



OCTOBER 2023

# Expanding Third Party Access to Smart Metering Entity (SME) Data

# Agenda

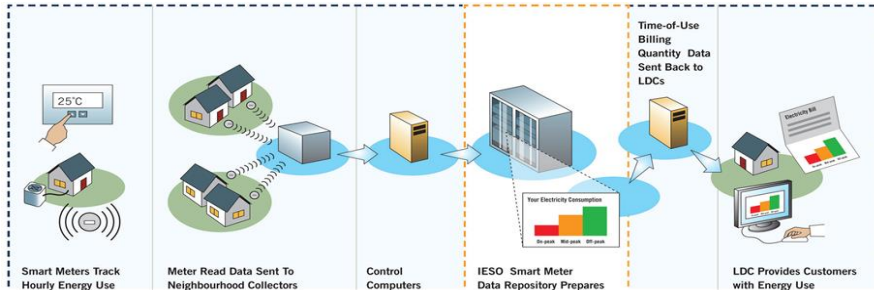
- Purpose
- Background – Ontario’s Smart Metering System
- The Value of the Smart Metering Data
- Third Party Access to the Smart Metering Data
- Market Scan Summary
- Expanding Third Party Access to the SME Data
- Key Considerations for Expanding Third Party Access
- Stakeholder Engagement Questions
- Appendices

# Purpose

- Solicit input from a diverse set of stakeholders across the energy sector and beyond on the potential value of expanding third party access to the smart metering data
- The Smart Metering Entity (SME) is required by the Ontario Energy Board (OEB) to assess the opportunity of expanding third-party access to the smart meter data beyond Canadian Government Entities and report back to the OEB by April 30, 2024
- Review the IESO's SME, explain the objectives of stakeholder engagement efforts in relation to expanding third party access to the SME data, and seek input from stakeholders to inform the next steps of the SME's assessment and the report back to the OEB

# Background - Ontario's Smart Metering System

- The IESO, as the designated SME, operates Ontario's central smart meter data repository, the Meter Data Management and Repository ("MDM/R"). The MDM/R is one of the largest shared service/transactional systems in the world, supporting Ontario's 57 Local Distribution Companies (LDCs)
- The SME reliably and accurately processes meter reads for over 5.2M smart meters and delivers data to facilitate LDC billing (Time of Use, Tiered pricing and Ultra Low Overnight rate) of all residential and small general service (SGS) customers in Ontario



*Note: More details on the MDM/R operating model, the SME's governance and key milestones in Appendix 1.1, 1.2 and 1.3*

## Background (2)

- Recent regulatory changes (enacted July 1, 2023) enhanced the SME's mandate to also include processing of data related to the metering of electricity conveyed (or "injected") into the grid by residential and SGS customers through on-site generation such as rooftop solar - this ensures that the LDCs can leverage the same rigorous and consistent billing practices for net metered customers (this is a new functionality planned to go live Nov 1, 2023)
  - *Note - this new data is not included in the current third party access program*
- The SME's MDM/R avoids the need for Ontario's LDCs to invest in duplicative non-uniform infrastructure and ensures consistent, rigorous data processing regardless of the LDC's different metering technologies. It also offers a range of opportunities to tap into the richness of the electricity data in the province, with promising grid transformation applications, reporting and analytics for the public or for the beneficial use of approved third parties

# The Value of the Smart Meter Data

- The IESO publishes high-level statistics based on smart meter data:  
<https://www.ieso.ca/en/Sector-Participants/Smart-Metering-Entity/Consumption-Data>
- Since the OEB's approval of the third party access program in 2022, several universities and municipalities have submitted requests for a wide range of data to support various projects: studies of the socio-economic impacts of COVID-19, impact of electric vehicles on urban planning, estimating greenhouse gas emissions by sector and others
- Other key users of smart meter data are LDCs (own analytics), OEB and Ministry of Energy (pricing plans analysis, policy studies), and the IESO (to improve forecasting models)
- The SME has also been an active participant in the Green Button working groups as many LDCs will be sourcing the GB data from the MDM/R (program mandatory by Nov 1, 2023)

## The Value of the Smart Meter Data (2)

- Other opportunities for smart meter data are in Evaluation, Measurement and Verification applications for Conservation and Demand Management, Demand Response programs, the LDCs migration to AMI 2.0 (Advanced Metering Infrastructure), and the inclusion of new customer classes in the MDM/R (e.g. Commercial and Institutional C&I customers >50kW)

# Third Party Access to the SME Data

The SME received the OEB's approval (Decision and Order [EB-2021-0292](#)) on March 24, 2022 to provide third party Access, as follows:

- Access is limited to Canadian Government Entities only (details in Appendix 2.1)
- Consumption data is aggregated at various levels to ensure full privacy protection (i.e. the risk of consumers' re-identification is null, also the SME does not collect any personal information such as names and addresses – more details in Appendix 2.2)
- Requests are to be fulfilled on a cost-recovery basis (at \$145/hour)
- Requestors are required to sign a Data Use Agreement (copy of DUA in appendix 5.1)
- An Ethics Committee comprised of internal and external experts is available to evaluate complaints about denial of access and/or ethically complex data requests
- The SME is required to provide information on third party access requests and the related accounting in its SME Annual Report to the OEB



## Third Party Access to the SME Data (2)

- The SME Third Party Data Access program provides de-identified smart metering data aggregated on one, or multiple, of the following attributes:
  - Distributor Rate Class (DRC)
  - Commodity Rate Class (CRC)
  - Consumption Data
- The online request form reference below allows requesters to specify additional attributes such as date range, postal codes, and occupant change.
- As part of the SME's assessment of the requestor's eligibility to the data, third parties are also asked to disclose if the data set will be linked to other sets, the results of the project will be shared, or if other organizations will be allowed to access the data set.
- *\*To view the Third Party Data Request form and get more detail about the attributes listed above, please visit the [SME TPA](#) page*

## Third Party Access to the SME Data (3)

- To date, various third parties (such as universities or municipalities) have shown interest in smart meter data for a variety of use cases (some charts are presented in Appendix 3.1 – 3.2 for an easier visualization):
  - Siting of renewable energy developments to offset areas of high consumption
  - Studying the socio-economic impacts of COVID-19 to measure the rebound in electricity usage of SGS customers that were highly impacted during lockdowns
  - Determining EV planning based on the uptake of Ultra Low Overnight (ULO) rate
  - Estimating greenhouse gas emissions by customer class and others for ESG (Environmental, Social, and Governance) reporting for municipalities. Some municipalities already raised the need for Commercial and Industrial (C&I) data >50kW, which is currently not available in the MDM/R, to get a more complete picture
  - Studying new methods of allocating global adjustment (GA) recovery by customer income class

# Market Scan Summary

A high level scan of data sharing programs across the globe has identified key differences between jurisdictions, and some limited comparables with Ontario's Third Party Access program (more details in Appendix 4.1 – 4.4). As such:

- Several utilities across the USA have developed programs for data sharing beyond the typical Green Button construct (where electricity customers provide direct consent to a third party to have their data used for insights & analytics), to models more **comparable with Ontario's Third Party Access** (PG&E, Smart Meter Texas - SMT, ComEd, and Connecticut)
- Data sharing concepts are more advanced in Europe, especially between energy sector actors, where **complex Data Hubs** have come to life, or are in the process of being developed, to leverage the value of a mature smart metering infrastructure through integrated use cases reaching **many key participants in the electricity eco-system** (Finland's FinGrid, Denmark, Norway, and others)

## Market Scan Summary (2)

A Canadian market scan also shows a number of third party data sharing programs, expanding beyond the energy sector:

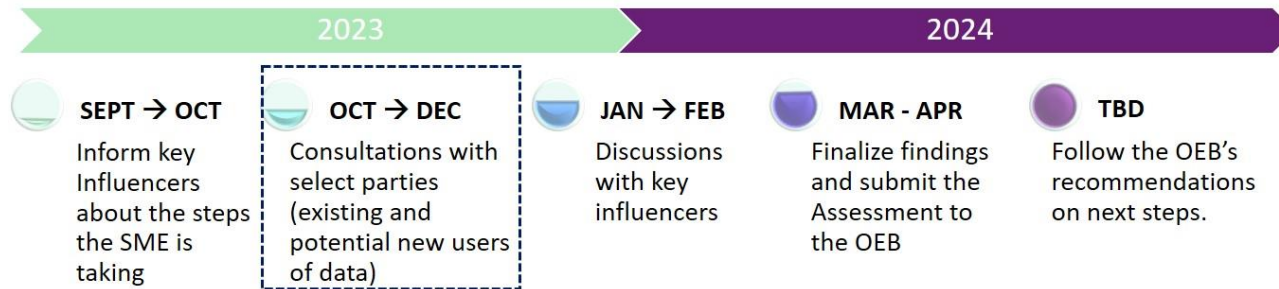
- Several Canadian health agencies have developed data sharing programs providing aggregate and de-identified record-level data. Pricing options are different based on the organization and data provided (e.g. The Canadian Institute for Health Information - CIHI, Public Health Ontario, Ontario Health)
- Other federal, provincial and municipal government entities provide specific data access under Open Data principles (Government of Canada, Government of Ontario) or to offset operational costs (Municipal Property Assessment Corporation - MPAC)

# Expanding Third Party Access to the SME Data

- As part of the OEB's 2022 Decision, the SME is also required to undertake an investigation to assess the opportunity for expanding third party access to the SME data and file a recommendation not later than April 30, 2025, as part of its 2024 SME Annual Report.
  - The OEB has also indicated it would prefer that the SME would not wait until the deadline, therefore the SME plans to file its recommendation by April 30, 2024 (as part of its 2023 SME Annual Report to the OEB).
- As per the OEB's 2022 Decision, the SME must provide: "*an assessment of expanding third party access to other non-governmental entities and, in the event the SME is not proposing to expand access, an explanation of its rationale for not doing so*".

# Expanding Third Party Access to the SME Data (2)

- The SME has started work on the key aspects of the study that will inform the assessment and recommendation to the OEB. This includes consultations with existing and potentially new users for the data, discussions with key influencers (past interveners, OEB, Ministry, IPC), jurisdictional research, and several other considerations
- A high-level schedule of the work the SME is undertaking is shown below\*:



*\*timelines may shift depending on any additional research or consultations required*

# Key Considerations for Expanding Third Party Access

Assessing whether sufficient opportunity exists to warrant expanding access to SME data, requires an understanding of the risks associated with potential changes, including but not limited to:

- Expanding the range of users beyond Canadian Governmental Entities to organizations such as energy consultants, energy service providers, power generators, aggregators, other industries (legal, banking, transportation, telecom, etc.)
- Diversifying the data offering by including new data streams (eg. generation), granularity of the data, implementing new data sharing platforms, revisiting the intake & fulfillment process, pricing model, etc.
- Expanding the scope of the SME data (e.g. impacts related to privacy, ethics, unapproved uses – including through use of advanced technology such as AI, data leakage & theft)
- The effort required by the SME to sustain this new area of activity (impact on operations, budget, staff requirements, compliance and audits)

# Stakeholder Engagement Questions

1. What organization do you represent and what is your key interest in today's discussions?
2. Would your organization be interested in learning more about the smart metering data?
3. What smart meter data use cases would you consider that your organization could benefit from?
4. Are you currently a client of any other data sources – public or private? If yes, can you please list which other data sources are you leveraging, and if possible for what uses?



## Stakeholder Engagement Questions (2)

5. Do you have any additional views on the current construct of the Third Party Access program (Cost Recovery Model - \$145/hr, data aggregation levels, customer segment selection – i.e. Residential and Small Commercial only, others)?
6. Would you be amenable to have the SME contact you for a more in depth discussion on the third party access opportunities?
7. Is there any other information that you would like us to provide as part of these stakeholder engagement sessions, or any further questions?

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# Thank You

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# APPENDICES

## Appendix 1.1 – MDM/R Operational Model

- The MDM/R was built on the foundational principles of ***Privacy by Design***<sup>®</sup> as established by the Information and Privacy Commissioner of Ontario so that the data collected, stored and managed in the MDM/R complies with the most stringent industry protocols
- The MDM/R is a 24/7/365 operation, with support across multiple time zones (IBM, the Operational Service Provider, has operations in India to ensure permanent support).
- The MDM/R has a disaster recovery facility at a geographically separate location that will resume all MDM/R functions should a business interruption occur.
- The MDM/R has a dedicated DataMart, which is a non-production “replica” of the MDM/R to support data & analytics applications for smart metering data.
- The SME has a long tradition of safeguarding the highest possible data quality standards. reports and dashboards are submitted to the LDCs daily to help analyze and correct any data anomalies.

## Appendix 1.2 - SME Governance

- The SME reports to the IESO Board of Directors in a similar manner as do other IESO business units.
- The MDM/R is subject to an annual independent audit conducted according to the Canadian Standard on Assurance Engagements for Reporting Controls at a Service Organization (CSAE 3416). To date, the SME had 13 consecutive years of clean audits.
- The SME reports to the Ontario Energy Board on a Quarterly basis on operational performance, service levels and updates on SME initiatives.
- The SME is required to issue to the OEB an SME Annual Report to explain any cost and revenue variances to the approved budget (draft submitted in April, final report filed in May).
- The IESO established an SME Steering Committee ("SSC") which represents the broad interests of LDCs stakeholders, with an MDM/R Technical Panel as a sub-committee.
- The MDM/R Terms of Service set out the guiding principles for the administration and operational framework of the MDM/R.

# Appendix 1.3 - Key SME Milestones

July 2007	Following the announcement of the Smart Metering Initiative in 2004, the IESO is designated Smart Metering Entity by O. Reg. 393/07 responsible for developing, implementing and operating the meter data management provincial data centre (“MDM/R”).
Jan & Nov 2016	OEB orders the SME to collect more smart meter information, and prepare an implementation plan for third party access to this enhanced data, in a privacy compliant manner. OEB renews the SME’s licence for a five-year period (2017 – 2021) and endorses the accompanying high level implementation plan filed by the SME.
March 2018	The OEB approves the SME’s second 5 years budget and fee (2018-2022), of \$170.6MM and \$0.57/meter/month respectively (25% smaller than previous fee of \$0.79/meter/month).
Sept 2021	The OEB approves the SME license for a new five-year period of 2022 – 2026.
March 2022	The OEB orders that the SME should provide third party access to smart meter data to Canadian Government Entities, and <b>requests an expanded third party access recommendation within 2 years.</b>
June 2022	The OEB approves the SME’s third 5 years budget and fee (2023-2027), of \$137.1M and <b>\$0.42/meter/month</b> respectively (a further 25% reduction vs. previous fee of \$0.57/meter/month).
July 2023	Ministry completes regulatory amendments to extend the SME’s exclusive authority with respect to electricity conveyed to the grid, allowing the SME to implement a provincial MDM/R solution to support the LDCs customer net metering (Go Live scheduled for November 1 <sup>st</sup> 2023).

## Appendix 2.1 – Canadian Governmental Entities explained

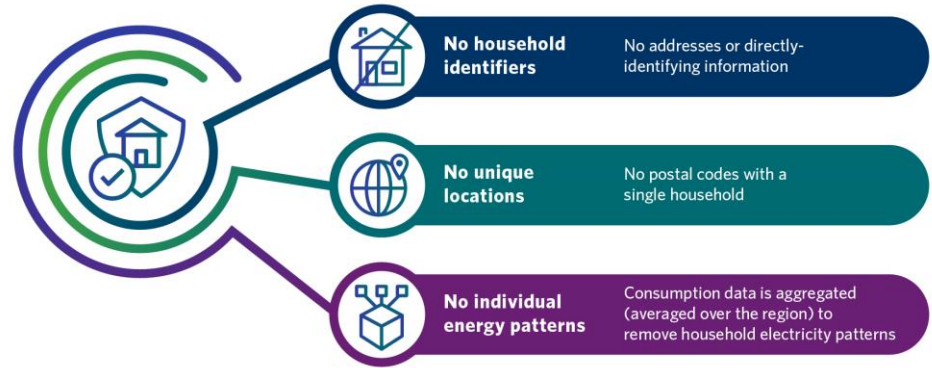
### **Canadian Governmental Entities (as defined in 2022 OEB Order):**

“Federal and provincial governments, including ministries, agencies, boards, commissions, tribunals and wholly-owned corporations, or in the case of non-share capital corporations, where such corporations are controlled by a federal or provincial governments, as well as municipalities (or regional governments), universities, school boards, hospitals and First Nations. First Nations means a “council of the band” as that term is defined in subsection 2(1) of the Indian Act (Canada).

“Canadian Governmental Entities” does not include private sector entities, publicly traded companies, individual doctors, professors, or government officials and all those entities that do not fall in one of the categories outlined above.”

## Appendix 2.2 – Full Privacy Protection by Design

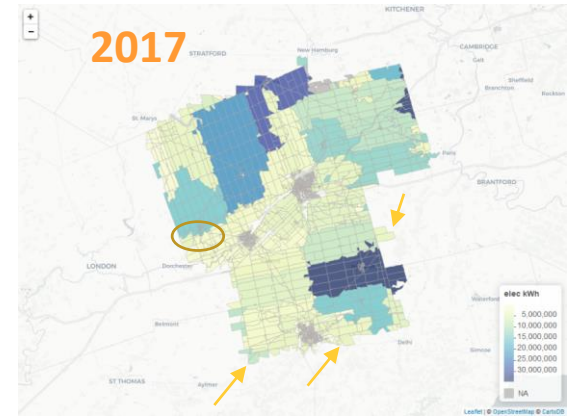
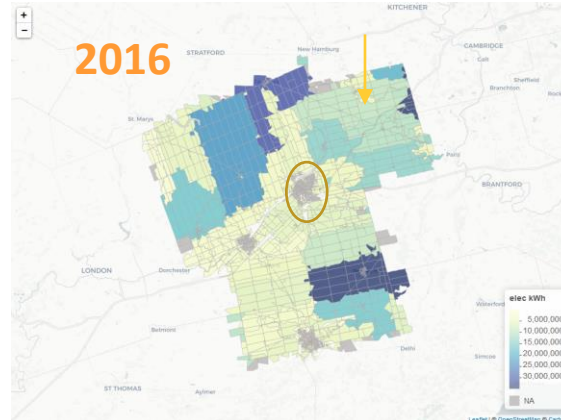
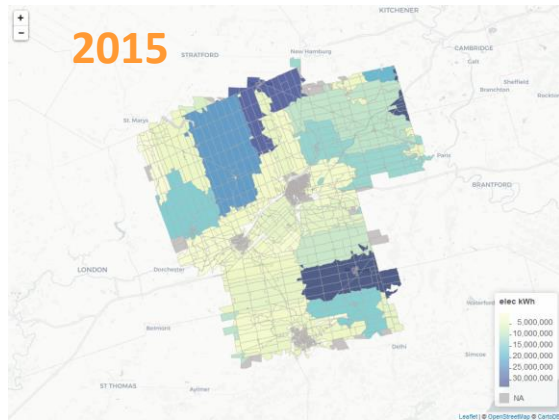
- Household identifiers are removed (e.g., addresses, account numbers).
- No unique locations are included (e.g., postal codes with only one premise).
- No individual energy consumption is provided (e.g., only the total or average electricity consumption of a group is eligible for sharing).





# Appendix 3.1 – Pre-TPA Pilot, County of Oxford

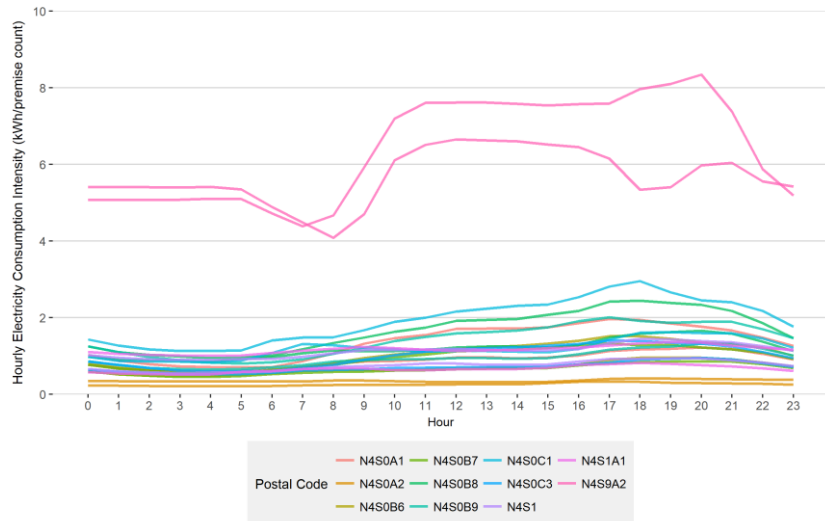
## Yearly Comparisons



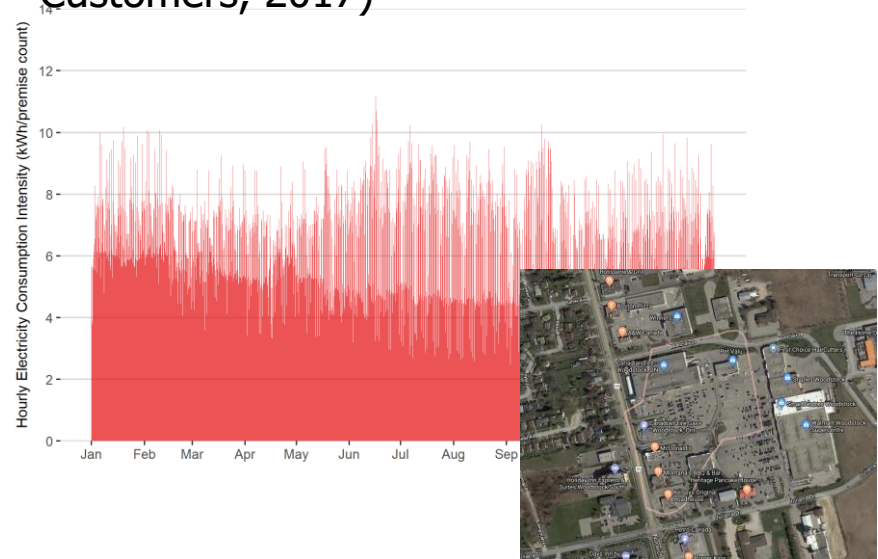
- The data enabled the County of Oxford team to create a baseline, and to begin identifying increases in consumption even if marginal, from year to year

# Appendix 3.1 – Pre-TPA Pilot, County of Oxford (cont'd)

- Clustering Analysis for a selected set of Postal Codes

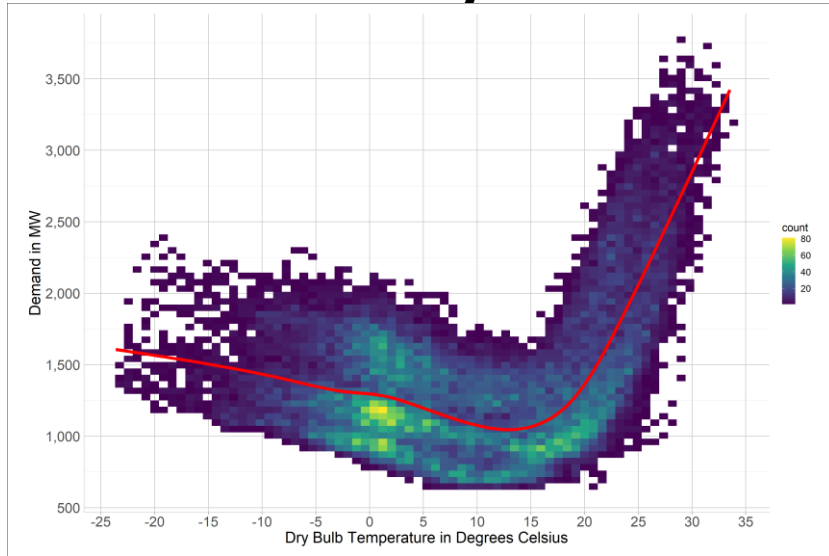


- Hourly electrical consumption intensity for a distinct postal code (Small Commercial Customers, 2017)

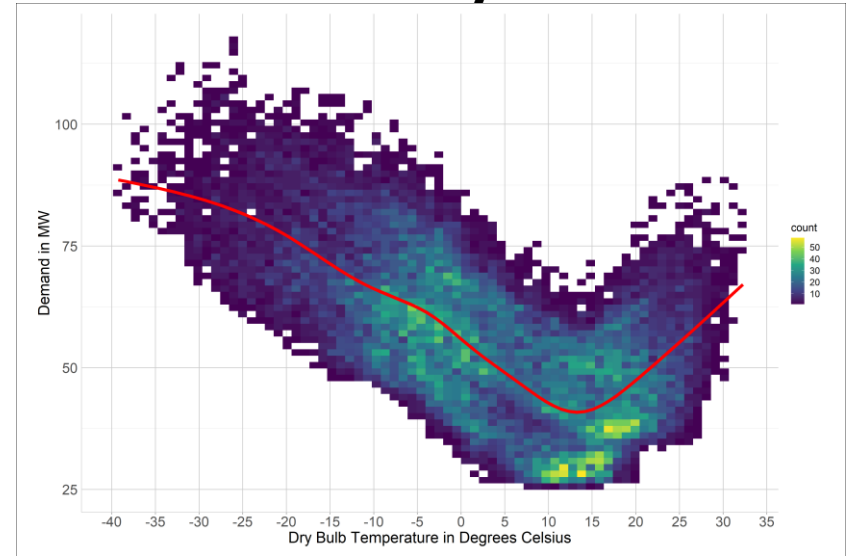


# Appendix 3.2 - How weather sensitive are Residential consumers?

## Residential – Toronto IESO Electrical Zone Only

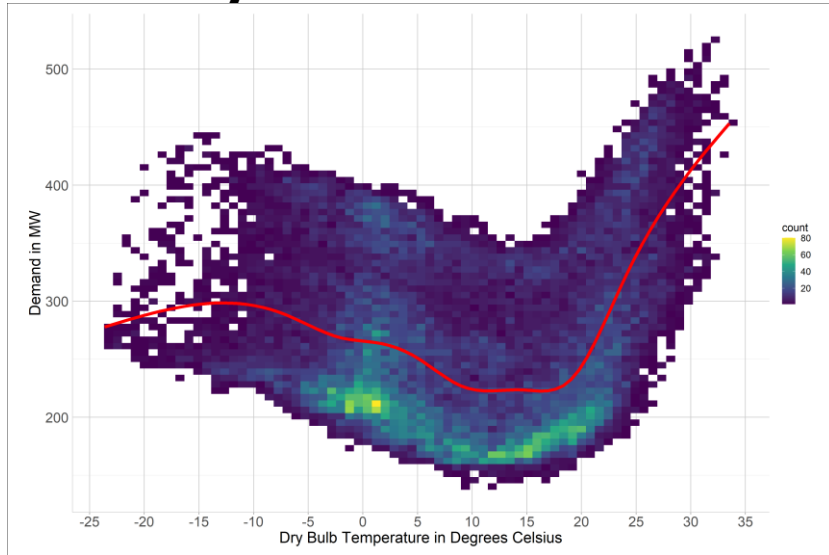


## Residential – Northwest IESO Electrical Zone Only

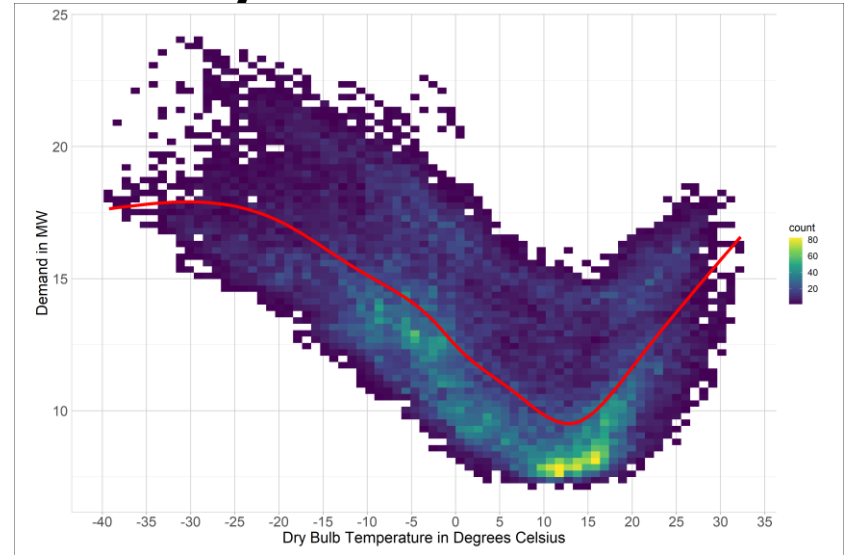


## Appendix 3.2. How weather sensitive are Small General Service consumers? (cont'd)

### SGS – Toronto IESO Electrical Zone Only



### SGS – Northwest IESO Electrical Zone Only



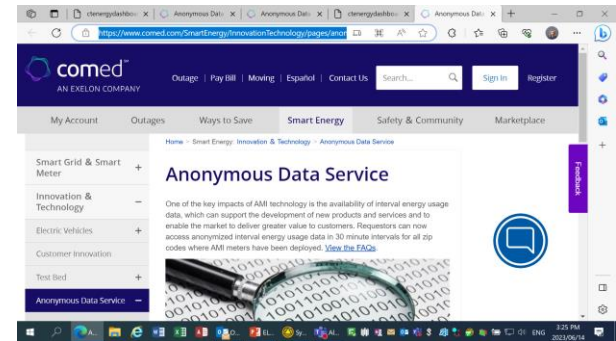
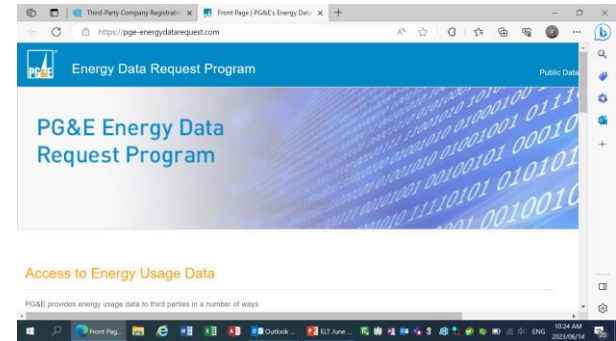
# Appendix 4 – Market Scan

## PG&E

- Several tiers of data access: Public, Third Parties (academia, state and federal agencies)
- Under strict confidentiality and privacy requirements

## ComEd

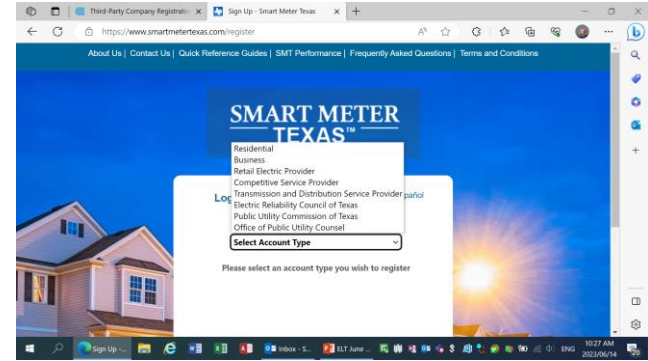
- Does not limit access to certain parties
- More limited zip-code based product offering
- Comparable charge model with the SME's



# Appendix 4.2 – Market Scan (cont'd)

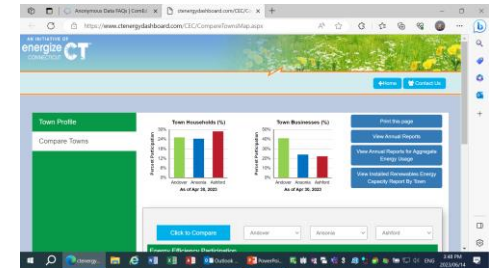
## Smart Meter Texas (SMT)

- Jointly operated by the 4 utilities in Texas, and controlled by the Public Utility Commission
- Provides access to authorized parties, to smart meter data of consenting customers to *help them manage electricity use*
- Transmission and Distribution Service Providers can access data for *managing the customer's quality of electric service.*



## Connecticut

- Public dashboard to share town-based aggregated data
- No custom extract functionality



# Appendix 4.3 – Market Scan (cont'd)

## Public Health Ontario

- Data requests may involve personal health information, de-identified record-level data, and aggregate data for operational use or research purposes
- Requests submitted in writing with a minimal application fee

## Canadian Institute for Health Information (CIHI)

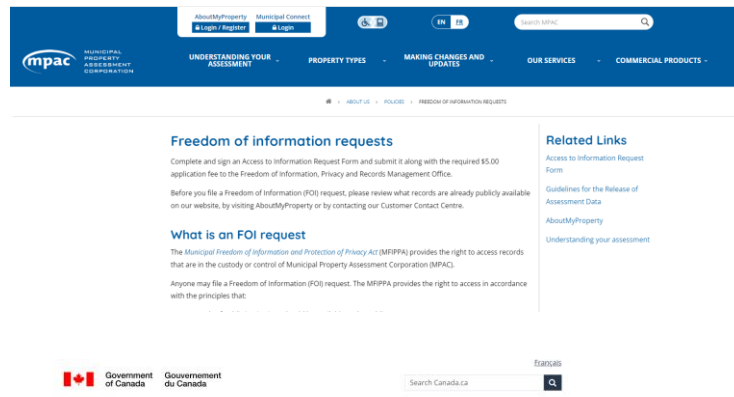
- Aggregate and record level data availability
- Requests from one or more CIHI databases
- Prices built on two different cost-recovery basis

The image shows two screenshots of data request portals. The top screenshot is from Public Health Ontario (PHO). It features the PHO logo in both English and French, a search bar, and navigation links for Home, Data & Analysis, Using Data, and Data Requests. The main heading is 'Data Requests', followed by a sub-heading 'We provide access to data extracts through data requests and data sharing agreements, as permitted by law.' Below this, a blue banner states: 'PHO prioritizes data requests from key public health stakeholders (e.g., public health units, Ministry of Health). PHO provides access to public health data via its suite of interactive tools and reports. Please visit the Data and Analysis tab to see what is available.' A section titled 'How do I make a data request?' explains that PHO prioritizes requests from key stakeholders and provides access to public health data. A 'FORM OR TOOL' box highlights the 'Data Access Request Form' for public health stakeholders and researchers, with a file size of 156 KB and an update date of 13 Feb 2023. A list of bullet points details the information required for a request: PHO's legal authority to disclose the data, the type of data requested, the purpose for which the data are requested, and the degree of sensitivity associated with the data. The bottom screenshot is from the Canadian Institute for Health Information (CIHI) website. It shows the CIHI logo and the tagline 'Better Data. Better Access. Healthier Canadians.' A search bar is present, along with navigation links for 'Access Data and Reports', 'Submit Data and View Standards', 'News, Events and Education', and 'About CIHI'. Below the navigation, there are social media icons and a breadcrumb trail: Home > Access Data and Reports > Data holdings > Make a data request. The main heading is 'Make a data request'. A 'Access Data and Reports' sidebar contains dropdown menus for 'Topics' (Indicator library), 'Health system performance measurement', and 'Reports and releases'. The main content area explains that researchers, decision-makers, and health managers can request specific data from one or more of CIHI's databases. It states that data can be retrieved at an aggregate or record level, and that users must complete an Initial Data Inquiry Form to begin. CIHI will respond with the formal Data Request Form to collect more information. A button labeled 'Access Data Inquiry Form' is visible. A 'Data availability' box on the right encourages users to browse the 'data holdings' to see what's available in the databases.

# Appendix 4.3 – Market Scan (cont'd)

## Municipal Property Assessment Corporation (MPAC)

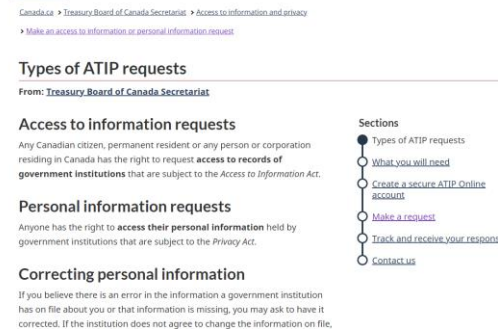
- Fees are specified in Ontario Regulation 823 under the MFIPPA (Municipal Freedom of Information and Protection of Privacy Act )



The screenshot shows the MPAC website's 'Freedom of information requests' page. The header includes navigation links for 'AboutMyProperty', 'Municipal Connect', 'Login / Register', and 'Log in'. The main content area is titled 'Freedom of information requests' and contains the following text: 'Complete and sign an Access to Information Request Form and submit it along with the required \$5.00 application fee to the Freedom of Information, Privacy and Records Management Office. Before you file a Freedom of Information (FOI) request, please review what records are already publicly available on our website, by visiting AboutMyProperty or by contacting our Customer Contact Centre. What is an FOI request The Municipal Freedom of Information and Protection of Privacy Act (MFIPPA) provides the right to access records that are in the custody or control of Municipal Property Assessment Corporation (MPAC). Anyone may file a Freedom of Information (FOI) request. The MFIPPA provides the right to access in accordance with the principles that:'. On the right side, there is a 'Related Links' section with links to 'Access to Information Request Form', 'Guidelines for the Release of Assessment Data', 'AboutMyProperty', and 'Understanding your assessment'. The footer includes the Government of Canada logo and a search bar.

## Government of Canada

- Access to Information and Privacy (ATIP) records are available to any person or corporation residing in Canada
- Existing reports are free while new reports are subject to a processing fee



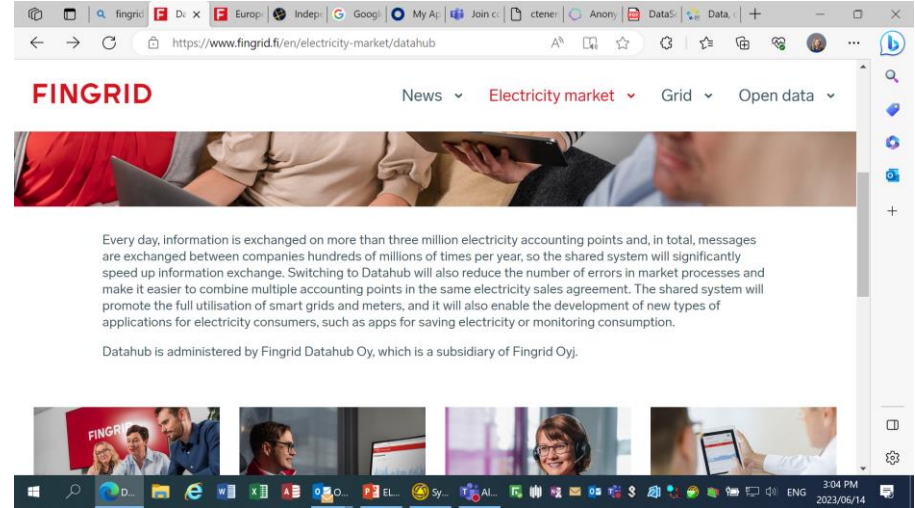
The screenshot shows the Government of Canada website's 'Types of ATIP requests' page. The header includes the Government of Canada logo and a search bar. The main content area is titled 'Types of ATIP requests' and contains the following text: 'From: Treasury Board of Canada Secretariat Access to information and privacy Make an access to information or personal information request'. Below this, there are three sections: 'Access to information requests' (Any Canadian citizen, permanent resident or any person or corporation residing in Canada has the right to request access to records of government institutions that are subject to the Access to Information Act.), 'Personal information requests' (Anyone has the right to access their personal information held by government institutions that are subject to the Privacy Act.), and 'Correcting personal information' (If you believe there is an error in the information a government institution has on file about you or that information is missing, you may ask to have it corrected. If the institution does not agree to change the information on file.). On the right side, there is a 'Sections' menu with links to 'Types of ATIP requests', 'What you will need', 'Create a secure ATIP Online account', 'Make a request', 'Track and receive your response', and 'Contact us'.



## Appendix 4.4 – Market Scan (cont'd)

### FinGrid Datahub

- Centralized data exchange system for the electricity retail market
- Storing information on ~ 3.8 million electricity nodes
- ~80 distribution system operators (DSOs) and 80 electricity suppliers have switched to the Datahub to speed up information exchange



The European Commission is also working an action plan on **digitalising the energy sector**, in order to develop an efficient, competitive market for a digital energy infrastructure and digital energy services that are both cyber-secure and sustainable [Digitalisation of energy: best practices for data sharing | Shaping Europe's digital future \(europa.eu\)](#).

# Appendix 5.1 – Data Use Agreement



Data Use  
Agreement