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Independent Electricity System Operator
Station A, Box 4474
Toronto, ON M5W 4E5
t 905.403.6900
www.ieso.ca

September 30, 2016

SENT BY ELECTRONIC MAIL AND BY COURIER

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

Dear Ms. Walli:

Re: Application by the Smart Metering Entity for Licence Renewal ES-2007-0750
OEB File: EB-2016-0284

The Smart Metering Entity ("SME") is currently licensed by the Ontario Energy Board ("Board" or "OEB") under Licence ES-2007-0750 which is due to expire on December 31, 2016. Accordingly, an application is hereby made under section 60 of the *Ontario Energy Board Act, 1998* ("Act") for a renewal of the SME licence. The SME's licence authorizes the SME to operate the provincial Meter Data Management and Repository ("MDM/R") which processes smart meter consumption data from MDM/R service recipients in Ontario to support Time-of-Use billing, allows the SME to meet its objectives and to support the Independent Electricity System Operator ("IESO") in meeting its objectives.

Associated with the SME licence is the agreements between the SME and local distribution companies (the "SME/LDC Agreement"). The Agreement, which expires December 31, 2016, was agreed to by the Board and developed through negotiation between the SME, the Electricity Distributors Association ("EDA") and licenced electricity distributors (also known as Local Distribution Companies or LDCs) and filed with the Board under Board file numbers EB-2012-0100/ EB-2012-0211.

The SME is hereby making application to the Board to renew the SME licence and the SME/LDC Agreement to December 31, 2036, a period of 20 years.

A. Background

The IESO applied to the Board on November 13, 2015 under section 60 of the Act for an order renewing the SME licence (ES-2007-0750) and extending the SME/LDC Agreement.

The Board issued a Decision and Order on January 26, 2016:

- Renewing the SME's licence and the SME/LDC Agreement to December 31, 2016
- Requiring that the SME, effective January 1, 2017, 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.

- Requiring the Smart Metering Entity to prepare an implementation plan for Third Party Access to this enhanced SME data, including costing considerations to be included with its next application for a licence renewal.

B. The Applicant

The SME was established to administer the MDM/R and other objectives of the Government's Smart Metering Initiative. The IESO was subsequently named the SME by Ontario Regulation 393/07, as amended by Ontario Regulation 233/08.

C. The Application

This application is for a renewal of the SME's current licence, ES-2007-0750. This application is made under section 60 of the Act to exercise the powers and perform the duties of the SME under the *Electricity Act, 1998*. This application is also made under the requirements of the Board's Decision and Order issued January 26, 2016 (EB-2015-0297).

I. The collection of additional information associated with each meter:

Effective January 1, 2017 the SME will begin collecting the information, modified where necessary to sufficiently render it non-personal information, as required by the Board's January 26, 2016 decision, from all LDCs except from Toronto Hydro-Electric System Limited. Toronto Hydro-Electric System Limited is currently neither using nor providing information into the MDM/R.

Following the Board's January 26, 2016 Decision and Order, the SME established the OEB Licence Order Working Group ("Working Group") to provide input into the SME Licence Order Implementation Plan to ensure that the Order could be executed within the specified timelines in a manner compliant with applicable legislation and privacy requirements.

The Working Group first met on March 21, 2016 and continued to meet through the remainder of the year. The list of the Working Group participants is presented in the Third Party Access Implementation Plan, at Appendix A.

At the advice of the Office of the Information and Privacy Commissioner ("IPC"), the IESO has retained a reputable Privacy Consultant to perform a conceptual re-identification risk assessment for the enhanced data set that will exist in the MDM/R. Following the Privacy Consultant's recommendations, the IPC's review, and discussions with the Working Group the IESO will implement the following additional data collection process as of January 1, 2017:

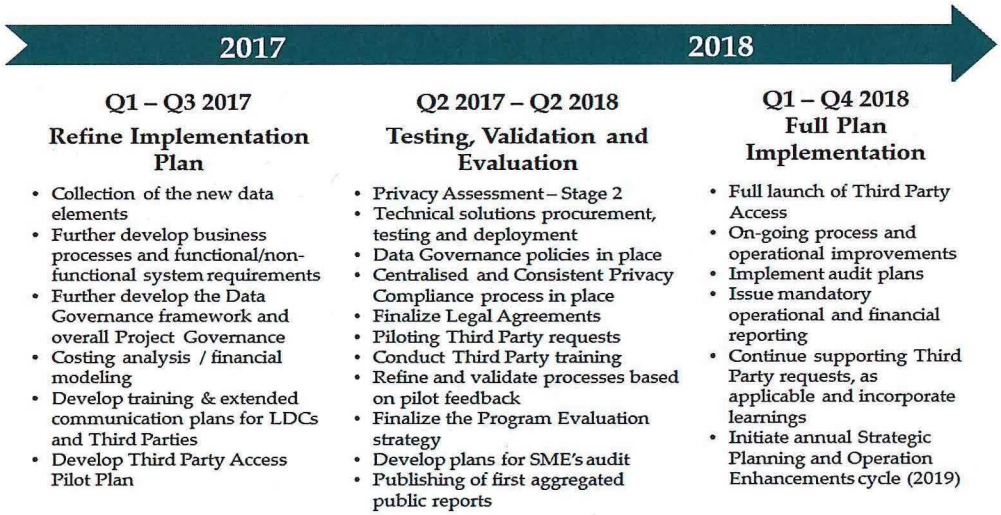
- Collect the full (6 character) postal code;
- Generalize the occupancy change date to just the year;
- Collect the distributor rate class and the commodity rate class;
- Mask the premise address and the city fields.

II. The Third Party Access Implementation Plan

The SME has completed an implementation plan addressing Third Party Access to the information it will begin collecting January 1, 2017, which is attached as Appendix A.

For privacy considerations, it is important to note that the data elements that would be made available for Third Party Access would be provided in a generalized and/or aggregated format based on the risk of re-identification as it relates to the data sample and the requester's risk profile, following a consistent privacy compliance framework. This framework will be developed in 2017 in consultation with the Privacy Consultant and the IPC.

A high level timeline for the Third Party Access Implementation Plan is provided below, with significant details provided in the entire plan provided at Appendix A:



The SME's implementation plan also includes an assessment of cost implications. The SME will be providing only implications related to costs incurred by the SME and will not include other costs such as those incurred by Third Party Access requestors. Factors that will impact the overall costs are related to the nature, specifics and volume of various third party requests received over time, as they will shape the type of processes and systems that the SME will build in order to support the Third Party Access program. The costs will be categorized into One Time and Ongoing costs related to technical purchases, training/communications and human resources required, both internal and external to the SME. The detailed costing analysis associated with this project will be completed for the next SME fee filing application in 2017.

D. Licence & Licence Term

The SME requests that the Board renew the SME's license for a 20-year period effective to December 31, 2036. A draft licence is attached as Appendix B. No edits have been made to the draft licence from that issued by the Board in January, 2016 except to the issuance and expiry dates. The SME's original licence had a term of five years and the Board's January 26, 2016 Decision and Order extended the licence to December 31, 2016 with the requirement that the SME begin collecting the information required in the Order effective January 1, 2017. The SME has worked collaboratively with Ontario's LDCs and other stakeholders to meet this requirement. As the Board typically issues LDCs, transmitters, generators and, recently, the IESO a 20-year licence, a similar-length licence is seen as appropriate for the SME.

E. The SME/LDC Agreement

As part of this application the SME is seeking an extension of the Smart Metering Agreements the SME has signed with LDCs so that the expiry of the Agreements align with the requested expiration date of the SME's licence. This approach is consistent with the current practice where the current Agreements expire on the same date as the current SME licence, December 31, 2016. As per section 5.4.1 of the Board's Distribution System Code, the Agreement is in a form approved by the Board and sets out the respective roles and responsibilities of the LDC and the SME 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. Section 11.1 of the Agreement specifically allows the Board to extend the term of the Agreement through an order of the Board. No edits have been made to the standard form SME/LDC Agreement from that extended by the Board in its January, 2016 Decision and Order.

The SME believes that Board approval of a standard form SME/LDC Agreement remains essential to attaining the SME's objectives. While section 5.4.1 of the Distribution System Code provides the SME with the authority to require that a distributor enter into the SME/LDC Agreement in the absence of such authority, the SME could face demands to negotiate unique arrangements with different distributors. The SME requires the cooperation of distributors to fulfill its statutory objects as required by the Board. The advantage of section 5.4.1 is that it

creates a single negotiation process between the SME and LDCs backed by Board adjudication in the event of any disputes. This ensures fairness for both the SME and LDCs.

Furthermore, the standard form SME/LDC Agreement ensures the continuation of the SME Steering Committee ("SSC"), as stated in the SME/LDC Agreement. The SSC is a valuable LDC representation body that was established in June 2013 to review, provide input and make recommendations with respect to changes, service levels and the performance of the MDM/R, and continues to provide support to the MDM/R Operations. The SSC membership is comprised of nine representatives from LDCs and one from the SME, and is approved by the IESO Board of Directors. A full description of the SSC and its members is provided at Appendix E. The standard form SME/LDC Agreement is provided at Appendix F.

F. Information about Key Individuals

As stated earlier, the IESO is operating as the SME under licence by the OEB. Information about the IESO's Leadership Team and Directors is attached as Appendix C and Appendix D respectively.

Current information about the IESO's officers and directors is also available on the IESO website at:
http://www.ieso.ca/Pages/About-the-IESO/Leadership-Team.aspx, and
http://www.ieso.ca/Pages/About-the-IESO/Board-of-Directors.aspx.

G. Procedural Matters

As no party will be adversely impacted by the renewal of the SME's licence the SME requests that the proceeding be disposed of through an administrative process pursuant to section 6 of the Act as described on the Board's licence applications webpage:
http://www.ontarioenergyboard.ca/OEB/Industry/Licences/Apply+for+a+Licence

H. Freedom of Information Consent

A completed Notice and Consent form is attached as Appendix G.

I. Payment

A cheque in the amount of $200 covering the licence application fee is included with this application.

J. Attachments

Appendix A: The Third Party Access Implementation Plan
Appendix B: Draft SME licence
Appendix C: The IESO's Leadership Team
Appendix D: The IESO's Directors
Appendix E: The Smart Metering Entity Steering Committee, Governance and Members

Appendix F: Standard Form SME/LDC Agreement
Appendix G: Completed Notice and Consent Form

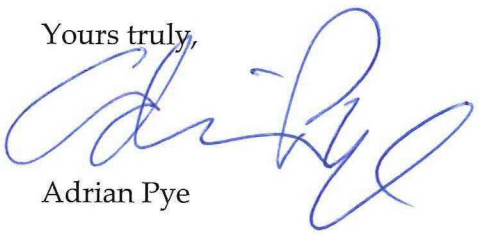
K. Contact Information for this Proceeding

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:	Mr. Adrian Pye Senior Analyst, Regulatory Affairs Independent Electricity System Operator
	Address for Service:	1600-120 Adelaide Street West Toronto, ON M5H 1T1
	Telephone:	(416) 506-2858
	Email address:	regulatoryaffairs@ieso.ca
(b)	The SME's counsel:	John Rattray General Counsel Independent Electricity System Operator
	Address for Service:	1600-120 Adelaide Street West Toronto, ON M5H 1T1
	Telephone:	(416) 506-2856
	Email address:	John.Rattray@ieso.ca

Please call the undersigned should the Board have any questions about this application.

Yours truly,



Adrian Pye

cc: Doug Thomas, Vice President Information and Technology Services, IESO
Sorana Ionescu, Director, Smart Metering, IESO

Appendix A

Submitted as part of the Smart Metering Entity Licence Renewal Application to the Ontario Energy Board, as per OEB Order EB-2015-0297

Third Party Access Implementation Plan

Issue: 1.0

Issue Date: September 30th, 2016

This document uses IESO Internal General Template IESO_TPL_0066 version 6.

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1. Executive Summary

On January 26, 2016 the Ontario Energy Board (OEB) issued Order EB-2015-0297. The Order required the Smart Metering Entity (SME) to collect from Local Distribution Companies additional smart meter information, as of January 1st 2017, within the Ontario central Meter Data Management and Repository (MDM/R). The Order also instructed the SME to include in its next license renewal application an implementation plan for enabling Third Party Access to this data, including cost implications.

The data elements that would be made available for Third Party Access are:

- Energy Consumption Data – existing data within the MDM/R
- Location by Postal Code – newly required under the OEB Order
- Distributor Rate Class – newly required under the OEB Order
- Commodity Rate Class – newly required under the OEB Order
- Validation of Occupant Status – newly required under the OEB Order

For privacy considerations, it is important to note that the above data elements would be provided **in a generalized and/or aggregated format** based on the risk of re-identification as it relates to the data sample and the requester's risk profile, following a consistent privacy compliance framework. This framework will be developed in consultation with the Privacy Consultant and the Office of the Information and Privacy Commissioner (IPC).

The analytical applications of the newly added information into the MDM/R are envisioned to add value to the electricity system and customers, support regional/provincial planning, aid in the design of distribution rates and pricing programs and the subsequent assessment of the effectiveness of those programs, and the design and evaluation of new innovative energy programs, products and services that could enhance the customer experience and help Ontarians better manage their electricity costs.

Throughout the SME's work to date, extensive communications and stakeholdering with a broad group of organizations has taken place. Most notable has been the formation of the Smart Metering Entity License Order Working Group (or "Working Group"), which includes a representative number of LDCs across the province, as well as observers and advisors. The Office of the Information and Privacy Commissioner (IPC) has been actively engaged in discussions in a consultative capacity.

In today's complex world of big data analytics, the need to be compliant with all privacy laws as well as building a security framework that secures the collected data is of paramount importance. Furthermore, centralizing the design through the already existing infrastructure investments into the provincial data center for electricity consumption information (the MDM/R), is the best approach to support the comprehensiveness and consistency of the Third Party Access processes and solutions.

Since the designation of the IESO as the SME, and throughout the SME's evolution over the years, maintaining the privacy and security of the data collected and stored within the MDM/R has been a significant focus. As such and by design, the SME proactively monitors its controls to support the objective of protecting smart meter data, and is constantly looking for opportunities to enhance those controls as new technologies evolve and as new best practices are established. The SME has worked closely with the IPC to obtain guidance on matters related to privacy and addressed the requirements for the collection of the additional data elements related to the OEB Order in a manner that sufficiently renders the data as non-personal.

The designed processes and systems for the implementation of Third Party Access will have no impact on the primary MDM/R services including the high service levels that the SME provides to the MDM/R service recipients. In implementing Third Party Access the SME will consider the use of existing systems and processes to achieve operational efficiencies to reduce the cost of the implemented solutions.

The contemplated future use of the expanded data set in the MDM/R requires consistent high quality data. Together with the LDCs, the SME must ensure a comprehensive data governance program for the ongoing improvement of the quality of the data received into the MDM/R.

The IESO complies with all applicable privacy laws, including Ontario's *Freedom of Information and Protection of Personal Information Act* (FIPPA). The SME will establish legal agreements with the recipients of the data as required to govern the duties, responsibilities, and obligations of each party, to ensure full compliance with data protection principles, and compliance with all applicable privacy laws.

The SME would like to take this opportunity to extend its appreciation and thanks to all the organizations that have dedicated time and resources to provide important insights and advice in the development of this plan.

2. Introduction

On January 26, 2016 the Ontario Energy Board (OEB) issued Order EB-2015-0297 (the "Order" or "OEB Order"). The Order required the SME to collect from the LDCs additional smart meter information, thereby enhancing its value, within the Ontario central MDM/R. The Order also instructed the SME to include in its next license renewal application an implementation plan including the cost implications of enabling Third Party Access to this enhanced set of meter data in the MDM/R.

This document describes the implementation plan and an initial assessment of the cost implications to provide access to third parties to the enhanced set of MDM/R smart meter data, including observing the regulatory framework under which the SME operates to ensure compliance with privacy laws. Also included are guidelines for evolving the services offered as the demand for the information grows.

3. Background

In 2004 the Ontario Ministry of Energy (MoE) put forward a vision for a Smart Metering Initiative (SMI) policy to promote a culture of energy conservation for consumers throughout the Province. The SMI was to be implemented in stages, roughly outlined as follows:

- Install a smart meter in every residential home and small business in the Province (roughly 4.5 million installations) by the end of 2010.
- Create and designate an organization to develop and operate a central meter data management system (the MDM/R) to be the repository of record for all energy consumption data from smart meters.
- Institute a new time-of-use (TOU) energy pricing regime to apply to all those consumers having smart meters installed in their residences, with the billing information being supplied by the MDM/R.
- Expand the availability of the information in the MDM/R to other organizations (third parties) to promote innovation in the Ontario energy sector.

In 2006, the Independent Electricity System Operator (IESO) was named to lead the Smart Meter System Implementation Program, aimed at implementing the central meter data repository by collecting and processing energy consumption data and providing the TOU consumption information so LDCs could bill their customers. In 2006, the Smart Metering Entity was created through legislation that laid out its objectives; and, in 2007 the IESO was officially designated as the Smart Metering Entity by Ontario Regulation 393/07 made under the Electricity Act, 1998.

By early 2013 over 4.7 million smart meters were installed in Ontario and the MDM/R was fully operational with most residential customers being billed using TOU rates. In 2013 the Ontario Energy Board issued its Supplemental Report on Smart Grid (http://www.rds.ontarioenergyboard.ca/webdrawer/webdrawer.dll/webdrawer/search/rec&sm_titleword=supplemental%20report%20on%20smart%20grid&sortd1=rs_dateregistered&count&rows=200) which recognized the opportunity for innovation that the data in the MDM/R represented, recommending that the SME investigate opportunities for providing Third Party Access, while ensuring that the privacy of the customers represented in the repository be maintained.

In 2014 the SME's analysis identified significant limitations to the use of the then current data set in the MDM/R, noting that insufficient information was available to pinpoint where individual energy consumption was taking place.[1]

In 2015 the IESO created the Foundation Project, designed to recommend what additional information should be added to the MDM/R to enhance the value, and thereby the use, of its energy consumption data. The Foundation Project Final Report http://www.ieso.ca/Documents/consult/Foundation/Foundation-20151104-Foundation-Project-Final-Report.pdf recommended the addition of customer address and occupant change information to the MDM/R and laid out a framework for Third Party Access to de-identified data. The scope of the Foundation Project did not include an implementation plan with respect to any of its recommendations.

In 2016 the OEB Order EB-2015-0297 recognized that sufficient enhanced value can be realized in the immediate future by collecting "non-personal information". In response to the OEB Order, the SME has established a Working Group of LDCs and other organizations and is currently well along with the implementation of the additional fields the OEB instructed be added and is offering the implementation plan for Third Party Access contained herein.

[1] At that time, where consumption was occurring could only be pinpointed to an LDC's footprint, which was not considered accurate enough for regional or provincial energy conservation programs and other initiatives or for fruitful use of data analytics techniques.

4. OEB Order Compliance – Progress to Date

This section will focus on describing the work that has been accomplished to date, leaving the detailing of the work still to be accomplished in implementing Third Party Access to a later section.

Additional Data Collection

The scope of this Third Party Access Implementation Plan is limited to the provision of interval energy consumption information and related parameters regarding that consumption. The data elements that will be made available for Third Party Access are identified in Table 4-1, along with a brief description.

Table 4-1: Available Data Elements for Third Party Access

Data Elements	Description
Consumption Data (existing data)	Hourly interval data, aggregated as required
Location by Postal Code (newly required by OEB order)	This is the Postal Code associated with the SDP, i.e. Service Location, where the meter is installed. For Third Party requests, the level of generalization of the Postal Code will be based on the risk of re-identification as it relates to the data sample and the requestor's risk profile following a consistent framework that will be developed in consultation with the Privacy Consultant and the IPC.
Distributor Rate Class (newly required by OEB Order)	This defines the market segment to which the customer, associated to the SDP, belongs. 201 – Residential Regular Applies to a consumer account taking electricity at 750 volts or less where the electricity is used exclusively in a separate metered living accommodation (for domestic household and personal residency use). 202 – Residential Condo Applies to a consumer account with a distributor, if the account relates to: - A property as defined in the Condominium Act, 1998 - A residential complex as defined in the Residential Tenancies Act, 2006, - A property that includes one or more dwellings and that is owned or leased by a cooperative as defined in the Co-operative Corporations Act. 203 – Residential Seasonal Applies to a consumer account with a distributor, if the account relates to: a residential dwelling that is not a year-round residence as defined by the LDC, and cannot be classified in the residential categories described above or as small general service less than 50 kW, e.g. cottages, chalets and camps. 301 – Small General Service (< less than 50kW) Applies to a non-residential account taking electricity at 750 volts or less whose average monthly maximum demand is less than, or is forecast to be less than 50 kW.
Commodity Rate Class (newly required by OEB Order)	This defines the price plan for the customer associated to the SDP 101 – Time-of-Use (TOU) Price option with three time-of-use price periods: off-peak, mid-peak, and on-peak; developed as part of the Regulated Price Plan (RPP) for those with smart meters 102 – Tiered

Data Elements	Description
	Price option in which consumers can use a certain amount of electricity each month at a lower price; when they pass that level, the rate goes up for all additional electricity. 103 – Retailer Applicable to consumers who have signed a contract with a licensed active energy retailer and pay a fixed rate that replaces the time-of-use and tiered pricing RPP options. These consumers have chosen to no longer be under the Regulated Price Plan (RPP). 104 – Spot Market Pricing Price option in which consumer's pay, for a given hour, the Hourly Ontario Energy Price established by the IESO for that hour. These consumers are not considered under the Regulated Price Plan (RPP). 105 – Net Metered Billing option that allows customers to generate renewable energy onsite for their own use, and receive bill credits for any surplus electricity sent to the grid.
Validation of Occupant Status (newly required by OEB order)	The year associated with this parameter defines whether a move-in/move-out event by the premise's occupant occurred in the indicated year.
Number of Premises	Number of premises used to fulfill the data request. Data may not be provided if a data request involves < X (e.g. 5) number of premises.

The SME added the required additional parameter names to the existing MDM/R synchronization process to effectively meet the information and implementation requirements in the OEB Order and to maintain continuity in file processing. These new parameters do not impact the meter read data validation and estimation functionality or the billing functionality within the MDM/R. Utilizing the existing functionality has minimized the costs to the LDCs of providing the new data elements. This is an example of making use of existing capabilities to achieve operationally efficient and cost effective solutions. Going forward this same principle will be used. Some areas that would naturally lend themselves to these considerations include:

- Use of existing systems to coordinate and track the submittal of requests for information and the progress/status of their fulfillment, including data delivery processes and post-delivery processes.
- Use of existing systems and processes for the user registration process described in Section 6.
- Use of existing systems to service the anticipated increasing demand for energy consumption information in a timely manner without impacting the primary meter-to-bill functions supported by the MDM/R.
- Use of existing systems to support an extended set of information encompassing not only the energy consumption data, but also other data sets to further enhance

the information available in the Ontario energy sector, while protecting privacy and ensuring the security of the data.

As the project evolved, several steps have been taken to ensure that the LDCs will be ready to provide the additional data into the MDM/R, and the SME will be prepared to collect that data into the MDM/R, as of January 1st 2017.

- The SME has been able to maintain the ambitious technical schedule planned in the earlier stages of the project and will deploy the new MDM/R code on October 1st, 2016 thus allowing LDCs to start the synchronization of the new data elements as of that date. In addition, the SME will mask the Premise Address and City fields in the MDM/R Production environment as of October 1st 2016.
- To date, all but one LDC have responded, through surveys and follow up calls with the SME, on their readiness to comply with the OEB Order and provide the additional data into the MDM/R by synchronizing the new data elements with the MDM/R Production environment, as follows:
  - ✓ 7 LDCs in October 2016
  - ✓ 40 LDCs in November 2016
  - ✓ 20 LDCs in December 2016

Should there be any deviations from the projected schedule the LDCs will provide the SME with updates via Service Desk tickets and the MDM/R will be able to handle such variations. The SME will also work closely with the ten largest LDCs to ensure their files are submitted on different days so the process of synchronization can be handled as smoothly as possible for the LDCs and the SME.

LDCs requested that, once they start synchronizing the new elements, it would be beneficial to receive data compliance reports, aside from the regular synchronization reports, to address any issues promptly. The SME will be looking into the issuance of regular reports, as early as October 1st 2016 and no later than the end of October 2016, to help LDCs monitor their progress.

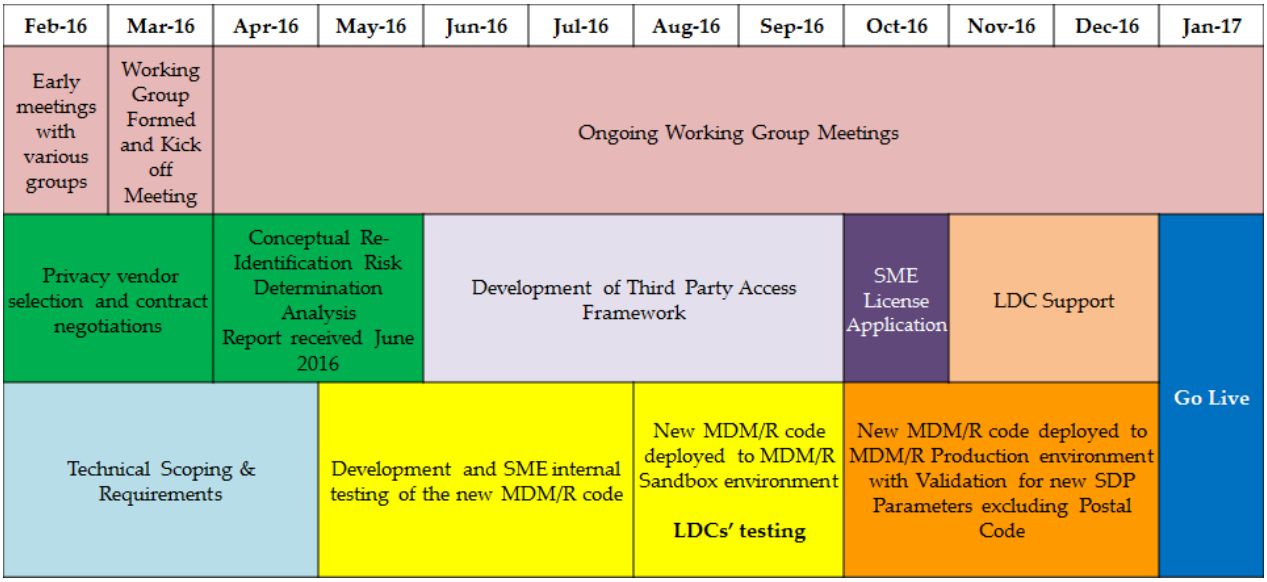
Table 4-2 details the deployment schedule for the elements to be added into the MDM/R as of January 1st, 2017:

Table 4-2: Summary of Deployment Schedule

Element	Expected Value	Accepted by the MDM/R	Validated if submitted	Required & Validated
Commodity Rate Class	**101,102,103,104 or 105** Date format: yyyyMMddHHmmss	Oct 1st, 2016	Oct 1st, 2016	Jan 1st, 2017
Distributor Rate Class	**201,202,203 or 301** Date format: yyyyMMddHHmmss	Oct 1st, 2016	Oct 1st, 2016	Jan 1st, 2017
Occupancy Change Flag	**X** Start Date: yyyy0101000000 End Date: yyyy1231000000	Oct 1st, 2016	Oct 1st, 2016	Jan 1st, 2017
Postal Code	**A1A1A1** (Valid Ontario Postal Code), or **W8W8W8** (Temporary)	Oct 1st, 2016	Jan 1st, 2017	Jan 1st, 2017
Premise Address	**X**	Currently acceptable	MDM/R will default to "X" as of Oct 1st, 2016	Jan 1st, 2017
City	**X**	Currently acceptable		Jan 1st, 2017

Table 4-3 presents the status of the overall timelines for the collection of the additional data elements into the MDM/R. The project has been progressing according to schedule and with no deviations on any of the key elements of the plan.

Table 4-3: Collection of Additional Data Elements Timeline



Communications/Stakeholdering

Throughout the SME's work to date in complying with the OEB Order, extensive communications and stakeholdering with a broad group of organizations has taken place. Most notable has been the formation of the Working Group. This Working Group includes a representative number of LDCs across the province as active members. Equally important are the other organizations involved as observers and advisors to the Working Group. These organizations include the Ontario Energy Board (OEB), the Ministry of Energy, the Electricity Distributors Association, and both gas utilities, Enbridge and Union Gas. The members of the Working Group are identified in Appendix 1.

The IPC has been closely involved in the project in a consultative capacity. Over the course of the development of the Third Party Access Implementation Plan, the SME has had several meetings with the IPC to provide updates on Working Group progress and to discuss various aspects of the project design and implementation. These discussions will continue in the future as Stage 2 of the Privacy Assessment continues and as the specifics of the policies and processes for the Third Party Access Implementation Plan are being developed and finalized.

The overall communications efforts ensure that the wider stakeholder communities are aware of the background of the OEB Order, its current implementation status and the future plans to bring Third Party Access to fruition. Multiple communications channels are utilized to achieve maximum coverage.

A cornerstone of the communications media is a web page on the IESO's Stakeholder Engagement website to share important information on the Working Group's progress: http://www.ieso.ca/Pages/Participate/Stakeholder-Engagement/Working-Groups/Smart-Metering-Entity-SME-Licence-Order-Working-Group.aspx

The webpage includes the following areas of information:

- OEB Order
- Meeting agendas
- Formal presentations
- Meeting minutes

Focused communications with the entire LDC community have thus far included the following:

- MDM/R Communications via the SME existing systems and email

- Webinars to the LDC Community
- SME Steering Committee and MDM/R Technical Panel Meetings
- Surveys of the LDC Community
- Electricity Distributors Association (EDA) communications

Table 4-4 displays the communications types that have been utilized to date. The implementation of Third Party Access will continue to leverage all of the currently enabled communications tools and will be further augmented for planning various aspects of the implementation plan as shown in Section 7.

Table 4-4: Communications Types, Audiences and Frequency

Communication Type	Target Audience	Frequency
Working Group webpage (as part of the IESO's Stakeholder Engagement website)	Public	Ongoing from Working Group launch on March 21, 2016 through to implementation
EDA General Communications	LDC Community	Ongoing until implementation
LDC Surveys via EDA and/or the SME	LDC Community	As required
SME Steering Committee (SSC) Meetings	LDC Community	The SSC will meet 5 times in 2016 and 2017, respectively; the 2016 dates are below: • January 19th, March 22nd, June 21st , September 20th, November 22nd
Webinars	LDC Community	The Working Group has delivered 3 webinars in 2016 • May 5th, June 13th, July 28th Additional webinars will be scheduled as required
MDM/R Technical Panel Meetings	Technical Panel members	As required
Email notification(s)	LDC community Working Group Other parties, as required	As required

Table 4-5 presents the detailed calendar of communications since Working Group inception, with all the scheduled and ongoing activities required to ensure fluid and comprehensive dialogue with the project audiences.

Table 4-5: Communications Calendar (as of September 30, 2016)

Communications Channel	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17
Working Group Meetings	✓	✓	✓	✓	✓	-	✓	Oct 27	Nov 29	Dec 15	Jan 19
IESO Stakeholder Engagement Website		✓	✓	✓	✓	-	✓				
IESO Stakeholder Advisory Committee (SAC)			✓			✓					
IESO Webinars			✓	✓	✓						
IESO Province Wide LDC Event							Sept 9				
EDA Website / eBlast		✓	✓	✓	✓	✓					
EDA LDC Surveys		✓				✓					
SSC Meetings and LDC Open Calls	✓			✓			✓				
MDM/R Technical Panel Meetings					✓						
GO LIVE Communication											

5. Compliance with Privacy Laws

As important as the provision of energy consumption data to third parties is, equally important is the protection of the privacy of that data. Since the designation of the IESO as the SME, and throughout the SME's evolution over the years, maintaining the privacy and security of the data collected and stored within the MDM/R has been a significant focus. The SME firmly believes that meeting the standards of protecting privacy should not be considered as a hurdle to be overcome, but rather as a set of enabling guiding principles that, once adopted at the early stages of any data sharing initiative, ensure the continued and long-term success of such an initiative.

The commitment to observing the privacy laws and data security practices has been at the core of the SME operations since inception. As such and by design, the SME proactively monitors its controls to support the objective of protecting smart meter data, and is constantly looking for opportunities to enhance those controls as new technologies evolve and as new best practices are established.

In ensuring that data privacy and security are rigorously and consistently observed, the SME developed sound internal control systems to protect smart meter data. A number of controls and processes were established, as part of a Control Framework, to manage risks effectively, while making information such as governance documents, manuals, procedures and key contact information available to the key stakeholders.

Since the early years of MDM/R operations, the SME has embraced the following guiding principles of Privacy by Design in the design of the MDM/R controls:

1. Proactive not Reactive; Preventative not Remedial
2. Privacy as the Default Setting
3. Privacy Embedded into Design
4. Full Functionality — Positive-Sum, not Zero-Sum
5. End-to-End Security — Full Lifecycle Protection
6. Visibility and Transparency — Keep it Open
7. Respect for User Privacy — Keep it User-Centric

Throughout the years, the SME has been committed to engaging the IPC and other privacy subject matter experts, in any new initiative, to guide the SME's thought process around privacy related topics:

- The IPC was a member of the Foundation Project Working Group and provided very valuable input throughout the process.

- The IPC was a member of the MDAP Business Case Development Project's Advisory Committee, and highlighted a number of privacy related considerations that were captured in the final report.
- Privacy Analytics Inc. (PAI), a renowned leader in re-identification risk assessments and data de-identification, was contracted to assist the SME with privacy related considerations as an integral part of the additional data collection and the review of the Third Party Access Implementation Plan as part of the OEB Order project.

Annually, the SME commissions an external firm to conduct a Canadian Standards on Assurance Engagements audit of the controls at a service organization (CSAE 3416). The purpose of this audit is to provide the MDM/R Service Recipients with information over the MDM/R controls as they relate to the financial statement audit of the smart meter billing processes. The CSAE 3416 report provides a reasonable assurance opinion on whether, throughout the audit period, the description of the MDM/R is presented fairly, the controls were suitably designed to achieve the control objectives, and the controls were operating effectively. The SME has received a non-qualified audit report for the last six years, which speaks to the rigor and consistency of the control processes embedded into MDM/R operations.

In January 2016, when the OEB issued its Order EB-2015-0297, for the collection of additional data elements to enhance the value of the data within the MDM/R, it required that the collection of the additional data has to be accomplished *in a manner that sufficiently renders the data as non-personal*.

The SME addressed the requirements for the collection of the additional data elements in the same methodical and principle-based approach it has adopted over the years, specifically:

A. Develop an approach that ensures compliance with privacy laws and data security requirements
B. Consult with specialist practitioners and subject matter experts to obtain their professional recommendations for areas within their domain of expertise
C. Scan other industries for solutions and best practices similar to those being addressed in the energy industry
D. Integrate a continuous improvement process within the plan to ensure that feedback is incorporated into future iterations

The following subsections detail the activities undertaken as they relate to each of the above four guiding principles:

A. Develop an approach that ensures compliance with privacy laws and data security requirements

Since the OEB Order was issued, the SME has focused on achieving the objectives of the Order in full compliance with the governing Privacy laws. The SME has been in regular contact with the IPC to provide updates on the progress made to date and to seek guidance on matters related to the authority to collect data and efforts to safeguard the data, once it is collected and throughout the process of its de-identification.

Data security is an essential component of the design of systems as well as processes. The architecture of a new system or a process is founded on the means, and tools to secure the data within such a system. Similarly, expanding the technology footprint of an existing system or introducing a new process expanding the use of an existing system, do introduce opportunities to build on the security foundation in place and add more controls or tools to account for the new technology component or functionality.

As the SME builds on the security foundation of the MDM/R, expanding and enhancing that security footprint, where needed, is an integral component of the overall architecture of the system that will produce data for Third Parties as well as the processes that will be employed to receive requests and deliver the data. The current security infrastructure and associated controls of the data in the MDM/R will not be adversely impacted by the architecture of a repository that would be used for producing data for the use of Third Parties.

Furthermore, the SME has been taking additional guidance from several publications by the IPC to promote compliance with Ontario's access and privacy laws, specifically in the evolving area of de-identification[2]. Such publications provide important considerations in the development of the principles and processes around collection of additional information in a manner that renders it non-personal as well as third party access to de-identified data.

B. Consult with Specialist Practitioners and Subject Matter Experts

Based on a recommendation from the IPC, the SME contracted with Privacy Analytics, Inc. (PAI); a renowned leader in re-identification risk assessments and data de-identification with years of experience operating in the world's most strict data compliance environments.

[2] "De-Identification Guidelines for Structured Data", IPC, June 2016

PAI has worked extensively with health care organizations, and utilizes a risk-based approach to de-identification to maximize the value of real world data while complying with globally accepted standards and guidelines, including those from the Institute of Medicine (IOM), Health Information Trust Alliance (HITRUST), the Council of Canadian Academies, as well as the Health Insurance Portability and Accountability Act (HIPAA) and the EU General Data Protection Regulation framework.

PAI has created specialized software which offers organizations a consistent approach to measure re-identification risk and de-identify data. Using peer-reviewed algorithms and methodologies, a risk assessment of the data based on context and intended use is achieved. With flexibility around the data type (structured tables, unstructured text or other formats), PAI's software allows for the establishment of an automated and repeatable process for de-identification that scales as data grows.

Considering that patient data is some of the most sensitive type of shared data, the SME believes that using the Health Care industry as the gold standard for data compliance and protection is a prudent approach to safeguard the data of Ontario's electricity consumers, and as such the SME made an early decision to adopt the most stringent rules applied in the health care industry to the smart meter data.

PAI's involvement in this project was structured to span two stages:

Overview of Stage 1:

During this stage, PAI was responsible for:

a) evaluating the risks of re-identification of the dwellings within the extended set of smart metering data that will be collected by the SME effective January 1, 2017 as per the OEB Order, and
b) recommending any required changes to the MDM/R to protect the privacy[3] represented in the data set. The outcome of this stage was to produce a detailed conceptual re-identification risk determination report. This stage has concluded with a report issued in June 2016.

Stage 1 was critical in articulating the attributes of the data that will be collected by the SME from the LDCs. The following provides an overview of the methodology, analysis and conclusions of Stage 1.

[3] The records in the MDM/R pertain to dwellings (and not individuals) and therefore, the risks described are for the re-identification of a dwelling, which further minimizes the risk of re-identification of individuals.

Methodology overview

Since the additional data elements have not yet been collected by the SME, the assessment was performed using a conceptual re-identification risk determination (CRRD) methodology. A typical risk measurement involves measuring the risk on the data by calculating the risk of re-identification of each record in the dataset. This is done by comparing the quasi-identifiers (potentially identifying data elements) across the records in the data and determining how many records look the same or similar to each other. In order to model the risk without the actual data, a process was used that is based on information theory to calculate the expected average identifying power of each field and those values were combined to obtain an overall risk measurement. The distributions of values in these fields were obtained from a variety of reputable sources, such as the Canadian census, in order to accurately calculate the associated information values.

Risk Context and Risk Threshold

In order to provide an estimate of the re-identification risk context in the MDM/R, the following was assessed:

- The Security and Privacy Controls in place at the IESO
- The degree of Recipient Trust in place at the IESO
- The potential invasion of privacy based on the sensitivity and potential harm to those in dwellings represented in the data set

It is important to note that these assessments extended beyond the SME, taking into consideration various aspects of the full IESO's security policy and privacy/confidentiality controls. From these assessments, the probabilities of re-identification attacks were estimated and an appropriate risk threshold was determined.

Results and risk mitigation recommendations

Quasi-identifiers

Based on the conceptual re-identification risk determination of the quasi-identifiers contained in the data schema, PAI provided several options for data generalizations to ensure the expected average re-identification risk would lie below the appropriate threshold and that the data set would pass an additional uniqueness criterion. Based on the Consultant's recommendations, the IPC's review and discussions with the Working Group, the IESO will implement the following data collection process:

- Collect the full (6 character) postal code
- Generalize the occupancy change date to just the year
- Collect the Distributor Rate Class and the Commodity Rate Class
- Mask the Premise Address and the City fields

This combination of information granularity achieves the value for data analytics while lying below the acceptable threshold for the risk of re-identification.

Direct Identifiers

PAI also recommended that *street address* – a field considered to be a *direct identifier* currently being provided by some LDCs to the IESO – be masked (notwithstanding the fact that not all LDCs populate this field with a valid service delivery address, as it is not necessary for the billing service provided by the MDM/R. The only requirement, as an application technical specification, was to populate this field with a value).

Conclusion

While it was stipulated in the OEB Order that the collection of the data should be done in a manner that sufficiently renders the data as non-personal, the extensive work that ensued from the analysis, being a first for the Electricity sector in Ontario, has proven invaluable in setting the foundation and approach for any future requests to collect additional data. The analysis involved numerous meetings with PAI, some of which was to educate them on the MDM/R, the data set under consideration, and to collectively draw up the approach that was adapted from the re-identification risk assessments done in the health care industry and applied to the electricity enhanced data.

PAI has determined that, with the recommended risk mitigation techniques, the risk would be very small that the information contained in the MDM/R smart meter data schema could be used, alone or in combination with other reasonably available information, by an anticipated recipient to identify a dwelling that is a subject of the information.

Also, in line with the recommendation from PAI, the SME has put in place a process whereby the street address and city fields in the MDM/R will be overwritten with a fixed value 'X', regardless of the values submitted by the LDCs for these two fields.

Overview of Stage 2:

In the future, the IESO will be acting as a data provider for various external organizations interested in access to the MDM/R data. To ensure a proper risk analysis for the wide variety of organizations that are expected to request access to the data, PAI has recommended the following dual approach to the analysis.

PAI will be responsible to a) complete a one-time Re-identification Risk Determination (RRD) Service of the smart meter data, using 6-months of the enhanced data set once it has been collected, and b) review and provide feedback on the IESO's Third Party Access Framework to provide a de-identification strategy for each of the Recipient Scenarios which would need to be applied to the data set to ensure that the re-identification risk is "very small" for each intended class of recipient. The completion of Stage 2 is targeted for Q3 2017.

The RRD process for this assessment will involve establishing a variety of de-identification strategies (more details are provided in Section 6 of this report) that would be appropriate given the nature of the data and the various contexts of the potential recipients as determined in the Third Party Access Framework (Recipient Scenarios). The risk of re-identification on the smart meter data will be used to derive the de-identification scenarios so as to ensure that the re-identification is statistically "very small" for each intended recipient.

C. Scan other Industries for Solutions and Best Practices

As part of the initial information gathering stage, the SME consulted with Canada Post and Environics Analytics with respect to tools or professional services offerings available for LDCs that only stored Latitude-Longitude coordinates of the premise and therefore would have to translate Latitude-Longitude coordinates to a postal code. Both organizations confirmed that such tools and services are available, which was communicated to the LDCs, thus ensuring that they had options to address this situation, if needed.

The process of providing third party organizations access to de-identified data, at the scale of the data in the MDM/R, may be a new concept in the energy industry; however, it certainly has been established in other industries. The SME believes it was prudent and informative to do an industry scan of third party data access and as such embarked on a journey to consult with select organizations to learn about their data-sharing

journey. At the same time, the SME assessed the existing data sharing processes employed within the IESO.

The SME engaged with the following organizations as part of this activity:

- The Canadian Institute for Health Information (CIHI)
- Municipal Property Assessment Corporation (MPAC)
- Enbridge
- Statistics Canada

The SME gathered the unique perspective of each organization based on the following program design elements:

- data set (data elements, data size, and data structure)
- classes of data requesters
- complexity of de-identification techniques employed
- methods used to share data with requesters
- data sharing agreements in place with data recipients
- auditing capabilities in place
- data lifecycle
- funding and cost recovery

The SME concluded that there are various options to structure the program of granting access to third party requesters. At this stage, it is hard to anticipate the specifics and volume of requests, and as such the SME will take a calculated and phased approach to the design of this program as outlined in this report.

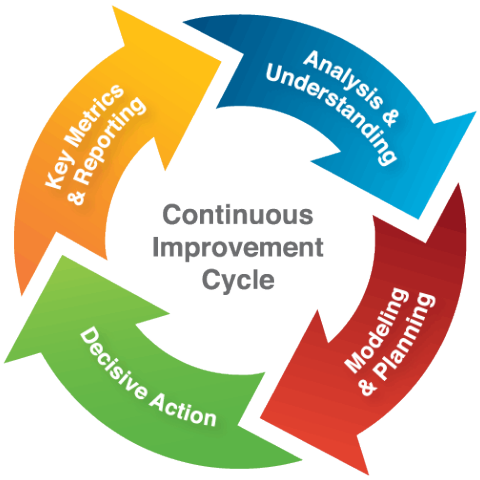
D. Integrate a Continuous Improvement Process

As with any new program established there needs to be a cycle to continually improve the processes involved (see Figure 5-1). The following are the key Third Party Access sub-processes that would be initially monitored as drivers for the improvement efforts:

- Validation of requests
- Frequency of similar requests
- Timelines for delivery of reports
- Design of pre-created reports

These assessments, completed in light of actual requests received, will allow the SME to refine and enhance the sub-processes while taking a gradual cost management approach that ensures costs are proportional to the actual requests received and the complexity of data queries gleaned from such requests.

Figure 5-1: The Elements of a Continuous Improvement Cycle



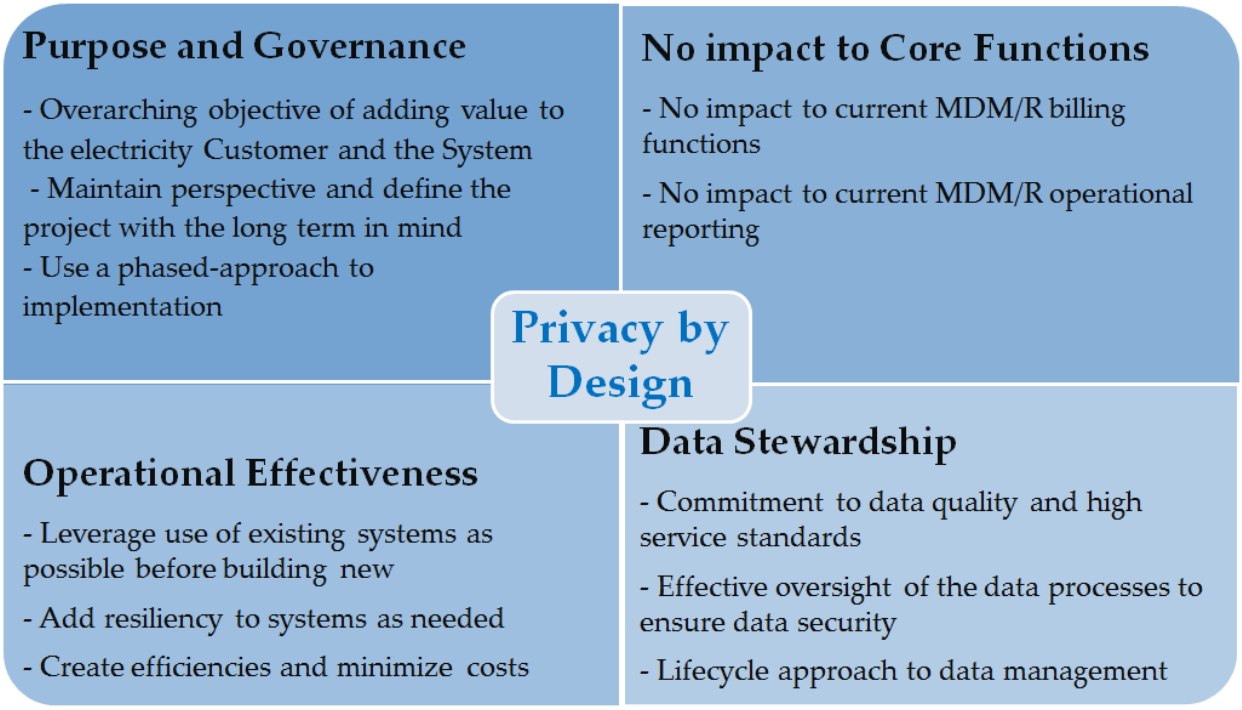
6. Third Party Access Framework

Guiding Principles for Third Party Access

Figure 6-1 depicts the guiding principles that will steer the SME in the proper development and implementation of the Third Party Access program. Compliance with privacy is at the core of the framework and the approach envisioned by the SME to allow for Third Party Access to the energy consumption data available in the MDM/R.

Section 5 described the results of the SME initiated consultation process that engaged a renowned privacy consultant organization to assess the data set that will be available in the MDM/R for access to third parties. What follows is a brief discussion of each of the four guiding principle areas that surround Privacy by Design and enable the achievement of a solution that makes valuable data available while ensuring compliance with privacy laws and data security. Some of the themes recur throughout the document, emphasizing their importance in the work that has and will be done to complete the plan.

Figure 6-1: Guiding Principles for Third Party Access



Purpose and Governance

The SME, in its capacity as the province's operator of the MDM/R, is leading the efforts to add the specified new information into the system. The analytical applications of the newly added information into the MDM/R are envisioned to add value to the electricity system and customers, in support of regional and provincial planning, the design of distribution rates and pricing programs, the assessment of the effectiveness of those programs, the design and evaluation of new innovative energy programs, products and services that could enhance the customer experience and help them better manage their electricity costs.

No Impact to Core Functions

Current regulations establish the SME's role of providing validation, estimating and editing services for the energy consumption data submitted to the MDM/R and providing billing determinants for LDCs to invoice their customers. Additional supporting SME functions include providing operational reports and managing access rights to smart meter data. The designed processes and systems for the implementation of Third Party Access cannot have any impact on these MDM/R services or to the high service levels that the SME provides to the MDM/R service recipients.

Operational Effectiveness

In implementing Third Party Access the SME will consider the use of existing systems and processes before building new ones. While cognizant of the need to fully evaluate the requirements to find a solution that meets the desired approach, maximizing the use of what we already have could create operational efficiencies thereby reducing the cost of the implemented solutions. Where requirements establish the need for more robust and resilient systems, the necessary enhancements will be made.

Data Stewardship

In the process of billing their customers, LDCs request energy consumption billing determinants from the MDM/R. Included in their billing process is the assessment of the reasonableness of these billing quantities. When unreasonable[4] data is identified, its

[4] An example of unreasonable data could include large kWh interval consumption values that, while correct, may appear suspect as they belong to a rate class that is not currently supported by the MDM/R, such as the bulk consumption of a multi-tenant apartment complex. Another example could result from a small general services customer being classified as a residential customer by the LDC, and passed on as such into the MDM/R.

source should be found and corrected, with the subsequent update of the information in the MDM/R.

There is known to be a very small percentage of "unreasonable" data in the MDM/R. And its presence has probably not caused any billing anomalies for the LDCs, which assumes they have made the necessary corrections in their own systems during their billing process. To be successful, the contemplated future use of the expanded data set in the MDM/R requires consistent high quality data. Together with the LDCs, the SME must ensure a comprehensive data governance program for the ongoing improvement of the quality of the data received into the MDM/R. In achieving this, the SME would commit to meeting high data quality standards to Third Party Access users. Further discussion of data governance is contained in Section 7.

Also integral to good data stewardship is the oversight of the processes and controls in place to assure the continued compliance with the privacy laws and the security of the data in the repository.

Governance Framework

The ensuing sections discuss the governance framework for the SME particular to the Third Party Access framework and privacy, in terms of the laws and regulatory authorities, the needed legal agreements between parties, as well as the governance roles of external organizations and those internal to the IESO/SME.

Regulatory Framework

The regulations that established the SME, defined its objects, and designated the IESO to be the Smart Metering Entity are presumed to be well known and understood by the readership. The regulatory authority vested in the Ontario Energy Board enabled the issuance of OEB Order EB-2015-0297 in January 2016. This order called for the collection of additional data elements to enhance the value of the data within the MDM/R and the development of an implementation plan to provide access to third parties.

Legal Framework

The IESO complies with all applicable privacy laws, including Ontario's *Freedom of Information and Protection of Personal Information Act* (FIPPA). The legal framework applicable to third parties requesting access to data contained in the MDM/R might differ from that which applies to the IESO/SME. The SME will establish legal

agreements with the recipients of the data as required to govern the duties, responsibilities, and obligations of each party, to ensure full compliance with data protection principles, and compliance with all applicable privacy laws.

These agreements may vary depending on, among other considerations: the relationship of the parties, the nature of the request and the purposes for which the data will be used. The agreements will require organizations to comply with the conditions, restrictions and prohibitions imposed by the SME relating to the receipt, use, purpose, security (e.g. in transit, at rest), disclosure (to other parties, the public), re-identification and disposal of data if applicable.

External and Internal Governance Structure

The SME is committed to follow sound governance and accountability practices. Envisioned are both a governance structure external to the IESO and an internal IESO governance structure. Members of the external group might include a variety of stakeholder organizations including, for example, the SME Steering Committee (SSC). Having privacy expertise represented in an advisory capacity might also prove valuable. The governance structure will be developed during the implementation phases of this plan.

For internal governance, a traditional IESO model that has worked well for numerous other important programs is likely equally suitable for Third Party Access implementation. An executive steering committee consisting of members of the IESO executive leadership team (including an executive sponsor of the program), augmented as appropriate with representatives from legal, financial, audit, communications and technology is contemplated.

Risk Assessment – Segmentation of Requestors into Risk Categories

It has been established that further privacy risk assessments will be required to properly assess requestors and establish specific criteria that would be applied to every stage of the process: from the receipt of a request through the actual delivery of the data (potentially extending through post-delivery processes). Users would include organizations from all sectors (e.g. government, academia, for-profit, non-profit).

It is important that all requests undergo, in a consistent manner, the assessment of the risk for re-identification so that the guiding principles for Third Party Access are properly observed and compliance with privacy ensured for every request. The centralized approach to Third Party Access furthermore ensures that the processes are always applied consistently, that compliance with the privacy laws is always maintained, and that over time improvement in the efficiency of providing the services can be achieved.

Figure 6-2: Three Rating Factors for Assessing Risk[5]

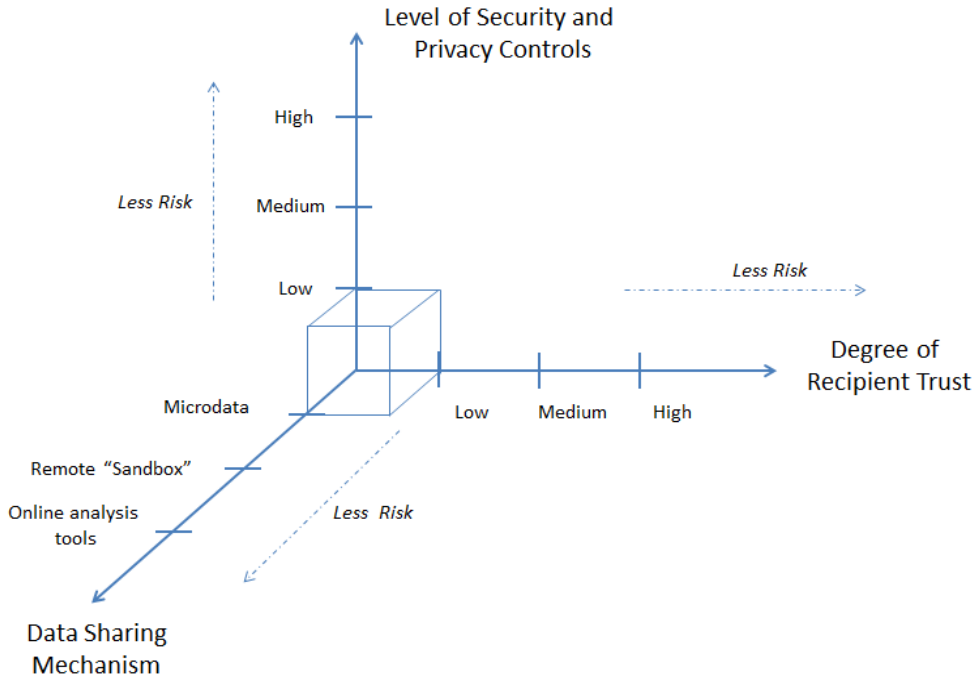


Figure 6-2 provides a high level view of three rating factors used to assess the risk of providing requested information to the recipient. Just as the IESO and the SME had to provide information on its level of security and controls to be assessed on the risk of housing the additional MDM/R data, a user will need a similar risk assessment as a potential recipient of data as part of its registration process. Once the risk profile for that user has been established, each request they make must be examined to assure the user's risk profile supports providing the requested information. Similarly, the overall maturity level of controls and processes of a potential recipient of data will be factored into the risk rating of their receipt of requested data. The third rating factor, how the

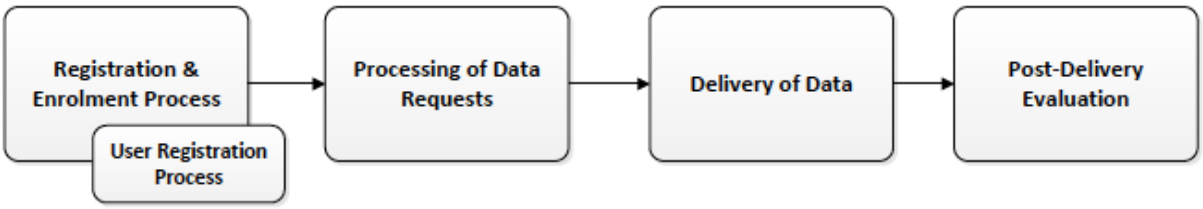
[5] Privacy Analytics, Inc. (PAI) "A Conceptual Determination of Re-identification Risks for Ontario's Independent Electricity Systems Operator (IESO) Smart Meter Data Management and Repository (MDM/R)", June 2, 2016.

requested information will be provided to the user, both in terms of content structure and delivery channel, must also be considered. Examples of questions that are asked for the assessment of this risk factor are: Is the delivery channel susceptible to stealing or intercepting the data? If so, can stolen information be easily interpreted to determine the content and reverse any de-identification techniques applied to re-identify sensitive information?

Processes Involved in Third Party Access

In order to consider the impact of Third Party Access to the SME from a development and operational perspective, potential processes have been identified and outlined. Figure 6-3 provides a high level flow of the processes developed to date. Brief descriptions of the five processes follow. Process maps with more details and potential areas of responsibility have been included in Appendix 2.

Figure 6-3: High Level Flow of Third Party Access Processes Developed to Date



Registration & Enrollment Process

Prior to providing data to third parties, a risk assessment of the organization requesting the data will be required. The assessment might result in certain limitations with respect to providing information to an organization. Those limitations could include the granularity of specific data to which a given organization can have access, the delivery method of the packaged data and any post-delivery requirements. Hence, the registration process includes:

- Receipt of the first data request or registration request from a third party.
- Evaluation of a request (for a determination of the steps that should follow: directing the requestor to existing reports that have been made publicly available that might satisfy their purposes, or continuing to the formal registration of the organization).
- Evaluation/Risk assessment of organization requesting data access.

- Set up of an organization's profile.
- Execution of necessary legal agreements.
- Set up of the Third Party Access user administrator (legally authorized user from the organization).
- Ongoing management and maintenance of each organization's risk assessment and profile: the initial risk assessment and profile are not permanent, but rather a reflection of that organization's risk assessment at that moment in time and must be updated to reflect changing conditions that could affect the organization, such as mergers, takeovers, bankruptcy, changes in credit rating, etc.

User Registration Process

The User Registration Process can be considered an example of processes that the SME could leverage from current practices. It shows the steps to create a pre-determined number of users for the authorized organization. The user administrator created in the Registration Process can manage the creation of a limited number of internal users, within conditions and controls set and monitored by the SME. System solutions devised and administered by the SME will ensure proper authentication controls geared to protect the privacy of the data, the security of systems as well as the privacy of the requestor.

Processing of Data Requests

The steps involved in processing user requests include a comparison of the requested information against the extent of the privileges of the user organization. The SME envisions some efficiency will be gained from processing standard or repeated requests such that previous evaluations can be leveraged to expedite processing times. Requests that might have a custom nature or certain complexity level will require further internal evaluation. Policies and guidelines would support this higher level process to ensure all critical parameters are consistently applied to evaluating requests, establishing the resources required for gathering the data, prioritizing requests when required, and assuring the quality of the data gathered. Re-identification risk assessments of the gathered data, to assure privacy is maintained, will always be required even if the requestor has previously registered and submitted requests.

Delivery of Data

Data delivery includes high-level steps for the actual delivery of the packaged data. Technical and privacy requirements (e.g. validation of data at the appropriate

granularity given the risk context), file size, formats, security required at rest or in transit, encryption) will be set once more knowledge is gained as we move forward with the implementation of Third Party Access.

Post Delivery Evaluation

Traceability and auditability are requirements for the Third Party Access processes, from the first contact established with a third party to the delivery of information. Post-delivery processes will include confirming that complete traceability exists to enable any follow-up processes to be exercised. If the fulfillment of a particular request requires that the recipient destroy the data after use or within a specified time of receipt, processes to assure compliance will be included.

Measuring Success

Best practices in new program development require organizations to design models to evaluate results and measure their performance at the program design stage. This will ensure that benefits can be articulated properly, and that the continuous improvement cycle gets embedded into the program "culture" at the onset of the program activities. The ultimate measure of the success of the Third Party Access program must be how the energy consumers of Ontario benefit. In that context, it is important to identify what mechanisms/metrics will be used to measure the success of the program, including getting feedback from those receiving data on how they used it and what positive (qualitative and quantitative) outcomes resulted.

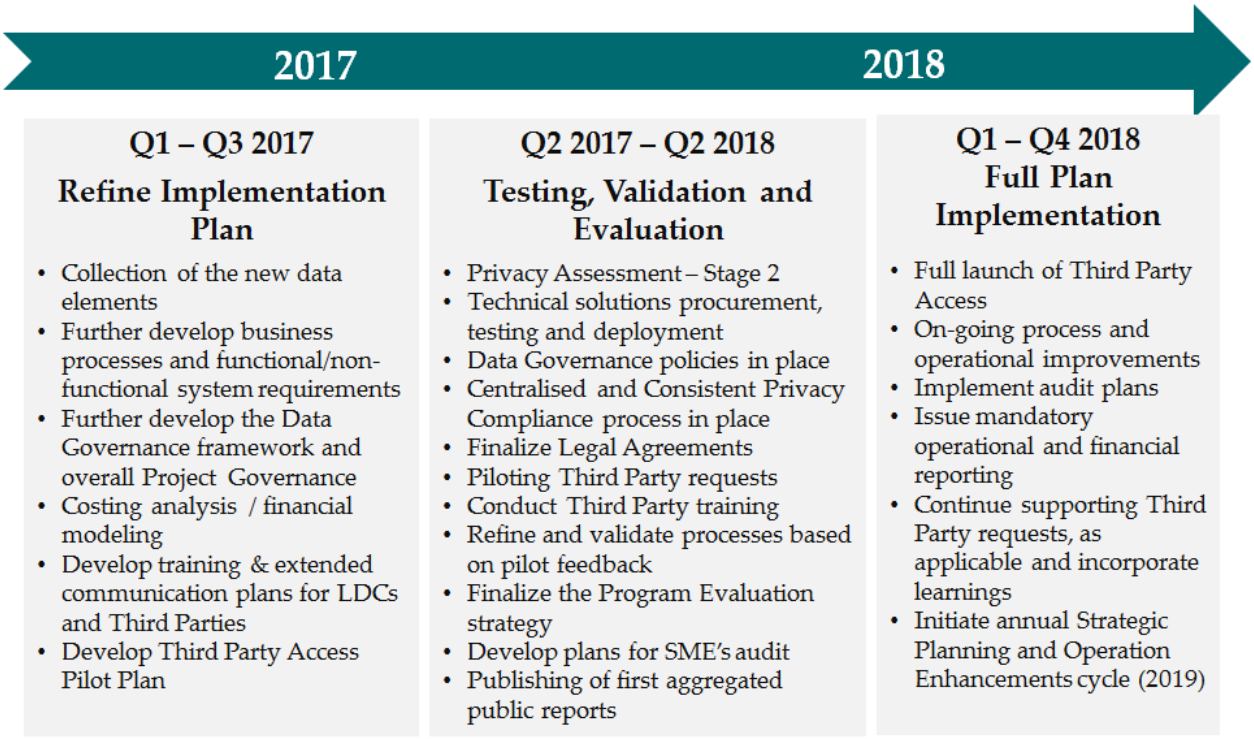
There is often development involved in gathering the necessary information and data to make good program assessments, both by the users and the service provider. Education and awareness building efforts and advance communications of the data collection requirements from the SME will be important, so organizations involved can be well prepared at the start of their Third Party Access efforts.

7. Third Party Access Implementation

The goal of Third Party Access is to stimulate innovation to develop new products, services and programs for electricity consumers in Ontario. All this will need to be accomplished without compromising the privacy of individuals.

Previous sections of the plan have traced the paths and activities to date that have both planned the addition of the new information into the MDM/R and developed the framework for providing Third Party Access to the MDM/R data. This section lays out the plan that will be executed in five phases, each logically building on its predecessors. Details are provided of the work to be accomplished in the first half of 2017 and then describing in broad terms those activities envisioned for the second half of 2017 and for 2018 and 2019. Figure 7-1 provides an overview of the major plan activities to be accomplished and their timing.

Figure 7-1: SME Third Party Access Implementation Plan Timeline



Important Third Party Access Program Implementation Considerations

Before launching into the specifics of the implementation plan, it is worthwhile to put forward some important considerations that will guide us throughout its implementation. These considerations are in addition to those already identified in previous sections or, in some cases, reiterated here for emphasis.

- There are opportunities to leverage existing systems, personnel and processes to reduce the costs of implementing Third Party Access. These will all receive serious consideration. However, the overall goal is to provide the best possible services to third parties and this will govern our decisions when trading off the ability to reduce costs versus compromising or diluting the quality of the services.
- Whether specific services will be supported internally, externally, or in some combination will be considered as appropriate.
- The SME will use a phased approach to implementation, starting small to prevent any overinvestment before the level of demand for the information is quantified. This will allow for a proper qualification of the Third Party Access use cases in the short and long term and of the effort associated with the Third Party Access services. The plan must, however, be flexible enough to respond quickly to handle rapidly increasing demand. An extended communications plan will be developed, with one important objective being to ascertain the potential level of interest in the information as early as possible.
- Although there are other initiatives considering the combination of energy consumption data with other variables to provide even greater opportunities for innovation, this initiative will remain focused on strictly the energy consumption information available in the MDM/R. Furthermore, the IESO will expressly prohibit and restrict any further use of the information provided to third parties, to ensure that the de-identified smart meter data is not joined with other sources of information which could increase the re-identification risk profile as more potentially identifying elements are added.
- No direct access by third parties to the systems containing the data will be considered until after the initial implementation has been operational for sufficient time to assess its effectiveness and success. Thus, the SME and/or its authorized agents will process all requests, with the results being provided to the requester through one of several available delivery channels.

- Of paramount importance throughout the implementation and ongoing operation of the Third Party Access service is the maintenance of comprehensive processes and controls that protect the privacy of the information
- One important objective of the Third Party Access program is to provide the services without compromising the ability of the MDM/R to do its primary functions within the required service levels.

Development and Implementation Plan Description

Each phase of the plan is described below. Refer to Appendix 3 for a detailed schedule of the overall plan. As previously mentioned, activities during the first half of 2017 will be described in more detail than subsequent activities. However, throughout the plan's implementation phases, greater schedule and cost details will be incorporated as they are learned.

Phase 1: Present – Q2 2017

This phase is currently underway given the SME and LDCs preparations for the start of the additional data collection into the MDM/R as of January 1st 2017. The remaining work will continue through the first half of 2017 and will include the following activities:

- Collection of the four additional data fields as required by the OEB Order (Distributor Rate Class, Commodity Rate Class, Postal Code and Occupant Change Data). This must be fully operational by January 1, 2017.
- Development of the legal agreements, business processes and the functional and non-functional systems/application requirements to support the administration and provision of the Third Party Access services.
- Determination of the approach for implementing privacy assessment processes required for Third Party Access. This is an important strategy that must consider how best to protect the privacy of individuals while providing the required services. The necessary expertise must be retained, and whether this is best done by utilizing external resources, by developing in-house expertise or a combination of both. The use of available software tools is also to be considered, in terms of whether such tools can provide the complete solution or a hybrid model incorporating tools and personnel is the best course of action.
- Development of the extended communications/stakeholdering plan. It pays to advertise/communicate to potential users of the MDM/R's enhanced data on the plans, progress and capabilities that will be rolled out, along with the timelines for availability to each category of stakeholders. This will provide assurance that

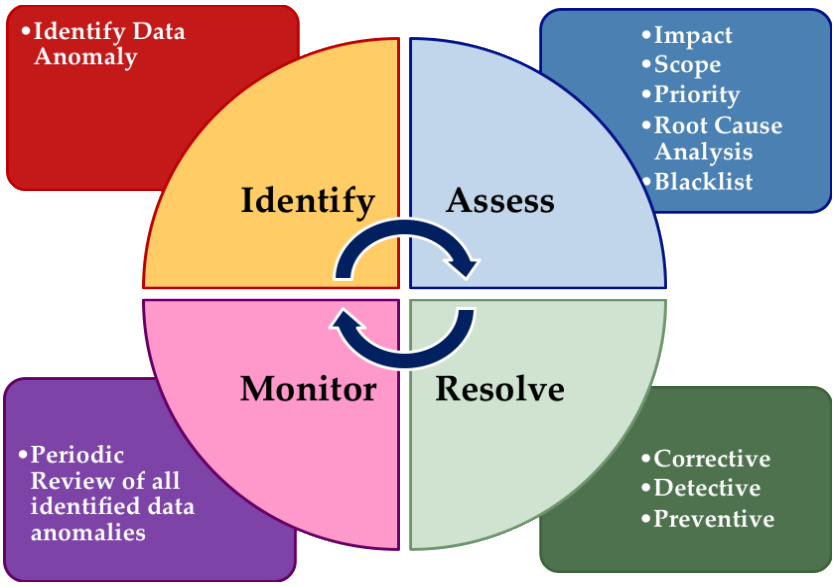
those interested are kept informed and have a line of communication to ask questions. It will also provide an opportunity for the SME to learn what types of information users are most interested in acquiring. These interactions will also give the SME some indication of the potential early volumes of requests to service. Some knowledge of potential early volumes will help plan the initial level of staffing to be responsive to requests and make decisions on using in-house or out-sourced personnel/organizations.

- Development of the training plan. Future Third Party Access users must understand all the processes that are part of the service, along with any tools that will be leveraged to submit and track each of their requests from beginning to end. The training plan will identify the scope of training to be provided to potential users of the service, along with details on the specific topics to be covered.
- Updating and refining the Third Party Access implementation plan. During this phase a more detailed plan will be developed and it will be important to leverage that additional detail to create a better schedule and develop detailed cost estimates for the work going forward.
- Identifying candidate public aggregation reports. The IESO publishes a set of public reports on the wholesale energy market and system operations. None contain private or confidential information but they contain useful information for market participants. The SME believes similar reports can be generated from the information in the enhanced MDM/R that would help organizations develop products, services or programs for consumers. During this phase exploratory work will be done to identify a list of candidate reports that contain aggregated information. This list of reports will be stakeholdered to first confirm no privacy issues would result from publication and then to select the best ones for implementation. The reports will be developed and tested during the following phase and the first set will be published during Phase 3, with periodic updates at the appropriate frequency thereafter.
- Establishing an enhanced data governance framework and policy. As previously discussed in Section 6, the anticipated new uses of the MDM/R data will rely on the information being of high quality. There will be a strong correlation between the quality of the data and the success of the program.

  Earlier this year the SME initiated a new data governance framework project. Its primary objective is to adopt best practices to ensure that the data collected, processed and stored in the MDM/R is accurate and available for use to all MDM/R current and future service recipients, as well as ensuring its integrity, usability and ongoing security. The SME will be establishing ongoing data

validation processes to proactively review the data and, in concert with the LDCs, take appropriate actions.

Figure 7-2: Major Components of a Data Governance Framework



- The success of Third Party Access will rely on measuring the positive outcomes of the products, services and programs provided to consumers that emerge from the information provided to users, while protecting privacy and data security. Therefore, it is important that participant organizations and the SME be aligned on what information needs to be gathered and how it will be used. Once the organizations participating in the Pilot have been selected, the SME will meet with them to review and finalize the plan to measure and assess the success/benefits of the Third Party Access services provided.

Phase 2: Q1 – Q3 2017

Much of the Phase 2 work builds on the completion of the Third Party Access development work and the early progress of Phase 1 activities. Therefore, Phase 2 will not commence until early 2017. It will include the following activities.

- Once all the requirements are documented, procurement of the necessary systems/applications, services and additional personnel that will support Third Party Access must be done. This process could involve a combination of utilizing external service providers or leveraging internal resources.

- Training materials will be generated for all aspects of the Third Party Access services that users must be familiar with (e.g. use of the tools by which they will submit and track the progress of their requests for information). Training will include interactive sessions with the tools that requesters will use in the program to submit and track their requests. Training materials will be refined over time to incorporate new learnings.
- Detailing of the complete set of business processes to be utilized for providing Third Party Access services. These processes will be documented and shared with stakeholders. Materials will be developed for the training sessions that focus on the Third Party Access processes.
- The extended communications plan developed in Phase 1 will be implemented in Phase 2. Stakeholder communications has been a part of this project from the beginning. The plan developed in Phase 1 is an extension of those practices already under way, adding specifics on the progress of the Third Party Access implementation plan and targeting early feedback from those interested in the service to ascertain the types and volumes of requests that will be made, as well as indicating interest in participating in the Pilot. A variety of communication channels are envisioned, including workshops, webinars, newsletters and website postings.
- Some of the provisions of the Third Party Access Pilot Plan will include:
    - Timing of the Pilot
    - Selection criteria for Pilot participants (e.g. organizational risk, types of data desired, interest in participation)
    - Definition of the measures of success
    - The evaluation process
    - Limitations on the types of information requests (based on the available information in the MDM/R at the time of the Pilot)

  Using the criteria, Pilot participants will be selected and trained for their involvement in the Pilot, which will commence in Phase 3.

Phase 3: Q2 2017 – Q2 2018

The major Phase 3 activity is running the Pilot program with the selected participants. The envisioned duration of the Pilot is six months, extending into 2018. Important activities leading up to the beginning of the Pilot include:

- Privacy Analytics, the organization providing privacy expertise to the SME, will undertake a reassessment of their original recommendations after data has been collected for at least six months. The schedule contemplates the Privacy Analytics work to commence at the beginning of the second half of 2017. If any of the original de-identification recommendations substantially change, the necessary adjustments will be made and the impact on the implementation schedule will be determined.
- Phase 2 work includes contracting for the necessary systems/applications and external services. Phase 3 will follow through with the development, deployment and testing of those systems and applications and undertaking of those services assigned to external parties.
- Prior to commencing the Pilot program the legal agreements between the SME and each Third Party Access participant must be finalized and executed.

By virtue of the Pilot the SME will exercise the implemented systems and processes while providing useful information to a segment of the stakeholder community. From the results of the Pilot the SME will determine any necessary adjustments to systems, processes, and legal agreements.

The Pilot processes will expressly incorporate all the required controls for the privacy and security of the data. An assessment of the compliance with the privacy and security requirements will be reported as part of the Pilot results.

A six-month Pilot will likely be too short a time to identify and measure any actual successes. A qualitative, rather than quantitative review at this time is contemplated. In addition, it will be useful to validate, where possible, that the agreed upon data to measure success is properly being collected by the Pilot participants.

Phase 4: 2018

During Phase 4 the SME will initiate the process to receive applications from all interested third parties to be qualified and registered for the Third Party Access program. For the purposes of this plan we have assumed an early 2018 beginning. The major focus of the qualification process is to assess each organization's profile with respect to preserving the privacy of individuals, were that organization to gain access to the information in the MDM/R. Those organizations qualified for Third Party Access will be required to have those employees requesting information go through the training program to orient and familiarize themselves with all aspects of the service.

Several of the activities initiated during the Pilot will also be performed in Phase 4, and all subsequent phases. These will include the SME's monitoring Third Party Access operations to determine if any adjustments to systems, processes and legal agreements are necessary. If measurement data is available on the outcome of any product, service or program offerings resulting from Third Party Access this data will be accumulated and reported on.

At the conclusion of the Pilot, the first Third Party Access operations and financial reports will be prepared and issued. The operations report will assess the results of the Pilot in terms of requests received, requests processed, turnaround times and other established key performance indicators. The Pilot program's strengths and weaknesses will be reported, their importance assessed, along with a prioritized list of opportunities for improvement. A financial report will itemize program costs by the categories indicated in the "Assessment of Cost Implications" section below.

Phase 5 and Ongoing Third Party Access Operations: 2019

Phase 5 is fundamentally a complete extension into 2019 of everything done during Phase 4. New applicants for Third Party Access will be processed with all of the appropriate follow on activities provided. Monitoring of the overall service will continue, adopting continuous improvement practices used today throughout SME operations.

Examples of processes that will initially be monitored for improvement include the following.

- Validation of information requests: The SME will gradually gain insight into the nature of information requests and will evaluate the processes and standards considering the types of data requests received. These insights will lead to better designed processes and the more efficient use of resources.
- Frequency of similar requests: To explore opportunities for automation of processes to efficiently gather and deliver the data, either on request or at some predetermined frequency.
- Data delivery timelines: The early stages of Third Party Access will provide insight into typical durations of the end-to-end process for different volumes and complexities of data requests. The SME will work to gradually establish data delivery standards based on the experience gained from operations.

An important new initiative in Phase 5 will be an annual strategic planning cycle to assess and plan for future developments and expansions to improve on the current Third Party Access service offering. One such enhancement could be extending the services to include providing some Third Party Access users direct access to the data in the MDM/R, rather than making requests to be processed by the SME. More information from users should be available to have some early measures of the success of the Third Party Access program.

8. Assessment of Cost Implications

Ever since the IESO was appointed as the Smart Metering Entity in 2007, the financial activities of the IESO and the SME have been kept separate to ensure that there are no cross subsidies. Third Party Access raises the same prospect with respect to a need for separate cost accounting for SME operations in support of the MDM/R and SME operations in support of Third Party Access. Thus, policies will have to be established to cover allocating costs for systems, personnel, facilities and other areas that are supporting both operations. The same model in use today for the IESO and the SME is likely applicable to the new construct. However, the specifics of the cost recovery model for Third Party Access will factor heavily into what cost breakdowns will be required within the SME.

As previously mentioned, only the SME costs will be considered, no other costs, such as the ones incurred by Third Party Access requestors, can be included. Factors that will impact the overall costs are related to the nature, specifics and volume of various requests received over time, as they will shape the type of processes and systems that the SME will build in order to support the Third Party Access program.

Having said that, the following cost categories will be considered in the more detailed stage of the analysis, currently projected in Q1/Q2 2017:

- One Time Third Party Access Program Development and Implementation Costs
    - Software Purchases/Licenses
    - Hardware Purchase/Leases
    - Internal and External Staff (including legal and audit work)
    - External Vendor Costs (including privacy expertise)
    - Communications and Training
- Ongoing Third Party Access Program Operations and Maintenance Costs
    - Software Purchases/Licenses
    - Hardware Purchases/Leases
    - Internal and External Staff (including legal and audit work)
    - External Vendor Costs (including privacy expertise)
    - Communications and Training
    - Technical Enhancements

It is envisioned that by Q2 2017, the SME will be in a position to submit a detailed costing analysis to the OEB that will cover a 3-year business cycle, from 2017 – 2019. At the highest level, the costs incurred in 2017 will mostly be:

- One time costs associated with any additional or augmentation of licenses required to operate in the future (for example, the LDC Service Desk)
- Any additional hardware (for example additional server space to accommodate the increased quantity of the data collected)
- Any resource costs required to develop and operate the Third Party Access Plan, whether internal or external
- Any costs required to communicate progress to date or solicit input (such as technical webinars, or writing of training materials)
- Any essential technical upgrades for end-of-life system components.

Table 8-1: Development and Implementation Costs Calendar for Third Party Access

Third Party Access Implementation Plan Costs for a 3-year period	2017	2018	2019
• Software Purchases/Licenses • Hardware Purchase/Leases • Internal and External Staff • Outsourcing Costs • Communications and Training • Technical Enhancements	**One Time Setup Costs**	**One Time Pilot Costs + Ongoing Operations & Maintenance Costs**	

One important aspect of the cost estimate is that the SME will be leveraging to the maximum extent processes and systems that are already in place for the day to day operation of the MDM/R, from data collection and processing, to managing LDCs questions and requests, to operating the analytics platform of the MDM/R. New processes and systems will only be added as needed and will follow sound procurement practices and financial prudency.

By the three-year mark since launch, it is likely that the program will achieve a more mature and predictable state that will allow the SME to estimate program costs on a longer term basis.

9. Assumptions

What follows are the assumptions upon which this implementation plan is predicated, either as External or Internal to the IESO dependencies.

External

- The SME's license renewal application will be approved by the OEB before the end of 2016, thereby enabling the continued execution of this Third Party Access implementation plan.
- An agreed model will be confirmed by Q2 2017, whereby the IESO will be able to recover its costs expended in the implementation and ongoing support of Third Party Access.
- All LDCs will be providing the additional fields of information required by the OEB Order as of January 1, 2017.
- The review of the privacy recommendations by Privacy Analytics after six months of actual data being collected and stored in the MDM/R confirms its original recommendations.

Internal

- Any additional resources (internal or external) needed to support the implementation and ongoing support of Third Party Access will be secured within 60 days of the established need.
- All required new systems/applications or necessary modifications/enhancements to existing systems/applications will be procured and implemented before the start of the Third Party Access piloting phase.

Appendix 1: OEB Order Working Group Membership

IESO Steering Committee and Executive Sponsors

Doug Thomas	Vice-President, Information & Technology Services and CIO
Terry Young	Vice-President, Conservation and Corporate Relations
Sorana Ionescu	Director, Smart Metering

Working Group Co-Chairs

Mag Wadie	IESO – SME
Michel Provost	Hydro Ottawa

IESO Representatives

James Murphy	IESO – SME
Gissella Lopez	IESO – SME
Dean Dohring	IESO – SME
Anita Joshi	IESO – Legal
Adrian Pye	IESO – Regulatory

LDC Representatives

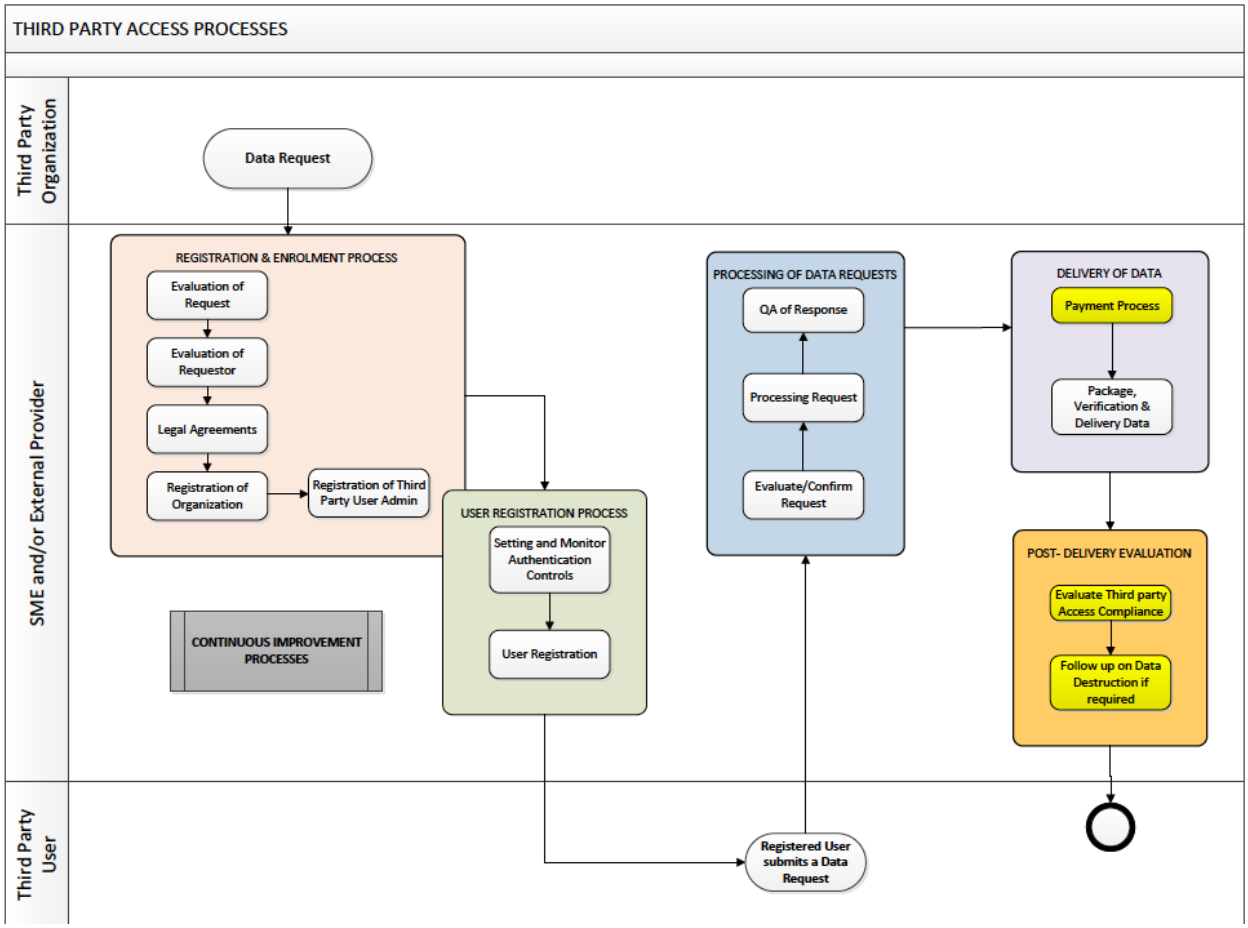
Tracy Manso	Entegrus
Geoff Visentin	Fortis Ontario* (representing Westario, Grimsby and CNP)
Jennifer Gordon	Halton Hills Hydro
Krista Perry	Guelph Hydro
Rob Rohr	Horizon
John Dunne	Hydro One
Danny Relich	Hydro One
Sally Barakat	Hydro Ottawa
Kevin McCauley	Kingston Hydro
Eddie Augusto	PowerStream
Andy Armitage	Thunder Bay Hydro

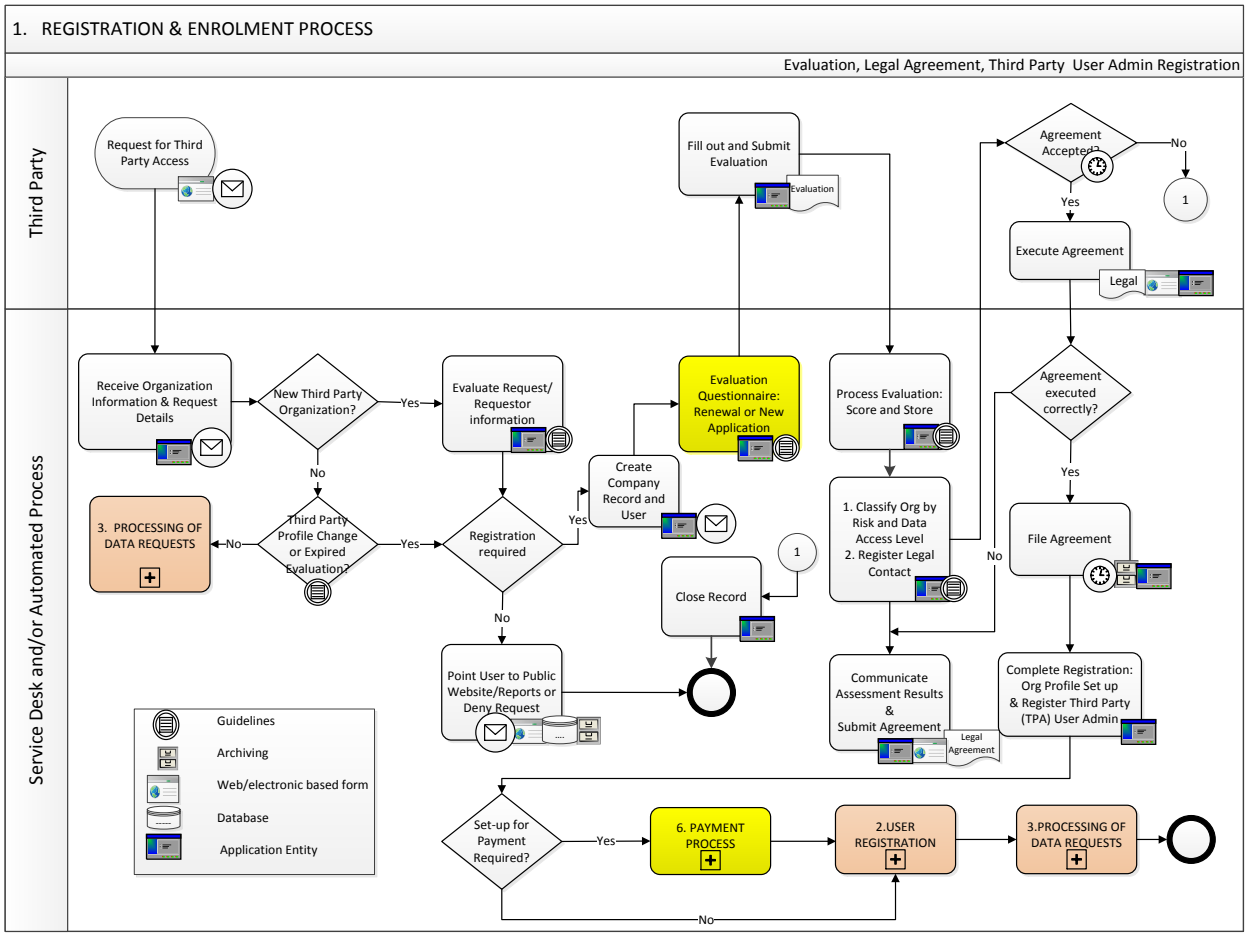
Warwick Tichbon	Toronto Hydro
Kevin Myers	Veridian
Marianne Blasman	Waterloo North Hydro

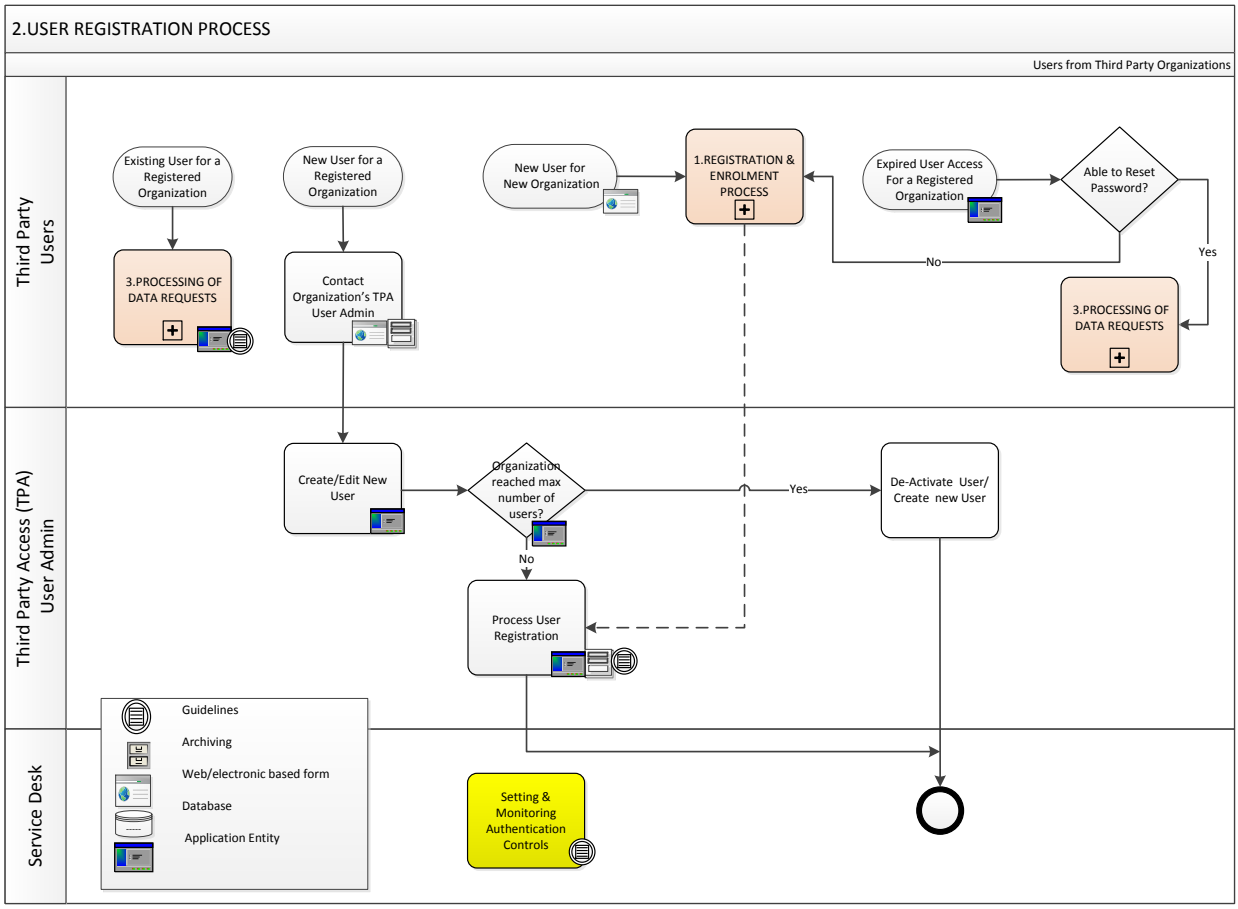
Observers

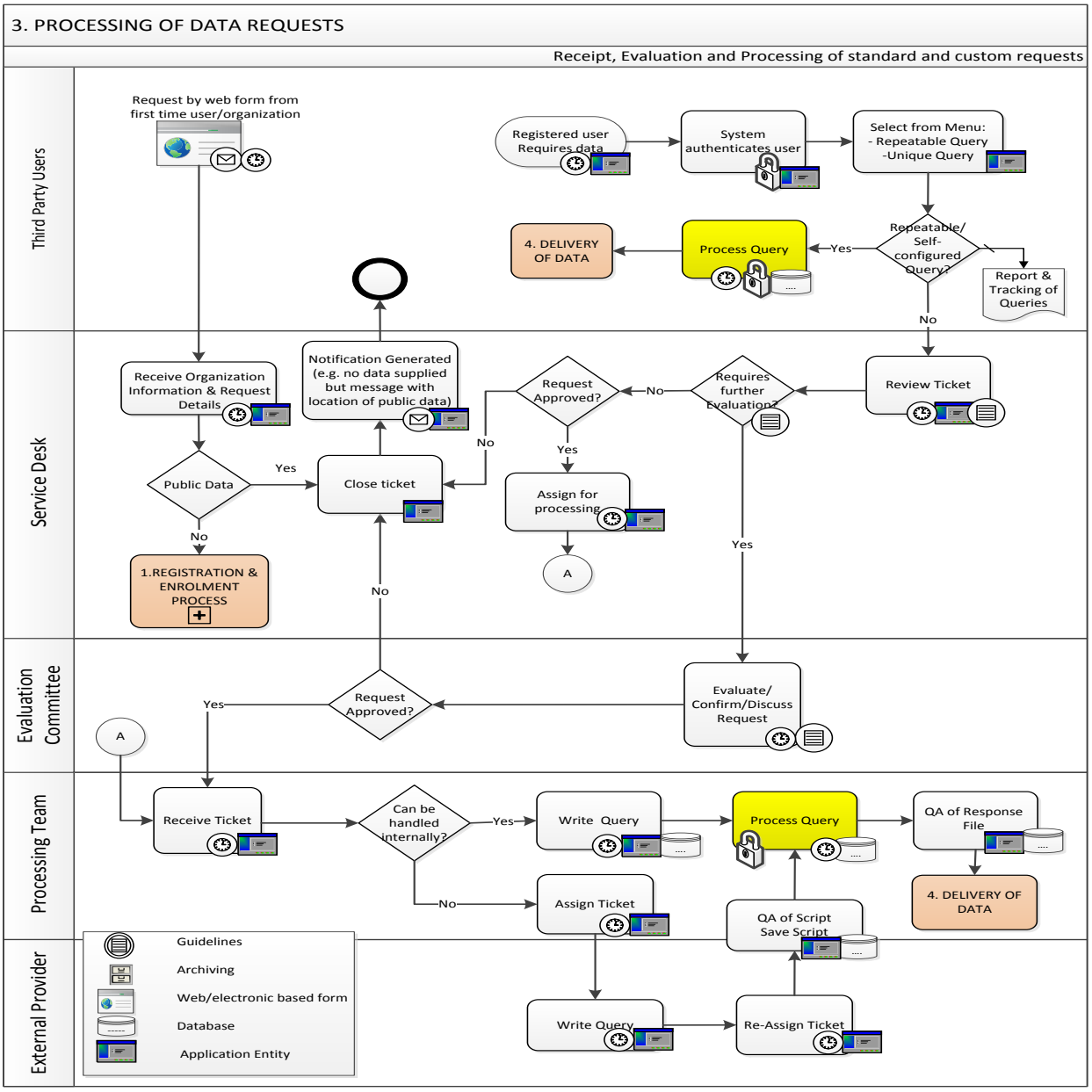
Viive Sawler	OEB
Irena Kuznetsova	OEB
Richard Lanni	OEB
Brett Smith	MoE
Rebecca Teare	MoE
Justin Rangooni	EDA
Afreen Khan	EDA
Tim Short	Enbridge Gas
Tim Catton	Union Gas

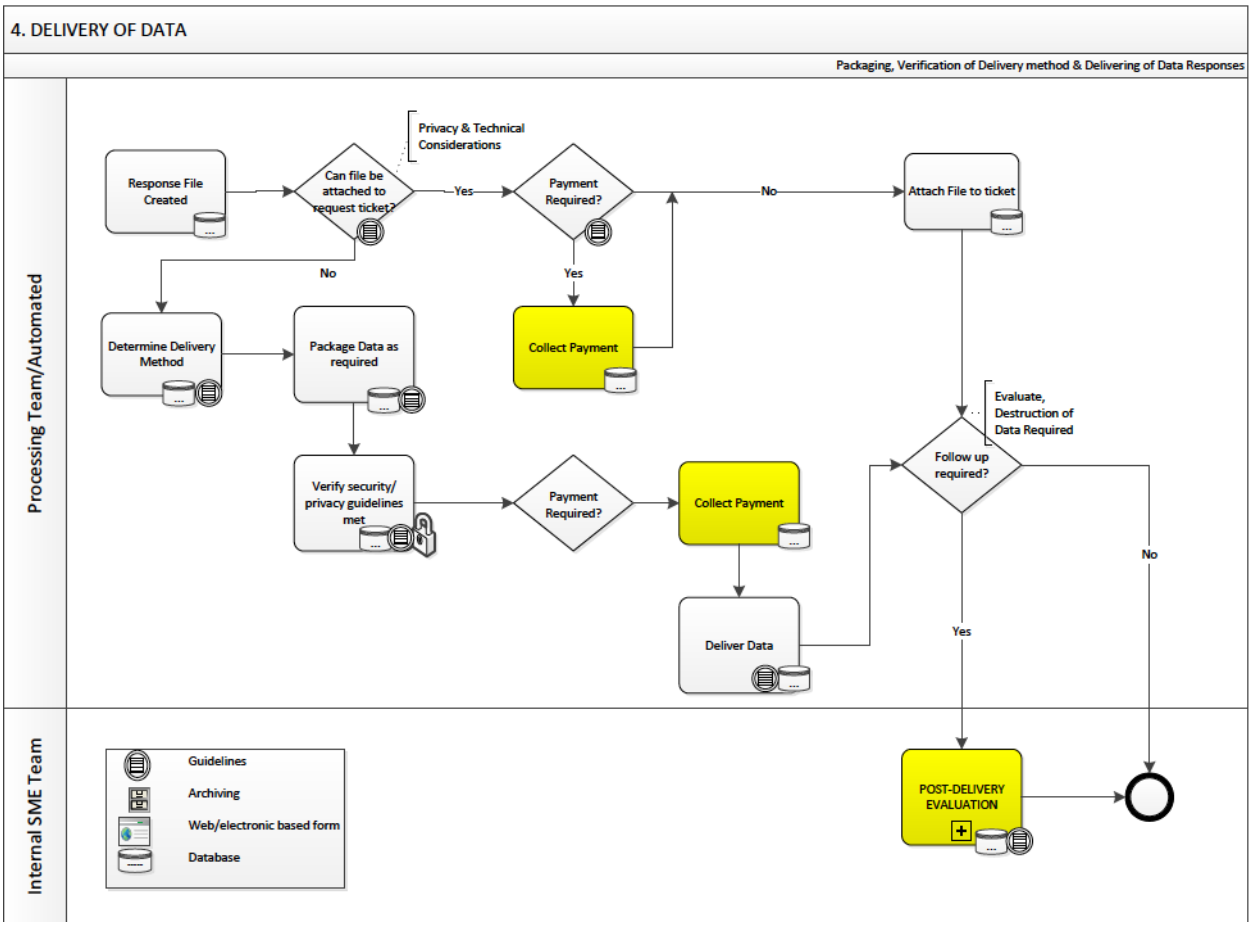
Appendix 2: Detailed Level Process Maps




1. REGISTRATION & ENROLMENT PROCESS
Evaluation, Legal Agreement, Third Party User Admin Registration
Third Party
Service Desk and/or Automated Process
Request for Third Party Access
Fill out and Submit Evaluation
Evaluation
Agreement Accepted?
No
Yes
1
Execute Agreement
Legal
Receive Organization Information & Request Details
New Third Party Organization?
Yes
No
Evaluate Request/ Requestor information
Evaluation Questionnaire: Renewal or New Application
Process Evaluation: Score and Store
Agreement executed correctly?
Yes
3. PROCESSING OF DATA REQUESTS
No
Third Party Profile Change or Expired Evaluation?
Yes
Registration required
Yes
Create Company Record and User
1. Classify Org by Risk and Data Access Level
2. Register Legal Contact
No
File Agreement
Close Record
1
No
Point User to Public Website/Reports or Deny Request
Communicate Assessment Results & Submit Agreement
Legal Agreement
Complete Registration: Org Profile Set up & Register Third Party (TPA) User Admin
Guidelines
Archiving
Web/electronic based form
Database
Application Entity
Set-up for Payment Required?
Yes
6. PAYMENT PROCESS
2.USER REGISTRATION
3.PROCESSING OF DATA REQUESTS
No


2.USER REGISTRATION PROCESS
Users from Third Party Organizations
Third Party Users
Third Party Access (TPA) User Admin
Service Desk
Existing User for a Registered Organization
New User for a Registered Organization
New User for New Organization
1.REGISTRATION & ENROLMENT PROCESS
Expired User Access For a Registered Organization
Able to Reset Password?
No
Yes
3.PROCESSING OF DATA REQUESTS
Contact Organization's TPA User Admin
3.PROCESSING OF DATA REQUESTS
Create/Edit New User
Organization reached max number of users?
Yes
De-Activate User/ Create new User
No
Process User Registration
Guidelines
Archiving
Web/electronic based form
Database
Application Entity
Setting & Monitoring Authentication Controls


3. PROCESSING OF DATA REQUESTS
Receipt, Evaluation and Processing of standard and custom requests
Third Party Users
Service Desk
Evaluation Committee
Processing Team
External Provider
Request by web form from first time user/organization
Registered user Requires data
System authenticates user
Select from Menu: - Repeatable Query -Unique Query
Repeatable/ Self-configured Query?
Yes
No
Report & Tracking of Queries
Process Query
4. DELIVERY OF DATA
Review Ticket
Requires further Evaluation?
Request Approved?
No
Yes
Notification Generated (e.g. no data supplied but message with location of public data)
Receive Organization Information & Request Details
Public Data
Yes
No
Close ticket
Assign for processing
A
1.REGISTRATION & ENROLMENT PROCESS
Evaluate/ Confirm/Discuss Request
Request Approved?
Yes
No
A
Receive Ticket
Can be handled internally?
Yes
No
Write Query
Process Query
QA of Response File
4. DELIVERY OF DATA
Assign Ticket
QA of Script Save Script
Write Query
Re-Assign Ticket
Guidelines
Archiving
Web/electronic based form
Database
Application Entity


4. DELIVERY OF DATA
Packaging, Verification of Delivery method & Delivering of Data Responses
Processing Team/Automated
Internal SME Team
Response File Created
Can file be attached to request ticket?
Privacy & Technical Considerations
Yes
No
Payment Required?
Yes
No
Attach File to ticket
Determine Delivery Method
Package Data as required
Collect Payment
Verify security/ privacy guidelines met
Payment Required?
Collect Payment
Deliver Data
Evaluate, Destruction of Data Required
Follow up required?
Yes
No
POST-DELIVERY EVALUATION
Guidelines
Archiving
Web/electronic based form
Database

Appendix 3: Third Party Access Development and Implementation Plan/Schedule

	Activity Name	Start Date	Finish Date	2016	2017	2018	2019
1	***Third Party Access Development and Implementation***						
2	**Development**	**3/1/16**	**12/30/16**				
3	Convene SME Order License Working Group	3/21/16	3/21/16				
4	Conduct Privacy Analysis	4/1/16	6/1/16				
5	Define Specifications for Collecting Additonal Data	3/1/16	6/10/16				
6	Implement MDM/R Modifications to Collect Additonal Data	6/13/16	12/30/16				
7	**Implementation**	**1/2/17**	**1/24/20**				
8	Program Management	1/2/17	12/27/19				
9	Ongoing Communications with Stakeholders	4/10/17	1/24/20				
10	Ongoing Data Governance Program	1/2/17	12/27/19				
11	Phase 1	**1/2/17**	**6/30/17**				
12	*Collect First 6 Months of Additional Data Fields*	1/2/17	6/30/17				
13	*Continue Development of Business Processes for Third Party Access*	1/2/17	6/30/17				
14	*Development of System Functional and Non-functional Requirements*	1/2/17	6/30/17				
15	*Evolution and Rollout of an Enhanced Data Governance Policy*	1/2/17	6/30/17				
				2016	2017	2018	2019

	Activity Name	Start Date	Finish Date	2016	2017	2018	2019
16	*Determine Approach for Implementing Privacy Assessment Processes required for Third Party Access (i.e. Outsourcing, In-house Staff, Software Tools, Hybrid)*	4/3/17	4/28/17				
17	*Draft Legal Third Party Access Agreements*	1/2/17	6/30/17				
18	*Develop Detailed Phases 1 and 2 Plan/Schedule*	1/2/17	2/10/17				
19	*Develop Cost Estimates*	1/2/17	3/31/17				
20	*Develop High Level Schedule for Later Phases*	6/5/17	6/30/17				
21	*Develop Extended Communications/Stakeholdering Plan*	1/2/17	2/24/17				
22	*Develop Training Plan*	2/6/17	5/19/17				
23	*Develop Success/Benefits Assessment Plan*	5/8/17	6/30/17				
24	*Identify Candidate Public Aggregation Reports*	4/3/17	5/26/17				
25	Phase 2	1/16/17	9/15/17				
26	*Procure necessary Systems/Infrastructure, Services and Resources for Third Party Access*	7/3/17	9/1/17				
27	*Drill Down and Refine Business Processes*	7/3/17	8/11/17				
28	*Develop Pilot Plan and Select Participants*	1/16/17	7/28/17				
29	*Implement Training Plan*	6/5/17	9/15/17				
30	*Implement Extended Communications Plan*	2/27/17	4/7/17				
				2016	2017	2018	2019

	Activity Name	Start Date	Finish Date	2016	2017	2018	2019
31	*Review and FInalize Success/Benefits Assessment Plan with Pilot Participants*	7/3/17	8/15/17				
32	*Develop and Test Selected Public Aggregation Reports*	5/29/17	8/4/17				
33	Phase 3	**5/15/17**	**6/29/18**				
34	*Privacy Analytics Reassessment of Privacy Recommendations based on 6 months of actual data*	7/3/17	8/11/17				
35	*Privacy Recomendations Adjusted, as necessary, and Finalized*	8/14/17	8/25/17				
36	*Develop, Deploy and Test necessary Systems*	9/4/17	10/27/17				
37	*Dry Run Business Processes*	8/14/17	9/8/17				
38	*Finalize and Execute Third Party Access Legal Agreements with Pilot Participants and SME*	7/31/17	9/8/17				
39	*Conduct Pilot*	10/30/17	4/30/18				
40	*Adjust Systems as necessary*	5/1/18	6/29/18				
41	*Adjust Business Processes as necessary*	5/1/18	6/29/18				
42	*Adjust Legal Agreements as necessary*	5/1/18	6/29/18				
43	*Assess Metrics Established for Measuring Success*	5/1/18	6/29/18				
44	*Publish first Public Aggregation Reports*	8/7/17	8/25/17				
45	*Develop Plans for Audit of Smart Metering Entity*	5/15/17	6/30/17				
				2016	2017	2018	2019

	Activity Name	Start Date	Finish Date	2016	2017	2018	2019
46	Phase 4	**1/1/18**	**12/28/18**				
47	*Application, Qualification and Registration of Approved Third Party Users*	1/1/18	12/28/18				
48	*Training of Registered Third Party Users*	3/5/18	12/28/18				
49	*Full Launch of Third Party Access to all Qualified Users*	7/2/18	7/2/18				
50	*Continue Measuring Success of Third Party Access Users of Information and make necessary adjustments*	1/1/18	12/28/18				
51	*Assess Need for Adjustments to Services provided to Third Party Users*	1/1/18	12/28/18				
52	*Implement Plans for the Audit of the Smart Metering Entity*	1/1/18	12/28/18				
53	*Prepare first Third Party Access Operations and Financial Reports*	5/1/18	7/31/18				
54	Phase 5	**12/31/18**	**12/27/19**				
55	*Application, Qualification and Registration of Approved New Third Party Users*	12/31/18	12/27/19				
56	*Training of Newly Registered Third Party Users*	12/31/18	12/27/19				
57	*Continue Measuring Success of Third Party Access Users of Information and make necessary adjustments*	12/31/18	12/27/19				
58	*Assess Need for Adjustments to Services provided to Third Party Users*	12/31/18	12/27/19				
59	*Initiate Annual Strategic Planning and Operational Enhancements Cycle*	12/31/18	12/27/19				
				2016	2017	2018	2019

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Smart Metering Entity Licence

ES-2007-0750

Valid Until
December 31, ~~2016~~ 2036

Original signed by

Peter Fraser
Vice President, Industry Operations & Performance
Ontario Energy Board

Date of Issuance: ~~January 26, 2016~~

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

Commission de l'énergie de l'Ontario
C.P. 2319
2300, rue Yonge
27e étage
Toronto ON M4P 1E4

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1 Definitions

1.1 In this Licence:

"**Act**" means the *Ontario Energy Board Act, 1998*, S.O. 1998, c. 15, Schedule B;

"**Board**" means the Ontario Energy Board;

"Distributor" means a person who owns or operates a distribution system;

"**Electricity Act**" means the *Electricity Act, 1998*, S.O. 1998, c. 15, Schedule A;

"**IESO**" means the Independent Electricity System Operator;

"**IESO-controlled grid**" means the transmission systems with respect to which, pursuant to agreements, the IESO has the authority to direct operations;

"**Licensee**" means the Smart Metering Entity;

"**Market Rules**" means the rules made under section 32 of the Electricity Act;

"**Rate Order**" means an order or orders of the Board establishing rates the Licensee is permitted to charge;

"**Regulations**" means regulations made under the Act or the Electricity Act;

"Retailer" means a person who retails electricity; and

"**Smart Metering Entity**" means the smart metering entity established under Part IV.2 of the Electricity Act, or more specifically, the IESO which is designated as the Smart Metering Entity by Ontario Regulation 393/07.

2 Interpretation

2.1 In this Licence, words and phrases shall have the meaning ascribed to them in the Act or the Electricity Act. Words or phrases importing the singular shall include the plural and vice versa. Headings are for convenience only and shall not affect the interpretation of the Licence. Any reference to a document or a provision of a document includes an amendment or supplement to, or a replacement of, that document or that provision of that document. In the computation of time under this Licence, where there is a reference to a number of days between two events, they shall be counted by excluding the day on which the first event happens and including the day on which the second event happens and where the time for doing an act expires on a holiday, the act may be done on the next day that is not a holiday.

3 Authorization

3.1 The Licensee is authorized, under Part V of the Act, to exercise its powers and perform its duties under the Act or under the Electricity Act subject to the terms and conditions set out in this Licence.

3.2 The Licensee is authorized to require licensed Distributors to enter into an agreement with the Licensee. The agreement shall set out the respective roles and responsibilities of the Distributor and the Licensee in relation to metering and the information required to be exchanged to allow for

the conduct of these respective roles and responsibilities. The agreement must be approved by the Board before the Licensee can require licensed Distributors to sign the agreement.

4 Obligation to Comply with Legislation, Regulations and Market Rules

4.1 The Licensee shall comply with all applicable provisions of the Act, the Electricity Act, and the Regulations.

4.2 The Licensee shall comply with all applicable Market Rules.

5 Rates

5.1 The Licensee shall not charge for meeting its obligations under the Act or under the Electricity Act except in accordance with a Rate Order of the Board, or as permitted by law.

6 Non-Discriminatory Access

6.1 The Licensee shall provide and promote non-discriminatory access by Distributors, Retailers, the IESO, and other persons to the Licensee's:

(a) information and data related to the metering of consumers' consumption or use of electricity in Ontario, including data collected from Distributors; and

(b) telecommunication system that permits the Licensee 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, in accordance with the terms of this licence.

7 Separation of Business Activities and Accounting

7.1 The Licensee shall keep its financial records associated with the smart metering initiative separate from the IESO's financial records associated with other IESO activities, unless otherwise required or authorized by the Board.

7.2 The Licensee shall maintain proper books of account and adhere to generally accepted accounting practices, and shall maintain such financial records or accounts as the Board may require. The Licensee shall notify the Board of any material change to its accounting procedures.

8 Provision of Information to the Board

8.1 The Licensee shall provide, in the manner and form determined by the Board, such information as the Board may require from time to time.

8.2 Without limiting the generality of paragraph 8.1, the Licensee shall:

(a) provide such information as the Board may require from time to time to enable the Board to monitor the Licensee's compliance with the conditions of this Licence and any other legislative or regulatory requirements set out in this Licence;

(b) notify the Board of any material change in circumstances that adversely affects or is likely to adversely affect the Licensee’s ability to comply with this Licence, its financial integrity, or its ability to carry out its responsibilities under the Act or the Electricity Act, as soon as practicable after the occurrence of any such change, but in any event within fifteen days of the date upon which such change becomes known to the Licensee; and

(c) provide the Board with a description of any processes established by the Licensee under section 53.14 of the Electricity Act and any changes to such processes.

9 Restrictions on Provision of Information

9.1 The Licensee shall not use information regarding a Distributor, consumer, Retailer, or any other person obtained for one purpose for any other purpose without the written consent of the consumer, Retailer, or other person.

9.2 The Licensee shall not disclose information regarding a Distributor, consumer, Retailer, or any other person to any other party without the written consent of the Distributor, consumer, Retailer, or other person, except where such information is required to be disclosed:

(a) to comply with any legislative or regulatory requirements, including the conditions of this Licence;

(b) for purposes related to billing, settlement, market operations, and other statutory objects of the IESO; or

(c) for law enforcement purposes.

9.3 The Licensee may disclose information regarding Distributors, consumers, Retailers, or any other person where the information has been sufficiently de-identified such that the Distributors', consumers', Retailers', or other person's particular information cannot reasonably be identified.

9.4 The Licensee shall inform Distributors, consumers, Retailers, and any other person of the conditions under which their information may be released to a third party without their consent.

9.5 If the Licensee discloses information under this section, the Licensee shall ensure that the information provided will not be used for any other purpose except the purpose for which it was disclosed.

10 Term of Licence

10.1 This Licence shall take effect on January 26, 2016 and terminate on December 31, 2016. The Board may extend the term of this Licence.

11 Fees and Assessments

11.1 The Licensee shall pay all fees charged to it by the Board and all amounts assessed to it by the Board.

12 Communication

12.1 The Licensee shall designate a person that will act as a primary contact with the Board on matters related to this Licence. The Licensee shall notify the Board promptly should the contact details change.

12.2 All official communication relating to this Licence shall be in writing.

12.3 All written communication is to be regarded as having been given by the sender and received by the addressee:

(a) when delivered in person to the addressee by hand, by registered mail or by courier;

(b) ten (10) business days after the date of posting if the communication is sent by regular mail; and

(c) when received by facsimile or electronic transmission by the addressee, according to the sender's transmission report.

13 Copies of the Licence

13.1 The Licensee shall:

(a) make a copy of this Licence available for inspection by members of the public at the Licensee's head office during normal business hours; and

(b) provide a copy of this Licence to any person who requests it.

13.2 The Licensee may impose a fair and reasonable charge for the cost of providing the copies referred to in section 13.1(b).

14 Dispute Resolution

14.1 The Licensee shall:

(a) have a process for resolving disputes with Distributors, consumers, Retailers, and any other person that deals with disputes in a fair, reasonable and timely manner;

(b) publish information which will make Distributors, consumers, Retailers, and any other person aware of, and help them to use, the dispute resolution process;

(c) make a copy of the dispute resolution process available for inspection at the Licensee's head office during normal business hours; and

(d) give or send, free of charge, a copy of the process to any person who reasonably requests it.

Appendix C: The IESO Leadership Team

Bruce Campbell, President and Chief Executive Officer

Bruce Campbell is President and Chief Executive Officer of the Independent Electricity System Operator. Under Mr. Campbell's leadership, the IESO oversees the safe and reliable operation of Ontario's bulk electrical system and market as well as long-term energy planning and procurement, and the promotion of a conservation culture in the province.

Mr. Campbell was instrumental in preparing Ontario's power system for the integration of Ontario's growing investment in renewable wind and solar generation. Under his direction, the IESO has introduced innovative technologies such as storage into the power system and is actively pursuing more competitive, cost-effective solutions to meet future power need.

In addition, Mr. Campbell represents Ontario on several international fronts. He serves on the North American Electric Reliability Corporation's (NERC) Member Representative Committee and on the Council of Independent System Operators and Regional Transmission Organizations which supports sustainable and reliable electric power delivery to millions of consumers across the continent.

A graduate of Osgoode Hall Law School and the University of Waterloo, Mr. Campbell is a member of the Law Society of Upper Canada, and also holds the Institute of Corporate Directors ICD.D (Certified Director) designation.

On January 1, 2015, Mr. Campbell assumed responsibility as President and CEO of the merged Independent Electricity System Operator, which integrated with the Ontario Power Authority.

JoAnne Butler, Vice-President, Market and Resource Development

JoAnne Butler is Vice-President, Market and Resource Development at the IESO.

Previously, Ms. Butler was president of TransAlta Mexico, where she was responsible for the day-to-day management of the business. Prior to moving to

Mexico in 2001, she was TransAlta's general manager for western operations in Calgary and was responsible for the operation of four new generating stations.

Ms. Butler also worked in the oil and gas exploration sector with Amoco Corporation for 21 years. In her last assignment as general manager for engineering and construction, she led support teams for construction and operations in Canada and internationally. She is currently a Board member of the Ontario Shores Centre for Medical Health Sciences in Whitby and the Technical Standards and Safety Authority.

Ms. Butler holds a Bachelor of Science (honours) degree in civil engineering from Queen's University in Kingston

Doug Thomas, Vice-President, Information and Technology Services, CIO

Doug Thomas is Vice-President of Information and Technology Services, and Chief Information Officer. The Information and Technology Services business unit is responsible for information technology; organizational governance; support and facilities. He also has oversight of the Smart Metering Entity.

Since joining the IESO in 1998, Mr. Thomas has held various roles, including the position of Director-Settlements and Director-Finance, as well as past chair of the IESO Technical Panel.

Prior to joining the IESO, Mr. Thomas worked for ICI Canada Inc. in a number of different financial roles.

Mr. Thomas is a Chartered Professional Accountant and a graduate of the Honours Business Administration program from The Richard Ivey School of Business at Western Ontario.

Kim Warren, Vice-President, Market and System Operations and COO

Kim Warren is Vice-President, Market and System Operations and Chief Operating Officer. In this role, Mr. Warren is responsible for the planning and assessment function, managing the short-term operation of Ontario's competitive wholesale electricity market, and directing the operation of the IESO-controlled grid.

With over 35 years of experience in the Ontario electricity industry, Mr. Warren recently served as Director of Planning and Assessments where he directed the development of operating policies, reliability standards, system operating limits and grid connections associated with interconnected power system operations. Mr. Warren has also served as Manager of Regulatory Affairs and Manager of System Operations, during which time he was directly responsible for real-time operations in the control room leading to the successful restoration of the province's power system following the 2003 blackout.

Terry Young, Vice-President, Conservation and Corporate Relations

Terry Young is Vice-President of Conservation and Corporate Relations, responsible for managing the IESO's many external relationships as well as the IESO's conservation activities.

His responsibilities include communications, marketing, stakeholder and community engagement as well as customer relations.

He is also responsible for the IESO's conservation programs and initiatives such as saveONenergy and the Conservation First Framework, which work to foster a culture of conservation in the province.

A well-known spokesperson with 30 years of experience in the electricity industry, Mr. Young started his career as a journalist with Canadian Press-Broadcast News. He also serves as President, Ontario Branch of the Kidney Foundation of Canada.
Mr. Young has been with the IESO since 2002.

Kimberly Marshall, Vice-President, Corporate Services, CFO

Kimberly Marshall is Vice-President, Corporate Services and Chief Financial Officer at the IESO.

Ms. Marshall is a Chartered Accountant with more than 20 years of diverse experience in many industries. These include public accounting practice with PricewaterhouseCoopers and 11 years with IBM in a variety of financial and operational roles. She has had accounting and financial management

responsibilities, including executive roles, with Shoppers Drug Mart, 724 Solutions and CIBC World Markets.

More recently, she has held senior leadership roles in finance and administration at several smaller entrepreneurial organizations in the software and pharmaceutical sectors.

Ms. Marshall received her Masters in Business Administration from York University and holds a Bachelor of Commerce degree from the University of Toronto.

Michael Lyle, Vice-President Planning, Law and Aboriginal Affairs

Michael Lyle is Vice-President, Planning, Law and Aboriginal Relations at the IESO.

He is responsible for legal services, regulatory affairs, First Nation and Métis relations and long-term planning.

Mr. Lyle has extensive experience in the regulation of the electricity sector in Ontario. Previously, he was General Counsel and Vice President, Legal, Aboriginal and Regulatory Affairs at the Ontario Power Authority, and as such, was closely involved with the organization's planning activities. Mr. Lyle has also served as counsel for the Ontario Energy Board and, before that, counsel at the Ministry of Energy.

Mr. Lyle obtained his law degree from the University of Toronto and also holds a BA in economics from the University of Western Ontario.

Appendix D: IESO Board of Directors

The IESO Board of Directors oversees the management of the organization's business and affairs. All members of the IESO Board must be independent from market participants and are prohibited from having a material interest in any market participant in Ontario's electricity sector. As part of its responsibilities, the IESO Board approves the market rules that govern the operation of the IESO-administered markets and the direction by the IESO of the operation of the IESO-controlled grid.
Members of the IESO Board are appointed by the Minister of Energy for a two-year term and may be reappointed for successive terms not exceeding five years

Timothy O'Neill, Chair

Timothy O'Neill was appointed Chair of the IESO Board of Directors on July 20, 2015. Dr. O'Neill is currently the President of O'Neill Strategic Economics and also chairs the national Joint Grants Committee for the United Church of Canada. He has been a Visiting Professor at Duke University as well as a Director of the Canadian Employment Insurance Financing Board. He also served as Chair of the IESO Board of Directors, before amalgamation from December 8, 2010 to December 31, 2014.

After retiring from BMO Financial Group, where he served as Executive Vice President and Chief Economist, he was the first H. Ian MacDonald Visiting Economist with the Ontario government. He served as President of the Atlantic Provinces Economic Council after teaching in the Department of Economics at St. Mary's University in Halifax for 12 years. He has served as a consultant to several provincial governments, as well as the federal government.

Dr. O'Neill is the first Canadian economist to be elected to the Board of Governors of the Washington-based National Association for Business Economics (NABE) where he served as president from October 2002 until September 2003.

Cynthia Chaplin, Director
Cynthia Chaplin was appointed to the Board of Directors for the former OPA on July 1, 2014, and subsequently to the IESO Board of Directors on January 1, 2015. She has more than 25 years of experience as an energy economist, consultant and regulator in Canada and the United Kingdom. Between 2004 and 2014, Ms. Chaplin served as Member, Vice Chair, and Chair & CEO (interim) of the Ontario Energy Board. She is an expert adjudicator, having presided over more than 60 complex multi-party oral hearings and

policy consultations and having served as Chair of CAMPUT (Canada's association of energy regulators).

Ms. Chaplin has also held senior positions with British Petroleum, Amoco, and the UK's natural gas regulator. She holds a Master's degree in economics from the University of Toronto and the ICD.D designation from the Institute of Corporate Directors.

Murray Elston, Director
Murray Elston was originally appointed to the IESO Board of Directors on March 21, 2014. Born in Wingham, Ontario, Mr. Elston attended the University of Western Ontario where he received Law and BA Degrees. He practiced law in Wingham before being elected to the Ontario Legislature in 1981 (Huron Bruce) and was re-elected in 1985, 1987 (Bruce) and 1990 (Bruce). In the Legislature, Mr. Elston served as Health Minister, Minister of Financial Institutions and Chair of Management Board.

Following his tenure in the Legislature, he served as President of the Canadian Nuclear Association and Canada's Research-Based Pharmaceutical Companies before joining Bruce Power in 2009. After retiring from Bruce Power, Mr. Elston served as Chair of the Electricity Distribution Panel (2012-2013).

Susanna Han, Director
Susanna Han was appointed to the Board of Directors for the former OPA on November 20, 2013, and subsequently to the IESO Board of Directors on January 1, 2015. Previously Ms. Han was the CFO of Urbancorp, based in Toronto.

With over 15 years in public-private-partnerships (PPP/P3/AFP/PFI), Ms. Han has successfully designed, bid and delivered numerous public procurement projects in both Canada and the U.K. Prior to her current role at Urbancorp, Ms. Han was the Vice President of Balfour Beatty Investments, working in the UK and starting their operations in Canada; the head of Project Finance at Carillion Canada; and a Director in the Global Infrastructure Projects Group at KPMG.

A chartered accountant with the Canadian Institute of Chartered Accountants, Ms. Han holds an Honour's bachelor's degree in Business Administration from the Richard Ivey School of Business at the University of Western Ontario.

Ronald Jamieson, Director
Ronald Jamieson is a Director of the IESO Board and Chair of its Audit Committee. He was appointed to the former OPA Board of Directors on May 2, 2005.

Prior to his retirement from BMO Financial Group, Ron Jamieson was Senior Vice President, Aboriginal Banking. Mr. Jamieson has held several senior executive positions in the financial services industry. Throughout his career, Mr. Jamieson has been active in economic development initiatives for Aboriginal communities across Canada. He currently serves as chairman of the executive committee and national co-chairman of the Canadian Council for Aboriginal Business and as a national director of Junior Achievement. Mr. Jamieson has also served as chairman, president and CEO of Ontario Energy Corporation whose mandate was to invest or participate in energy projects throughout Canada.

Mr. Jamieson is a member of the Conference Board of Canada's Council on the Corporate Management of Aboriginal Affairs, and is a member of the National Advisory Board on Small Business. He is also a member of the Board of Directors of the Nuclear Waste Management Organization, which has been established under Canada's Nuclear Fuel Waste Act to investigate approaches for managing Canada's used nuclear fuel.

Margaret Kelch, Director
Margaret Kelch is a member of the IESO Board of Directors and Chair of its Human Resources and Governance Subcommittee. She was originally appointed to the IESO Board of Directors on November 22, 2013. She also serves on the Boards of the Nature Conservancy of Canada, where she is Chair of the Conservation Committee, and DST Consulting Engineers. She was on the Board of the Electrical Safety Authority for nine years (2004- 2013) and Guelph Hydro Electric Systems Incorporated for two years (2011-2013).

Ms. Kelch has held executive positions in the public, private and not-for-profit sectors, serving as President and CEO of the Technical Standards and Safety Authority, President of Canadian Highways Management Corporation and Chief Operating Officer of Canadian Highways International Corporation (builder of Hwy 407ETR) and several Assistant Deputy Minister positions in the Ontario Public Service, including Secretary of Policy and Priorities Board and Registrar of Motor Vehicles for Ontario.

Ms. Kelch is a graduate of the University of Western Ontario and holds the Institute of Corporate Directors ICD.D (Certified Director) designation.

Bruce Lourie, Director
Bruce Lourie was appointed to the former OPA Board of Directors on October 1, 2008, and subsequently to the IESO Board of Directors on January 1, 2015.

He holds several executive positions in the environmental sector including president of the Ivey Foundation, a private charitable foundation in Canada, Director of Philanthropic Foundations Canada, Canadians for Clean Prosperity and the San Francisco-based Consultative Group on Biological Diversity. He sits on the Advisory Boards of Canada's Ecofiscal Commission and Clean Energy Canada.

Bruce is the co-author of two best-selling books, a Fellow of the Royal Geographical Society of Canada and an honorary director of the Canadian Association of Physicians for the Environment.

Bruce is a founder of a number of for profit and non-profit organizations including Summerhill Group, the Sustainability Network, and the Canadian Environmental Grantmakers' Network. He has acted on numerous international, federal, provincial and municipal bodies advising on environmental, energy and health policy issues. Bruce holds a B.Sc. in Geology and a Master's Degree in Environmental Studies.

William Museler, Director
Previously President and CEO of the New York Independent System Operator (NYISO), Mr. Museler was originally appointed to the IESO Board of Directors on May 5, 2005.

Prior to his service at NYISO, Mr. Museler held senior positions at the Tennessee Valley Authority (TVA), Long Island Lighting Company (LILCO), and Brookhaven National Laboratory. He has served as a federal representative for the North American Electric Reliability Council (NERC) and as chairman of the Southeastern Electric Reliability Council (SERC). He is currently a member of the Secretary of Energy's Energy Advisory Board (EAB).

A graduate of the Pratt Institute with a Bachelor of Science in Engineering Science, Mr. Museler also holds a Master of Science degree in Mechanical Engineering from Worcester Polytechnic Institute.

Deborah S. Whale, Director

Deborah S. Whale was appointed to the Board of Directors of the former OPA on November 20, 2013, and subsequently to the IESO Board of Directors on January 1, 2015. Mrs. Whale is the Vice President of Clovermead Farms Inc. in Wellington County and currently serves on several boards, including as Vice Chair of the Ontario Farm Products Marketing Commission; the Ontario Agricultural Hall of Fame; the Grand River Raceway; and the Community Council of the Waterloo Wellington Local Health Integration Network.

She is a Past Chair of the Vaccine and Infectious Disease Organization, and of the Agricultural Research Institute of Ontario. She has also served on the National Board of Directors of Farm Credit Canada and on the Advisory Board of the Canadian Food Inspection Agency. She graduated from Queens University with an Hon. BA, has completed Corporate Governance Training through York University and was awarded a PAg Hon. from the Ontario Institute of Agrology.

Carole Workman, Director

Carole Workman was appointed to the IESO Board of Directors on July 24, 2015. Ms. Workman is a Chartered Professional Accountant - Chartered Accountant. She is the Chair of the Ottawa Hospital Board of Directors, a position she has held since 2011, and was appointed a director of the Ottawa Hospital Board in 2007. She is also a member of the Board of Allstate Insurance of Canada.

Ms. Workman has had a long career in executive and financial management and previously served the University of Ottawa as its Vice President, Finance and Administration, until her retirement in 2004. Throughout her career she was active in numerous university associations, having chaired the Council of Senior Administrators of Universities of Ontario and the Canadian University Reciprocal Insurance Exchange, an insurance cooperative that provides property and liability coverage for Canadian universities.

Her previous experience as a director includes the boards of directors of Hydro Ottawa, the Federal Bridges Corporation, the Royal Ottawa Mental Health Care Group, the Ottawa Hospital Research Institute, and the University of Ottawa Heart Institute. Ms. Workman completed the Harvard International Management Program in 1997.

Bruce B. Campbell, Chief Executive Officer

Bruce Campbell is President and Chief Executive Officer of the Independent Electricity System Operator. Under Mr. Campbell's leadership, the IESO oversees the safe and reliable operation of Ontario's bulk electrical system and market as well as long-term energy planning and procurement, and the promotion of a conservation culture in the province.

Mr. Campbell was instrumental in preparing Ontario's power system for the integration of Ontario's growing investment in renewable wind and solar generation. Under his direction, the IESO has introduced innovative technologies such as storage into the power system and is actively pursuing more competitive, cost-effective solutions to meet future power need.

In addition, Mr. Campbell represents Ontario on several international fronts. He serves on the North American Electric Reliability Corporation's (NERC) Member Representative Committee and on the Council of Independent System Operators and Regional Transmission Organizations which supports sustainable and reliable electric power delivery to millions of consumers across the continent.

A graduate of Osgoode Hall Law School and the University of Waterloo, Mr. Campbell is a member of the Law Society of Upper Canada, and also holds the Institute of Corporate Directors ICD.D (Certified Director) designation.

On January 1, 2015, Mr. Campbell assumed responsibility as President and CEO of the merged Independent Electricity System Operator, which integrated with the Ontario Power Authority.

Appendix E

The SME Steering Committee

The SME Steering Committee has been established in June 2013 by the IESO Board of Directors, comprising representatives from Local Distribution Companies (LDCs) and the Smart Meter Entity (SME). This Committee replaces the MDM/R Operations Working Group, which has advised the SME since September 2010, on the operation and management of the MDM/R.

Mandate

The SME Steering Committee acts as an advisory panel to the IESO in its role as the Smart Metering Entity (SME) and represents the interests of MDM/R Service Recipients. The SME Steering Committee will be provided with an 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 the adherence to the committed service levels as prescribed in the Terms of Service;
- Consider amendment proposals forwarded by the SME, MDM/R service recipients, or initiated by the SME Steering Committee; and
- Participate in the consultations, when requested by the SME on amendments to the MDM/R manuals and procedures

Members

The SME Steering Committee currently consists of ten members, nine of which were nominated by the Electricity Distributors' Association. One member is from the SME. Current members are:

- Tracy Manso, Entegrus Powerlines Inc.
- Shelley Parker, Horizon Utilities Corporation
- Danny Relich, Hydro One Networks Inc.
- Michel Provost, Hydro Ottawa Limited
- John McClean, Powerstream Inc.
- Andy Armitage, Thunder Bay Hydro
- Kevin Myers, Veridian Connections Inc.

- Marianne Blasman, Waterloo North Hydro
- Mag Wadie, Independent Electricity System Operator to represent the SME

Quorum Requirements

Five LDC members are the minimum required for a quorum and an SME/IESO representative must attend.

Meetings

SME Steering Committee meetings are held six to eight times per year. Regular meetings include a one-hour MDM/R operations teleconference that is open to all LDCs in the province. Teleconference details will be provided by email. For more information about the SME Steering Committee or teleconferences, contact the Smart Metering Entity.

SMART METERING AGREEMENT FOR DISTRIBUTORS

THIS AGREEMENT dated this _____ day of _____, 2013.

BETWEEN :

_____ a distributor licensed by the Ontario Energy Board under the *Ontario Energy Board Act, 1998* (Ontario)

(the "**Distributor")**

and

INDEPENDENT ELECTRICITY SYSTEM OPERATOR, designated as the Smart Metering Entity under the *Electricity Act, 1998* (Ontario)

(the **"SME"**)

WHEREAS:

A. The **INDEPENDENT ELECTRICITY SYSTEM OPERATOR** has been designated as the Smart Metering Entity under the *Electricity Act, 1998* (Ontario) for the purpose of co-ordinating the implementation of the Government of Ontario's Smart Metering Initiative, a key component of which is the MDM/R.

B. The functions required for the MDM/R were established by the Ministry of Energy and set out in the "Meter Data Management and Repository, Functional Specification, Issue 2.0, November 29, 2006".

C. The MDM/R will be utilized to collect, manage, store and retrieve information related to consumers' use of electricity in Ontario and the SME will, subject to any requirements prescribed by regulation and the protection of privacy, provide and promote non-discriminatory access to that information.

D. Pursuant to the procurement process managed by the Independent Electricity System Operator, IBM Canada Limited was engaged on December 5, 2006, as an Operational Service Provider for the design, engineering, delivery, installation, configuration, integration, implementation and operation of the MDM/R.

E. The MDM/R Agreement between the SME and IBM Canada Limited establishes the service levels and certain other terms and conditions under which MDM/R services are provided to distributors.

F. The OEB's Distribution System Code provides that a distributor shall, upon being requested to do so, enter into an agreement with the SME, in a form approved by the OEB, which sets out the respective roles and responsibilities of the distributor and the SME in relation to smart metering and the information required to be exchanged to allow for the conduct of their respective roles and responsibilities.

G. The roles and responsibilities of the SME and the Distributor set out under this Agreement reflect the regulatory framework under which the Smart Metering Initiative is being implemented, including the role of the SME in administering the provision of services to distributors pursuant to all MDM/R Agreements.

NOW THEREFORE, in consideration of the mutual covenants set forth herein and of other good and valuable consideration, the receipt and adequacy of which is hereby acknowledged, the Parties agree as follows:

ARTICLE 1

INTERPRETATION

1.1 Definitions: In this Agreement, the following terms and expressions shall have the meanings set out below unless the context otherwise requires:

1.1.1 **"Agreement"** means this Agreement, including the Schedules to this Agreement.

1.1.2 **"AMI"** means the Distributor's advanced metering infrastructure, including the smart meter, Advanced Metering Communication Device (AMCD), Local Area Network (LAN), Advanced Metering Regional Collector (AMRC), Advanced Metering Control Computer (AMCC), Wide Area Network (WAN), and related hardware, software, and connectivity required for a fully functioning data collection system.

1.1.3 **"Authorized Agent"** has the meaning ascribed to it in section 2.7.

1.1.4 **"Billing Quantity Data"** means smart metering data that is ready for use in billing consumers for their consumption or use of electricity based on the time of day when the electricity was consumed or used;

1.1.5 **"Distributor"** has the meaning ascribed to it above and includes the Distributor's directors, officers, employees, contractors, agents, advisors and consultants.

1.1.6 "**Market Rules**" means the Market Rules for the Ontario Electricity Market.

1.1.7 **"MDM/R"** means the Meter Data Management and Repository developed by the SME within which Smart Metering Data is processed to produce Billing Quantity Data and such data is stored for future use.

1.1.8 **"MDM/R Agreements"** means the Meter Data Management and Repository Development, Hosting and Support Agreement dated December 5, 2006 between the SME and IBM Canada Limited, and all other agreements between the SME and an Operational Service Provider.

1.1.9 **"OEB"** means the Ontario Energy Board or its successor.

1.1.10 **"Operational Service Provider"** means IBM Canada Limited and any other party engaged by the SME, excluding the Independent Electricity System Operator, to assist with the development and operation of the MDM/R.

1.1.11 **"Party"** means a party to this Agreement.

1.1.12 **"Smart Metering Charge"** means any fee payable to the SME in respect of its role and responsibilities in respect of the Smart Metering Initiative and approved by the OEB or otherwise required by law.

1.1.13 **"Smart Metering Data"** means data derived from smart meters, including data related to the consumers' consumption of electricity.

1.1.14 **"Smart Metering Initiative"** means those policies of the Government of Ontario related to its decision to ensure Ontario electricity consumers are provided, over time, with smart meters.

1.1.15 **"SME"** has the meaning ascribed to it above and includes the SME's directors, officers, employees, contractors, agents, advisors and consultants.

1.1.16 **"SME Steering Committee"** means the forum to represent the interests of the MDM/R service recipients to be established by the SME under section 3.2.

1.1.17 **"Terms of Service"** means the terms and conditions made under section 3.1.

1.1.18 **"VEE"** means those validation, estimating and editing services, as specified by the SME, that are performed on Smart Metering Data to identify and account for missed or inaccurate Smart Metering Data.

1.2 Interpretation: In this Agreement, unless the context otherwise requires:

1.2.1 words importing the singular include the plural and vice versa;

1.2.2 words importing a gender include any gender;

1.2.3 other parts of speech and grammatical forms of a word or phrase defined in this Agreement have a corresponding meaning;

1.2.4 the expression "person" includes a natural person, any company, partnership, trust, joint venture, association, corporation or other private or public body corporate, and any government agency or body politic or collegiate;

1.2.5 a reference to a thing includes a part of that thing;

1.2.6 a reference to an article, section, provision or schedule is to an article, section, provision or schedule of this Agreement;

1.2.7 a reference to any statute, regulation, proclamation, order in council, ordinance, by-law, resolution, rule, order or directive includes all statutes, regulations, proclamations, orders in council, ordinances, by-laws or resolutions, rules, orders or directives varying, consolidating, re-enacting, extending or replacing it and a reference to a statute includes all regulations, proclamations, orders in council, rules and by-laws of a legislative nature issued under that statute;

1.2.8 a reference to a document or provision of a document, including this Agreement and any externally referenced documents, includes an amendment or supplement to, or replacement or novation of, that document or that provision of that document, as well as any exhibit, schedule, appendix or other annexure thereto;

1.2.9 a reference to sections of this Agreement or of any externally referenced documents separated by the word "to" (i.e., "sections 1.1 to 1.4") shall be a reference to the sections inclusively; and

1.2.10 the expression "including" means including without limitation, the expression "includes" means includes without limitation and the expression "included" means included without limitation.

1.3 Headings: The division of this Agreement into articles and sections and the insertion of headings are for convenience of reference only and shall not affect the interpretation of this Agreement, nor shall they be construed as indicating that all of the provisions of this Agreement relating to any particular topic are to be found in any particular article, section, subsection, clause, provision, part or schedule.

ARTICLE 2

ROLES AND RESPONSIBILITIES

2.1 Compliance with Applicable Law: The Parties shall comply with the provisions of all applicable laws and any codes issued by the OEB that relate to the Smart Metering Initiative.

2.2 Roles and Responsibilities of the SME: The SME shall:

2.2.1 administer the ongoing development of the MDM/R and any associated SME infrastructure required to fulfill the Smart Metering Initiative;

2.2.2 co-ordinate with other bodies having regulatory functions with respect to the Smart Metering Initiative, including the OEB and the Ministry of Energy and Infrastructure, as appropriate;

2.2.3 conduct such testing as the SME determines appropriate of the MDM/R and the interfaces between the MDM/R and the Distributor's systems prior to authorizing the Distributor to operate using the MDM/R and in advance of a modification to the MDM/R;

2.2.4 cooperate with reasonable testing by the Distributor of the interfaces between the MDM/R and the Distributor's systems requested by the Distributor, including reasonable testing by the Distributor of the interoperation of the Distributor's systems with the MDM/R;

2.2.5 provide reasonable and effective training to staff of the Distributor and the Distributor's Authorized Agent on the MDM/R and any associated infrastructure provided by the SME to support the interoperation of the Distributor's systems with the MDM/R;

2.2.6 subject to any requirements prescribed by regulation, receive Smart Metering Data, and such other information required by the SME to fulfill its obligations in respect of the Smart Metering Initiative, from the Distributor or the Distributor's Authorized Agent, conduct the applicable VEE processes for such information, and transmit Billing Quantity Data to the Distributor or the Distributor's Authorized Agent in a form that allows the Distributor to bill in accordance with an OEB approved tariff;

2.2.7 provide the Distributor with remote access to the MDM/R on a non-discriminatory basis for the purposes of:

2.2.7.1 retrieving and reviewing the Distributor's Smart Metering Data and Billing Quantity Data for any business purpose of the Distributor; or

2.2.7.2 editing the Distributor's Smart Metering Data and other information the Distributor is authorized to edit;

provided that the SME may establish reasonable restrictions on remote access to safeguard the operational integrity of the MDM/R, ensure performance of the MDM/R in accordance with the applicable service levels prescribed in the Terms of Service, perform maintenance on the MDM/R, or resolve an outage of the MDM/R;

2.2.8 provide ongoing technical support to the Distributor in relation to the MDM/R and any associated SME infrastructure required to fulfill the Smart Metering Initiative;

2.2.9 ensure that Smart Metering Data transmitted to the SME by the Distributor is stored in the MDM/R for 26 months and available to the Distributor for 10 years in an archived format, or as otherwise required by law;

2.2.10 perform its obligations under the Terms of Service and make best efforts to ensure that the MDM/R services meet the applicable service levels prescribed in the Terms of Service;

2.2.11 work with stakeholders to achieve continuous service through any transition to any subsequent agreement or agreements relating to MDM/R operations;

2.2.12 carry out such other roles and responsibilities as are required to fulfill the Smart Metering Initiative.

2.3 Smart Metering Charge: The SME shall invoice the Distributor for and collect the Smart Metering Charge in accordance with settlement procedures identical to those set forth in sections 6.1 to 6.15 of Chapter 9 of the Market Rules *mutatis mutandis*. In any application to the OEB to set the Smart Metering Charge, the SME shall request that the OEB permit the Distributor to pass through the Smart Metering Charge to consumers.

2.4 Audit of the MDM/R: The SME shall cause independent audits of the MDM/R and the MDM/R internal control environment, including relevant controls performed by the SME and the MDM/R Operational Service Providers, to be conducted annually by a nationally recognized audit firm, the scope and objectives of such audits to be relevant to a user organization's internal control as it relates to an audit of financial statements. The audit shall be conducted in accordance with the standards or equivalent standards to those established by the Canadian Institute of Chartered Accountants for audits of controls at a service organization. The audit period shall be at minimum six months in duration, concluding not more than 3 months from the end of the calendar year. The audit report shall be made available to users of the report no later than November 15 of each calendar year. This report shall hereinafter be referred to as the "first audit report". As early as possible and no later than January 15 of the following calendar year, the SME shall issue a management representation letter from the SME Chief Financial Officer stating that controls continue to be in place and working effectively and that there is no change in the control environment between the date of the audit report and December 31, or, at the SME's option in lieu of the representation letter, a second audit report covering the eight month period up to and including November 30 (hereinafter referred to as the "second audit report").

In the event of any qualification or significant exception in an audit report, at the request of the Distributor and subject to the approval of an officer of the SME or a committee of the SME Board or the SME Board, the SME shall cause to have specified procedures performed by a nationally recognized audit firm. The approval of this request shall not be unreasonably withheld. The Distributor's request shall include the specified procedures requested by their external auditor to be performed by the SME's auditor. Notwithstanding the SME's requirement for approval by an officer of the SME or a committee of the SME Board or the SME Board, the SME shall (a) respond to the Distributor's request in writing within 5 business days of receipt of their request with the specified procedures that the SME shall cause to have performed and (b) advise when the results of the specified procedures will be provided to the Distributor. The SME will use commercially reasonable efforts to have the results of the specified

procedures provided to the Distributor within 5 weeks of the approval of the request for specified procedures pertaining to the first audit report and within 2 weeks of the approval of the request for specified procedures pertaining to the second audit report, if applicable, or as otherwise agreed between the Distributor and the SME. The SME may consolidate similar requests from multiple Distributors, provided that such consolidation does not negatively impact on the timing of any of the approvals or the delivery of the results of the specified procedures.

In the event of any qualification or significant exception in the audit report, and where all reasonable means have been exhausted with specified procedures to meet Distributors' financial reporting requirements, Distributors required by law to file audited financial statements with a securities commission and comply with National Instrument 52-109 or equivalent shall have the right to have their financial statement auditor conduct audit procedures of the MDM/R and MDM/R internal control environment, subject to all of the following:

- The scope and objectives of the audit are limited to supporting the audit of and/or certification of Distributor's financial statements;
- Reasonable costs of the audit, including costs of the SME and the MDM/R Operational Service Providers to support the audit, shall be borne by the Distributor; and
- Distributor's external auditor agrees to the SME and MDM/R Operational Service Providers' non-disclosure and information confidentiality terms and conditions.

The SME shall develop and execute a remediation plan to address significant exceptions on a timely basis.

2.5 Interactions with Customers: The Distributor shall be solely responsible for interacting with its customers in respect of individual customer data originating from the MDM/R or any individual customer information derived from the MDM/R regardless of whether such data is presented to the customer by the Distributor, the SME or their respective agents.

2.6 Roles and Responsibilities of the Distributor: The Distributor shall:

2.6.1 ensure that its AMI complies with all of the applicable functional and technical specifications published by the SME with respect to the Smart Metering Initiative and conduct such testing of its AMI as required by the SME to demonstrate such compliance;

2.6.2 participate in any testing of the MDM/R and the interfaces between the MDM/R and the Distributor's systems as required by the SME;

2.6.3 certify to the SME, in a form acceptable to the SME, that the Distributor has completed any testing required by the SME and is ready to operate using the MDM/R, its AMI and any associated infrastructure required to fulfill the Smart Metering Initiative;

2.6.4 transmit to the SME Smart Metering Data and any other information required by the SME under section 2.2.6, retain such information for a minimum of 5 days, and re-transmit such information to the SME upon request;

2.6.5 perform its obligations under the Terms of Service as an MDM/R service recipient; and

2.6.6 carry out such other roles and responsibilities as are required to fulfill the Smart Metering Initiative.

2.7 Authorized Agent Permitted: On written notice to the SME, the Distributor may authorize one or more persons to act on the Distributor's behalf as an agent ("**Authorized Agent**") in any or all of the matters related to the Smart Metering Initiative and this Agreement. The authorization shall be in the form specified by the SME. The Distributor is responsible for ensuring that its Authorized Agent is aware of and complies with the terms and conditions of this Agreement.

ARTICLE 3

TERMS OF SERVICE

3.1 Terms of Service: The SME shall make Terms of Service for the management and operations of the MDM/R under this Agreement and shall publish the Terms of Service on its website.

3.2 Mandate of the SME Steering Committee: The SME shall establish the SME Steering Committee as a forum to represent the interests of stakeholders. The SME steering committee will be provided with an opportunity to:

3.2.1 provide input in the ongoing development of the Terms of Service and the MDM/R manuals and procedures;

3.2.2 provide input on the SME's provision of MDM/R services and the adherence to the committed service levels as prescribed in the Terms of Service;

3.2.3 consider amendment proposals forwarded by the SME, MDM/R service recipients, or initiated by the SME Steering Committee; and

3.2.4 participate in the consultations, when requested by the SME, on amendments to the MDM/R manuals and procedures.

3.3 Composition of the SME Steering Committee: The SME Steering Committee shall have up to 13 representatives where:

3.3.1 a majority of the members shall represent local distribution companies that are receiving service from the MDM/R or otherwise eligible to receive service from the MDM/R;

3.3.2 following a date to be established by the SME in consultation with the Ministry of Energy and Infrastructure, up to three members shall represent retail

companies that are receiving service from the MDM/R or otherwise eligible to receive service from the MDM/R;

3.3.3 up to two members will be members-at large; and

3.3.4 one member shall represent the interests of the SME.

3.4 Appointment of the SME Steering Committee: Except for the members-at-large and the member representing the SME, members of the SME Steering Committee shall be appointed by the Board of Directors of the *SME* from among nominations made by persons that are receiving service from the MDM/R or otherwise eligible to receive service from the MDM/R. Distributor representatives may also be appointed from nominations submitted by the Board of Directors of the Electricity Distributors Association or any successor organization.

3.5 Amendment to the Terms of Service: The SME may amend the Terms of Service at any time provided that the SME establishes and follows a process by which the SME Steering Committee may first provide advice and recommendations to the SME on the amendment. When amending the Terms of Service, the SME shall consider the overall cost and schedule impacts of the proposed amendment to the SME and any parties receiving service from the MDM/R, and any anticipated impact on electricity consumers.

3.6 Amendment Proposals: The SME shall establish a process under which any party receiving service from the MDM/R may propose an amendment to the Terms of Service.

3.7 Manuals and Procedures: The SME may make and amend manuals and procedures to provide more detailed descriptions of the requirements under the Terms of Service, including any forms required under this Agreement or the Terms of Service, and shall publish any manuals and procedures made under the Terms of Service on its website.

ARTICLE 4

REPRESENTATIONS AND WARRANTIES

4.1 Mutual Representations and Warranties: Each Party represents and warrants to and covenants with the other Party as follows:

4.1.1 it has all the necessary corporate power to enter into and perform its obligations under this Agreement;

4.1.2 the execution, delivery and performance of this Agreement by it has been duly authorized by all necessary corporate and/or governmental action and does not (or would not with the giving of notice, the lapse of time or the happening of any other event or condition) result in a violation or a breach of or a default under or give rise to a right of termination, greater rights or increased costs, amendment or cancellation or the acceleration of any obligation under (i) any charter or by-law

instruments of that Party; (ii) any contracts or instruments to which it is a party or by which it is bound; or (iii) any laws applicable to it;

4.1.3 the individual(s) executing this Agreement, and any document in connection with this Agreement, on its behalf has been duly authorized to execute this Agreement and has the full power and authority to bind the Party;

4.1.4 this Agreement constitutes a legal and binding obligation of the Party, enforceable against the Party in accordance with its terms; and

4.1.5 it holds all permits, licences and other authorizations that may be necessary to enable it to carry on the business and perform its roles and responsibilities under the Smart Metering Initiative and this Agreement.

4.2 Representations and Warranties of the SME: The SME represents and warrants to the Distributor that it and any Operational Service Provider have adequate qualified employees and other personnel and organizational and other arrangements that are sufficient to enable it to perform all of its roles and responsibilities under the Smart Metering Initiative and this Agreement.

4.3 Representations and Warranties of the Distributor: The Distributor represents and warrants to the SME that:

4.3.1 the Distributor is a _____ **[INSERT FORM OF BUSINESS ORGANIZATION]** duly

_____ **[INCORPORATED/ FORMED/REGISTERED]** and existing under the laws

of _____ **[JURISDICTION]**;

4.3.2 the Distributor and any Authorized Agent has the authority under any applicable laws to provide Smart Metering Data and any other information required under section 2.2.6 to the SME; and

4.3.3 the Distributor or its Authorized Agent have adequate qualified employees and other personnel and organizational and other arrangements that are sufficient to enable it to perform all of its roles and responsibilities under the Smart Metering Initiative and this Agreement.

ARTICLE 5

ACCESS TO MDM/R DATA

5.1 Disclosure of MDM/R Data: Subject to its OEB licence, the SME may disclose, use or reproduce any data contained in the MDM/R, including Smart Metering Data and Billing Quantity Data, for any purpose; provided that in making data available to any third party, the data shall be presented in a manner that prevents the specific data of an

individual customer of the Distributor being identified with that customer or premises. If the SME is compelled by law, regulation or order of court or tribunal to disclose any data contained in the MDM/R to a third party in a manner other than as provided for under this section 5.1, the SME shall, to the extent permitted by law, provide the Distributor with reasonable notice and the Distributor may seek a protective order or other appropriate remedy to prevent disclosure of the data.

5.2 Protocol for Access to MDM/R Data: The SME shall consult with the SME Steering Committee and develop and publish a protocol setting out the procedures it will follow in providing access to MDM/R data while preventing identification of the specific data associated with an individual customer or premises.

5.3 Freedom of Information and Protection of Privacy Act: The Distributor acknowledges that SME is bound by the provisions of the *Freedom of Information and Protection of Privacy Act* (Ontario) and may be required by order of a court or tribunal to disclose information provided by the Distributor to SME. The SME acknowledges that the Distributor may be bound by the provisions of the *Freedom of Information and Protection of Privacy Act* (Ontario), the *Municipal Freedom of Information and Protection of Privacy Act* (Ontario) or other such legislation and may be required by order of a court or tribunal to disclose information provided by the SME to the Distributor.

ARTICLE 6

INTELLECTUAL PROPERTY

6.1 Intellectual Property Rights: The Distributor shall not acquire any title, beneficial ownership interests or any intellectual property rights, including any proprietary rights provided under (i) patent law, (ii) copyright law (including moral rights), (iii) trade-mark law, (iv) design patent or industrial design law, (v) semi-conductor chip, integrated circuit topography or mask work law, or (vi) any other statutory provision or common law principle regarding intellectual or industrial property, including trade secret law, in the MDM/R or any associated infrastructure used by the SME to fulfill the Smart Metering Initiative. Similarly, the SME shall not acquire any such title, interests or rights in respect of the Distributor's AMI, customer information systems, billing systems or any associated infrastructure used by the Distributor to fulfill those objectives.

6.2 Survival: Article 6 of this Agreement shall survive the assignment, transfer or termination of this Agreement.

ARTICLE 7

LIABILITY AND INDEMNIFICATION

7.1 Limitation of Liability of the SME: Except as provided in sections 7.5, 7.6 and 7.7, the Distributor shall have no recourse against the SME in respect of any breach of this Agreement, or any loss or damage to the Distributor, which in either case is attributable

to an act or omission of any Operational Service Provider. The SME's liability to the Distributor attributable to an act or omission of the SME shall be limited to:

7.1.1 actual direct damages and in no event shall the SME be liable to the Distributor in respect of punitive, consequential or indirect damages or loss of profit, loss of data or loss of revenue; and

7.1.2 the cumulative liability of the SME to all MDM/R service recipients (including the Distributor) in connection with an act or omission of the SME under this Agreement shall not exceed an aggregate amount of $1,000;

except as provided for in section 7.3 or to the extent that any such damages are recovered by the SME from an Operational Service Provider under section 7.6.

7.2 Limitation of Liability of the Distributor: The Distributor's liability to the SME attributable to an act or omission of the Distributor shall be limited to actual direct damages and in no event shall the Distributor be liable to the SME in respect of punitive, consequential or indirect damages or loss of profit, loss of data or loss of revenue. The liability of the Distributor to the SME in connection with an act or omission of the Distributor shall not exceed $1,000.

7.3 Indemnification: The SME shall indemnify and hold harmless the Distributor from any and all claims, losses, liabilities, obligations, actions, judgments, suits, costs, expenses, disbursements and damages incurred, suffered, sustained or required to be paid, directly or indirectly, by, or sought to be imposed upon, the Distributor to the extent that such claims, losses, liabilities, actions, judgments, suits, costs, expenses, disbursements or damages arise out of a breach of Article 5 of this Agreement.

7.4 Duty to Mitigate: A Party has a duty to mitigate damages, losses, liabilities, expenses or costs relating to any claims that may be made under this Agreement.

7.5 Cost Recovery: The SME shall cooperate with the Distributor (acting individually or in concert with other licenced distributors that are parties to an agreement with the SME) in:

7.5.1 any proceeding before the OEB; and

7.5.2 any initiative to make a submission to, or obtain a legislative or regulatory amendment from, the Province of Ontario;

in which the Distributor seeks a change to any of its rates or charges or other appropriate relief for any of its losses or incremental costs related to any act or omission of the SME, the Operational Service Provider or a service provider of the SME. The SME shall assist in the coordination of the claim or initiative being put forward by the Distributor. Such cooperation by the SME shall include, but not be limited to, promptly providing to the Distributor and the OEB, at the request of the Distributor but at the SME's cost, accurate information, analysis, documents, and evidence. For greater certainty, the SME's obligation to provide assistance under this section shall not be limited to a cost of $1000 by section 7.1.2.

7.6 Reduction of Smart Metering Charge: If an Operational Service Provider fails to meet the required service levels under an MDM/R Agreement, or otherwise breaches an MDM/R Agreement, and that failure or breach results in a reduction of the fees payable to the Operational Service Provider by the SME, or if any amount is recovered from the Operational Service Provider in respect of any such failure or breach, then an amount equal to the reduction or recovered amount will be:

7.6.1 set aside by the SME as an amount owing to MDM/R service recipients in a variance account approved by the OEB;

7.6.2 reported to the SME Steering Committee along with any pertinent information in the possession of the SME which may assist the SME Steering Committee in determining which MDM/R service recipients were affected by the MDM/R failure or breach; and,

7.6.3 subject to approval of the OEB, subsequently distributed to MDM/R service recipients by the SME.

The SME shall apply to the OEB to clear the approved variance account on the earlier of (i) the date on which the balance in the variance account meets or exceeds $2 million, or (ii) ~~December 31, 2016~~ December 31, 2036. As part of its application, the SME will ask the Board to approve the allocation of service level credits amongst MDM/R service recipients as determined by the SME Steering Committee.

7.7 Monitoring of the Operational Service Provider: The SME will use commercially reasonable efforts to monitor each Operational Service Provider's performance under, and to enforce the provisions of, its MDM/R Agreement (which shall include, for greater certainty, the diligent pursuit, through legal proceedings if necessary, of any appropriate reductions of fees or recovery of any amounts owing as damages, penalties or otherwise). The Distributor may seek an order of specific performance requiring the SME to take commercially reasonable actions to enforce the provisions of an MDM/R Agreement at the SME's cost.

ARTICLE 8

DISPUTE RESOLUTION

8.1 Dispute Resolution: Subject to section 8.3, the Parties shall attempt to settle any dispute in connection with this Agreement or the Smart Metering Initiative through good faith negotiations. If the Parties are unable to resolve the dispute through good faith negotiation, either Party may apply to the OEB for determination of the dispute. A Party shall provide written notice to the other Party of its intention to apply to the OEB for determination of the dispute at least ten (10) business days before filing any application materials with the OEB.

8.2 Limitation Period: Subject to section 8.3, a Party shall commence any proceeding in respect of a dispute under this Agreement or related to the Smart Metering Initiative within two years of the earlier of:

8.2.1 the date on which the claim is discovered; or

8.2.2 the date on which this Agreement is terminated under section 11.1.

8.3 Smart Metering Charge: Any dispute between the Parties in respect of the calculation of the Smart Metering Charge shall be determined in accordance with a dispute resolution procedure identical to that set forth in section 2 of Chapter 3 of the Market Rules *mutatis mutandis*. The Distributor shall commence any proceeding in respect of the calculation of the Smart Metering Charge invoiced to it by the SME within the applicable limitation period set forth in section 2.5.1A.3 or 2.5.1A.4 of Chapter 3 of the Market Rules.

ARTICLE 9

FORCE MAJEURE

9.1 Force Majeure: If either Party is unable to satisfy any of its obligations under this Agreement due to causes beyond the Party's reasonable control, provided that the Party makes all reasonable efforts to avoid, or if unavoidable, to correct the reason for such delay or failure and gives the other Party prompt notice of such delay or failure, then such Party shall be excused and relieved from its obligation to satisfy such obligation for so long as the event continues and for such reasonable period of time thereafter as may be necessary for the Party to resume performance of the obligation. For the avoidance of doubt, "causes beyond the Party's reasonable control" include an event of fire, flood, earthquake, element of nature, explosions, acts of God, acts of war, terrorism, riots, civil or public disorders or disobedience, strikes, lock-outs, labour disruptions, acts of vandalism, sabotage, or other unlawful acts, and any other similar event beyond the commercially reasonable control of the Party.

ARTICLE 10

AMENDMENT AND ASSIGNMENT

10.1 Amendment Generally: Except as otherwise provided in this Agreement, no amendment to this Agreement will be effective until approved by the OEB. A Party may apply to the OEB to amend this Agreement at any time provided that the Party has first consulted with the SME Steering Committee on the merits of the proposed amendment.

10.2 Amendment to Section 4.3: The Distributor may amend the Distributor's corporate information provided under section 4.3 at any time without the approval of the OEB.

10.3 Amendment to Schedule "A": The Distributor or the SME may amend their respective nominated representatives for official notifications listed in Schedule "A" at any time without the approval of the OEB.

10.4 Assignment Generally: Except as provided for in section 11.2, neither Party may assign its rights and obligations under or transfer any of its interest in this Agreement without the prior consent of the other Party, which consent shall not be unreasonably withheld. An assignment under this section does not require the approval of the OEB.

ARTICLE 11

TERM AND TERMINATION

11.1 Term: This Agreement is effective as of December 31, 2016 ~~January 26, 2016~~. Unless otherwise extended by order of the OEB, this Agreement shall terminate on December 31, 2036 ~~2016~~.

11.2 Termination of the Smart Metering Entity Role: If during the term of this Agreement, the SME is no longer designated under the *Electricity Act, 1998* (Ontario) as the Smart Metering Entity, this Agreement shall be assigned to and assumed by the successor Smart Metering Entity.

11.3 Delivery of Historical Data: In the event that MDM/R services are no longer being provided under either this Agreement or any subsequent agreement or agreements relating to MDM/R operations, the SME shall, at the request of the Distributor, obtain and deliver to the Distributor the Distributor's Smart Metering Data and Billing Quantity Data stored in the MDM/R. This section 11.3 shall survive the assignment, transfer or termination of this Agreement.

11.4 Deemed Release of the SME: Subject to section 6.2, the Distributor will be deemed to release the SME from all obligations, liabilities, claims and demands against SME in respect of the Smart Metering Initiative and this Agreement, whether known or unknown, upon the earlier of:

11.4.1 two years after termination of this Agreement; or

11.4.2 the assumption of any obligations, liabilities, claims and demands against SME in respect of the Smart Metering Initiative and this Agreement by another entity in accordance with section 11.2.

ARTICLE 12

MISCELLANEOUS

12.1 No Agency or Partnership: The Parties do not intend that any agency or partnership be created between them by this Agreement.

12.2 No Warranty: Except as specifically set forth in this Agreement, there are no representations, warranties, or conditions of either Party, express, implied, statutory or otherwise, regarding any matter, including warranties or conditions of merchantable quality or fitness for a particular purpose.

12.3 Successors and Assigns: This Agreement shall enure to the benefit of, and be binding on, the Parties and their respective successors and permitted assigns.

12.4 Severability: Any provision of this Agreement that is invalid or unenforceable shall be ineffective to the extent of that invalidity or unenforceability and shall be deemed severed from the remainder of this Agreement, all without affecting the validity or enforceability of the remaining provisions of this Agreement or affecting the validity or enforceability of such provision in any other jurisdiction.

12.5 Notices: Any notice or other communication required or permitted to be given or made under this Agreement shall be sent by courier or other form of personal delivery, by prepaid first class mail, by facsimile or electronic mail and be addressed to the other Party in accordance with the contact information listed in Schedule "A" of this Agreement.

12.6 Governing Law: This Agreement shall be governed by and construed in accordance with the laws of the Province of Ontario and the federal laws of Canada applicable therein. The Parties irrevocably attorn to the exclusive jurisdiction of the courts of the Province of Ontario.

12.7 Conflict or Inconsistency: In the event of a conflict or inconsistency between this Agreement and the provisions of the Terms of Service, this Agreement shall prevail. In the event of a conflict or inconsistency between this Agreement and any code issued by the OEB under section 70.1 of the *Ontario Energy Board Act* (Ontario), the code shall prevail.

12.8 Amendment to the Market Rules: If the SME proposes to or receives a proposal to amend any provision of the Market Rules incorporated in this Agreement by reference, the SME shall provide the Distributor with reasonable notice of the proposed amendment and identify what impact the amendment will have upon this Agreement.

12.9 Waiver: No failure or delay by a Party in exercising any right, power or privilege under this Agreement shall operate as a waiver thereof. No provision of this Agreement may be waived except in writing by a Party at its sole discretion, and a waiver on any occasion shall not act as a waiver or bar to the enforcement of the rights of a Party with respect to any other breach or the same breach on any other occasion.

12.10 Entire Agreement: This Agreement represents the complete agreement between the Parties and supersedes all prior communications, understandings and agreements between the Parties, whether written, oral, expressed or implied.

12.11 Counterparts: This Agreement may be executed by the Parties by facsimile or electronic signature and in separate counterparts, each of which when so executed and delivered will be an original, but all such counterparts will together constitute one and the same instrument.

IN WITNESS WHEREOF the Parties have, by their duly appointed and authorized representatives, executed this Agreement.

[DISTRIBUTOR NAME]

By: _____

Name:
Title:

INDEPENDENT ELECTRICITY SYSTEM OPERATOR

By:

Title:

SCHEDULE "A"

NOMINATED REPRESENTATIVES FOR OFFICIAL NOTIFICATIONS

SME

Name of SME Representative:	Sorana Ionescu
Title:	Director, Smart Metering, Information & Technology Services
Address:	Station A, Box 4474
City/Province/Postal Code	Toronto, Ontario, M5W 4E5
Email address:	sorana.ionescu@ieso.ca
Phone:	(905) 855-6360
Fax:	(905) 855-6471

Distributor

Name of Distributor Representative:	
Title:	
Address:	
City/Province/Postal Code	
Email address:	
Phone:	
Fax:	

D. Notice and Consent for Ontario Board to Collect Additional Information

AS REQUIRED BY THE FREEDOM OF INFORMATION AND PROTECTION OF INDIVIDUAL PRIVACY ACT

In order to complete or verify the information provided on this form, it may be necessary for the Ontario Energy Board to collect additional information from some or all of the following sources: federal, provincial/state and municipal governments; licensing bodies; banks; professional and industry associations; and former and current employers. **Only information relevant to your application will be collected.**

The public official who can answer questions about the collection of information is:

Board Secretary
Ontario Energy Board
2300 Yonge Street, P.O. Box 2319
Toronto, Ontario M4P 1E4

NOTE: This application must be signed by the proprietor or by at least one partner, officer or director of the organization.

WARNING: It is an offence to knowingly provide false information on this application.

I/We consent to the collection of this information as authorized under the *Ontario Energy Board Act, 1998*. Yes ☐

I/We understand that this information will be used to determine whether I am/we are and remain qualified for the licence for which I am/we are applying. Yes ☐

Print Name and Title	Signature of Applicant(s)	Date Signed
JOHN RATTRAY GENERAL COUNSEL, SECRETARY + CRCO		Sept 30/16

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