

Submitted by: City of Minneapolis

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MN CEUD WORKGROUP

Data Use Cases & Utility Data Aggregation
Practices

10/18/2013

Topics

1. Typical customer data use cases encountered in Minnesota
2. CA PUC use cases
3. Data use case examples
4. Example data sensitivity matrix
5. Other utility data aggregation practices
6. More on 15/15 rule

Customer Data Use Cases

Use Case	Timeliness of data	Example
Individual customer behavior/challenge programs <ul style="list-style-type: none"> To understand energy use/control costs 	Hourly, Monthly	Opower
Individual Building Program Delivery <ul style="list-style-type: none"> To screen for program eligibility To communicate savings potential To apply for Certification 	Monthly, Annually	<ul style="list-style-type: none"> CEE CES Program One Stop Lighting Program

Customer Data Use Cases

Use Case	Timeliness of data	Example
Individual building benchmarking (multiple tenants) <ul style="list-style-type: none"> To understand energy use/control costs To comply with state/local rules and regulations To apply for certification (LEED, ENERGY STAR) 	Monthly	<ul style="list-style-type: none"> Affordable Housing Benchmarking Requirement Commercial benchmarking/auditing Benchmarking & disclosure policies
Neighborhood benchmarking and challenges <ul style="list-style-type: none"> To understand energy use, energy savings and motivate action To apply for certification (LEED ND) 	Annually	<ul style="list-style-type: none"> Energy Innovation Corridor Loring Park neighborhood Midtown Community Works Partnership

Customer Data Use Cases

Use Case	Timeliness of data	Example
Citywide benchmarking <ul style="list-style-type: none"> To do climate and energy action planning To understand use of utility efficiency programs by geography/building stock To coordinate city energy efficiency/renewable energy financing, programs 	Annually	<ul style="list-style-type: none"> 20-city Regional Indicators Initiative Minneapolis Climate Action Plan

Customer Data Use Cases

Use Case	Timeliness of data	Example
Potential real estate transactions <ul style="list-style-type: none"> To understand energy use and cost at a property 	Annual average? Monthly?	<ul style="list-style-type: none"> Provided by utilities to realtors on request
Research institutions/State government regulators <ul style="list-style-type: none"> To evaluate energy policies and programs To plan future programs, renewable integration 	Hourly, monthly, annually	<ul style="list-style-type: none"> Energy Futures Study?

CA PUC Use Cases

1. Local Governments seeking access to aggregate data for use in creating legislatively required Climate Action Plans and implementation of energy efficiency programs.
2. Research institutions seeking monthly billing data, which may be PII, to evaluate energy policies, including energy efficiency policies, and publishing results in aggregate, non-PII form.

CA PUC Use Cases

3. Research institutions seeking anonymous, individual hourly energy consumption data with other energy-related characteristics to evaluate energy policies, including energy efficiency programs and rate design, and publishing results as statistical coefficients. Thus, the data could be PII if it contained sufficient characteristics to permit reverse engineering, but the published results that describe the influence of energy-related attributes on consumption, would not be PII.
4. Other governmental entities, like the CEC's Energy Upgrade California Program, seeking energy efficiency program participation data by customer identification number in order to cross-reference this data with other program data, and thereby evaluate government-sponsored, legislatively mandated programs, while publishing results in aggregate, non-PII form. Thus, this data is highly granular, but non-PII, while may be "reversed engineered," but the published results would be non-PII.

CA PUC Use Cases

5. Environmental non-governmental organizations, like the NRDC, requesting PII customer repayment history and energy consumption pre and post-retrofit for energy efficiency, to support general financial decisionmaking on energy-efficiency investments through on-bill financing, and produce results that provide aggregate, non-PII findings that link energy usage to other relevant characteristics (e.g. geography, building characteristics, customer financial characteristics, and financing vehicle). In this case, the data is definitely PII, but the results – a decision whether a particular area, type of building, type of customer, or type of financing is viable – is non-PII.
6. Solar installation company requesting monthly energy consumption data energy efficiency and participation in the net energy metering program, aggregated to a geographic area that protects PII, to reduce the product development and engineering costs in order to advance residential and commercial solar installations. In this case, the data, prior to aggregation, is PII, while the results – the identification of areas where solar power is financially feasible – is non-PII.

CA PUC Use Cases

7. Building owners and managers seeking monthly energy consumption by building to conduct building benchmarking analyses pursuant to AB 758 and AB1103, and publishing aggregate, non-PII results. In this case, raw data that is PII would likely be needed, but the results concerning the efficacy of the program, are not PII. Moreover, it may prove possible to anonymize such data via an algorithm.
8. Energy efficiency contractor seeking CPUC-released aggregate data, similar to what the California Solar Statistics program releases, but using Energy Upgrade California data and other aggregate energy consumption data, to help validate the quality and value of energy efficiency work. Here, the raw data studied is likely PII but the program result – the validation of the energy efficiency work – does not necessarily reveal PII. Once again, it may prove possible to apply an algorithm that provides anonymization that cannot be reverse engineered.

Example Use Case: Energy Service Providers

- Access customer-level data to provide energy efficiency, RE services (monthly)
- Behavior change programs, audits, retrofits
- Usually have specific agreements with utilities for access, protections on data privacy
- Opower, CEE One-Stop Lighting Shop

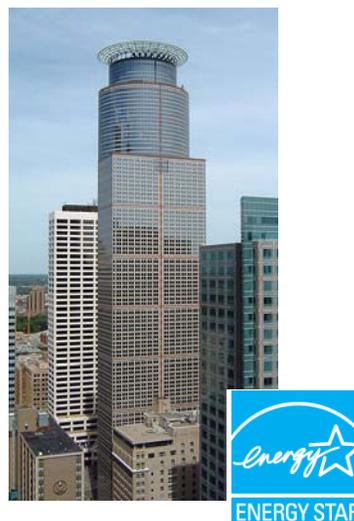


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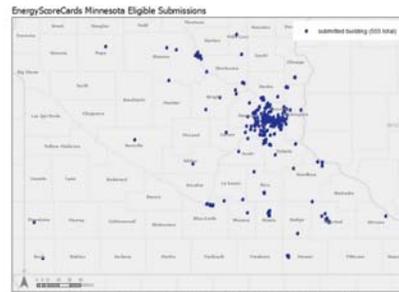
Example Use Case: Commercial Building Benchmarking

- Multi-tenant/multi-meter buildings
- Benchmarking for energy efficiency or to comply with local laws
- 15/15 rule can be a barrier
- Whole-building aggregated data would simplify process, make benchmarking easier



Example Use Case: Energy Score Cards Minnesota

- Two-year effort to implement web-based energy and water benchmarking and tracking at nearly 600 multifamily buildings in Minnesota
- Funded by State of MN CARD Grant & Xcel Energy
- Release forms had to be secured from all customers (owners and tenants)
- The project was asked to also incorporate tenant engagement, but was unable to do so due to the inability to access tenant utility data
- Whole-building aggregated data (monthly) would simplify process, allowing inclusion of tenant data, make benchmarking easier and more useful to owners



Source: EnergyScoreCards Minnesota Submissions. ©2013. Retrieved using GIS.compass data obtained through permission by Minnesota Housing. January 12/18/2013



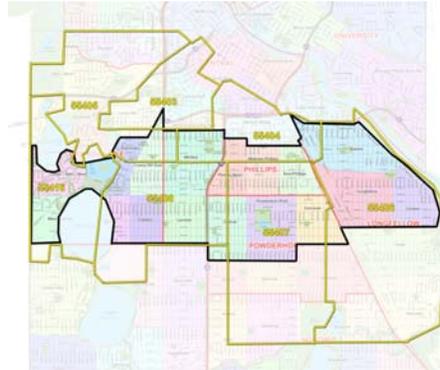
Example Use Case: Low Income Housing Utility Reporting

- Compliance includes annual reporting to the Minnesota Housing Finance Agency of all tenant-paid utilities (electric, or electric and gas)
- Property Managers must get tenant utility release forms completed annually. This process typically requires 1 hour to get 1 completed form
- Some utilities require payment for third parties (such as property managers) to receive data.
- This requirement applies to thousands of units across Minnesota



Example Use Case: Midtown Community Works Partnership Sustainability Initiative

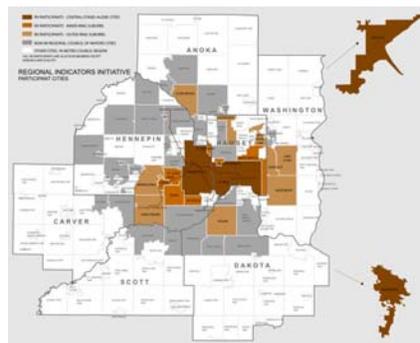
- Public-private partnership to guide redevelopment of Midtown-Lake St. corridor
- Interested in tracking metrics on energy, water waste and transportation
- Advance energy efficiency, renewables, water conservation, waste reduction and transportation options
- Plans to track usage by neighborhood to understand impact of conservation programs on energy consumption



~100,000 people, hundreds of businesses

Example Use Case: Regional Indicators Initiative

- 20 cities, representing 25% of the state's population, collecting energy, transport, waste and water data
- Benchmarking to track performance and plan improvements
- Collecting data from utilities annually since 2008
- 15/15 rule has presented challenges to data collection



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Data Sensitivity (based on CA PUC example)

		Temporal Aggregation					Real-time	
		Annual	Seasonally/ Quarterly	Monthly	Daily	Hourly/15 min		
Geographic aggregation	Statewide	Green	Green	Green	Green	Green	IOU does not possess this data, only available from customer on consent, requires special sensors	
	Utility	Green	Green	Green	Green	Green		
	City	Green	Green	Green	Yellow	Yellow		
	Zip Code	Green	Green	Yellow	Yellow	Yellow		
	Census Block Group	Green	Green	Yellow	Orange	Red		
	Census Block	Green	Green	Yellow	Orange	Red		
	Multiple Tenants	Orange	Orange	Orange	Red	Red		
	Customer	Requires customer consent						Red
	Appliance	IOU does not possess this data, only available from customer on consent, requires special sensors						Red

Utility Data Aggregation Practices

Utility Company or PUC	Account Aggregation Threshold <small>Number of accounts/maximum percentage of total energy usage one account can contribute</small>	Automated Upload to Portfolio Manager
Avista (WA)	No threshold	Y
Consolidated Edison (NY)	No threshold	N
Seattle City Light (WA)	2	Y
Commonwealth Edison (IL)	4*	Y
Austin Energy (TX)	4/80*	N
Puget Sound Energy (WA)	5	Y
Pepco (DC)	5	N
Colorado PUC	15/15	N/A
Xcel (MN)	15/15	N
California PUC	TBD	N/A

*Only applies to commercial buildings

More on 15/15

- Originated in the CPUC, which first adopted this rubric in 1997 in the context of data access for California's Community Choice Aggregation programs and energy service providers
- CPUC has clarified that this standard was not intended as a standard for aggregated generic data access, and the CPUC does not condone its use for data aggregation for benchmarking
- CPUC has charged the California utilities with holding a workshop to develop a more consistent application of privacy rules. Official ruling is expected very soon (**docket R.08-12-009**)

More on 15/15

- Minneapolis has nearly 3,000 apartment properties (2012)
- ~2,000 of these (67%) have less than 15 units
- We don't keep similar records on commercial tenant space...