

Smart Metering Entity: Third Party Access Implementation Plan

Public Webinar

November 9th, 2018

Today's Agenda

I. Introductions

II. Engagement

III. Project Background

IV. Key Updates

V. Questions and Next Steps

VI. Appendix

I. INTRODUCTIONS



II. ENGAGEMENT

Engagement Overview

- The IESO's process to engage with stakeholders before a decision is made is guided by the [IESO Engagement Principles](#)
- Objective of engagement – Ensure that all interested parties understand this initiative and are informed enough to provide input on the development of this Implementation Plan
- Three engagement mechanisms:
 - [Data Strategy Advisory Council \(DSAC\)](#) – to review and provide advice of the project work plan and the development of the elements
 - [Stakeholder Advisory Committee \(SAC\)](#) – to review and provide advice to the IESO Board and Executive Leadership Team
 - Formal [broader engagement initiative](#) to inform the broader public of the work of third party access and to seek input within the project work



III. PROJECT BACKGROUND

Question for input:

- *Is there any additional information that you require in order to have a good understanding of the project?*

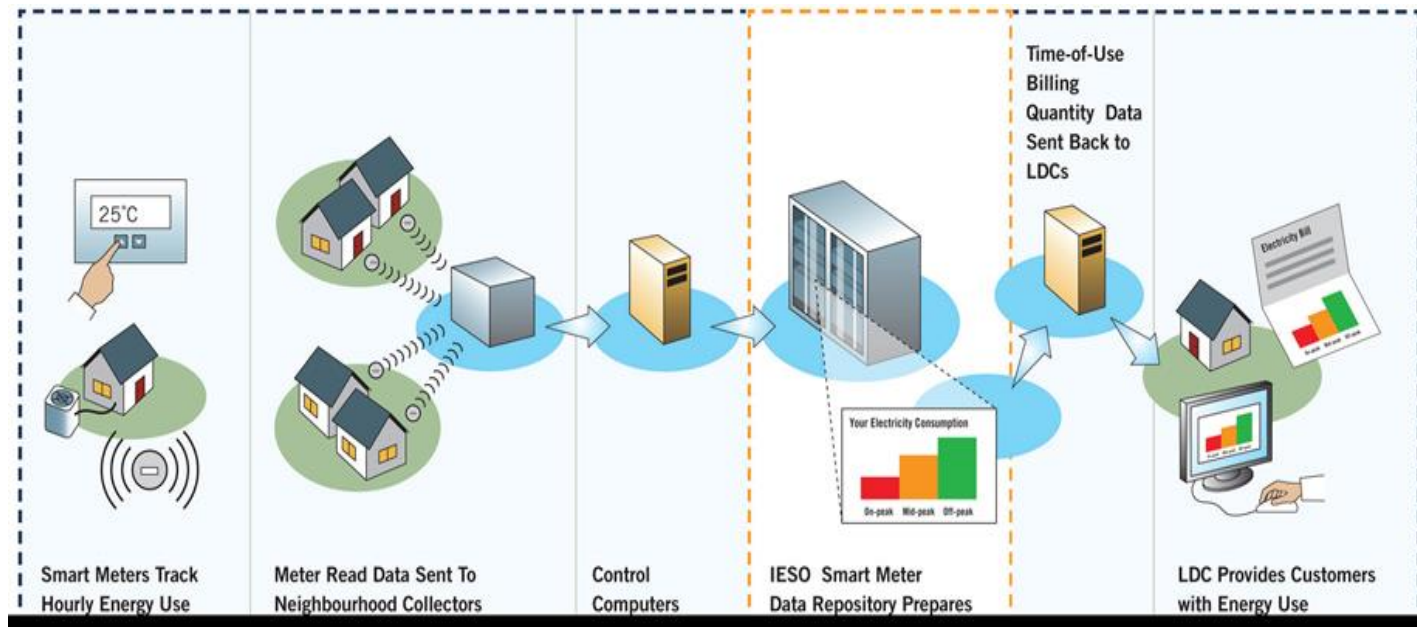
What we do...

The IESO works at the heart of Ontario's power system ensuring there is enough power to keep the lights on, today and into the future...



Ontario's Smart Metering System

- One of the largest shared service systems in the world, supporting 60+ local distribution companies (LDCs)
- One of the largest transactions systems in North America: over 200 billion records, with 120MM records added daily



OEB Orders to the SME

- Following the 2016 OEB Orders (EB-2015-0297 and EB-2016-0284), the SME's licence was amended with the following requirements:
 1. To start collecting into the MDM/R, as of Jan 1st, 2017 additional smart meter information from LDCs, specifically Postal Code, Distributor Rate Class (DRC), Commodity Rate Class (CRC) and Occupant Change Date, in a manner that is compliant with privacy requirements – *this requirement is now fully met.*
 2. To prepare an Implementation Plan with respect to Third Party Access to this enhanced MDM/R data. The SME submitted that in following the Third Party Access Roadmap recommendations (developed in 2017), the implementation specifics will be defined in 2018, including a costing & valuation model to help determine *how will this be paid for.*

SME's Data Access Project – Key Milestones

- OEB Orders to the SME
 - Extensive privacy analysis and industry engagement
 - Additional data collection

2016
Setting the Foundation

- Develop Project Roadmap
- Expanding the sphere of engagement (formed DSAC*)
- Researching, consulting, modelling, piloting
- Develop detailed implementation plan with monetization model
- OEB filing prior to year end

2017 – 2018
Building the Framework

- Phased-in implementation
- Model refinement

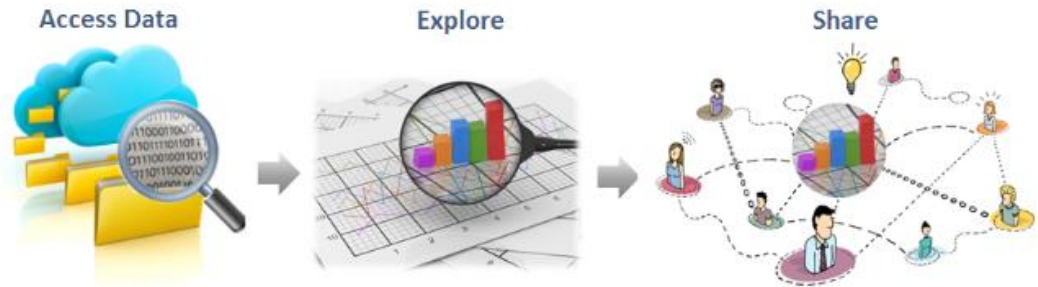
2019+
Unlocking the Value of Data

* DSAC - Data Strategy Advisory Council - <http://www.ieso.ca/en/Sector-Participants/Smart-Metering-Entity/Data-Strategy-Advisory-Council>

Key Project Developments

Since the last public engagement webinar, the SME has been focusing on the following key areas :

- Finalizing data pilots and collecting learnings
- Developing the building blocks of the data requests fulfillment process, from intake to post-delivery
- Market research, costing and valuation analysis, financial model and data products catalogue
- Terms and principles upon which access is granted
- Considerations for a communications strategy
- Ongoing consultations with stakeholders (SAC, DSAC, IPC, OEB, EDA, Government, etc)

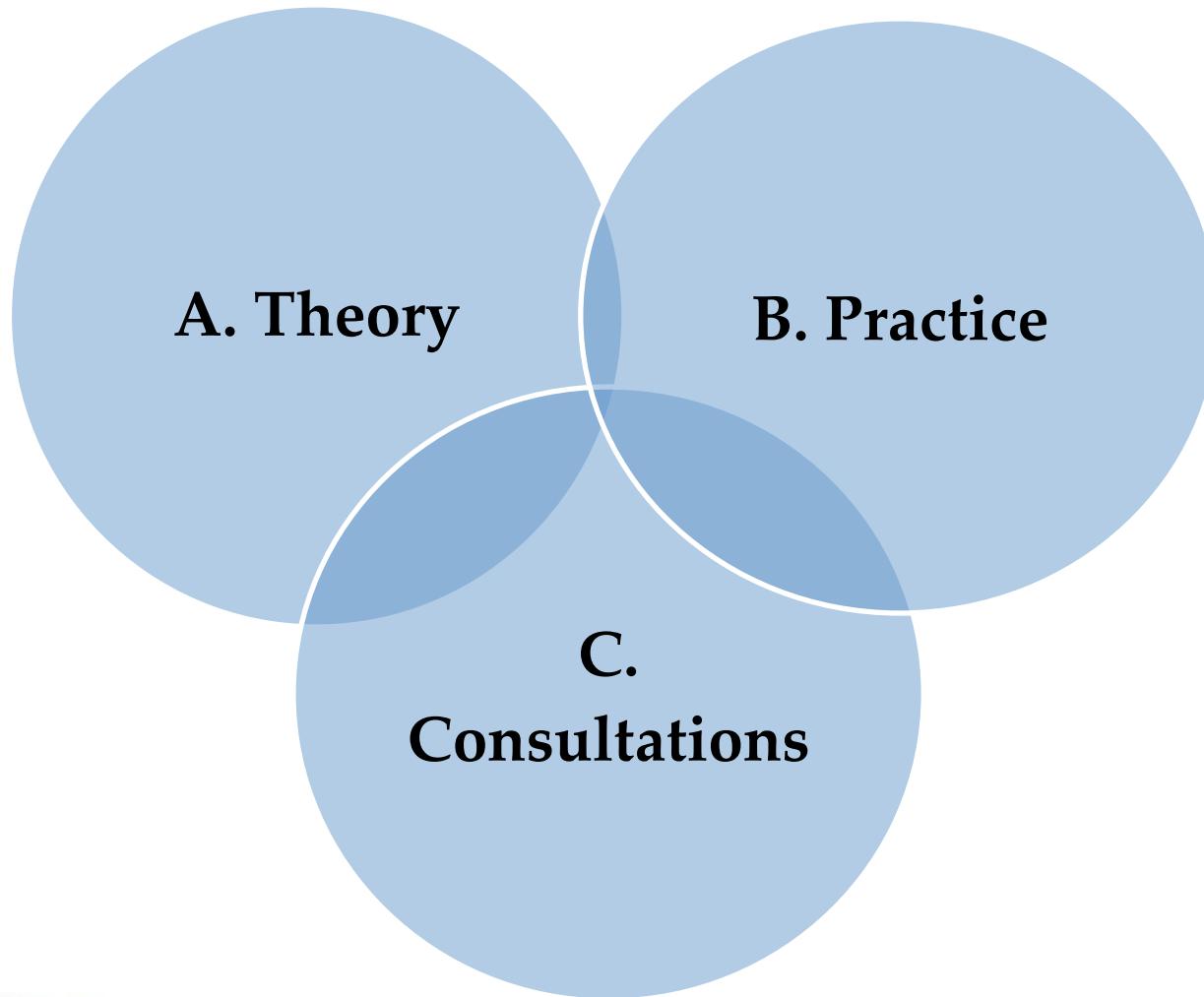


IV. KEY UPDATES

Question for input:

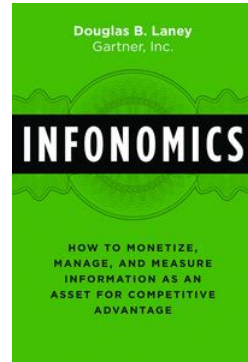
- *Are there any other considerations, opportunities and/or risks & mitigations that should be considered for this project?*

Key Areas of Work



A. Theory Research

- ✓ From the **3Vs** (Volume, Variety, Velocity) of the Data, to the **3Ms** of Information (Monetize, Measure, Manage)
- ✓ Explore the **intrinsic value** characteristics of the data (e.g. the depth and breadth of the smart meter data)
- ✓ Explore all possible **economic benefits** of the data, for today and the future (for public good, for private uses, for ratepayer and system benefits)



B. Practical Applications

- ✓ Extensive market research and explorations into how other organizations, sectors, jurisdictions are approaching their big data questions, third party access and monetization.



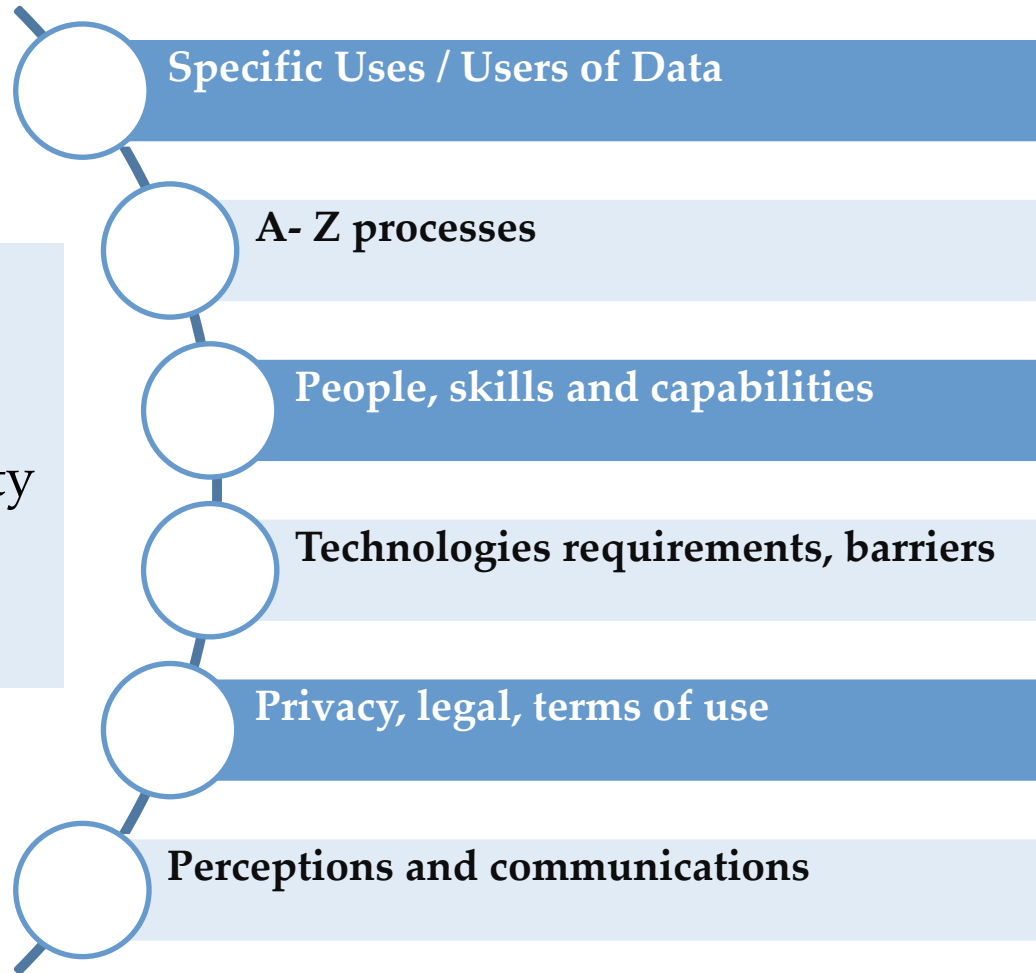
Some key learnings from market research include:

- Privacy and security of data remain primary concerns
- Data science is not a discipline that is broadly spread across the energy sector, nor are players seeing the “data as an asset” within their own organizations
- Current uses are fairly limited to customers’ ability to see their own data, and limited operational uses
- Public organizations follow at least a cost recovery model, some organizations have planned surplus targets which are directed back into the organization as a re-spending budget (StatsCanada) or as an offset to their operating budgets (MPAC, CIHI).

"Lab" Testing



- ✓ Pilots were a key step in building the understanding of "real-life" aspects of third party data applications



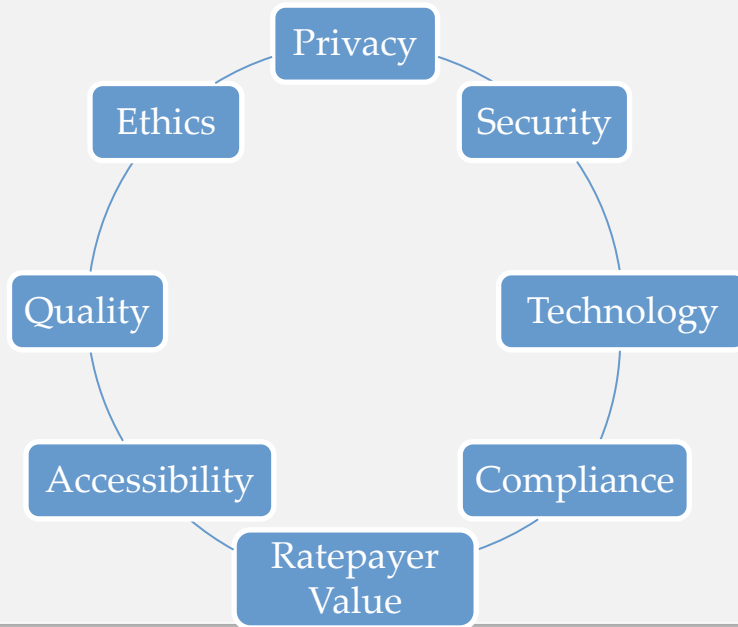
C. Consultations

- The SME has had a busy calendar of consultations, with iterative and recurring discussions with a broad range of stakeholders and audiences from the early days of the project:



Putting it all together to create the Value Proposition

I. Terms of Access



II. Ratepayer Value Creation

- ✓ No Financial Risk for Ratepayer = Cost Recovery
- ✓ Capture Data Value = Surplus / Benefit for Ratepayer

I. Terms of Access Principles

- **Privacy, Security and Ethical Use of Data**
 - The SME will provide information where risk of re-identification, security controls and uses of data are appropriate – thresholds established as per IPC's Guidelines and with support from Ethics Committee, as required
- **Compliance & Accessibility**
 - The SME will provide information in compliance with applicable legislative and regulatory requirements, including terms of licence, and terms of its data use agreement; The SME will adhere to accessibility standards for public data uses
- **Quality**
 - The SME will provide information that meets high quality standards – when quality issues are identified, alternatives will be sought with clients
- **Technology**
 - The SME will provide information to requestors who can demonstrate that they are technologically able to use the data, and meet their obligations as set in a data use agreement
- **Ratepayer Value**
 - The products the SME will offer, will provide ratepayer value through their public benefit and/or financial return

II. Ratepayer Value Creation

A universal formula that applies to all types of data requests:

Pricing

=

Cost Recovery

+

Ratepayer Benefit

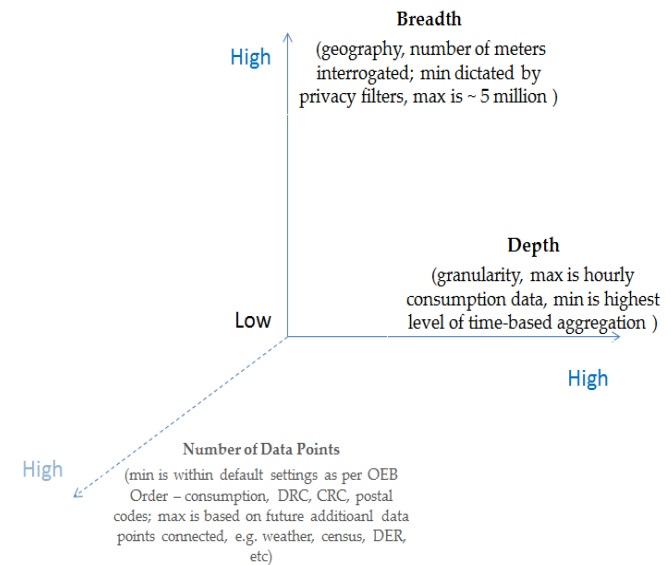
All costs incurred by the SME to fulfill a data request (internal at \$/hr and external) **are fully recovered**

Charging an **amount beyond cost recovery**, that reflects the value of the data through its granularity (\$/volumes), and for additional services such as visualizations or analysis (\$/hr)

SURPLUS FUNDS ARE CREDITED TO RATEPAYERS

Ratepayer Value Creation (cont'd)

A data request will be valued on the basis of its *depth* (\$/records), its *breadth* (\$/meters) and *no. of data points*¹ (\$/data points).



Example of a Potential Data Request

A client requesting two years of hourly consumption data for residential customers in a medium sized city. The request includes the data extract and some extra analysis to support visualization (e.g. maps)

Pricing	=	<div style="background-color: #4a7ebb; color: white; padding: 10px; text-align: center;"> Cost Recovery (internal /external) $x \text{ hrs} \times \\$x/\text{hr}$ </div>	+	Ratepayer Benefit	
				2.Data Extract $\$/\#000 \text{ records}$ $\$/\# \text{ meters}$ $\$/\# \text{ data points}$	3. Additional Services $y \text{ hrs} \times \$y/\text{hr}$
SURPLUS FOR RATEPAYERS = 2 + 3*					

1- this is a future adder dimension, as the SME may start incorporating additional data sets (e.g. weather data)

*Net Ratepayer Benefit – excludes cost recovery portion



V. QUESTIONS AND NEXT STEPS

Next Steps

1. Further discussions with the key stakeholders
2. Submit for approval to the Ontario Energy Board by end of 2018 (phase 1 – basic model; phase 2 tbd – more refined)
3. Roll out phased-in implementation upon OEB approval

Summary of Questions and Next Steps

- *Is there any additional information that you require in order to have a good understanding of the project?*
- *Are there any other considerations, opportunities and/or risks & mitigations that should be considered for this project?*

Feedback due to engagement@ieso.ca by November 23, 2018

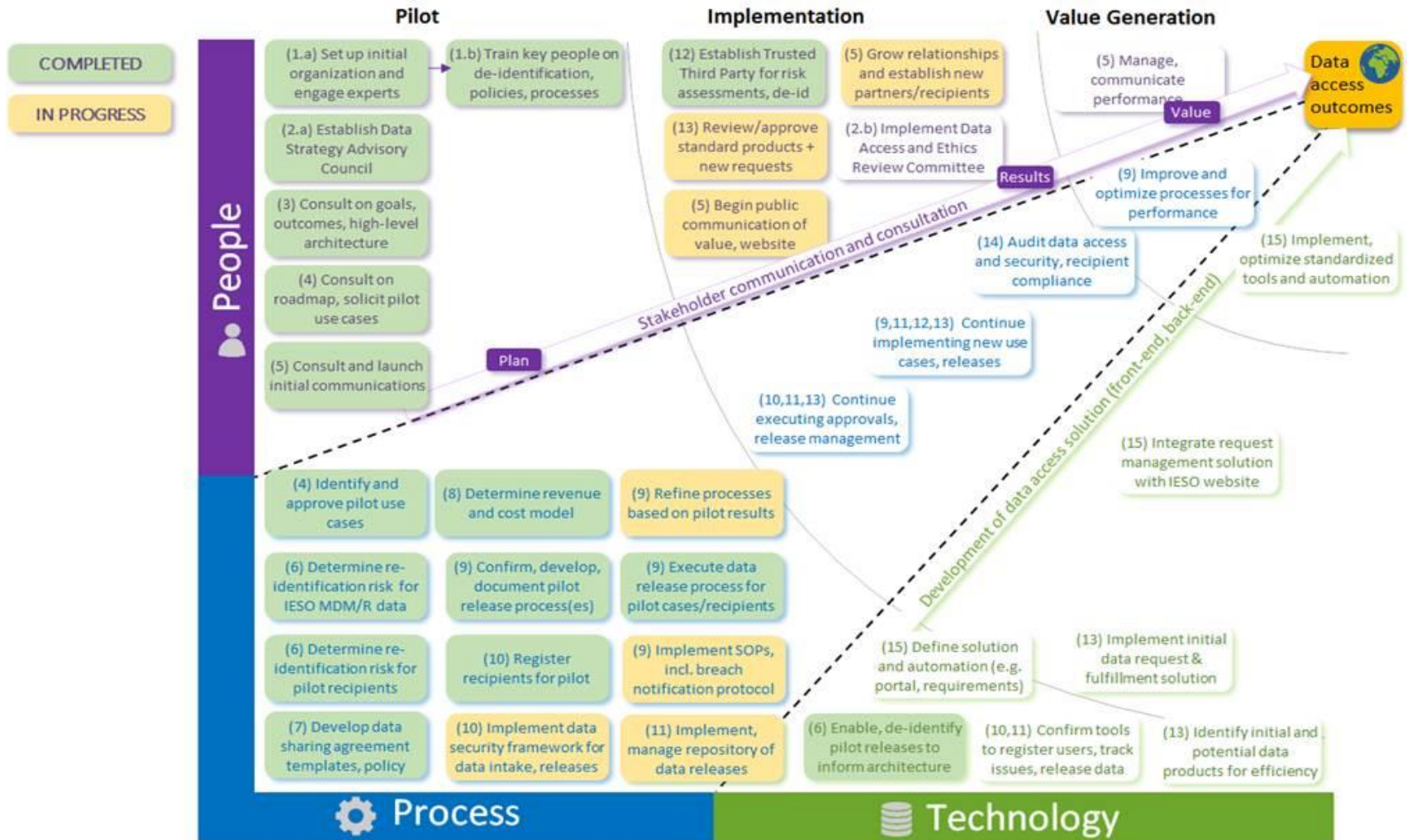
IESO will post and respond to feedback by mid-December

THANK YOU



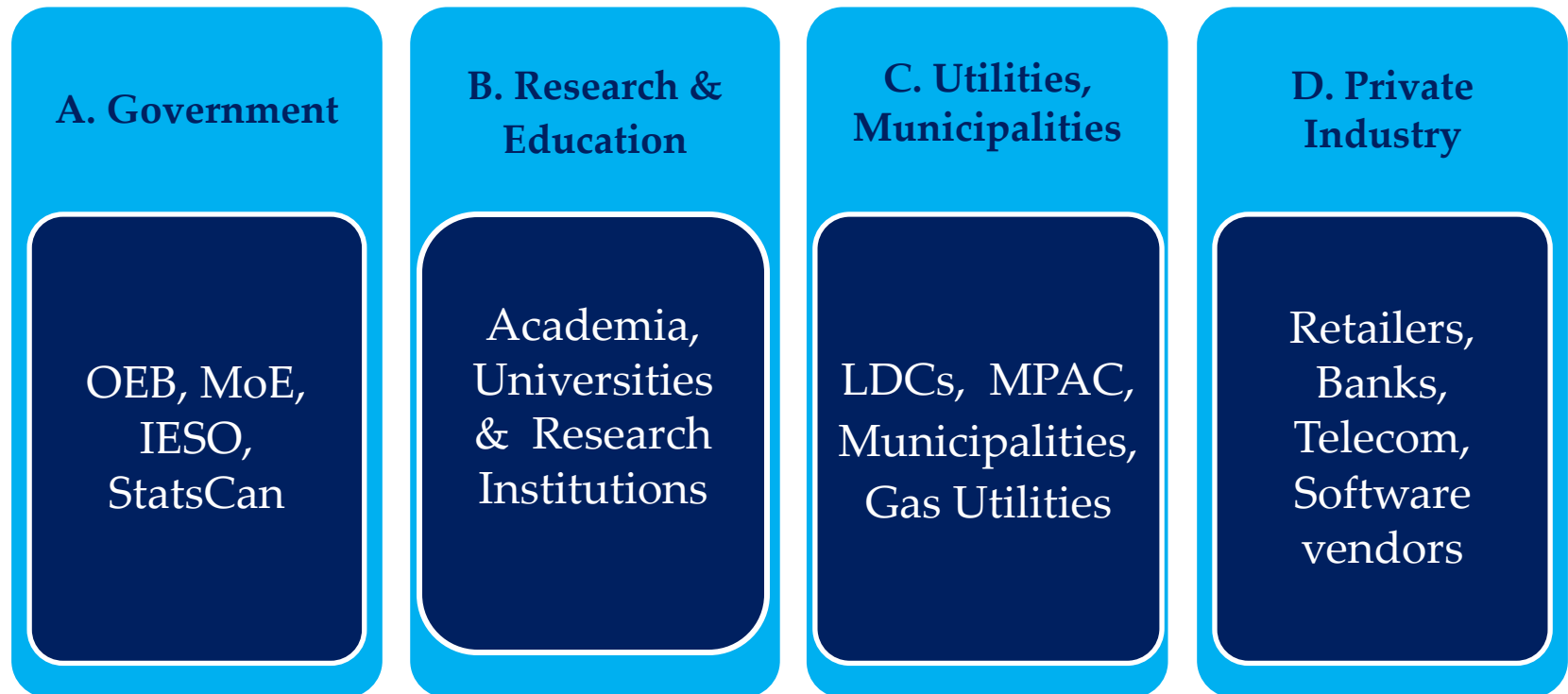
VI. APPENDIX

Third Party Access Roadmap



Potential Third Party Clients for MDM/R Data

- The identified interested groups that can have a potential use of the data are stated below:



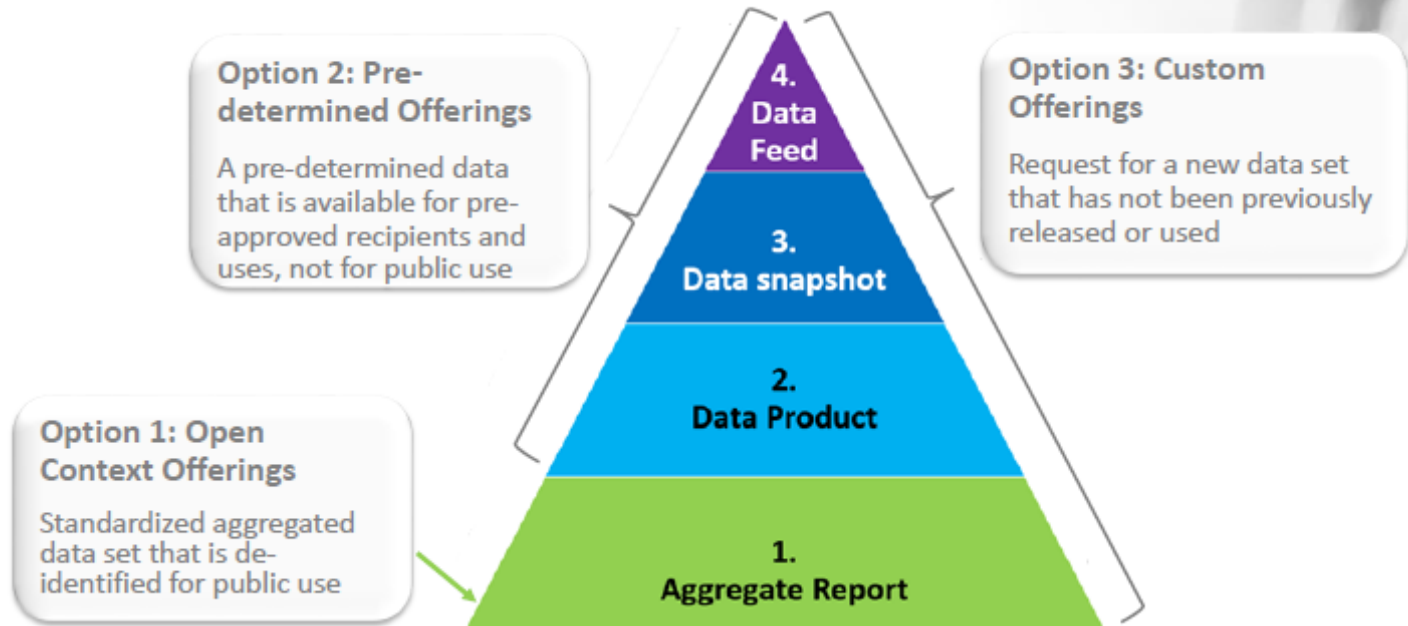
- Each group has their own statute, unique data needs, and different perspectives on the value of this data for their constituents.

Potential MDM/R Data Products

We determined four potential types of data offerings:

1. Aggregated Reports - de-identified for unrestricted or public use
2. Data Product - a pre-determined report / analytics product, not for public use
3. Data Snapshot - a snapshot of the data from the MDM/R
4. Data Feed - a continual feed of raw de-identified data in the MDM/R

For these offerings, the risk assessment and de-identification options include:



The DSAC Pilots

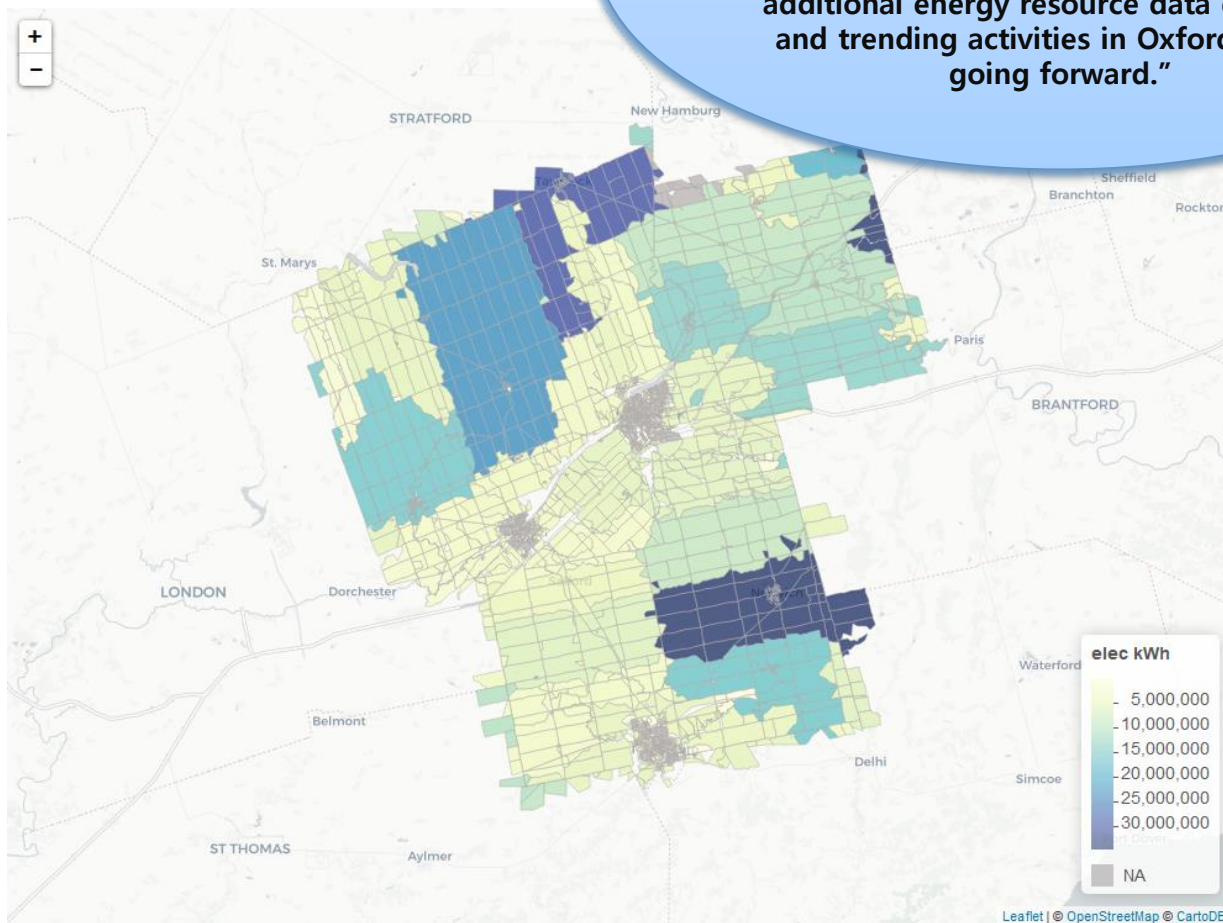
User	Objective	Details/Status
Oxford County	To create an accurate electricity baseline for improving energy efficiency, and aiding in the transition to renewable energy.	<ul style="list-style-type: none"> Four years of Hourly Electricity Consumption Data for consumers in Oxford County (54 million records, 480Mb)
City of Guelph	To identify priority areas for energy efficiency/ distributed generation programs via energy mapping; support GHG targets with an emissions inventory.	<ul style="list-style-type: none"> Four years of Daily Electricity Consumption grouped by Postal Code and by Distributor Rate Class for all Guelph postal codes (3.2 million records, 115Mb)
OEB	To better understand small commercial energy use patterns and to make more informed pricing decisions.	<ul style="list-style-type: none"> Four years of hourly consumption data for Small General Service customers, for the entire province (400 million records 17Gb)
IESO	To improve short- & long-term demand forecasting through better system modelling.	<ul style="list-style-type: none"> Hourly consumption data for all Consumers in Ontario by DRC, for the period January 1st 2014 to December 31st 2017 (140,256 records, 8Mb)
Enbridge Gas	To establish load profiles to help predict the GHG impact of the power system and support emission reduction.	<ul style="list-style-type: none"> Four years of aggregated hourly consumption data for residential customers for postal codes L4C, L4B, L1G, L6S, and L5M with commodity rate class (2.3 billion records, 1.4 Gb compressed)

The DSAC Pilots (cont'd)

- A detailed privacy analysis was completed for each test case to develop specific rules of de-identification for the data extracts, in accordance with the IPC's De-Identification Guidelines for Structured Data.
- The methodology used assessed the Context Risk (for each requestor) and the Data Risk (data requested in each specific test case). The findings of the risk assessment resulted in specific recommendations for data extraction to ensure that the risk of de-identification remains under a minimum acceptable threshold.
 - For example, data may require higher level aggregation (5, 4 or 3 digit postal code), elimination of outliers which could be re-identified through inferences, or mitigation of data uniformity where re-identification is possible due to similarities between dwellings within a certain geography.
- A signed Data Use Agreement is necessary in order for the data extract to be shared with the requestor.
- Each data extract is securely transmitted and accompanied by a detailed Specifications document that provides definitions and details on the output file, to facilitate the analysis.

Data Pilot - Oxford County

Smart Meter Data – 2017 Consumption



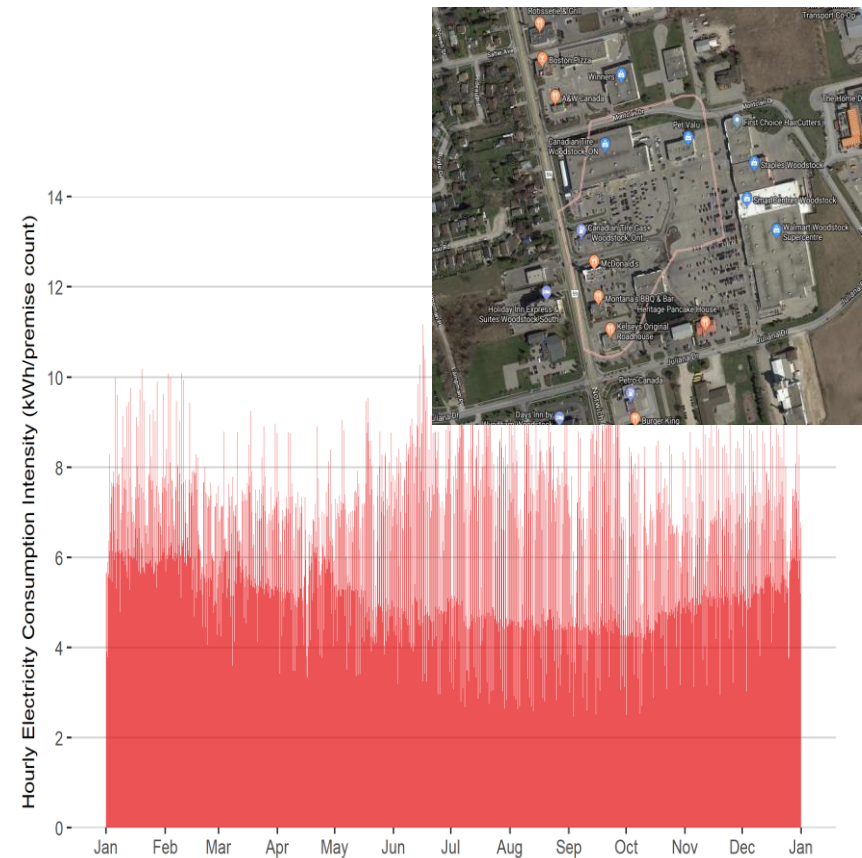
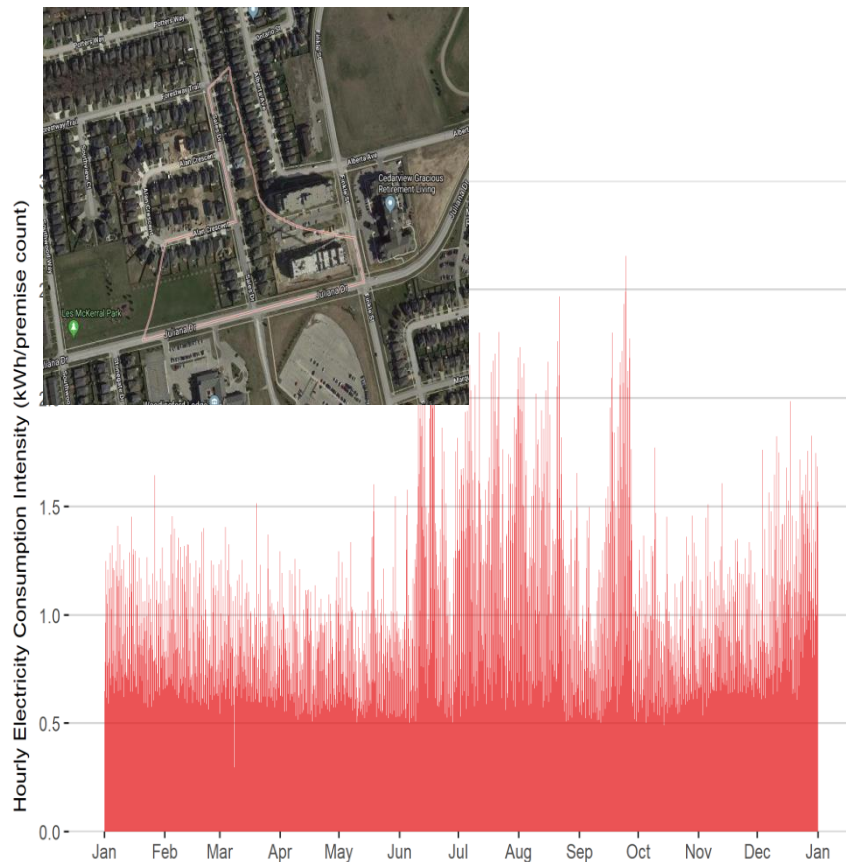
"Creating an accurate and timely reflection of community-wide energy use is essential to the success of our 100% renewable energy campaign.

This project promises to set the bar for additional energy resource data gathering and trending activities in Oxford County going forward."

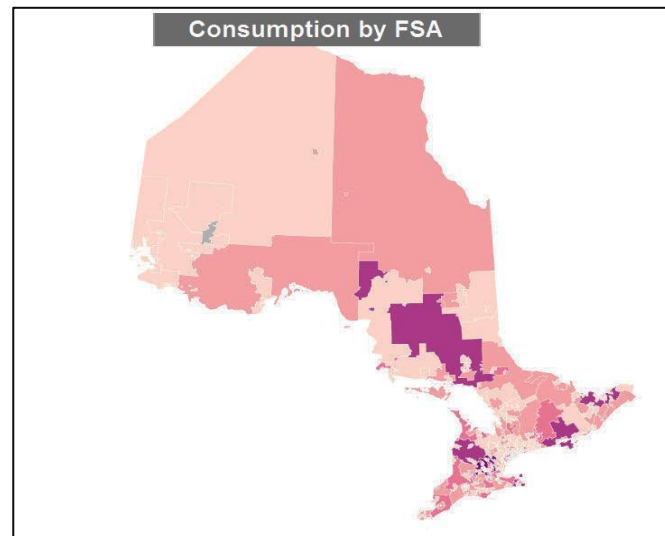
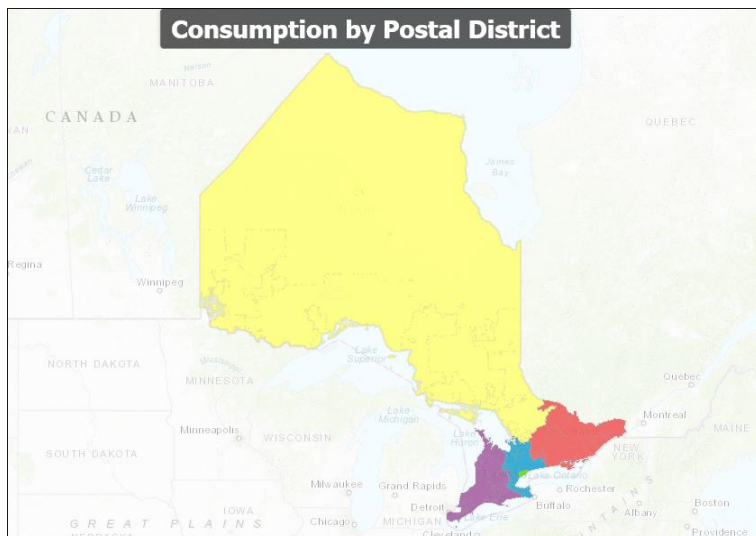
Jay Heaman,
Oxford County,
DSAC Member

Oxford County Pilot (cont'd)

- Hourly electrical consumption intensity for 2017 for a residential postal code
- Hourly electrical consumption for 2017 for a SG <50kW service postal code



Samples of Public Reports



FSA – Forward Sortation Area, 3 digit postal code