

Foundation Working Group Session #1

Geolocation and Customer ID

April 22, 2015

Objective

- Define the information required to be associated with electricity consumption information to enable analysis of this information:
 - Geo-location
 - Customer Identification / Attribute Information
- Requesting Working Group input on
 - What geo-location information is necessary for analysis and mapping consumption data to other data sources?
 - What customer information is necessary for analysis and mapping consumption data to other data sources?

Research Scope

- Identify use cases for what information was necessary to analyze electricity consumption information and to link information to other data sets
 - Horizon Utilities Energy Mapping for Delivery of CDM Programs
 - Sault St. Marie Community Geomatics Center
 - Time of Use Study (TOU)
- Identify common link and standards (if any) for geo-location and customer identification information

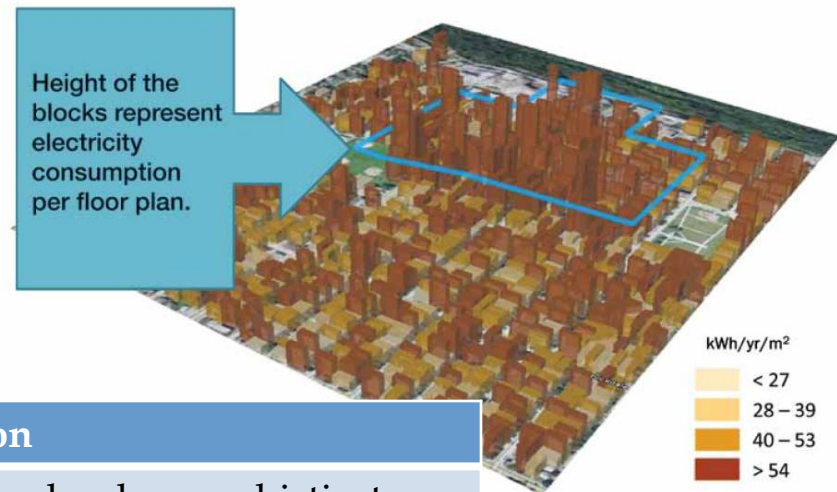
Use Case: Horizon Utilities Energy Mapping for Delivery of CDM Programs

- Objective:
 - Better target CDM marketing efforts utilizing integrated consumption, demographics and structure data
- Data Sets:
 - Annual kWh – CIS system
 - Demographic data – Environics Analytics
 - Age, housing tenure, education, job type, ethnic presence, official language, social values, preferences (e.g. lifestyles, hobbies), household income
 - Structure data – MPAC
 - Address, property code description, AC flag, heat type, year built, total floor area

Use Case: Horizon Utilities Energy Mapping for Delivery of CDM Programs Cont'd

- Data Integration
 - kWh and structure data matched using street address
 - Demographic data matched using postal code
 - Database/visual analysis using GIS

Horizon Building Electricity Intensity
Low Rise Residential



Cluster Name	Cluster Description
Urbane Villagers	Wealthy, middle aged, urban sophisticates
Suburban Gentry	Wealthy, middle aged, suburban families
Winner's Circle	Well-off, middle aged, exurban families
Money & Brains	Upscale, educated couples and families
Mr. & Mrs. Managers	Upscale, dual income, exurban households
Etc.	

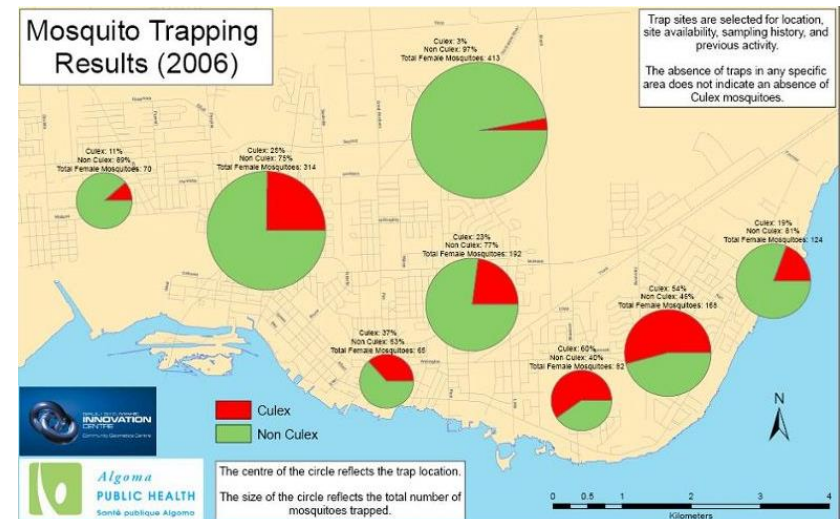
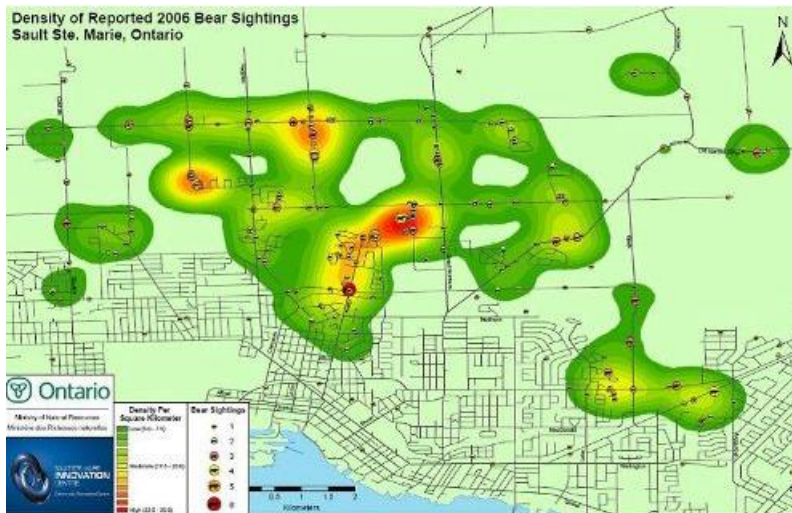
Note: for discussion purposes only

Use Case: Horizon Utilities Energy Mapping for Delivery of CDM Programs Cont'd

- Outcome:
 - Twice the SBL installations
 - Peaksaver Conversion Rate from 0.86% - 2.86%
- Lessons Learned:
 - Must match electricity and customer data at property level using street address
 - Analysis results can be reported at aggregated level to protect privacy
 - Unit designators within property not captured accurately/consistently in CIS
 - Must have site address (not necessarily billing address)
 - Customer attribute where matched using street address

Use Case: Sault St. Marie Community Geomatics Center

- Not for profit that establishes partnerships and technological means to share geospatial data amongst community organizations to create safer, healthier and more prosperous communities.
- 15 years experience, 50-60 partners.



Use Case: Sault St. Marie Community Geomatics Center – Vulnerable Persons

- Objective:
 - Alert 911 services of vulnerable persons affected by power outage.
- Data sets:
 - Utility CIS
 - Transmission system map
 - Street address
 - Vulnerable persons list

Use Case: Sault St. Marie Community Geomatics Center – Vulnerable Persons

- Data Integration
 - Meter → structure → entire transmission station
 - Vulnerable persons matched using street address
- Lessons Learned
 - Vast majority of data is matched using street address and postal code
 - Do not need names of individual vulnerable persons
 - Privacy protocol: cannot disclose data at the level that can be utilized to identify an individual
 - Permission to see data comes from data-set
 - Most addresses do not adhere to a standard per se, but most generally follow Canada Post Standards
 - No widely adopted standards for geolocation or customer identification information

Time Of Use Study

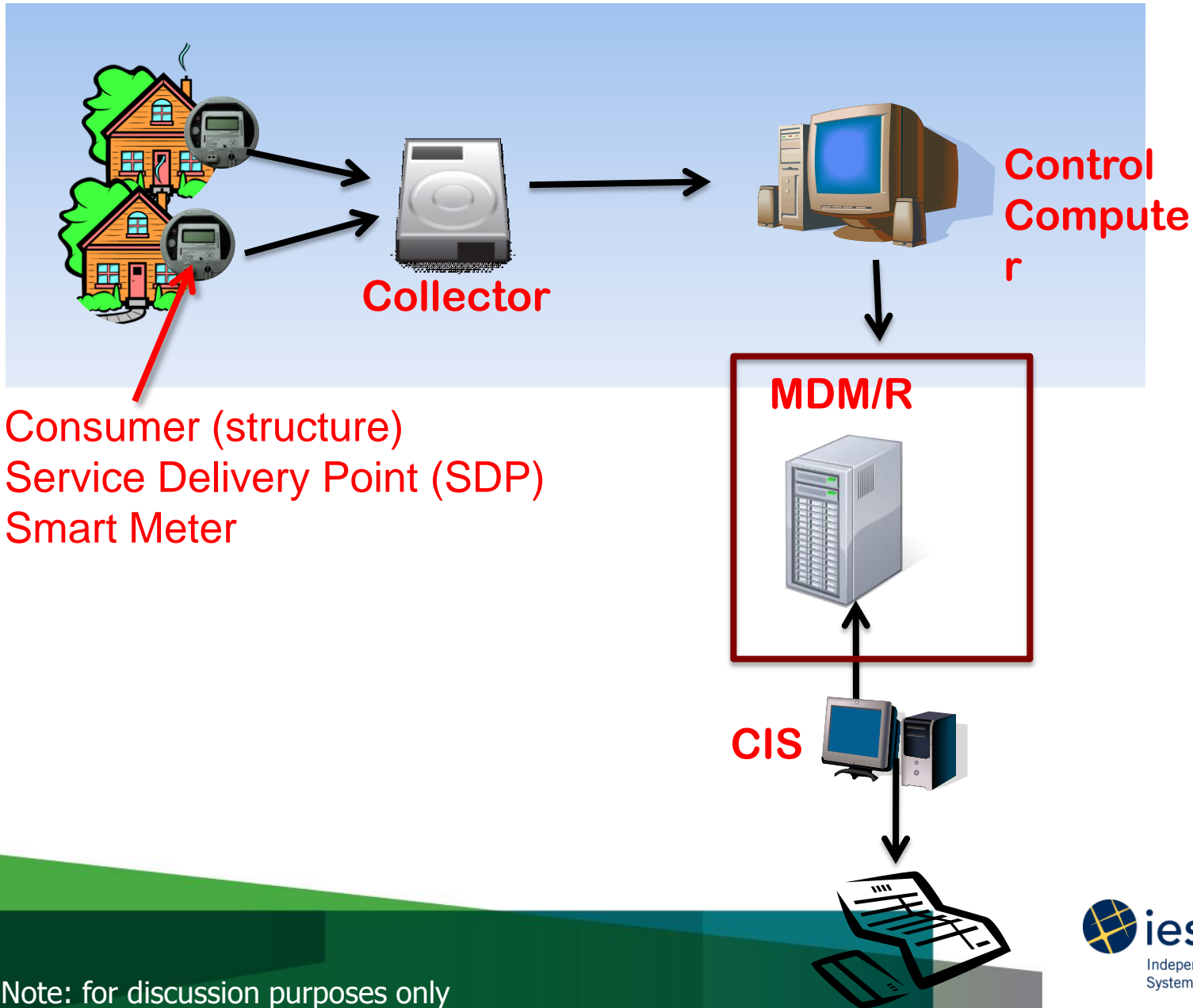
- Objective:
 - Determine the impact of time of use savings so that LDCs can count them towards their CDM targets
- Process:
 - OPA conducting study (technically 3rd party)
 - Access 12 months data pre and post TOU (i.e. pre and post MDM/R)
 - 8 LDCS (7 in MDM/R)
 - Sample from each LDC: customer base → eligible customers → sample size → request data from MDM/R from each LDC
- Outcome
 - Project ongoing, OPA (now IESO) and consultant evaluate using a dataset that is stripped of all LDC and MDM/R identifiers.

Time Of Use Study Cont'd

- Process (details):
 - LDC assigns new, unique TOU key to customer account
 - LDC has link between customer account and SDP
 - LDC has key between SDP and USDP
 - LDC provides SDP-USDP key and TOU key to SME, for each customer in sample
 - SME strips all identifiers and returns TOU key + data
 - OPA (and consultant) only sees TOU key + data

Time Of Use Study Cont'd

- Some Lessons learned:
 - Easiest to use customer ID to link to historical electricity data (pre TOU)
 - Could technically be done with address
 - TOU key created to secure data transferred from SME and LDC to OPA and OPA consultants as separate organizations. Key reduces need for third parties seeing LDC and MDM/R specific identifiers.
 - Same TOU key used in future studies to deliver data to analysts
 - Address information in MDM/R would have assisted in evaluating geo-graphic differences. Some LDCs needed to map their data to geographic regions.
 - Need to ensure continuity of account holder during study period. If had customer identifier information in MDM/R, could reduce LDC effort and cost in identifying valid samples.



Consumer (structure)
 Service Delivery Point (SDP)
 Smart Meter

Note: for discussion purposes only

Address – findings

- SDP to property relationship
 - Could have multiple SDPs per property
 - Could have multiple SDPs to accounts
- Street address and postal code of SDP most important
 - Most data sets from use cases can be matched using street address, including customer information
 - Street address must be at building level (including unit)
 - Canada Post Standards

Geolocation - findings

- Address data is key element to add to data set to make useful for analysis
- Street address and postal code of SDP most important
 - Most data sets from use cases can be matched using street address
 - Street address must be at building level (including unit)
 - Canada Post Standards
- Geo-location, which can be derived from Street address, is also useful and can be inserted into MDM/R
 - No widely adopted standards for geolocation or customer identification information

Customer ID - findings

- Customer Account
 - Link between SDP and customer account provided by some LDCs to the MDM/R; practice is not consistent.
 - Account numbers vary by LDC and change with move-in/out
 - Account numbers are not unique across the province; many LDCs use same account IDs
 - Was necessary to identify same or different account holders at premise for TOU study, to assess consumption data over multiple years.
 - SSMIC has customer account number for completeness
- Demographic attributes
- Classification

Questions

- What is needed to enable the analysis of electricity consumption data? Consider:
 - Geo-location – Address, GPS, etc.
 - Customer Account
 - Customer Attribute and Classification
 - Other
- What are some of the implementation considerations for obtaining and linking this data to consumption information?