June 22, 2021
Virtual Panel

Aggregated and Anonymized Data:
Similarities & Differences
Opportunities & Barriers

Michigan Public Service Commission
Smart Grid Section
Energy Resources Division

Customer Education and Participation Meeting

David Littell, Senior Advisor
U.S. Program
The Regulatory Assistance Project (RAP)®

Bernstein Shur
100 Middle Street
Portland, Maine 04101

Email: dlittell@bernsteinshur.com
dlittell@raponline.org
Twitter: @DavidPLittell
Presentation Agenda

- Overview of Anonymized and Aggregated Data
- State Examples of Utility & Energy Data Sharing Initiatives
- Issue by Issue Summary on Similarities and Differences
- Drivers for Data Access & Barriers
Overview of Aggregated and Anonymized Data
This is a Subset of Utility and Energy Data:

Focus here on policies and practices governing the provision of aggregated or anonymized customer energy utility data without customer consent

- Commission orders
- Administrative rules
- Utility implementation (websites, forms, etc.)
- Reports completed for Commissions or other agencies
Anonymized Data vs. Aggregated Data

<table>
<thead>
<tr>
<th>Customer</th>
<th>Address</th>
<th>January 2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allen</td>
<td>10 Main St</td>
<td>1,388 kWh</td>
</tr>
<tr>
<td>Brown</td>
<td>555 Elm St</td>
<td>790 kWh</td>
</tr>
<tr>
<td>Cabrera</td>
<td>21 Park Ave</td>
<td>533 kWh</td>
</tr>
<tr>
<td>Davis</td>
<td>49 City Dr, Apt 1</td>
<td>475 kWh</td>
</tr>
<tr>
<td>Edwards</td>
<td>49 City Dr, Apt 2</td>
<td>404 kWh</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Customer</th>
<th>January 2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1,388 kWh</td>
</tr>
<tr>
<td>2</td>
<td>790 kWh</td>
</tr>
<tr>
<td>3</td>
<td>533 kWh</td>
</tr>
<tr>
<td>4</td>
<td>475 kWh</td>
</tr>
<tr>
<td>5</td>
<td>404 kWh</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th># Customers</th>
<th>January 2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>3,590 kWh</td>
</tr>
</tbody>
</table>
Protecting Privacy: Screening Thresholds

• “Screens” are used to prevent the release of aggregated or anonymized data sets that would put privacy at risk:
  • Minimum number of customers in the data set (e.g., 15)
  • Limit on the percentage contribution of any one customer to the total energy use in the data set (e.g., 15%)
    • “15/15” screen: at least 15 customers in the data set and no customer can represent more than 15% of total energy use in the data set
    • “4/*” screen: at least 4 customers, no limit on percentage of total energy use

• Data requests that don’t pass the screen require customer consent
Access with Customer Consent vs. Use of Aggregation Threshold

**Traditional Approach**
- All tenants complete printed or electronic form

**Best Practice Approach — Minimum Aggregation Threshold**
- **If > x* tenants**
  - Individual consent not needed; threshold usually $x = 2$ to $5$ tenants*
- **or if < x* tenants**
  - All tenants complete printed or electronic form

2 Leading State Examples
Jurisdictions Leading in Energy Data Access Initiatives
Colorado

- PUC Docket 14R-0394EG ([July 2015 Decision](#))
- Electricity and gas data
- Segmented screens (aggregation thresholds)
  - For whole building benchmarking – 4/50
  - For all other aggregations – 15/15
- **Community Energy Reports** for larger communities (no data request necessary)
  - Municipalities with >50,000 residents, counties >100,000 residents
  - Annual usage by customer class
  - 15/15 screen applies to each customer class
# CO Community Energy Report Example

## ANNUAL COMMUNITY ENERGY REPORT BY XCEL ENERGY

<table>
<thead>
<tr>
<th>Community:</th>
<th>City of Denver</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year of Data:</td>
<td>2019</td>
</tr>
</tbody>
</table>

### Energy Consumption Data [4]

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial</td>
<td>28,773</td>
<td>4,678,029,406</td>
<td>2,086,167</td>
<td>$357,668,280</td>
<td>0</td>
</tr>
<tr>
<td>Industrial</td>
<td>2,711</td>
<td>727,290,856</td>
<td>373,827</td>
<td>$59,881,995</td>
<td>0</td>
</tr>
<tr>
<td>Residential</td>
<td>307,775</td>
<td>1,610,409,006</td>
<td>934,005</td>
<td>$204,955,197</td>
<td>0</td>
</tr>
<tr>
<td>Street Lighting - Metered</td>
<td>n/a</td>
<td>892,141</td>
<td>456</td>
<td>$79,399</td>
<td>-</td>
</tr>
<tr>
<td>Street Lighting - Non-Metered/Customer Own</td>
<td>n/a</td>
<td>203,952</td>
<td>136</td>
<td>$23,772</td>
<td>-</td>
</tr>
<tr>
<td>Street Lighting - Non-Metered/Xcel-Owned</td>
<td>n/a</td>
<td>51,847,554</td>
<td>26,547</td>
<td>$10,866,910</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>340,259</td>
<td>6,676,539,778</td>
<td>1,431,741</td>
<td>$533,425,562</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial</td>
<td>18,338</td>
<td>137,027,983</td>
<td>726,246</td>
<td>$63,923,703</td>
<td>0</td>
</tr>
<tr>
<td>Industrial</td>
<td>2,607</td>
<td>64,027,120</td>
<td>339,344</td>
<td>$16,214,134</td>
<td>0</td>
</tr>
<tr>
<td>Residential</td>
<td>200,079</td>
<td>158,372,892</td>
<td>839,376</td>
<td>$111,500,865</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>224,102</td>
<td>359,427,975</td>
<td>1,094,966</td>
<td>$191,638,701</td>
<td></td>
</tr>
</tbody>
</table>
Illinois

- ICC Docket 13-0506 (January 2014 Order)
- Electricity data only, but more than in other states
- Anonymized customer data, not just aggregations
  - Grouped at ZIP+4 level for each customer class
  - 15/15 screen applied to each customer class
  - If ZIP+4 can’t pass screen, grouped at ZIP level
- AMI interval data where AMI is deployed
  - Interval lengths vary by utility and customer class
California Public Utilities Commission

• PUC Docket R.08-12-009 (May 2014 Order)
• Electricity and gas data
• Segmented screens (aggregation thresholds)
  1. Monthly sum and average customer usage aggregated by zip code:
     • Residential – 100/*
     • Commercial or Agricultural – 15/15
     • Industrial – 15/15
  2. Anonymized monthly data by census block for local, state, or federal government agencies and academic researchers:
     • Residential, Commercial, or Agricultural – 15/20
     • Industrial – 5/25
• Zip code level data posted on utility websites (no data request needed)
• Standard NDA and consistent form for anonymized data requests

California Public Utilities Commission
California Energy Commission

- CEC Docket 15-OIR-05 (March 2018 regulations)
- Rulemaking to implement statewide whole building benchmarking law
- Electricity and gas data
- Segmented screens (aggregation thresholds)
  - Buildings with no residential accounts: 3/*
  - Buildings with ≥1 residential account: 5/*
Michigan

• Order #18-845 July 2020, Administrative Rules R-460-153, and Governing statute
• 2 utilities reviewed – DTE, Consumers Energy
• Data Privacy tariffs required – no consent needed for aggregated data – gas and electric covered
• Focus on Value-Added Programs (VAPS)
• April 2019 staff report to Commission; Next steps on data in progress
New Hampshire

- Docket **DE 19–197** – settlement filed April 28, 2021 (hearing May 24) on a Statewide Multi-use Online Energy Data Platform
- State legislation and PUC rules **363:37-38**
- NH Utilities to develop a unified internet-hosted web portal and API for customers and 3rd Party access a “Platform Hub”
- Aggregation granularity at town, State, customer or rate class levels
- Platform to support aggregation at:
  - 100 or more customers
  - 4/50 rule
New York

• **Case 20-M-0082** – Feb 11, 2021 and April 15, 2021 Orders

• **Utility Energy Registry (UER)** – utility requirement to upload monthly data semi-annually, gas and electric
  - Screens – 15/15 residential; 6/40 – all other
  - UER - designed to streamline community access to aggregated data; includes commercial and industrial data

• **Integrated Energy Data Resource (IEDR)** - customer and utility data access centralized, including hosting capacity maps
NY Utility Energy Registry

https://utilityregistry.org/app/#/
3 Examples by Issue
“In order to further develop the record on how best to refine the Standards, the Commission will request comment on the following topics:

- Whether the aggregation screens should be segmented into two (or more) distinct aggregation screens, with different threshold levels and requirements, ranging from building-level to community level, including consideration of multi-unit single owner rental properties and of the unique roles of building owners/managers and of local governments;
- Refinement of specific provisions of the contract requirements for anonymized data access;
- Establishment of uniform customer access forms;
- Identification of opportunities to appropriately streamline the data access process to reduce the total cost of aggregating and releasing data;
- Ascertaining the appropriate threshold for limiting application of the Standards to commercial/industrial natural gas and electric customers; and
- Aggregated CEUD for communities and other local units of government.”
Segmented Aggregation Screens

- Most states apply a single screen universally
- Exceptions
  - Previously noted: CO, CA, NY, NH
  - AR (*proposal; no adopted policy to date*) – working group members discussed a 4/80 screen for whole building benchmarking and 15/15 for all other data requests
- Segmentation examples based on customer class and based on anonymized vs. aggregated vs. whole building “use cases”
Contract Requirements for Anonymized Data Access - Illinois

- Utilities require data requesters to sign an NDA
- Terms are unique to each utility
- **ComEd NDA** requires the data requester to agree to:
  - Delete any customer identifying information that they discover and notify ComEd
  - Not share the data publicly or with any other party
  - Not attempt to re-identify the anonymous customer account holders
- **Ameren NDA** is more focused on protecting the utility from lawsuits
Contract Requirements for Anonymized Data Access - California

• Researchers must sign an NDA with the utility
  • Utility can require pre-disclosure review of researcher’s information security & privacy controls/protectiosns

• Local governments don’t sign an NDA but accept terms of service:
  • They will use the data for the purposes stated in the request
  • They will not release the data to another third party or publicly disclose the data

• Utilities notify PUC prior to release of anonymized data and maintain a log of all data requests
Uniform Data Access Forms

• Single statewide data request form:
  • NJ – for whole building benchmarking data; data requests processed by Board of Public Utilities in cooperation with utilities

• Utilities ordered to develop uniform data request forms:
  • CA – for anonymized census block data
Opportunities to Streamline the Data Access Process

- Automatically post aggregated data to utility website (no data request necessary):
  - CO – community level
  - NY – community level
  - CA – zip code level

- NY inviting other jurisdictions to participate in a national Utility Energy Registry
  - MN engaged through Great Plains Institute and the Department; privacy issues deferred to Commission
Threshold for Limiting Application of the Standard to C&I Customers

- No examples from other states of limits similar to MN
- NYSERDA Utility Energy Registry report:
  - Notes that largest energy consumers (e.g., paper mills, cement plants) routinely report fuel usage to EPA for emissions inventories and permitting
  - This is almost always public information
  - Screening out these industrial customers won’t protect confidential information, only makes public information harder to get
- Conclusion: avoid “needless privacy failures”
Some states have focused on meeting the specific data needs of local governments:

- CO – Community Energy Reports
- NY – Utility Energy Registry
- CA – anonymized monthly usage data by census block available to local governments
- NH – settlement pending in statewide web-based Platform Hub
4 Other Drivers for Data Access
City Climate Commitments

Exhibit 2 U.S. Coalition of Climate Actors*

*Map represents climate actors as of 2019 documented in Accelerating America’s Pledge.

Source: America’s Pledge/We Are Still In
Community Choice Aggregation

Authorized in 9 States:
- California
- Illinois
- Massachusetts
- New Hampshire*
- New Jersey
- New York
- Ohio
- Rhode Island
- Virginia*

Actively Investigating:
- Arizona
- Colorado
- Connecticut
- Maryland

Watch List/Potential:
- Oregon
- Washington

* Not yet implemented

Source: https://www.leanenergyus.org/cca-by-state
Building Benchmarking

• Case studies mentioned earlier
• DC example – annual benchmarking required since 2013
  • Public building – 10,000 sq ft or greater
  • Private buildings – 50,000 sq ft or greater (25,000 sq ft beginning in 2021, 10,000 in 2025)
• VT building benchmarking – [Act 62 of 2019](#) – sought recommendations to Commission on building benchmarking – residential and commercial
• Many use EPA Energy Star Portfolio Manager
U.S. City, County, and State Policies for Existing Buildings: Benchmarking, Transparency, and Beyond

- Requirements of achieving performance targets or completing additional actions
- Benchmarking policy for public, commercial, and multifamily buildings adopted
- Benchmarking policy for public and commercial buildings adopted

*Copyright 2020 Institute for Market Transformation. Updated 5/2020*
Data to measure safe, affordable, reliable and equitable service?

- Granular reliability information
  - SAIDI/SAIFI by feeder or circuit
  - SAIDI/SAIFI by zip code
- Demand/load (KW) by feeder or circuit,
  - Hourly or sub hourly demand/load (KW) by feeder or circuit
- Granular wire down response time
- Pole failures/equipment failures
  - Equipment failures categorized by age of equipment in 5-year increments
- Aggregate regional arrearages by zip code (+four digits)
Other Resources


- Institute for Market Transformation: BuildingRating website for municipal and state building benchmarking policies (2021)


- NY Data Access Framework Order (April 2021)

- NH Data Access Settlement (filed April 2021)
About RAP

The Regulatory Assistance Project (RAP)® is an independent, non-partisan, non-governmental organization dedicated to accelerating the transition to a clean, reliable, and efficient energy future.

Learn more about our work at raponline.org