## 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 any other objects or business activities, to plan and implement, and oversee, administer and deliver, the provincial government's smart metering initiative. For certainty, references in

this application to the SME are also to the IESO. [PATRICK: Please advise if this will suffice?]

3. In its role as the SME, the IESO continues to manage the meter data management/repository (the "MDM/R") to facilitate collecting, managing, storing and retrieving smart metering data.

4. The IESO, in its capacity as SME, hereby applies to 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 fee 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 $178M for the period January 1, 2018 to December 31, 2022;

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

(iv) permitting the SME 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 a \$2.5M reserve in the BVA as an operating reserve;

(vii) approving the SME filing an annual report with the Board by April 30th each year which contains the balance in the BVA and all sub accounts of the BVA.

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

5. The requested SMC will cover the costs of the SME in the conduct of its activities. As a non-profit corporation, the SME has not included in the SMC, and is not seeking approval for, a rate of return.

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

7. The SME anticipates that it will operate within the proposed revenue requirement and SMC for the period January 1, 2017 to December 31, 2018 and that it will file an application for a new fee to be effective January 1, 2019 in 2018.

8. The SME has filed evidence in support of this application, as identified in the Exhibit List. 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**

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By its counsel in this proceeding

Patrick G. Duffy

## LEGAL AUTHORITY AND BACKGROUND

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.

11. On July 26, 2006, the provincial government entered into an arrangement with the IESO under which the IESO would support the SMI by coordinating and project managing implementation activities for the MDM/R. The government also enacted Ontario Regulation 288/14 (*Other Objects, IESO*) made under the *Electricity Act*, prescribing the following additional objects of the IESO:

> 1. To plan, manage and implement the smart metering initiative or any aspect of the initiative.
> 2. To oversee, administer and deliver the smart metering initiative or any aspect of the initiative.
> 3. To establish and enforce standards and criteria relating to the reliability of transmission systems.
> 4. To engage in activities that facilitate incremental changes in electricity consumption by consumers or classes of consumers, by means of contract-based rebates, refunds or offsetting payments related to electricity costs associated with the incremental changes.

2. The MDM/R is a meter data management repository for smart meter data and conforms to Ontario Regulation 425/06 (*Criteria and Requirements for Meters and Metering Equipment, Systems and Technology*) made under the *Electricity Act,*

*1998* as amended by Ontario Regulation 440/07. The MDM/R is being utilized to collect, manage, store and retrieve the information and data related to the metering of 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.

3. On March 28, 2007, the IESO was designated as the SME by Ontario Regulation 393/07 (*Smart Metering Entity*) made under the *Electricity Act*. The regulation came into effect on July 26, 2007. The objects of the SME are specified in section 53.8 of the *Electricity Act* and include the following:

> 1. To plan and implement and, on an ongoing basis, oversee, administer and deliver any part of the smart metering initiative as required by regulation under this or any Act or directive made pursuant to sections 28.3 or 28.4 of the *Ontario Energy Board Act, 1998*, and, if so authorized, to have the exclusive authority to conduct these activities.
>
> 2. To collect and manage and to facilitate the collection and management of information and data and to store the information and data related to the metering of consumers' consumption or use of electricity in Ontario, including data collected from distributors and, if so authorized, to have the exclusive authority to collect, manage and store the data.
>
> 3. To establish, to own or lease and to operate one or more databases to facilitate collecting, managing, storing and retrieving smart metering data.
>
> 4. To provide and promote non-discriminatory access, on appropriate terms and subject to any conditions in its

licence relating to the protection of privacy, by distributors, retailers, the IESO and other persons,

i. to the information and data referred to in paragraph 2, and

ii. to the telecommunication system that permits the Smart Metering Entity to transfer data about the consumption or use of electricity to and from its databases, including access to its telecommunication equipment, systems and technology and associated equipment, systems and technologies.

5. To own or to lease and to operate equipment, systems and technology, including telecommunication equipment, systems and technology that permit the Smart Metering Entity to transfer data about the consumption or use of electricity to and from its databases, including owning, leasing or operating such equipment, systems and technology and associated equipment, systems and technologies, directly or indirectly, including through one or more subsidiaries, if the Smart Metering Entity is a corporation.

6. To engage in such competitive procurement activities as are necessary to fulfil its objects or business activities.

7. To procure, as and when necessary, meters, metering equipment, systems and technology and any associated equipment, systems and technologies on behalf of distributors, as an agent or otherwise, directly or indirectly, including through one or more subsidiaries, if the Smart Metering Entity is a corporation.

8. To recover, through just and reasonable rates, the costs and an appropriate return approved by the Board associated with the conduct of its activities.

9. To undertake any other objects that are prescribed by regulation.

4. Ontario Regulation 393/07 (*Smart Metering Entity*), as amended by Ontario Regulation 233/08, granted the SME the exclusive authority to carry out the following functions:

> 1. Specifying its database and system interface requirements and information and data transfer requirements.
>
> 2. Receiving smart metering data for the purpose of carrying out the functions in paragraphs 3, 4 and 5, including receiving other information necessary for those functions.
>
> 3. Providing all services, as specified by the Smart Metering Entity, performed on smart metering data to produce billing quantity data, including validation, estimating and editing services.
>
> 4. Managing access rights to smart metering data and data derived from smart metering data in a manner consistent with the objects of the Smart Metering Entity set out in paragraph 4 of section 53.8 of the Act.
>
> 5. Subject to subsection (2), maintaining and operating a database of,
>
>     i. smart metering data and other data that is necessary for the Smart Metering Entity to perform the exclusive functions referred to in paragraph 3, and
>
>     ii. data that is derived through the exclusive functions referred to in paragraph 3.

5. The *OEB Act* provides the Board with the legal authority to allow the IESO (in its role as SME) to incur and recover the SME's actual and forecasted 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 MDM/R became operational in 2008 with the enrolment of the first LDC on March 1st; currently 67 LDCs are registered with the SME and charge their customers the SMC. Further development of, and updates to, the MDM/R have occurred since then and new functionality continues to be implemented.

7. The December 31, 2017 enrollment is forecast to be 4,927,765 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 SME estimates that there will be 5,127,852 meters in place by the end of 2022 and an average of 5,027,311 smart meters over the 4 year period between 2018 and 2022 during which the new SMC is proposed to be in effect.

## 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 $178,099,352. The revenue requirement may be impacted by changes in interest rates, which would influence the financing costs, as well as currency fluctuations involving the SME's USD contracts, with the estimated USD exposure limited to $2M USD per year.

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

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

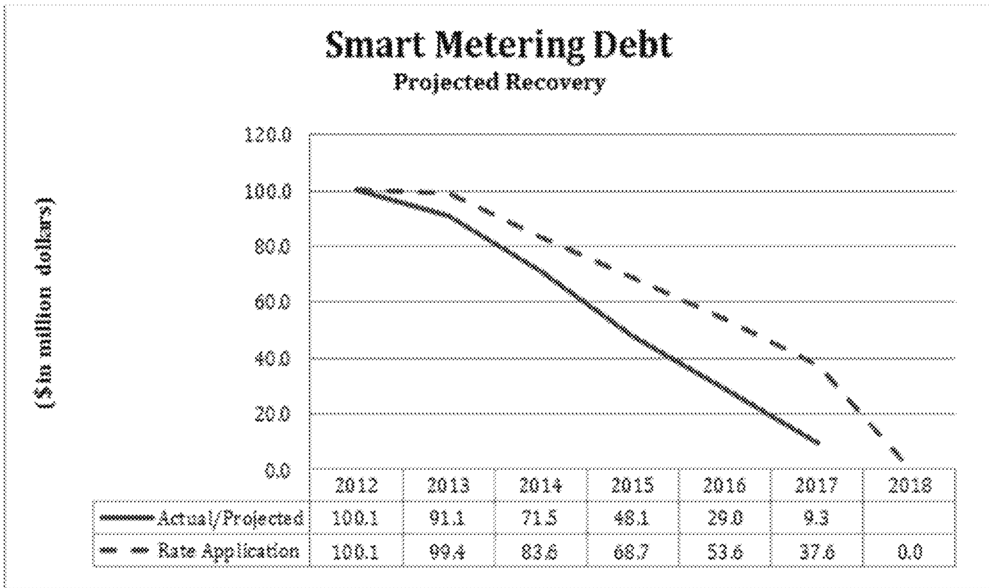
   (b) The period during which the costs are proposed to be recovered is based on the estimated service life of the MDM/R of approximately five years which is based on industry norms and is consistent with that of comparable hardware systems.

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

12. The initial SME debt, which is currently forecast as approximately $7M at the end of 2017, has been reduced ahead of schedule as shown in the graph 1 below. The graph was included in the 2016 Annual Cost Variance Account Report to the OEB and is Attachment 1 to this application. The accelerated debt reduction is due to a combination of factors including lower spending versus

budget[1], lower than forecasted interest costs and an increase in the number of meters being served since the current SMC was approved.

**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 |

13. The proposed SMC of $0.59/meter per month is $0.20 less than the current SMC of $0.79/meter per month as approved by the OEB in 2013, representing a reduction of 25%. When the previous SMC was approved, the associated SME debt of $100.1 million, which represented the unrecovered cost of building the MDM/R, was forecast to be fully recovered by October 2018, when the current SMC is set to expire.

[1] The lower spending versus budget has been a consistent theme over the past few operational years, a result of a number of factors such as:

- 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).
- 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.

14. The proposed SMC being sought in the current application will allow the SME to recover its projected costs of $178M over the next five years. At the highest level, these projected costs include the requirements for operating the MDM/R (including the cost of an important hardware and software refresh EnergyIP 8.X, that will be completed by end of 2019), the historic debt mentioned above with associated financing costs, and provisions for implementing third party access to the MDM/R data as per the 2016 OEB Orders, EB-2016- 0284, to the SME.

**Smart Metering Budget: 2018 – 2022**

| (In thousands of Dollars) | 2018 | 2019 | 2020 | 2021 | 2022 | Total |
|---|---|---|---|---|---|---|
| Total Operating Budget | 28,765 | 28,753 | 30,039 | 29,263 | 29,438 | 146,258 |
| Total MDMR 8.x Upgrade Budget | 17,226 | 6,615 | 1,000 | - | - | 24,841 |
| Total Debt (Unrecovered Costs) | 1,400 | 1,400 | 1,400 | 1,400 | 1,400 | 7,000 |
| Total Smart Metering Budget | $ 47,391 | $ 36,768 | $ 32,439 | $ 30,663 | $ 30,838 | $ 178,099 |

15. The previous 5 year SME budget was $248.6M, which included an operating budget of $148.5M and $100.1M of unrecovered MDM/R build costs accumulated as debt prior to the first approved fee recovery period. It should be noted that SME's new operating budget is relatively lower compared to the previous budget, thus demonstrating the maturity and stability of the SME operation which can now generate more business value (by enhancing the value of the data in the MDM/R), at an even lower ratepayer investment. This is a key operating principle that the SME will continue to uphold and actively manage over the next budget cycle, and beyond.

16. The costs pertaining to the original build and delivery of the MDM/R have been realized in the previous budgeting period. At this time, the MDM/R is

an established operation which requires ongoing maintenance and refreshes at a rate that is comparable with other similar IT projects. The costs to operate the MDM/R make up the majority of the SME's costs, with the remainder attributed to the SME project team.

**Hosting and Support Agreement with IBM Canada**

17. The SME entered into a MDM/R Development Hosting and Support Agreement dated December 5, 2006 with IBM Canada. A turnkey approach was taken under which IBM Canada was responsible for building, delivering and supporting the MDM/R. A subsequent MDM/R Development Hosting and Support Agreement was entered into with IBM Canada on December 21, 2012, under which, IBM Canada agreed to provide its services for a seven and one-half year term, from October 1, 2013 to March 31, 2021, with a renewal option to extend the term to March 31, 2024.

**Operating & Administration**

18. The operating and administration costs of the SME include a forecast for the rental costs of the SME facilities; a portion of the OEB annual operating fees issued to the IESO; regulatory costs to cover the SME license and rate application; computer hardware and software costs, training and other staff expenses.

19. The operating and administration costs of the SME include a forecast for the rental costs of the SME facilities; a portion of the OEB annual operating fees issued to the IESO; regulatory costs to cover the SME license and rate application; computer hardware and software costs, training and other staff expenses.

**IESO Project Team Costs**

20. The project team costs include the SME's costs to perform all of the services that are not performed by IBM pertaining to the operation of the MDM/R, including on-boarding and supporting LDCs, overseeing IBM, testing and implementing changes to the MDM/R, LDCs communications & training, managing the design, and all of the other required functions of the SME. These costs also include the incremental effort from the IESO to support the operation of the MDM/R and the SME. Project team costs are included in Compensation and Benefits in Attachment 2 to this application, Smart Metering Budget: 2018 - 2022 (By Category)

21. The SME will 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, and this support work will be resourced on a time and material basis. The costs of IESO resources utilized by the SME are charged to the SME and included within the SME's revenue requirement.

22. The SME will 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, and this support work will be resourced on a time and material basis. The costs of IESO resources utilized by the SME are charged to the SME and included within the SME's revenue requirement.

23. **Financing Costs**

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

25. 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.

26. The IESO has an unsecured credit facility agreement with the OEFC, which will make available to the IESO an amount up to $160M 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 METER 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. The SME consulted with LDC representatives prior to its fee application for the currently approved SMC EB-2012-0100/EB-2012-0211, and determined that the most appropriate rate structure 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 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 SMC

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

$$\text{SMC} = \frac{\text{(Revenue Requirement / Average Number of Residential and General Service <50kW Customers over the January 1, 2017 to December 31, 2022 period)}}{\text{Number of Collection Periods}}$$

$$\$0.59/\text{meter}/\text{month} = \frac{\$178{,}099{,}352 \ / \ 5{,}027{,}311 \text{ meters}}{60 \text{ months}}$$

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 $178,099,352 as detailed in Exhibit C-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 in respect of during the period between January 1, 2018 and December 31, 2022. This average is based on the forecasted number of smart meters enrolled as of January 1, 2018, which is estimated to increase by 1% each year.

8. *Number of Collection Periods*: The SME proposes to continue to collect the SMC on a monthly basis, starting January 1, 2018 and ending December 31, 2022. This amounts to 60 collection periods. The SMC will be invoiced to LDCs for the applicable month on the tenth business day following the end of the previous month, such that it would be paid by the LDC in the applicable month.

## 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 OEB approved the current SMC and the establishment of the three variance accounts described below:

   i. *Costs Account* to record any changes in the SME's forecast costs.

   ii. *Revenue Account* to record any revenue surplus or deficiency relative to the forecast revenue.

   iii. *Service Level Credits Account* to record any service level credits received by the SME from IBM or distribution to MDM/R service recipients under section 7.6 of the previous SME/LDC Agreement.

2. The SME seeks to have the current balance in the Service Level Credits Account balance returned back to ratepayers following the Boards approval.

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

a. **Costs Account**

The projected balance in the *Cost Account* as at December 31, 2017 is $25.6MM.

| (In thousands of dollars) | 2016 Life-to-Date* | 2017 Projected | 2018 | 2013 - 2017 OEB Approved Budget |
|---|---|---|---|---|
| Cost - Actual | 98,332 | 24,543 | 0 | 122,875 |
| Cost - Budget | 119,226 | 29,261 | 0 | 148,487 |
| Revenue Account Balance | 20,894 | 4,717 | 0 | 25,611 |

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

b. **Revenue Account**

The projected balance in the *Revenue Account* as at December 31, 2017 is ($32.6MM). It is important to note that in the 2013 – 2017 OEB Approved budget, the SMC was approved to be collected until October 2018 and was forecast to collect a total of $248.6MM by that date.

| (In thousands of dollars) | 2016 Life-to-Date* | 2017 Projected | 2018 | 2013 - 2017 OEB Approved Budget |
|---|---|---|---|---|
| Revenue - Actual | 168,746 | 47,278 | 0 | 216,024 |
| Revenue - Budget | 165,757 | 45,207 | 37,672 | 248,636 |
| Cost Account Balance | 2,989 | 2,072 | (37,672) | (32,611) |

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

c. **Service Level Credits Account**

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

| (In thousands of dollars) | 2016 Life-to-Date* | 2017 Projected | 2018 | 2013 - 2017 OEB Approved Budget |
|---|---|---|---|---|
| Service Level Credits | 390 | 0 | 0 | 390 |
| Service Level Credits Balance | 390 | 0 | 0 | 390 |

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

4. The SME seeks to have 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 proposed BVA will have a projected deficit balance of $7.0MM as of January 1, 2017.

| | |
|---|---|
| Cost Account Balance | 25,611 |
| Revenue Account Balance | (32,611) |
| Balancing Variance Account Balance | (7,000) |

(To be revised to include SLCA balance of $0 as of Jan 1/18)

5. The SME recognizes that its actual costs 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 revenue by the SME. For example, in the year 2018 the SME will be running a deficit due to the higher first year investment in the EnergyIP 8.x refresh 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.

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

7. The SME is also proposing that any surplus in the BVA that; (1) exceeds the proposed operating reserve of $2.5MM; and (2) amounts to $0.05 per meter or greater, which with 5MM meters amounts to approximately $250,000, be rebated back to ratepayers 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 OEB due time to review the report prior to the rebate being processed.

8. 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 the threshold. The calculation proposed to apply the threshold is the surplus in the BVA in excess of the proposed operating reserve of $2.5MM, divided by the number of meters in the most recently published OEB Yearbook. 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 $2.5MM / number of meters in the most recently published OEB Yearbook > $0.05 |

**Collection of the SMC**

1. The IESO Market Rules were amended effective December 12, 2007 to permit the collection of the SMC by the IESO. A copy of Market Rule amendment MR-00336: Settlements - Treatment of Smart Metering Charge, as approved by the IESO Board of Directors, is available at http://www.iemo.com/Documents/Amend/mr2007/MR-00336-Q00_Amendment_Submission.pdf. These amendments also ensure that there are adequate measures in place to protect the integrity of the IESO's settlement systems.

**Audit Requirements**

1. Reflecting the high standard of operation the SME continuously aspires to, the 2016 MDM/R Annual CSAE 3416 Audit resulted in a 7th consecutive year of "no qualifications".

9. The objective of this audit report is to highlight the internal control procedures that the SME and IBM Canada have in place to address the MDM/R

operations. This report is also intended to provide MDM/R service recipients and their auditors with an independent auditor's report of the internal control procedures for the MDM/R operations and other information that may be relevant to MDM/R service recipients' internal controls as they relate to an audit of financial statements. The internal control procedures focus on the following areas:

(a) IESO's Control Framework, including Control Environment, Risk Assessment, Information and Communication, and Monitoring;

(b) Organization Registration and Setup;

(c) Management of Meter Information;

(d) Meter Data Collection, Validation, Estimation and Editing;

(e) "Framing" and Delivery of Billing Quantities; and

(f) Information Technology General Controls

**The MDM/R Terms of Service** [I'm waffling on whether to include this section and if so where to include it with a bias to omitting it]

2. The governing documentation for the MDM/R is modeled on the hierarchical framework of documents for the wholesale market (Participation Agreement, Market Rules and Market Manuals), which has been used successfully by the IESO and is familiar to other market participants, including LDCs.

3. The SME published the MDM/R Terms of Service, a standard set of terms outlining the operational details of the MDM/R that applies to all MDM/R service recipients. The MDM/R Terms of Service provide for the creation of subordinate level documentation (i.e. MDM/R manuals and procedures that contains much of the operational instructions) and is currently being upgraded to reflect key provisions from the former SME/LDC Agreement.

**Third Party Access Implementation Status & Next Steps**

1. On January 26, 2016, in response to the SME's licence renewal application, the Board issued Order EB-2015-0297, extending the SME's licence to December 31, 2016 and requiring 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.*

2. To address these requirements, in early 2016 the SME set up a working group consisting of 13 LDCs and observers (i.e., OEB, MoE, Electricity Distributors Association ("EDA") and the gas utilities, Enbridge and Union Gas) that worked throughout 2016 to complete the data collection phase of the OEB Order. Other advisors were engaged throughout this process, including the Office for 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, when the group was dissolved with its objectives successfully achieved and in a highly collaborative manner.

4. Following a thorough Phase 1 conceptual analysis for the risk of de-identification by Privacy Analytics Inc[2]., a private consultancy widely recognised as experts in the field of de-identification, reviews of the IPC and discussions with the OEB, the SME and LDCs established a process to collect the following information in accordance with Order EB-2015-0297, as of January 1, 2017:

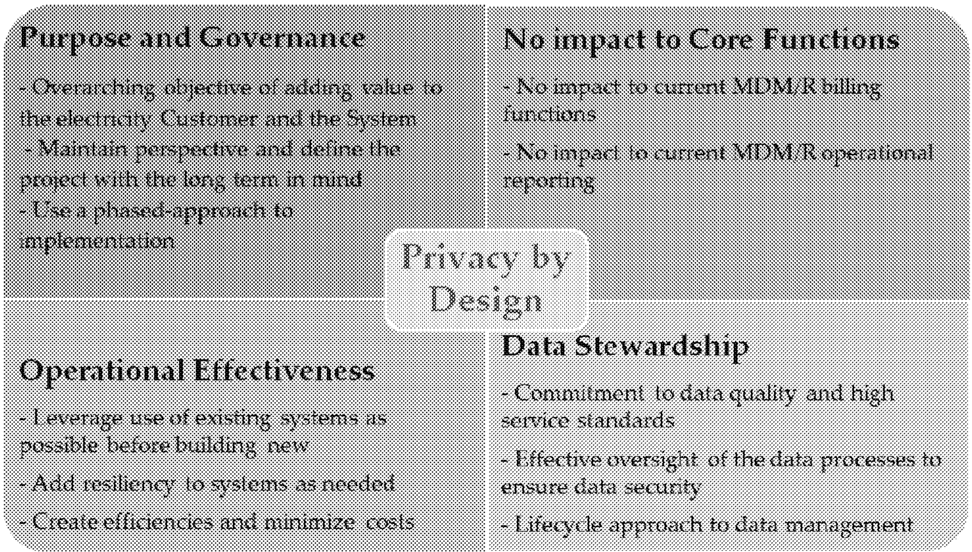
- 6 character postal code, with unique dwelling postal codes generalized by the LDCs using W8W 8W8
- Distributor rate class (e.g. residential, small general service <50kW)
- Commodity rate class (e.g. TOU, Retailer, Tiered)
- Occupancy change data, generalized to a yearly basis
- Masking of any premise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

5. Following 6 months of data collection from the LDCs as per the above established methodology Phase 2 of this privacy analysis is planned for 2017 and underway, with the objective to validate the collection methodology that was established in Phase 1 of the conceptual risk analysis and ensure that the data in the MDM/R remains within the acceptable risk threshold for de-identification.

6. As of the date of this filing, LDCs compliance rate with the OEB's data

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

collection requirement is close to 100%[3], allowing the SME to turn its focus towards the development of the Third Party Access plan following the key principles listed in the 2016 SME Licence Application, and shown below.




7. To fulfill the requirements of the Third Party Access implementation plan as outlined in Order EB-2015-0297, the SME established a new engagement model that ensures even broader consultation and more specialized expertise input into the project. This model is anchored in IESO's well stablished Stakeholder engagement principles and processes which are an essential part of the IESO decision making process. The IESO's process to engage with stakeholders before a decision is made or before a change occurs is guided by the IESO Engagement Principles to provide:

a. Opportunities for engagement with inclusive representation

b. Effective communication and information in an open and transparent manner

[3] Compliance is over 99.5%

c. Effective Facilitation

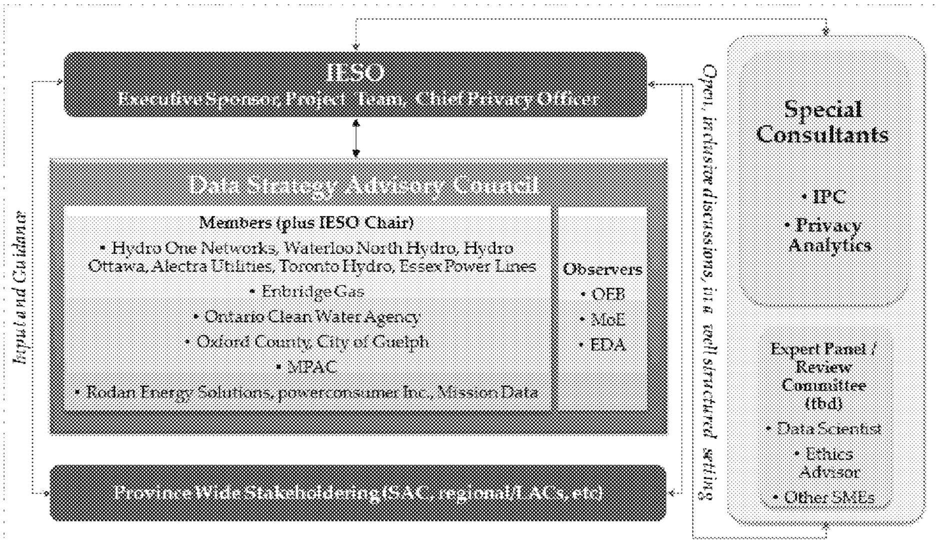
d. Communicate outcomes and measure satisfaction in the process

8. There are two engagement mechanism that the IESO is establishing to seek input from all interested parties for the development of an implementation plan that will provide third parties with access to the de-identified meter data in the province's MDM/R:

I. A Data Strategy Advisory Council ("DSAC") was established in June 2018 to review and provide advice of the project work plan and the development of the elements

II. A formal broader engagement initiative will be launched in the Fall of 2017, to inform parties not directly involved in the working group or the DSAC of the work of the DSAC and to seek input at various junctures within the work of the DSAC to finalize the Implementation Plan by 2018

A schematic of this evolved two-pronged approach engagement model is presented below:




More details on the committees listed are presented below:

IESO: The IESO is fully committed to the project as demonstrated by the significant resources and governance dedicated to meeting the mandate OEB Order, with project Sponsorship at the Executive level and a highly skilled cross-functional project team that involves a number of resources in key areas such as: regulatory, legal counsel, smart metering operations, communications, etc. involvement

DSAC: The DSAC was established earlier in 2017, through an open call for nominations to provide input to the IESO on the development of the various elements of the third party access implementation plan as per 2016 OEB Orders to the SME. 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 members represent a broad range of high 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). The OEB is an observer on the DSAC, along with the Ministry of Energy and the Electricity Distributors Association. The first DSAC meeting took place on June 15th and meetings will throughout 2017 and into 2018. DSAC meeting materials and other related information is being made publicly available via the IESO website as follows: http://www.ieso.ca/sector-participants/smart-metering-entity/data-strategy-advisory-council.

PROVINCE WIDE STAKEHOLDERING: The IESO will engage in formal broader engagement province wide stakeholdering in 2017 and 2018, as required, to ensure that the broader interested audiences across the provinces (such as regional or local advisory committees) are engaged, informed and have an opportunity to provide input into IESO's development of the third party access plan.

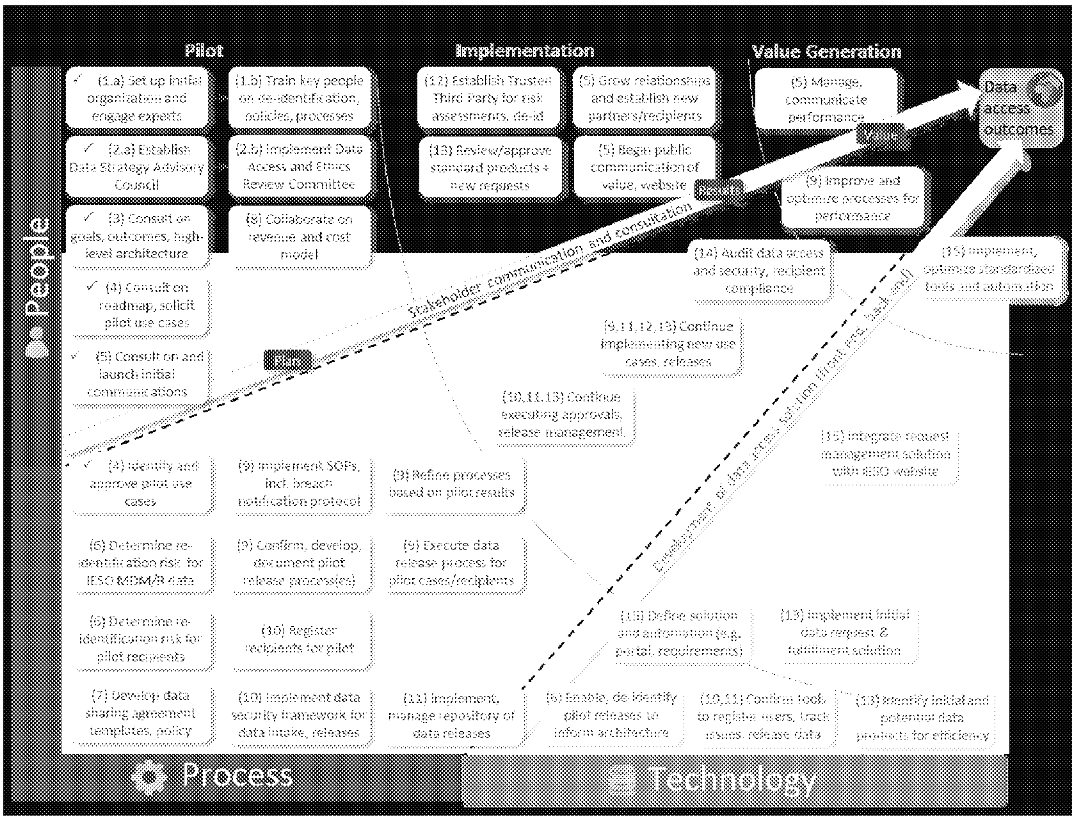
SPECIAL CONSULTANTS AND EXPERT PANEL: The IESO is engaging experts and consultants[4] at various stages of the project development and implementation to ensure that the IESO continues to receive the best in class guidance and advice on this project.

9. At the time of this filing Privacy Analytics has initiated Phase 2 of the risk of de-identification analysis as was planned in 2016 following completion of Phase 1 of the conceptual de-identification, which enabled the IESO to start collecting the required data from the LDCs. The results of Phase 2 of the privacy analysis will be available in Q4 2017. Following Phase 2 of the privacy analysis, the IESO will initiate further steps in the development of the third party access

[4] These include ethical advisors, privacy experts and data scientists

plan, including completion of test cases for data use & access.

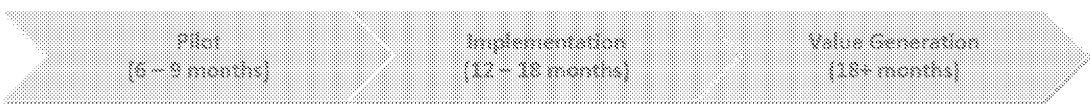
10. Throughout 2017, the IESO continued refining the foundation for third party access and engaged with Privacy Analytics to develop a Project Roadmap[5] (the "Roadmap"), based on their extensive experience with similar projects in other industries and jurisdictions. The Roadmap (summary snapshot below) outlines the key elements of the project delivery as far as People, Processes and Technologies that will be involved over the next timeframe, with options that will be discussed at future DSAC meetings and within the broader stakeholder engagement for input and assessment by the SME.




© Privacy Analytics; Some activities are already mostly completed, denoted by a √

11. 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 schedule as submitted to the OEB in the previous SME licence renewal application in September 2016 (OEB file # EB-2016-0284) and considers the pilot use cases that will be used to refine the Third-Party Access Framework and establish early success.

12. The Roadmap is scheduled 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.




13. The following context was considered for the options analysis:

- IESO requires a holistic understanding of de-identification, including implementation options and associated costing factors

- IESO will be conducting a pilot phase prior to implementation to establish and refine the process for third parties to access MDM/R de-identified

[5] SME checking with Privacy Analytics on including this in the application and thereby making it public, as an appendix or link

data

•The pilot phase is a starting point for implementing the necessary activities for people, process, and technology domains required to facilitate third-party access. The IESO requires an analysis of various options to implement risk-based de-identification, beginning with the initial pilot.

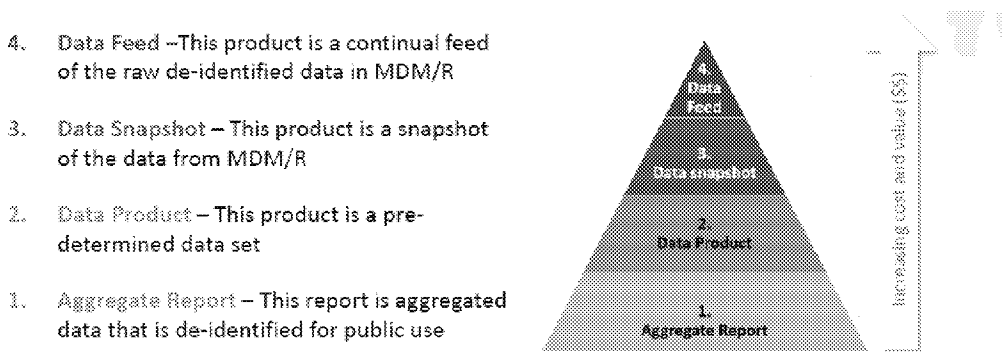
14. There are three areas for which options will be considered for enabling third party access to MDM/R de-identified data:

I. Options for the types of MDM/R de-identified data products

II. Options for provision of re-identification risk assessment and de-identification of data products

III. Options for the technology platforms to request and deliver MDM/R de-identified data

Four potential types of data products were identified as shown in the graphic below and scan a spectrum of complexity, cost and anticipated value to the recipient:




15. To date, a number of test cases have been received by the IESO and the goal is

to complete as many as possible by early next year. These test cases are expected to provide important learnings to the IESO, and the data requestors themselves, on the development of the broader third party access plan.

The SME will enter into appropriate legal agreements with each recipient of the data, which will clearly specify the recipient's obligations, among other things, with respect to the intended use of data, constraints on such use, data security and compliance with all applicable privacy laws.

A summary of the proposed test cases was provided to the IESO's Stakeholder Advisory Committee at their August 23, 2017 meeting and is available on the IESO website at http://www.ieso.ca/en/sector-participants/engagement-initiatives/stakeholder-advisory-committee/meetings-and-materials

16. In summary, the calendar of key activities in 2017 is listed below:

| Deliverables | Apr-17 | May-17 | Jun-17 | Jul-17 | Aug-17 | Sep-17 | Oct-17 | Nov-17 | Dec-17 |
|---|---|---|---|---|---|---|---|---|---|
| Development of Engagement Plan and Terms of Reference | ✓ | ✓ | | | | | | | |
| Open Call/Closing of Nominations & Announcement of DSAC | ✓ | ✓ | | | | | | | |
| Privacy Analytics - Phase 2 Risk of Re-identification analysis | | | ✓ | ✓ | ✓ | ✓ | | | |
| Privacy Analytics - 3rd Party Access Roadmap | | ✓ | ✓ | ✓ | | | | | |
| DSAC Meetings | | | Jun 15 Jun 27 | | Aug 2 | Sep 27 | Oct 18 | Nov 15 | Dec 13 |
| DSAC Pilot Test Cases | | Submissions | Selection & Development | | | | Test Cases Execution | | |
| IESO Stakeholder Engagement Website | | | | | | | | | |
| Broader Stakeholder Engagement | | | | | | | | | |
| IESO Stakeholder Advisory Council (SAC) | | May 10 | | | Aug 23 | | Oct 4 | | |
| SSC Meetings/LDC Open Calls | | | June 29 | | | Sep 12 | | Nov 21 | |
| SME/LDC Event | | | | | | | | *pending* | |

17. 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. At this time, the SME has included a gradual increase of 3 FTE's over the 5-year budget with the related costs included in the revenue requirement. In addition to supporting access to data the additional staff will support the potential new operational requirements for the MDM/R (such as Net Metering). Actual FTE requirements will depend upon the number and the complexity of the data requests which will be further determined.

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

19. For the reasons stated above the IESO is not in a position at this time to be able to reasonably forecast the uptake or associated charges that may apply to third party access. The IESO intends to make a submission to the OEB in 2018 with a proposed monetization model for the value of the data in the MDM/R. This model will be informed by the work of the DSAC and other consultations undertaken which will allow for a strong understanding of the requirements and complexity associated with each type of the four types of data requests as mentioned above (aggregated, reports, snapshots, feeds), the volume of these requests over type (which will in turn determine the level of automation required for certain request processing functions) and existing market valuation models in more established industries (differentiate hourly rates for profit vs. non-profit organizations, fixed fees by request type, licensing fees, etc).

20. The following principles will be followed in establishing the value of the MDM/R data for third party use:

i. the IESO will develop a model that stakeholders will benefit from – ratepayers will see a return on the investment made in the MDM/R, while requesting organizations will find benefit from being able to pursue specific market goals to the benefit of their constituents

ii. the IESO will enable privacy- compliant, ethical and fair access to the data in the MDM/R, following the IPC's guidance and framework

iii. the IESO will safeguard a high quality data process for high quality analytics, to ensure optimum benefits for users at all levels

21. The IESO has included reasonable provisions for the costs that will be invested in the development of and access to the third party access over this initial design period in new SMC application. These costs are a blend of internal and external costs associated with labor, privacy analysis, technologies and other specialized expertise.

**SME service, outreach and consultations with LDCs and stakeholders**

**SME Steering Committee ("SSC")**

1. The 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 the IESO, in its role as SME.

   The SSC has the opportunity to:

   - Provide input in the ongoing development of the Terms of Service and the MDM/R manuals and procedures.

   - Provide input on the SME's provision of MDM/R services and adherence to the committed service levels as prescribed in the Terms of Service.

   - Consider proposals to amend the Terms of Service from the SME, MDM/R service recipients, or initiated by the SME Steering Committee.

   - Participate in consultations, as and when requested by the SME, regarding amendments to the MDM/R manuals and procedures.

2. The Terms of Service provide that the SSC will have up to 13 members, representing LDCs that are MDM/R service recipients, appointed by the SME from among nominations made by MDM/R service recipients or entities eligible to become MDM/R service recipients.

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

(a) Since January 2013 the SME has provided 30 Advanced Graphical User Interface ("GUI") Training Courses, 17 Basic GUI Training Courses, and 32 Webinars to the LDC community.

(b) Since January 2013 the SME has performed 4 upgrades of the MDM/R Service Desk tool with each upgrade, adding new functionality to improve LDC business operations such as:

(i) Decreased MDM/R Ticket resolution times

(ii) Improved MDMR Communications and notifications

(iii) Paperless forms & Online Webinar and Workshop registration

(iv) Online MDM/R Knowledgebase

(v) LDC GUI and Service Desk user management

(vi) LDC Metrics Dashboard

(vii) LDC Master Data Action Items

(c) Since 2013, the SME performed over a dozen on-site visits with LDCs and meter vendors around the province gathering input on how to improve SME services and process to benefit LDCs.

(d) The SME has supported 6 LDC mergers within the MDM/R to date using a specially designed custom tool and accompanying processes to ensure a smooth and seamless experience for the merging LDCs.

(e) The SME has successfully supported 3 Customer Information System ("CIS") replacement projects by developing a testing process for LDCs undertaking a change to their CIS software technology.

(f) Since January 2013, the SME has participated in a total of 26 MDM/R Steering Committee ("SSC") meetings at various IESO and LDC locations across the province.

(g) Since January 2013, the SME has held 25 MDM/R Technical Panel meetings (this working group is made up of technical experts from various LDCs throughout the province, with the primary goal of reviewing and providing feedback for any changes to the MDM/R that may impact the broader LDC community).

(h) 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 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.

(i) 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.

(j) 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:

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

(l) 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 & 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[6] 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 8 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."*

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 ingestion by the end of September 2017 and billing functions coming online in a phased approach throughout 2018.

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[6] 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 attached to this application as Attachment 3