto Hydro Integration as the project start date was moved back to 2017.

- **Financing Costs were $0.5MM for the year which is $2.5MM lower than planned**
  - This variance is the combined result of the lower interest rates and the accelerated pay down of the SME debt over the past four years. The accelerated pay down of debt is due to higher revenues collected than planned and ongoing costs savings due to ongoing operational savings and the rescheduling of certain key technical projects.

2. Smart Metering Debt

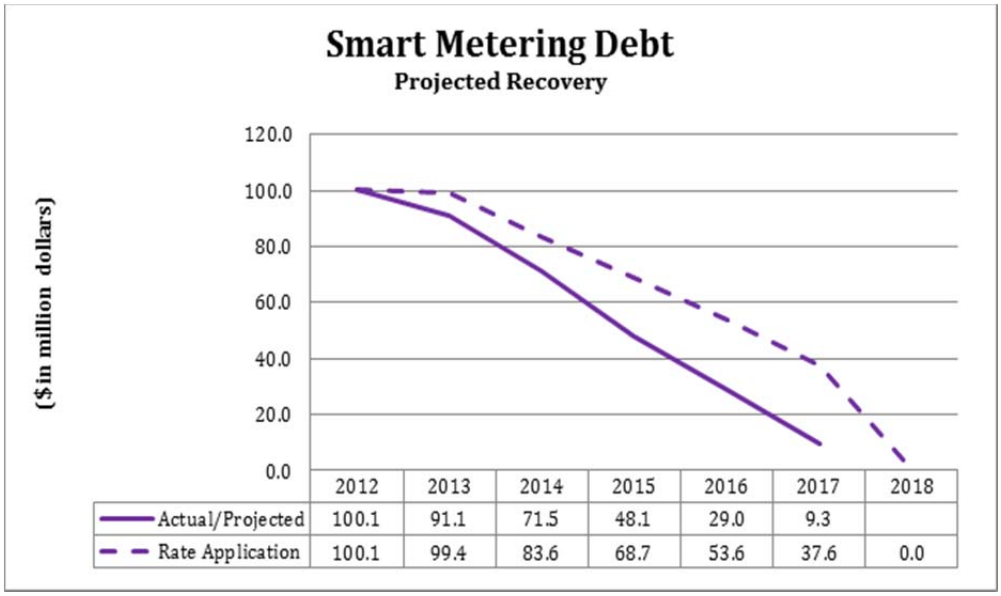
The Smart Metering debt at the beginning of the Smart Metering Charge collection period in 2013 was $100.1MM. As of December 31st, 2016 the Smart Metering debt was $29.0MM (vs. $48.1MM in December 2015) which represents an additional $24.6MM of debt recovered compared to the debt recovery in the Smart Metering's rate application (EB-2012-0100/ EB-2012-0211).

The ongoing favourable variances in the Smart Metering variance accounts (Table 4 – SME Variance Account Report) has resulted in the accelerated by down of the Smart Metering Debt. This has also resulted in significant financing costs savings for ratepayers.

The Smart Metering Debt is projected to be $9.3MM at the end of the current approved Smart Metering expense period (December 31, 2017).

Table 2 – Smart Metering Debt – Projected Recovery

The graph shows the projected debt recovery assumed in the SME Rate Application and the actual/projected debt recovery



	2012	2013	2014	2015	2016	2017	2018
Actual/Projected	100.1	91.1	71.5	48.1	29.0	9.3	
Rate Application	100.1	99.4	83.6	68.7	53.6	37.6	0.0

3. Service Level Credit Balance

To ensure the optimal operation of the MDM/R, the Operational Service Provider must consistently meet all service level operating requirements for the MDM/R. In the event that a service level target is missed, the Operational Service Provider applies a service level credit which then gets passed back to ratepayers, as directed by the OEB.

The cumulative life-to-date Service Level Credit variance account balance at the end of 2016 was $390,408.

In 2016, the Operational Service Provider for the MDM/R met all the service level requirements, which resulted in no service level credits.

4. Smart Metering Charge

Under section 1.4(d) of the Settlement Agreement, the SME is required to bring an application to adjust the SMC when its annual costs are over or under forecast by more than $2MM or explain why an application is not required:

"If the SME's total actual costs for a calendar year are over or under the forecast for that calendar year by more than $2MM, then the SME shall bring an application to adjust the SMC unless it provides a satisfactory explanation to the Board for why an application to adjust the SMC is not required."

The SME submits that an application to adjust the SMC is not warranted at this time for the following reasons:

- An application to set the SMC 2018 – 2022 period will be submitted to the Board by September 2017and will replace the current SME fee recovery that goes until October 2018. The application will incorporate the residual favourable variance.
- The SME faces additional budgeting considerations required in light of the 2016 OEB Order(s) implementation (EB-2015-0297 and EB-2016-0284) and specifically the Third Party Access plan which is currently under development for full deployment in 2018 and beyond.
- The SME has utilized the SMC variance to minimize its outstanding debt which will result in a lower SMC in the 2018-2021 period.

<u>New SMC application by September 2017</u>

The new SMC application will be filed by September 2017 and will include a new four year budget that will cover the 2018 – 2021 operational period and will align the budget with the current term of the SME licence (currently approved until the end of 2021).

<u>Additional budgeting considerations in light of 2016 OEB Orders</u>

In 2016 the SME received two new OEB orders[1]which had implications on resources and budgets that were not initially planned for. These orders required the SME to file a plan to implement the following:

"Effective January 1, 2017, the SME shall collect the following information associated with each meter (modified where necessary to sufficiently render it non-personal information):

a. The postal code.
b. The distributor rate class.
c. The commodity rate class, and
d. Occupant change data.

In the first phase to comply with the orders the SME developed the protocols for collection of the above information within the requested timelines and in full observance of privacy requirements, and as of the date of this report all LDCs have complied with the data transmission requirements to the MDM/R (with over 99% of the required data having been submitted).

[1] On January 26th 2016 (EB-2015-0297) and November 24th 2016 (EB-2016-0284)

With the first phase successfully completed, the SME is now focusing its efforts on the second, more complex phase, specifically the development of a Third Party Access plan for this enhanced MDM/R data. An assessment of the cost implications of the required Third Party Access plan, which is underway at this time, will be included in the next SMC application.

This next phase will continue to draw on SME resources with unbudgeted costs required for a wide range of activities from the running of the working groups and stakeholder engagement effort, to consulting costs associated with the privacy analysis to ensure that the data collected is rendered non-personal and the correct processes and policies are put in place for testing and piloting, communications, etc.

Minimize Outstanding Debt

As of December 31st, 2016 the IESO's SME related debt for the development, implementation and operation of the MDM/R was $29MM (Table 5), a further reduction of over $19MM over the past year.

Paying down the debt faster has resulted in the savings of millions of dollars for ratepayers since 2013 due to lower financing costs. The SME will continue to take full advantage of opportunities to minimize the cost of debt and therefore costs to Ontario ratepayers.

The originally approved budget assumed the full $100.1MM SME debt recovery by the end of the collection period in October 31st 2018 but only included operational costs up to December 31st, 2017.

For the above reasons, the SME submits that the current SMC should remain unchanged until the end of 2017, to allow the SME to fully consider the costs associated with the OEB implementation Order, and to be able to start the new budgeting cycle 2018 – 2021, with a new SMC that minimizes the debt component of the outstanding debt as of Dec 31st 2017 (estimated at $9MM) while reflecting the cost associated with the requirements of maintaining the high performance service levels of the MDM/R.

5. Accounting Changes

As of January 1st, 2016, the IESO made changes to its accounting policies to increase transparency and to report certain costs as regulated assets, consistent with the accounting policies of other regulated entities in North America. This change, which has been applied retroactively, has resulted in a change in the way the amount representing past Smart Metering expenses that are to be recovered from future SMC collection are reflected on the IESO's Statement of Financial Position, specifically the conversion of the previously reported accumulated deficit as a Smart Metering regulatory asset ($21.6MM as of December 31st, 2016 and $40.8MM as of December 31st, 2015). (See Table 5 – SME Statement of Financial Position).

This accounting change has no impact on the SME financial operations or the annual cost and variance account report results.

6. SME Variance Account Report - Table 3

	For the 2016 Reporting Period		
Variance Account	**SMC Revenue Requirement**	**Actual**	**Variance (SMC Revenue Requirement - Actual)**
Cost	$ 30,085,202	$ 24,575,724	$ 5,509,478
Revenue	$ 45,206,527	$ 46,651,100	$ (1,444,573)
Service level Credit	$ -	$ -	$ -

	For the 2013 - 2016 Reporting Period		
Variance Account	**SMC Revenue Requirement**	**Actual**	**Variance (SMC Revenue Requirement - Actual)**
Cost	$ 119,226,192	$ 98,331,918	$ 20,894,273
Revenue	$ 165,757,267	$ 168,745,982	$ (2,988,715)
Service level Credit	$ -	$ (390,408)	$ 390,408

7. Appendices

Table 4 - SME Annual Cost Report

SME Financial Cost Report						
	Calendar Year: 2016					
BUDGET LINE ITEM DESCRIPTION	OEB Approved Budget	Budget Transfer (1)	Budget	Actual	Variance (Actual - Budget)	Explanation
MDM/R OPERATIONS						
IESO Costs						
IESO Project Team costs						
IESO Staff Costs	$ 3,780,589	-213,339	3,567,250	2,644,461	922,789	The positive variance is the combined result of an average 1.5 FTE vacancies year to date, temporary resources backfilling regular staff and less labour expenses for IESO support functions transferred than planned. Additional cost savings resulted from lower overtime, less students and other expenses as planned, despite some additional support required for the OEB Order implementation.
Contractor Costs	$ 2,211,999		2,211,999	2,543,795	-331,796	
Total IESO Project Team Costs	**$ 5,992,588**	**-213,339**	**5,779,249**	**5,188,256**	**590,993**	
External Fees and Expenses	$ 527,965	213,339	741,304	802,057	-60,753	The variance is due to increases in the cost of IBM Smart Cloud support, computer leases, CSAE audit and other miscellaneous expenses offset by less legal and training expenses than planned.
Regulatory Process: Licensing & Cost Recovery	$ 10,000		10,000	188,058	-178,058	A portion of the annual OEB cost allocation ($173 thousand) paid by the IESO was allocated to the SME starting in 2016. This will be an ongoing expense.
IESO Communications Support	$ 56,275		56,275	0	56,275	
Total IESO Costs	**$ 6,586,828**	**0**	**6,586,828**	**6,178,370**	**408,458**	**Overall total IESO Costs were lower than budgeted by 6% or $408K.**
Vendor Costs						
Vendor Base Contract Costs	$ 13,911,384	0	13,911,384	14,016,584	-105,200	The variance is due to the operating fees for the new Data Mart & Web Service Facility which were not part of the original OEB Budget submission and offset by lower than planned MDMR operating fees.
Software Licenses	$ 1,528,059	360,000	1,888,059	2,258,421	**-370,362**	The variance is mostly due to the exchange rate on US support and maintenance contracts plus the additional support for the Data Mart & Web Service Facility
Total Vendor Costs	**$ 15,439,443**	**360,000**	**15,799,443**	**16,443,383**	**-643,940**	**Overall total Vendor costs were 4% over budget, or $643K**
Total MDM/R Operations Costs	**$ 22,026,271**	**360,000**	**22,386,271**	**22,621,753**	**-235,482**	**Overall total MDM/R Operations Costs (consisting of IESO and Vendor costs) were on budget with 1% positive variance, or $235K**
MDM/R Changes and Initiatives						
Provision for MDM/R Upgrades, Maintenance and Changes	$ 5,000,000	-360,000	4,640,000	0	4,640,000	Factors contributing to the signficant positive variance were the successful delivery of the MDM/R 7.7 upgrade, as well as the deferral of major technical projects such as the MDM/R 8.X upgrade strategy due to OEB order requirements. Additionally , no significant effort was applied to the Toronto Hydro Integration as the project start date was moved to 2017.
Total MDM/R Changes and Initiatives Costs	**$ 5,000,000**	**-360,000**	**4,640,000**	**1,412,481**	**3,227,519**	**Overall total MDM/R Changes and Initiatives costs were 70% under budget, by $3.2MM**
SUB-TOTAL (Before Financing Costs)	**$ 27,026,271**	**0**	**27,026,271**	**24,034,234**	**2,992,037**	
Financing Costs	**$ 3,058,931**		**3,058,931**	**539,523**	**2,519,408**	**The over 80% positive variance is due to lower interest rates than projected and an excellerated pay down of debt resulting in lower financing costs of $2.5MM, a signicant saving for ratepayers**
TOTAL COSTS	**$ 30,085,202**	**0**	**30,085,202**	**24,573,757**	**5,511,445**	**Overall MDM/R costs for 2016 were 18% under budget, or by $5.5MM**
TOTAL REVENUE	**$ 45,206,527**	**0**	**45,206,527**	**46,651,100**	**1,444,573**	**The variance is a result of more smart meters installed at the start of 2016, than planned (an additional 153,000). The Smart Metering Entity collects $0.788/smart meter/month, within Ontario.**

Budget transfer: IESO Board of Directors approved change in budget allocation of the operation of the MDM/R and for MDM/R Changes and Initiatives.

Table 5 – SME Statement of Financial Position

Statement of Financial Position
Smart Metering Entity

As at (in thousands of Canadian dollars)	December 31, 2016	December 31, 2015
FINANCIAL ASSETS		
Regulated Asset - SME	21,622,840	40,848,713
TOTAL FINANCIAL ASSETS	**21,622,840**	**40,848,713**
LIABILITIES		
Accounts payable & accrued liabilities	778,415	3,622,108
Debt	29,032,088	48,130,341
TOTAL LIABILITIES	**29,810,504**	**51,752,449**
NET DEBT	**(8,187,663)**	**(10,903,736)**
NON-FINANCIAL ASSETS		
Property & Equipment		
Meter Data Management/Repository (MDM/R)	7,721,718	10,571,222
Short-term prepaid expenses	465,946	332,514
TOTAL NON-FINANCIAL ASSETS	**8,187,663**	**10,903,736**
TOTAL ACCUMULATED SURPLUS / (DEFICIT)	**-**	**-**

Table 6 – 2016 SME Financial Report Reconciliation to IESO Audited Financial Statements

SME Financial Report Reconciliation to the IESO Audited Financial Statements	
Smart metering charge - actual revenue	46,651,100
Smart metering charge - annual report	27,425,227
Amount to reconcile	19,225,873
Smart metering expenses - actual expenses	24,575,724
Smart metering expenses - actual report	27,425,227
Amount to reconcile	(2,849,503)
Total amount to reconcile	16,376,370
Add: change in regulated asset	19,225,873
Add: capital spend on MDM/R	1,011,356
Less: amortization expense	3,860,859
Less: service level credits	0
Total reconciled	16,376,370

SMART METERING CHARGE AND CALCULATION OF THE CHARGE

1. The SME proposes to continue with the currently approved rate structure for the SMC, through a monthly charge per residential and general service <50kW customer collected from LDCs. Under this approach, the SME's approved revenue requirement will continue to be allocated to, and recovered monthly from, LDCs on a "per customer" basis.

2. In advance of the currently approved SMC (EB-2012-0100/EB-2012-0211), the SME had consulted with LDC representatives and determined that the most appropriate rate structure for the SMC was through a "per customer" charge. This rate structure spreads the costs of the SME over the total number of smart meters expected to be deployed in recognition that the MDM/R provides a service that will continue to benefit all end-use smart meter customers across Ontario and help meet the province's conservation goals.

3. The proposed rate structure continues to be consistent with the well-established criteria of a sound rate structure:

(a) *Simplicity*: The proposed rate structure is simple to understand and administer because it uses reliable and accurate data on the number of residential and general service <50kW customers in Ontario as a whole and for each LDC. This will allow LDCs to easily and accurately anticipate the SMC payable each year.

(b) *Stability:* Application of the proposed rate structure will allow the SME to recover its costs. The proposed structure also provides for both revenue and rate stability and will help smooth the cash flow impact for the SME and reduce its forecast risk.

(c) *Fairness*: The SME's capability to provide services is mainly achieved through its staff and integrated information technology, and the bulk of the SME's costs do not

vary with the number of meters enrolled with the MDM/R or whether those meters serve residential or general service <50kW customers. The ongoing costs of the MDM/R do not depend on usage levels and the integrated nature of the MDM/R does not lend itself to a precise cost allocation based on MDM/R functions or the date on which service commences. Therefore, it is fair that the costs of the SME be shared equally amongst end use customers regardless of when that customer began receiving service.

Calculation of the Smart Metering Charge (SMC)

4. The calculation of the "per customer" SMC is summarized as follows:

$$\text{SMC} = \frac{\text{(Revenue Requirement / Average Number of Residential and General Service <50kW Customers over the January 1, 2018 to December 31, 2022 period)}}{\text{Number of Collection Periods}}$$

$$\$0.59/\text{meter/month} = \frac{\$178.1 \text{ million} / 5 \text{ million meters}}{60 \text{ months}}$$

5. Each of the components for the formula is discussed below in greater detail.

6. **Revenue Requirement**: The SME has applied for a revenue requirement of $178.1 million as detailed in Exhibit A-1-1.

7. **Average Number of Residential and General Service <50kW Customers**: The "per customer" count used by the SME for the purposes of the SMC is the projected average number of residential and general service <50kW customers that the SME expects to provide service to during the period between January 1, 2018 and December 31, 2022.

The projected December 31, 2017 enrollment of smart meters in the MDM/R is forecast to reach almost five million smart meters (inclusive of the addition of over 700,000 smart meters from Toronto Hydro's integration into the MDM/R). Enrolment is estimated to continue to increase at a rate of 1% per year from January 1, 2018 to December 31, 2022 based on recent growth patterns. The 1% growth pattern is based on a 3-year historical average of smart meter growth for both Residential and General Service <50kW across all LDCs as reported in the Board`s 2013, 2014 and 2015 Yearbook of Electricity Distributors.

Based on this growth pattern, the SME estimates that there will be over 5.1 million meters in place by the end of 2022 and an average of just over 5 million smart meters over the 5-year period between 2018 and 2022 during which the proposed SMC is expected to be in effect.

8. **Number of Collection Periods**: The SME proposes to continue to collect the proposed SMC on a monthly basis over 60 collection periods. The proposed SMC will be invoiced to LDCs for the applicable month on the tenth business day (as per the Market Rules) following the end of the previous month, such that it would be paid by the LDC in the applicable month.

9. Based on the proposed rate structure and calculation, the proposed SMC is $0.59/meter per month, which is $0.20 less than the current SMC of $0.79/meter per month, representing a reduction of 25%.

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SME VARIANCE ACCOUNTS

1. In its March 28, 2013 Decision and Order, EB-2012-0100/EB-2012-0211 (as updated by Decision and Order dated May 14, 2013), the Board approved the current SMC and the establishment of the three variance accounts:

- *Costs Account* to record any changes in the SME's forecast costs.
- *Revenue Account* to record any revenue surplus or deficiency relative to the forecast revenue.
- *Service Level Credits Account* to record any service level credits received by the SME from IBM for distribution to MDM/R service recipients under section 7.6 of the previous SME/LDC Agreement.

2. The forecast balance of each of these variance accounts is as follows.

3. **Costs Account:** The projected balance in the Costs Account as at December 31, 2017 is $25.6 million.

(In millions of dollars)	2016 Life-to-Date*	2017 Projected	2018	2013 - 2017 OEB Approved Budget
Cost - Actual	98.3	24.5	-	122.9
Cost - Budget	119.2	29.3	-	148.5
Revenue Account Balance	20.9	4.7	-	25.6

** As reported in the 2016 Annual Cost Variance Account Report to the OEB*

4. **Revenue Account:** The projected balance in the Revenue Account as at December 31, 2017 is a deficiency of $32.6 million. The projected revenue deficiency is a result of the discrepancy between the revenue requirement period approved in EB-2012-0100/EB-2012-0211 (up to December 31, 2017) and the collection period for the SMC (May 1, 2013 to October 31,

2018). Under the current SMC, the SME is forecast to collect a total of $248.6 million by October 31, 2018.

(In millions of dollars)	2016 Life-to-Date*	2017 Projected	2018	2013 - 2017 OEB Approved Budget
Revenue - Actual	168.7	47.3	-	216.0
Revenue - Budget	165.8	45.2	37.7	248.6
Cost Account Balance	3.0	2.1	37.7	(32.6)

** As reported in the 2016 Annual Cost Variance Account Report to the OEB*

5. **Service Level Credits Account:** The projected balance in the Service Level Credits Account as at December 31, 2017 is $0.4 million. The SME is seeking to have the current balance in this account cleared which, if approved, will result in a $0 balance effective January 1, 2018.

6. The current balance in the account was generated when the SME/LDC agreement was in effect. The SME/LDC agreement was approved by the Board in its March 28, 2013 Decision and Order approving the settlement agreement in EB-2012-0100/EB-2012-0211. Section 7.6 of the SME/LDC agreement required the SME to ask the Board to approve the allocation of service level credits amongst MDM/R service recipients as determined by the SME Steering Committee. As the SME/LDC agreement is no longer in effect, section 7.6 will not apply to any future credits received and the SME is proposing that any future credits be credited in the BVA and ultimately returned to the SME's ratepayers as described under the Proposed Balancing Variance Account.

(In millions of dollars)	2016 Life-to-Date*	2017 Projected	2018	2013 - 2017 OEB Approved Budget
Service Level Credits	0.4	-	-	0.4
Service Level Credits Balance	0.4	-	-	0.4

** As reported in the 2016 Annual Cost Variance Account Report to the OEB*

The Proposed Balancing Variance Account

7. The SME seeks to establish a new variance account, the Balancing Variance Account ("BVA"), and to have the Costs Account, the Revenue Account and the Service Level Credits Account made sub accounts of the BVA. The SME recognizes that its actual costs and revenues may vary from the assumptions used to calculate the SMC. As a result, at any point in time, there will likely be either an over-collection or under-collection of costs versus revenue by the SME. For example, in 2018, the SME will be running a deficit due to the higher first year investment in the EnergyIP 8.x upgrade project. Accordingly, the SME is seeking Board approval to use the BVA to track changes in its costs, as well as any revenue surplus or deficiency.

8. If approved, the proposed BVA will have a projected deficit balance of $7.0 million as of January 1, 2018 as shown below.

Accounts/Sub-accounts	**Account Balances (in millions of dollars)**
Service Level Credit Account Balance	0
Cost Account Balance	25.6
Revenue Account Balance	(32.6)
Balancing Variance Account Balance	(7.0)

9. The SME is seeking to accumulate a reserve of $2.5 million in the BVA and retain this amount as an operating reserve, similar to the $10 million the IESO has approval to retain in its Forecast Variance and Deferral Account.

10. With the scope and complexity of the SME's work continuing to expand, the SME recognizes the potential for additional unplanned work activities that may be material in scope and are beyond the control of the SME. This potential work is described below under the heading "Risks". In response to potential volatility in spending driven by changes in the

volume of activities and the external environment, the SME seeks to accumulate a $2.5 million operating reserve in the BVA.

11. The SME is also proposing that any surplus in the BVA that: (1) exceeds the proposed operating reserve of $2.5 million; and (2) amounts to $0.05 per meter or greater be rebated back to ratepayers. With approximately 5 million meters in the province the proposed $0.05 per meter equals approximately $250,000. This rebate would be administered three months after the filing of the SME's annual report with the Board on April 30th. The SME is seeking a three-month delay to rebate any such surplus to allow the Board due time to review the report and provide alternative direction prior to the rebate being processed should it choose to do so.

12. The IESO has proposed the threshold of $0.05 per meter per month as a reasonable threshold for the rebate and to avoid the administrative burden of rebating an amount below this proposed threshold. The proposed calculation to determine whether the threshold has been reached is to take the surplus in the BVA in excess of the proposed operating reserve of $2.5 million and dividing it by the number of meters in the Board`s most recently published *Yearbook of Electricity* Distributors, as shown below. If the resulting amount exceeds $0.05 per meter, then the amount will be rebated back to ratepayers.

Surplus in the BVA in excess of $2.5 million / number of meters in the most recently published OEB Yearbook > $0.05

Risks

13. The SME faces risks in both its revenues and operating expenses. The SME's expenses and revenues are forecast based on both the experience of IESO and SME staff and the best information available at the time. While the SME and the IESO strive to reduce uncertainty in the inputs in order to make the resulting revenue requirement and SMC as robust as possible, all forecasts are inherently uncertain. Some of the potential risks the IESO faces may be anticipated but not quantifiable, while others are simply not known.

14. A number of risks and potential other sources of variances to the SME's forecasts have been identified, including:

- the US-Canada exchange rate which has, and will potentially further impact, the SME's operating expenses as some invoices are billed in US dollars;
- increases in interest rates which would increase financing costs;
- the potential impacts of new or changing policy initiatives or requirements, including any related to provincial initiatives such as net metering or expanding service to additional customer classes;
- the potential expanding scope of the SME's business model in light of third-party access requirements; and
- potential technical enhancements as requested by LDCs.

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MDM/R GOVERNANCE AND ONGOING STAKEHOLDER OUTREACH

1. The SME Steering Committee ("SSC") is a consultative body, originally established under the provisions of the SME/LDC Agreement and continued under the Terms of Service. It is made up of representatives from LDCs and a representative of the SME. The SSC:

- provides input in the ongoing development of the Terms of Service and the MDM/R manuals and procedures;
- provides input on the SME's provision of MDM/R services and adherence to the committed service levels as prescribed in the Terms of Service;
- considers proposals to amend the Terms of Service from the SME, MDM/R service recipients, or initiated by the SME Steering Committee; and
- participates in consultations, as and when requested by the SME, regarding amendments to the MDM/R manuals and procedures.

2. The SME has undertaken multiple other outreach and consultations with LDCs and stakeholders, including:

(a) Since 2013, the SME has visited with LDCs and meter vendors around the province, gathering input on how to improve SME services and process to benefit LDCs.

(b) The SME has supported six LDC mergers within the MDM/R using a specially-designed custom tool and accompanying processes to ensure a smooth and seamless experience for the merging LDCs.

(c) The SME has successfully supported three Customer Information System ("CIS") replacement projects by developing a testing process for LDCs undertaking a change to their CIS software technology.

(d) In May 2015, the SME introduced the SME Academy to enhance the content and availability of training materials for LDCs. The SME Academy is an online platform that houses a collection of interactive training modules, which covers topics related to the MDM/R, including Graphical User Interface ("GUI") hands-on activities, synchronization, archiving of meter read and billing data, and other topics. There are currently 19 modules available and the SME develops new modules upon request and as needed. The SME Academy offers LDCs the flexibility to review the training material at their location, thereby reducing costs and maximizing productivity for them.

(e) In September 2016, the SME held its first province-wide LDC event at the International Center in Mississauga to discuss and gather feedback from the broader LDC community on "Enhancing the Value of Data". Such events will continue to be held on a yearly basis, with this year's event planned for the fall of 2017.

(f) Development of the MDM/R DataMart, a synchronized copy of the MDM/R production database but with 24/7 access and extreme speeds, was completed in late 2016. The MDM/R DataMart is intended to be used for fulfilling web services requests, data extract requests, and other ad-hoc queries without impacting the core operations of the MDM/R. Query performance is significantly improved over the MDM/R, such that meter read retrieval web services requests can span up to 365 days (compared to the 100 day limit of the MDM/R) and meter read retrieval web services requests to the MDM/R DataMart are capable of retrieving greater historical data than what is available through the MDM/R. As the MDM/R DataMart operates 24/7/365, with no scheduled outages, it is ideal for fulfilling web services requests and is currently averaging 55,000 web service requests per day. Currently, 12 LDCs are enrolled with the MDM/R DataMart and other LDCs are anticipated to enroll voluntarily and with non-disruptive transitions. The MDM/R DataMart

continues to support new and evolving value-added data services including the following:

(i) The delivery of several custom aggregated reports to assist LDCs with business operations; and

(ii) The MDM/R Data Governance project (an initiative of the SME and the SSC, meant to ensure that all master and meter data collected from the LDCs and stored in the MDM/R is accurate and mapped correctly, to ensure the highest quality analytics for the LDCs own use or for third parties in the future).

4. During the course of its current 5-year budget and operating cycle, the SME has consistently demonstrated a commitment to operational excellence and efficiency, as evidenced in the performance reports provided to the OEB quarterly[1] and in numerous stakeholder communications. Ontario's MDM/R has evolved into a mature, reliable system and is one of the largest shared service systems in the world supporting 67 LDCs and eight authorized agents.

5. An excerpt from the most recent quarterly performance report, which was provided to the OEB on July 31, 2017, is below:

> *The MDM/R production environment remains stable and reliable, processing reads from over 4 million meters for 67 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 second quarter of 2017, the MDM/R was operationally stable by exceeding service levels for 99.99% of meter reads, 100% of billing quantity requests, and 100% of master data updates.*

[1] The most recent quarterly performance report filed with the Ontario Energy Board, the Smart Metering Entity (SME) MDM/R Report 2nd Quarter 2017 April to June Issue 16.0 - July 31, 2017, is found at Exhibit B-4-1, Attachment 1.

6. Recent key accomplishments and major projects of the SME include:

(a) In 2016, the MDM/R Annual CSAE 3416 Audit resulted in a 7th consecutive year of "no qualifications" result.

(b) Toronto Hydro MDM/R integration is underway with a target date for data integration by the end of September 2017 and billing functions coming online in a phased approach throughout 2018.

REPORT

Smart Metering Entity (SME)
MDM/R Report
2nd Quarter 2017

April to June

Issue 16.0 - July 31, 2017

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1. Introduction

1.1 Purpose and Contents

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).

More information about the provincial Smart Metering Initiative and the MDM/R is available on the IESO/SME website (http://www.ieso.ca/sector-participants/smart-metering-entity), the Ontario Energy Board website (www.ontarioenergyboard.ca/OEB/Industry), and the Ministry of Energy website (http://www.mei.gov.on.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.

This report includes the following updates:

- MDM/R Operation and Processing Performance
- MDM/R Performance
- LDC Performance
- MDM/R Service Levels
- Second Quarter Key SME Activities
- LDC Compliance with OEB Order EB 2015-0297
- Additional Risks and Issues, and
- Other Opportunities and Next Steps

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. It also includes LDC compliance with the OEB Order EB 2015-0297 as requested by the OEB.

2. MDM/R Operation and Processing Performance

2.1 MDM/R Performance

The MDM/R production environment remains stable and reliable, processing reads from over 4 million meters for 67 LDCs on a daily basis. The SME continues to respond to and address LDC support, service requests and issues in a timely manner.

67 LDCs

4,184,256 Smart Meters

In the second quarter of 2017, the MDM/R was operationally stable by **exceeding** service levels for 99.99% of meter reads, 100% of billing quantity requests, and 100% of master data updates.

2.2 LDC Performance

The SME continues to produce monthly performance metrics reports and daily summarized operational data for each LDC through the MDM/R Service Desk tool. In the second quarter the MDM/R Service Desk tool was updated to provide an enhanced user interface and advanced features allowing LDCs to monitor and correct missing data and manage meter activities. Feedback and development suggestions from LDCs are encouraged by the SME to provide more operational value and support for LDC business operations.

LDC meter data submissions improved during the second quarter with the amount of estimation dropping to less than 1%. Reduction of estimated data directly correlates to increased billing accuracy. The SME continues to monitor the MDM/R and work with the LDC community to improve the quality of their data submissions.

2.3 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 summary[1].

Critical Service Level Summary		Apr-2017	May-2017	Jun-2017	2nd Quarter
Automatic Meter Read Processing	Intervals Loaded	**3,119,628,807**	**3,218,298,808**	**3,118,097,089**	**9,456,024,704**
	Intervals Loaded on Time	**3,118,910,781**	**3,218,298,808**	**3,118,097,089**	**9,455,306,678**
	% Intervals Loaded on Time	**99.98%**	**100.00%**	**100.00%**	**99.99%**
	Number of incidents resulting in accumulated delay >240 minutes[2]	**1**	**0**	**0**	**1**
Automatic Billing Quantity Processing	BQ Requests	**4,069,088**	**6,955,969**	**4,563,792**	**15,588,849**
	BQ Requests Fulfilled on Time	**4,069,088**	**6,955,969**	**4,563,792**	**15,588,849**
	% 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	**1,281,261**	**2,612,233**	**1,927,036**	**5,820,530**
	Data Elements Loaded on Time	**1,281,261**	**2,612,233**	**1,927,036**	**5,820,530**
	% 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	**99.99%**	**100.00%**	**99.99%**	**99.99%**
	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	**100.00%**	**100.00%**	**100.00%**	**100.00%**
	Number of incidents resulting in Reporting percentage completion outside of agreed Service Level target	**0**	**0**	**0**	**0**
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**

Non-Critical Service Level Summary		Apr-2017	May-2017	Jun-2017	2nd Quarter
Meter Read Retrieval Web Services	Response Time	**99.98%**	**99.98%**	**99.99%**	**99.99%**
	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%**	**99.82%**	**99.63%**	**99.82%**
	Number of incidents resulting in MDM/R Availability outside of agreed Service Level target	**0**	**0**	**1**	**1**
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**

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

2.4 2nd Quarter Key SME Activities

SME Steering Committee

The SME Steering Committee held a meeting on June 20th 2017 which was hosted at the Hydro Ottawa office. During this meeting LDCs were given the opportunity to provide feedback and suggestions to the SME during a pre-scheduled meeting open call. LDCs can also communicate feedback and suggestions through email and online live via the webinar presentation. The next meeting and call is scheduled for September 12th 2017 and it is being hosted at the Entegrus office.

One of the topics discussed with the SSC was the revision of the current MDM/R Terms of Service (ToS) document in light of the Distribution System Code amendment that removed section 5.4.1 below as no longer required and with it the requirement for an LDC/SME Agreement approved by the OEB.

"A distributor shall, upon being requested to do so, enter into an agreement with the Smart Metering Entity or the IESO, in a form approved by the Board, which sets out the respective roles and responsibilities of the distributor and the Smart Metering Entity or the IESO in relation to metering and the information required to be exchanged to allow for the conduct of these respective roles and responsibilities."

The nature of the revisions to the ToS include preservation of key governance and operating provisions from the former Agreement and updates to items that were no longer current since the inception of the document several years ago. The revised ToS was discussed with the SSC and SME has captured valuable input that will be reflected and finalized in the revised ToS by Q4 2017; at which point, the new document will be shared with the rest of the LDC community.

LDC Training

During the second quarter the SME delivered several webinars to the LDC community to explain the new interface and functionalities expected with the upgrade of the MDM/R Service Desk tool. Basic MDM/R GUI Training was provided on June 28th and Advanced MDM/R GUI training was held June 29th.

MDM/R Service Desk tool upgrade

On May 13th the SME successfully upgraded the MDM/R Service Desk tool to maintain software support and provide an enhanced user interface with added functionality allowing LDCs to monitor and correct missing data and manage meter activities.

MDM/R DataMart

The total number of LDCs enrolled into the MDM/R DataMart has reached 12. LDCs are expected to enroll voluntarily, and transitions are expected to be non-disruptive from an application perspective. Once transitioned, LDCs and their agents can take advantage of the 24/7 access to data and the ability to retrieve large amounts of data efficiently with few restrictions on the amount of data being requested.

This facility continues to support new and evolving value-added data services including the delivery of several custom aggregated reports to assist LDCs with business operations, SME Data Governance analysis and the upcoming Third Party Access pilot projects.

Toronto Hydro MDM/R Enrolment

Toronto Hydro successfully completed file transfer connectivity testing in the MDM/R Sandbox, QA, and Production environments on May 5, 2017. On May 17th, 2017 the SME attended a meeting onsite at Toronto Hydro to review and discuss the SME's formal testing requirements and scenarios required before Toronto Hydro's MDM/R production cutover planned for September 30th, 2017. In the middle of

June, Toronto Hydro registered 900 service locations with the MDM/R to use for testing over the next two months. Toronto Hydro's MDM/R testing began in late June and is progressing well.

Third Party Access Implementation Plan

The IESO's Data Strategy Advisory Council (DSAC) is a committee of representatives within Ontario's electricity sector and other sectors as applicable, appointed by the IESO, to provide input in the review and development of processes for the implementation of Third Party Access to the data within the Province's Meter Data Management/Repository (MDM/R), in a de-identified manner, as per OEB Orders (EB-2015-0297 and EB-2016-0284).

The committee was successfully established, and the first meeting was held on June 15, 2017. Input from the committee was gathered on the development of an implementation plan to provide third party access to de-identified electricity consumption data within the provincial MDM/R and how to engage Ontario's broader stakeholder community in these efforts. The committee discussed engagement, building a roadmap for Third Party Access, and finalized the Terms of Reference. A second meeting was held on June 27th whereby the SME presented a framework for test case selection and analysis including a submission form to be used by DSAC members to formulate their data requests.

The next DSAC meeting is scheduled for Wednesday August 2nd and a broad stakeholder engagement initiative is also planned for Q3/Q4 2017 to ensure broad awareness and a platform for engagement on this key initiative for the province.

Phase 2 of the privacy analysis on the new data collected in the MDM/R has also been initiated to validate the process for additional data collection by the SME, as established through the conceptual Phase 1 of the privacy analysis completed in 2016. The Phase 2 privacy analysis will be completed by Q4 2017 and will be followed by the execution of the test cases selected within DSAC.

The IESO will continue to work closely with the Office of Information and Privacy Commissioner of Ontario (IPC) and the privacy consultant (Privacy Analytics Inc.) to ensure privacy compliance, ethics and fairness as the Third Party Access Implementation Plan gets developed and rolled out.

Further information regarding the Data Strategy Advisory Council and its activities can be found on our website at http://www.ieso.ca/en/sector-participants/smart-metering-entity/data-strategy-advisory-council

SME Rate Filing

The SME is currently working to complete and submit a new 5-year budget and a rate filing for a new Smart Meter Charge for the period of January 1st, 2018 to December 31st, 2022. This will be submitted to the OEB by September 2017.

3. LDC Compliance with OEB Order EB 2015-0297

Compliance with OEB Order EB 2015-0297 is very high. At the time of this report, all LDCs have completed the processes for submission of the additional data to the MDM/R with only a small percentage of the additional data fields outstanding.

Overall, the percentage of Service Delivery Points (SDPs) with a Commodity Rate Class is at 99.66%, Distributor Rate Class is at 99.68%, and the number of SDPs with a valid Postal Code is at 99.75%.

The SME continues to work with the LDCs to ensure completeness of the new data fields added into the MDM/R (currently addressing the small number of LDCs with a high percentage of SDPs assigned with the default W8W8W8[2] postal code). The SME will continue to support LDCs as they approach full compliance status with the OEB Order.

[2] *W8W8W8 denotes a generic postal code classification that includes unassigned postal codes (upcoming new home divisions) and unique dwelling postal codes flagged by LDCs.*

LDC NAME	ACTIVE SDP COUNT	% of SDP's with Distributor Rate Class	% of SDP's with Commodity Rate Class	% of SDP's with Valid Postal Code	% of SDP's with Default Postal Code (W8W8W8)	% of SDP's with Occupant Change Recorded
Hydro One	1,178,636	100.00%	100.00%	100.00%	2.12%	5.04%
Powerstream	344,788	99.97%	99.98%	100.00%	0.15%	5.84%
Hydro Ottawa	326,673	100.00%	99.98%	100.00%	0.06%	7.83%
Horizon Utilities Corporation	245,299	95.66%	95.47%	95.94%	3.29%	6.90%
Enersource	202,121	99.97%	99.91%	99.99%	0.27%	5.19%
Brampton Hydro	158,017	100.00%	100.00%	100.00%	1.14%	4.13%
London Hydro	154,714	99.99%	99.99%	99.99%	0.02%	8.41%
Veridian Connections	118,963	99.97%	99.97%	99.97%	0.40%	5.26%
Kitchener-Wilmot Hydro	94,597	100.00%	100.00%	100.00%	0.00%	6.45%
Enwin Utilities	88,622	100.00%	100.00%	100.00%	0.01%	7.51%
Oakville Hydro Electricty Distribution Inc.	69,786	99.97%	99.97%	100.00%	0.16%	7.53%
Burlington Hydro Electric Inc.	65,851	100.00%	100.00%	100.00%	0.50%	5.54%
Energy+ Inc.	64,232	100.00%	100.00%	100.00%	0.00%	6.12%
Oshawa Power and Utilities Corporation	56,926	99.93%	99.93%	99.93%	0.24%	6.95%
Waterloo North Hydro	56,879	98.24%	98.30%	100.00%	0.04%	7.02%
Guelph Hydro Electric Systems Inc.	54,440	100.00%	100.00%	100.00%	0.91%	8.52%
Niagara Peninsula Energy Inc.	53,832	100.00%	100.00%	100.00%	0.01%	6.60%
Thunder Bay Hydro Electricity Distribution	50,521	99.55%	99.51%	99.89%	26.92%	6.29%
Greater Sudbury Hydro Inc.	47,538	100.00%	100.00%	100.00%	0.01%	6.31%
Whitby Hydro Electric Commission	42,078	100.00%	100.00%	100.00%	0.46%	4.30%
Entegrus Power Lines	40,783	100.00%	100.00%	100.00%	0.01%	6.29%
Canadian Niagara Power	40,514	99.97%	99.96%	99.97%	0.34%	4.37%
Brantford Power Inc.	39,176	99.55%	99.56%	99.81%	0.00%	7.39%
Peterborough Utilities	36,589	99.84%	99.29%	99.85%	0.00%	7.25%
Bluewater Power Distribution Corporation	36,285	99.98%	99.98%	100.00%	0.36%	6.48%
Milton Hydro Distribution	35,768	99.89%	99.89%	99.89%	0.13%	7.14%
Newmarket Hydro	35,394	100.00%	100.00%	100.00%	1.88%	4.42%
PUC Distribution	33,774	100.00%	100.00%	100.00%	0.17%	5.56%
Essex Power	29,417	99.89%	99.89%	99.89%	0.07%	4.96%
Utilities Kingston	27,532	100.00%	100.00%	100.00%	0.56%	10.46%
North Bay Hydro	23,720	99.39%	99.04%	99.46%	0.00%	7.25%
Westario Power Inc.	23,088	100.00%	100.00%	100.00%	0.52%	6.48%
Welland Hydro-Electric System Corp.	22,898	100.00%	100.00%	100.00%	0.07%	6.77%
Halton Hills Hydro Inc.	21,912	100.00%	100.00%	100.00%	0.36%	5.04%
Festival Hydro Inc.	20,686	99.95%	99.98%	99.98%	4.10%	7.11%
Erie Thames Powerlines	18,792	99.99%	99.99%	99.99%	1.20%	6.22%
St. Thomas Energy Inc.	17,429	100.00%	100.00%	100.00%	0.02%	7.37%
Collus PowerStream	17,082	100.00%	100.00%	100.00%	0.00%	7.73%
InnPower Corporation	16,653	100.00%	100.00%	100.00%	1.39%	6.51%
Orillia Power Corporation	13,609	100.00%	100.00%	100.00%	0.01%	6.89%
Wasaga Distribution Inc.	13,463	99.99%	99.99%	100.00%	0.00%	4.69%
Lakeland Power Distribution	13,354	100.00%	100.00%	100.00%	0.00%	5.68%
Orangeville Hydro Limited	12,135	100.00%	100.00%	100.00%	0.07%	7.10%
E.L.K Energy Inc.	11,279	96.26%	96.26%	99.95%	0.33%	4.38%
Grimsby Power Inc.	11,178	100.00%	100.00%	100.00%	0.75%	5.49%
Ottawa River Power	10,848	100.00%	100.00%	100.00%	0.16%	8.08%
Lakefront Utilities	10,354	99.95%	99.95%	99.95%	1.22%	6.24%
Niagara-on-the-Lake Hydro	9,350	100.00%	100.00%	100.00%	0.01%	6.12%
Midland Power Utility Corporation	7,165	100.00%	100.00%	100.00%	0.00%	7.16%
Centre Wellington Hydro Ltd.	6,802	100.00%	100.00%	100.00%	0.00%	6.84%
Tillsonburg Hydro Inc.	6,757	99.99%	99.99%	99.99%	0.00%	6.54%
Northen Ontario Wires Inc.	5,974	100.00%	100.00%	100.00%	0.00%	6.13%
Rideau St. Lawrence Distribution	5,829	100.00%	100.00%	100.00%	0.10%	7.51%
Kenora Hydro	5,591	97.96%	98.05%	98.27%	98.19%	5.26%
Hawkesbury Hydro	5,462	100.00%	100.00%	100.00%	0.02%	6.90%
Renfrew Hydro Inc.	4,262	99.98%	99.98%	100.00%	0.05%	7.06%
West Coast Huron Energy Inc.	3,818	100.00%	100.00%	100.00%	0.00%	6.52%
Wellington North Power Inc.	3,739	100.00%	100.00%	100.00%	0.05%	7.11%
Fort Frances Power Corporation	3,730	98.02%	98.53%	98.66%	98.61%	5.12%
Espanola Regional Hydro	3,318	100.00%	100.00%	100.00%	5.24%	5.97%
Sioux Lookout Hydro	2,776	97.69%	98.27%	98.41%	98.27%	8.25%
Hearst Power Distribution Co Ltd	2,665	100.00%	100.00%	100.00%	0.00%	4.92%
Cooperative Hydro Embrun Inc.	2,138	100.00%	100.00%	100.00%	0.05%	8.00%
Atikokan Hydro Inc.	1,652	97.94%	97.94%	100.00%	0.00%	3.39%
Chapleau Public Utilities Corporation	1,255	99.68%	99.68%	100.00%	0.00%	5.74%
Hydro 2000 Inc.	1,228	100.00%	100.00%	99.84%	0.08%	7.00%
ORGTOTAL	**4,191,736**	**99.68%**	**99.66%**	**99.75%**	**1.59%**	**6.06%**

4. Additional Risks and Issues

There are no additional risks or issues to report.

5. Other Opportunities and Next Steps

Net Metering

The SME remains engaged in the Net Metering/Self-Consumption Advisory Working Group by providing input into the project. This project is ramping up and the SME has committed to providing a cost and time estimate by mid-August 2017 for delivery of a Net Metering solution utilizing the MDM/R Production environment.

THIRD PARTY ACCESS IMPLEMENTATION STATUS AND NEXT STEPS

1. On November 24, 2016, the Board issued a 5-year licence to the SME effective January 1, 2017 (EB-2016-0284) and acknowledged the work of the SME and stakeholders in developing an implementation plan to collect certain data as required in the Board's EB-2015-0297 decision on the SME's 2015 licence renewal application. In its EB-2015-0297 decision, the Board required the following:

> *Effective January 1, 2017: the SME shall collect the following information associated with each meter (modified where necessary to sufficiently render it non-personal information):*
>
> *a. The postal code*
>
> *b. The distributor rate class*
>
> *c. The commodity rate class*
>
> *d. Occupant change data*
>
> *The next SME licence application (Fall 2016) will also be required to address the Implementation Plan with respect to third party access to this enhanced SME data, including an assessment of the cost implications.*

Phase 1 – Data Collection

2. To address these requirements, in early 2016, the SME set up a working group consisting of 13 LDCs and observers (i.e., the Board, the Ministry of Energy, the Electricity Distributors Association ("EDA") and gas utilities, Enbridge and Union Gas) to complete the data collection phase of the Board Order. Other advisors were engaged throughout this process, including Privacy Analytics Inc.[1], a private consultancy widely recognised as experts in the field of de-

[1] More information on Privacy Analytics Inc. can be found on their website at https://privacy-analytics.com/

identification, and the Office of the Information and Privacy Commissioner of Ontario ("IPC"), who remains closely involved.

3. Thirteen working group meetings were held in the period between March 2016 and January 2017, after which the group was dissolved with its objectives successfully achieved and in a highly collaborative manner.

4. Following a thorough conceptual analysis for the risk of de-identification by Privacy Analytics Inc (a "Phase 1 analysis")., reviews by the IPC, and discussions with the Board; the SME and LDCs established a process to collect the following information as of January 1, 2017 in accordance with the Board's EB-2015-0297 Decision and Order:

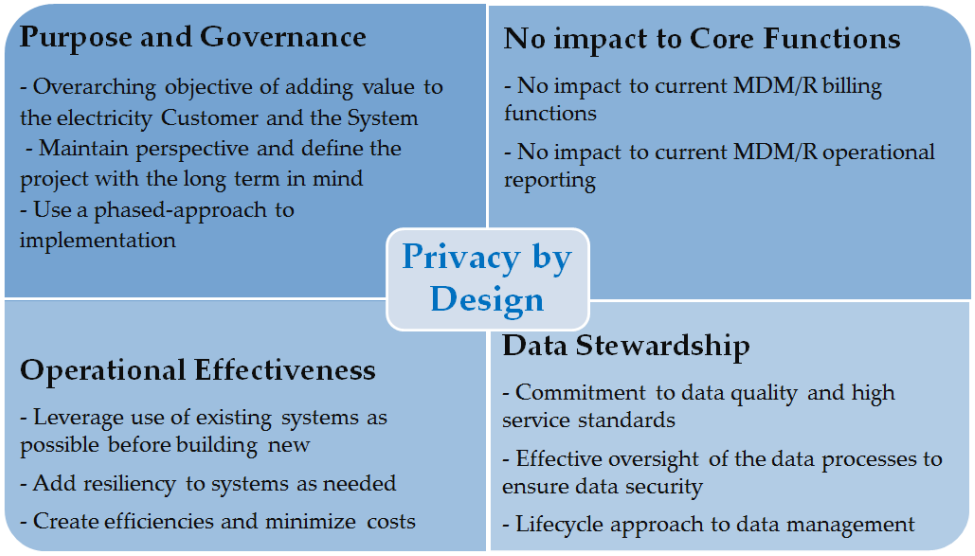
- 6-character postal code, with unique dwelling postal codes generalized by the LDCs using W8W 8W8,
- Distributor rate class (e.g. residential, small general service <50kW),
- Commodity rate class (e.g. TOU, Retailer, Tiered),
- Occupancy change data, generalized to a yearly basis, and
- Masking of any premise address and city fields.

Phase 2 – Validation of Data Collection

5. Following six months of data collection from the LDCs as per the above established methodology, Phase 2 of this privacy analysis is underway. The objective of Phase 2 is to validate the risk of de-identification associated with the collection methodology that was established in Phase 1 of the conceptual risk analysis. The results of Phase 2 of the privacy analysis are expected to be available in Q4 2017. Following Phase 2 of the privacy analysis, the SME will initiate further steps in the development of the third party access plan, including completion of test cases for data use and access.

6. As of the date of this filing, LDCs compliance rate with the OEB's data collection requirement is close to 100%,[2] allowing the SME to turn its focus towards the development of the third party access implementation plan. The third party access implementation plan will follow the key principles listed in the 2016 SME Licence Application, and shown in Figure 1 below.

Figure 1



Third-Party Access Implementation Plan – Proposed Stakeholder Engagement Model

7. To fulfill the requirements of the third party access implementation plan as outlined in the Board's EB-2015-0297 Decision and Order, the SME established a new engagement model that ensures broader consultation and more specialized expertise input into the project. This model is anchored in the IESO's stakeholder engagement principles[3] and processes which are an essential part of the IESO's decision-making process.

[2] Compliance is over 99.5% by all LDCs submitting data to the SME
[3] http://www.ieso.ca/sector-participants/engagement-initiatives/overview/engagement-principles

8. There are two engagement mechanisms that the SME will be leveraging to seek input from interested parties:

i. A Data Strategy Advisory Council ("DSAC") that was established in June 2017, through an open call for nominations[4], to provide input to the SME on the development of the various elements of the third-party access implementation plan. The DSAC will also provide valuable input and advice to the SME on the roll out of the broader stakeholder engagement initiative and will inform the evolution of the SME's operating model, required to sustain the third party access initiative in the future. DSAC meeting materials and other related information is publicly available via the SME's webpage on the IESO website.[5]

ii. A formal broader engagement initiative that will be launched in the Fall of 2017 to ensure that the interested audiences across the province (such as regional or local advisory committees) are informed and have an opportunity to provide input into the SME's development of the third party access implementation plan.

9. The SME is engaging experts and consultants[6] at various stages of the project development and implementation to ensure that the SME continues to receive the best in class guidance and advice on this project.

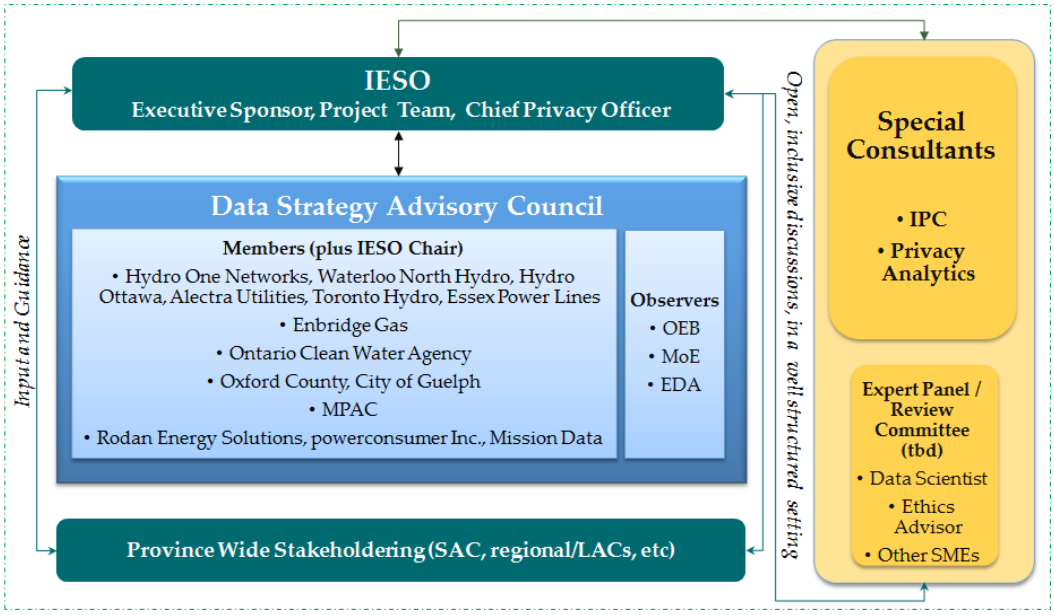
[4] DSAC members represent a broad range of expertise and experience from representatives across a number of sectors: LDCs, Enbridge gas, Ontario Clean Water Agency, the municipalities of Oxford County and the city of Guelph, the Municipal Property Assessment Corporation ("MPAC") and the service providers Rodan, Powerconsumer Inc. and Mission Data (US).

[5] http://www.ieso.ca/sector-participants/smart-metering-entity/data-strategy-advisory-council

[6] These include ethics advisors, privacy experts and data scientists.

A schematic of this evolved engagement model is presented in Figure 2 below:

Figure 2

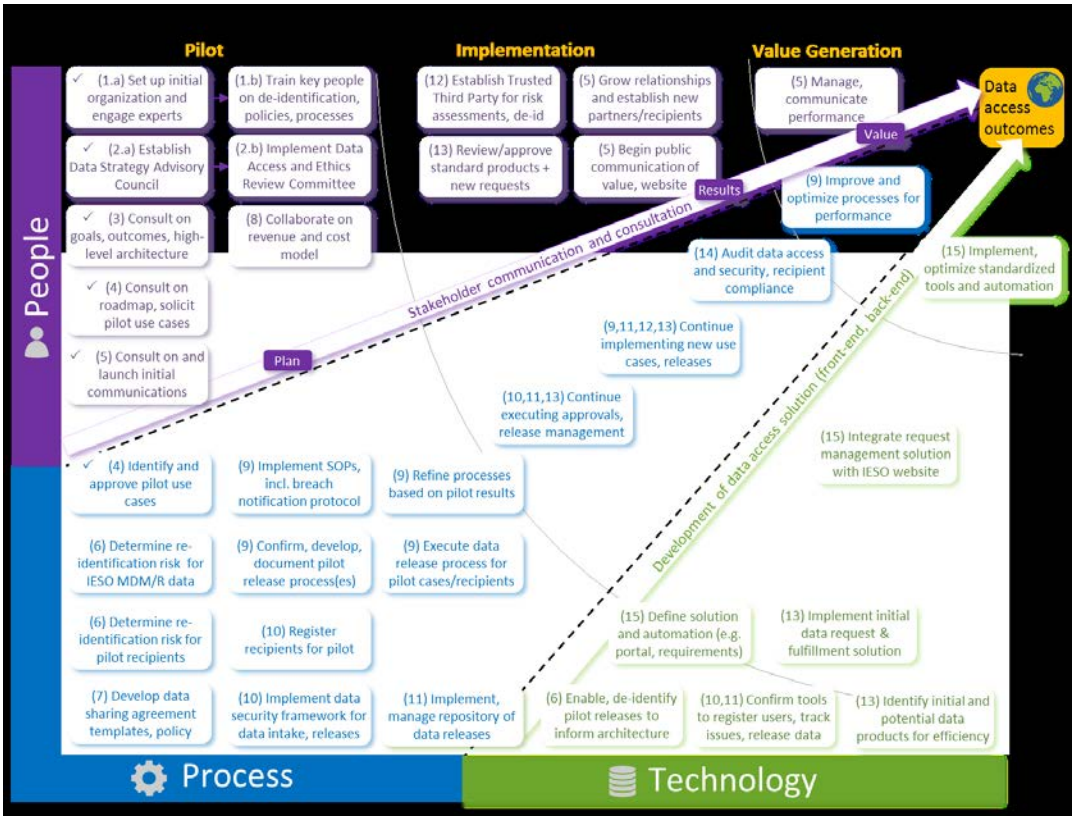


Third-Party Access Roadmap

10. Throughout 2017, the SME has continued to refine the foundation for third party access, engaging with Privacy Analytics Inc. to develop a Project Roadmap (the "Roadmap") based on their extensive experience with similar projects in other industries and jurisdictions. The Roadmap (summary snapshot in Figure 3 below) outlines the key elements of the project delivery as far as People, Processes and Technologies that will be involved during the next phase of the project, with options that will be discussed at future DSAC meetings and within the broader stakeholder engagement for input and assessment by the SME.

11. **Figure 3**

12.



© Privacy Analytics Inc.; some activities are already mostly completed as denoted by √

13. The Roadmap provides the de-identification option analysis, including costing factors and key decision points for de-identification of MDM/R data for the full range of data requestors. The Roadmap aligns to the existing Third-Party Access Framework, design principles, and project schedule as submitted to the Board in September 2016 as a part of the SME's licence renewal application (EB-2016-0284). The Roadmap also considers the pilot use cases that will be used to refine the Third-Party Access Framework and establish early success.

14. The Roadmap spans over 18 months and describes the steps required to implement risk-based de-identification in support of achieving the third party access outcomes. The activities have been sequenced into three phases: pilot (6-9 months), implementation (12-18 months), and

value generation (steady state beyond 18 months). Beyond 18 months, additional considerations can include further optimizing the service with improved responsiveness and customer satisfaction.

15. Developing and implementing the processes for providing access to the data in the MDM/R will require dedicated FTE's to support the additional business functions and operations, which include data requests intake, administration and fulfillment, data governance, post evaluations, etc. The SME has included provisions for the costs that will be invested in the development of and access to the third-party access over this initial design period. The SME has provided for up to three additional FTE's over the 5-year budget who will assist with third-party access and other potential new MDM/R projects and work requirements. Actual incremental FTE requirements will depend upon the volume and complexity of the data requests associated with third party access, and any new MDM/R projects and work requirements over time

16. Following the test cases, execution, and the development of the Roadmap deliverables, the SME will be in a better position to determine the full resource requirements, the processes, the tools, the costs, and a potential monetization model for the value of the data in the MDM/R.

17. The SME intends to make a submission to the Board in 2018 with a proposed model for third party access to data in the MDM/R, which may include monetizing this access. This model will be informed by the work of the DSAC and other engagements as previously described. Through the proposed Stakeholder Engagement model, the SME will look to gain a better understanding of the requirements and complexity associated with the potential data requests, the volume of these requests by type (which will in turn determine the level of automation required for certain request processing functions), and existing monetization models in more established industries.

18. The SME will provide fair and non-discriminatory access to the data in the MDM/R, while complying with privacy requirements, in accordance with the IPC's guidance.