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U.S. DEPARTMENT OF ENERGY

Energy Data Accelerator

# Guide to Data Access and Utility Customer Confidentiality

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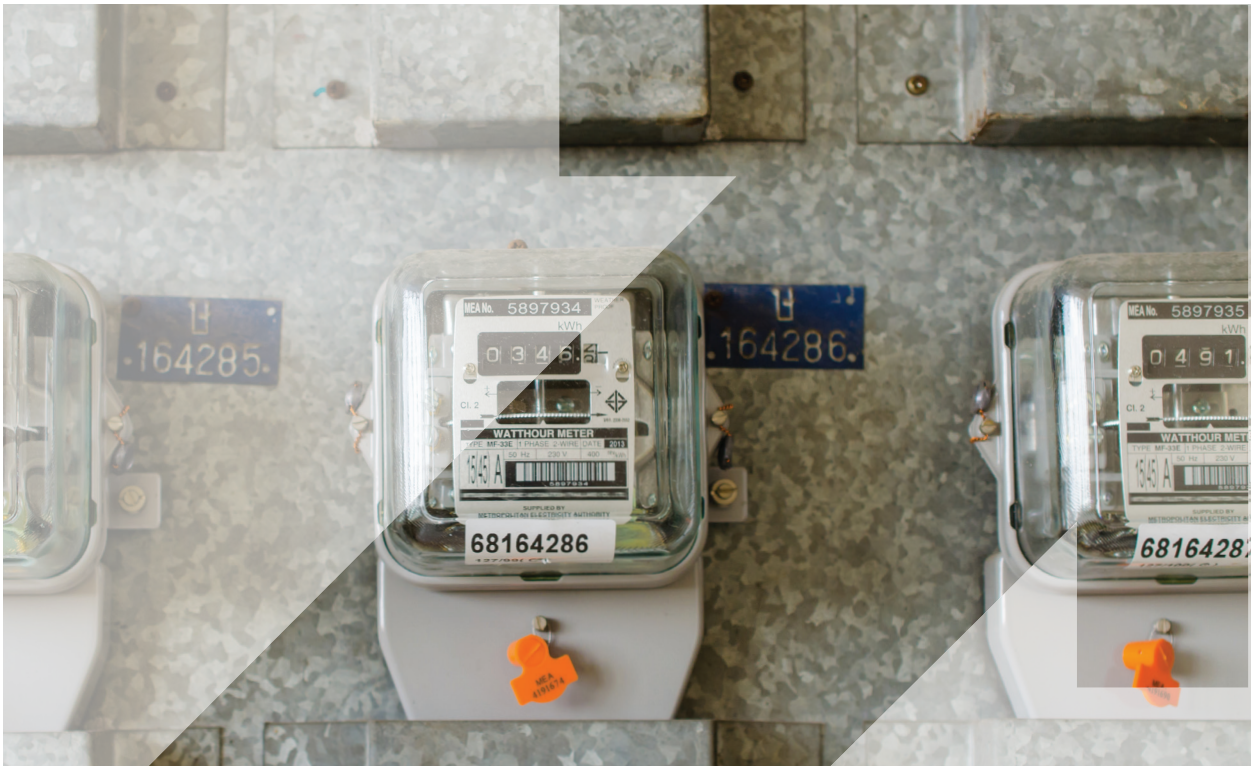


U.S. DEPARTMENT OF ENERGY

## About the Energy Data Accelerator

The U.S. Department of Energy's Better Building Energy Data Accelerator (BBEDA) was a two-year partnership with cities and utilities to improve energy efficiency by making energy data more accessible to building owners. As a result of best practices developed by partners in this Accelerator, 18 utilities serving more than 2.6 million commercial customers nationwide will provide whole-building energy data access to building owners by 2017. This historic expansion of data accessibility will increase building energy benchmarking, the first step many building owners take to improve the energy efficiency of their buildings.

The *Guide to Data Access and Utility Customer Confidentiality* is part of the Energy Data Accelerator Toolkit, a collection of resources drawn from partners. By sharing how these partners overcame technical and policy barriers to whole-building energy data access, the Toolkit enables other communities to benefit from the work that has been done and foster the replication of these best practices throughout the country.

## Executive Summary

This guide describes the factors that differentiate whole-building energy usage data requests from other types of data requests, and highlights best practices for utilities to provide energy consumption information to building owners while respecting the confidentiality of utility customers.

Across the nation, real estate owners and operators are measuring and tracking the energy performance of their buildings more than ever before. Known as energy benchmarking, this process helps property professionals manage building energy consumption, identify opportunities to improve energy efficiency, and quantify financial outcomes. Benchmarking has also been shown to increase customer participation in utility energy efficiency programs.[1]

To benchmark the energy performance of a building, property professionals need to know how much energy is used in the entire building. Yet building owners and operators are often prevented from accessing energy information for tenant-occupied spaces because of tenant confidentiality concerns. This barrier is commonly cited by property professionals as a primary obstacle to benchmarking and improving the energy performance of buildings nationwide.

Because of the work being done by Accelerator partners, utility-led solutions to this barrier are rapidly emerging. Many utilities are now offering, or are in the process of offering, solutions that provide building owners with information to conduct energy benchmarking, while protecting the confidentiality of individual utility customers.

### Best Practices: Balancing Data Access and Customer Confidentiality

Utilities are providing whole-building energy usage data to building owners while respecting the confidentiality of utility customers by:

- **Defining a unique use case** after assessing the factors that make whole-building energy usage data requests different and less sensitive than other types of data requests.
- **Aggregating energy usage for an entire building** and providing a total energy usage figure—rather than meter-level data—to building owners that does not identify the energy usage of any individual tenant.
- **Streamlining tenant authorization processes,** when tenant-level authorizations are necessary, by standardizing data consent forms and recognizing data-sharing provisions in real estate leases.

[1] See pp. 2–3 of the Transmittal Letter from NMR Group, Inc. and Optimal Energy Inc. (2012). *Statewide Benchmarking Process Evaluation: Volume 1: Report.* Accessed February 2015: *http://www.energydataweb.com/cpucFiles/pdaDocs/837/Benchmarking%20Report%20(Volume%201)%20w%20CPUC%20Letter%204-11-12.pdf.*

# Part I. Defining "Data Access" for Benchmarking

## Data Access Requests

As part of their core business, utilities track the energy that their customers consume. They are frequently asked by different parties to make that information available for various purposes. For instance, a local government may ask a utility for annual, citywide energy information to conduct community or sustainability planning activities, while a home energy services provider may request access to meter-level data in 15-minute increments to support a retrofit project. Data requests can vary significantly according to the following factors:

- **Time interval of data:** (e.g., real-time, 15-minute, daily, monthly, yearly).
- **Spatial granularity of data:** (e.g., device-level, meter-level, building-level, census block, community-wide).
- **Type of customer or structure:** (e.g., commercial, single-family residential, industrial).
- **Recipient of data:** (e.g., building operators, governments, academics, vendors and service providers).
- **Intended use of data:** (e.g., energy efficiency, community planning, academic research, marketing).[2]

Utilities consider each of these factors as they balance their ability to respond to data requests with their legal obligation to protect customer confidentiality.

## Data Access for Benchmarking

Energy benchmarking is rapidly expanding across America. The nation's most widely used benchmarking software tool, the U.S. Environmental Protection Agency's ENERGY STAR® Portfolio Manager®, has been used to benchmark the energy performance of more than 400,000 commercial and multifamily buildings totaling more than 35 billion square feet nationwide.[3]

Despite this progress, many building owners are unable to conduct benchmarking because they cannot access energy consumption information for their entire facility. This barrier commonly arises when a building has multiple tenants that are each billed directly for energy consumption by the utility. In this case, each tenant is an individual utility customer and the building owner—even though the tenants reside within the owner's premises—is not legally entitled to access any tenant energy consumption information without tenant consent. To access that information, the property owner must either secure consent from each tenant to manually collect energy consumption records, or obtain authorization from each tenant to access consumption records from the utility.

Over the past few years, utilities have begun offering solutions that provide building owners with the information they need to conduct energy benchmarking, while protecting the confidentiality of individual utility customers. The specific data access request in this case is:

- **Time interval of data:** Monthly.
- **Spatial granularity of data:** Building-level.
- **Type of customer or structure:** Commercial and multifamily.
- **Recipient of data:** Building owners and authorized owner representatives.

[2] For an example of the range of use cases being considered, see section 7 of the California Public Utility Commission's Decision 14-05-016, dated May 1, 2014 ("Decision Adopting Rules to Provide Access to Energy Usage and Usage-Related Data While Protecting Privacy of Personal Data"; part of Rulemaking 08-12-009). Accessed February 2015: http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M090/K845/90845985.pdf. Also see Section VII(e) of the Minnesota Customer Energy Usage Data Workgroup report, dated September 15, 2014 ("Use and Limitations on Use of Customer Energy Usage Data: Balancing Customer Privacy and Minnesota's Energy Goals"; part of docket 12-1344). Accessed February 2015: https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showPoup&documentId={E73ECFE2-6CC9-4934-8364-6AE4F2ED-E59D}&documentTitle=20149-103119-01.pdf.

[3] See p. 2 of the ENERGY STAR 2014 Snapshot. Accessed January 2016: https://www.energystar.gov/sites/default/files/tools/2014%20Snapshot%20rev%2012_8_15%20Accessible.pdf.

- **Intended use of data:** Energy efficiency (benchmarking).

The data access request for benchmarking is unique in several ways that reduce the likelihood of conflict with state privacy regulations or utility customer confidentiality expectations:

- The monthly time interval does not provide visibility into a customer's energy consumption patterns on a real-time, daily, or weekly scale.
- Aggregating energy consumption for all utility customers at the building-level does not enable the property owner to associate information with individual customers.
- Building owners (the data recipients) have a unique need for information relating to their properties to make economic and legal decisions associated with property ownership. In many cases, building owners already have physical access to tenant energy meters.[4]

The Institute for Market Transformation, a nonprofit energy efficiency research organization, has expressed the relationship of two of these factors (time interval and type of structure) relative to customer privacy considerations in Figure 1.[5]

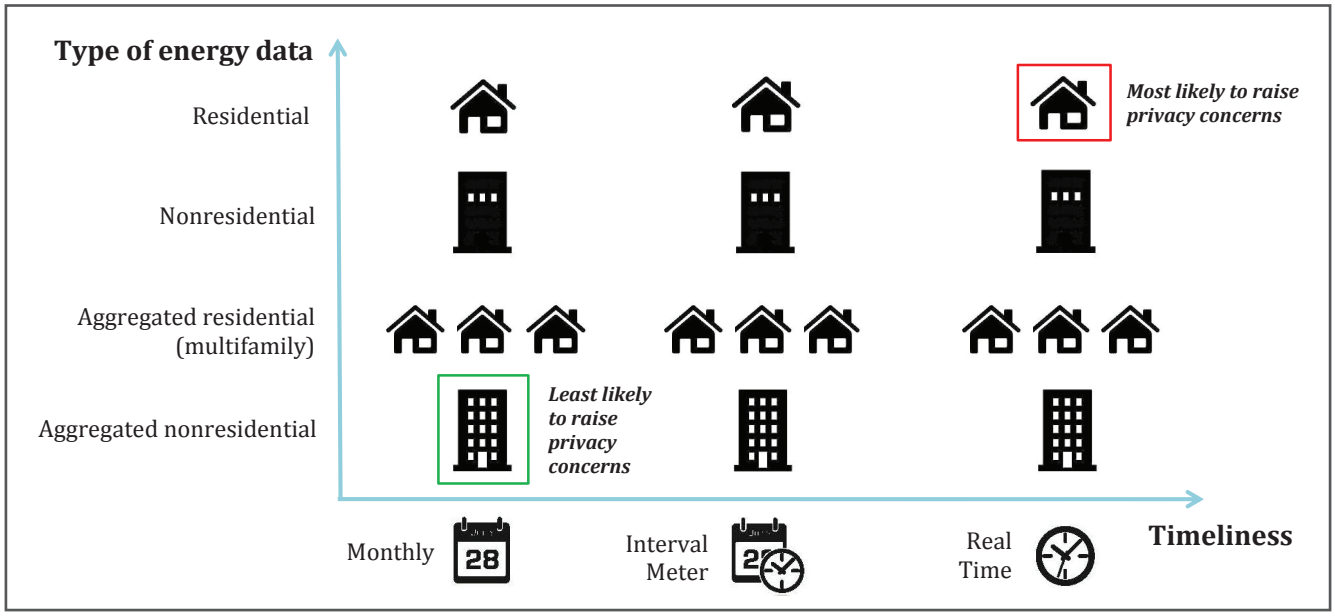


**Figure 1. Utility Data Sensitivity Chart.**

[4] For further discussion, see "Response to Interim Decision of Administrative Law Judge G. Harris Adams by Institute for Market Transformation, Natural Resources Defense Council, Southwest Energy Efficiency Project," dated July 29, 2014. Filed under Docket No. 14R-0394EG ("In the Matter of the Proposed Rules Relating to Data Access and Privacy for Electric Utilities … and Data Access and Privacy Rules for Gas Utilities…"). Viewed February 2015: https://www.dora.state.co.us/pls/efi/efi_p2_v2_demo.show_document?p_dms_document_id=381831&p_session_id=.

[5] "Utility data sensitivity." (2013). Institute for Market Transformation. Accessed February 2015: www.imt.org/uploads/resources/files/utility_data_sensitivity_graphic_Feb2013.pdf.

# Part II. Best Practices for Balancing Data Access and Customer Confidentiality

## Whole-Building Data Aggregation

The most common utility-led solution to supporting benchmarking while protecting customer confidentiality is whole-building data aggregation. Using this approach, a utility aggregates meter-level energy usage information for all accounts associated with a property, and provides the aggregated total energy consumption to the property owner. The utility does not require consent from utility customers within the building if the aggregated accounts exceed certain thresholds (See Table 1).

Minimum data aggregation thresholds have been adopted by utilities as an additional customer confidentiality protection. These thresholds require a minimum number of customer accounts to be aggregated—and in some cases, a cap on the percentage of total energy used by any single account—to ensure the consumption and identity of any single tenant cannot be identified. If the data aggregation process does not meet these minimum thresholds, the building owner must secure authorization from each tenant.

Utilities have made different determinations on appropriate aggregation thresholds. Many utilities have chosen to adopt relatively low thresholds of between two and five meters, as illustrated in Table 1.

When examining this issue, utilities and their regulators should consider the impact of various thresholds on both data security and data availability. Specifically, setting the threshold too high may undermine the goal of data aggregation by limiting its application to a small number of properties.

A 2014 study by the Pacific Northwest National Laboratory (PNNL) explored the statistical likelihood that individual meter consumption data could be estimated from an aggregated whole-building figure, based on various aggregation thresholds.[6] The study also analyzed the relationship between the aggregation threshold and the percentage of buildings that would be eligible to receive aggregated whole-building data at each threshold.

| Utility Company (Service Territory) | Aggregation Thresholds |
|---|---|
| **Austin Energy** (Texas) | 4/80% |
| **Baltimore Gas & Electric** (Maryland) | 5 |
| **Clark Public Utilities** (Washington) | 2 |
| **Commonwealth Edison** (Illinois) | 4 |
| **Consolidated Edison** (New York City) | 2 |
| **Eversource** (Boston & Cambridge, MA) | 4/50% |
| **National Grid** (Boston, MA) | 4/50% |
| **National Grid** (New York City) | 4/50% |
| **Pacific Power** (Oregon) | 5 |
| **Peoples Gas** (Illinois) | 5 |
| **Pepco** (District of Columbia) | 5 |
| **PSEG Long Island** (New York City) | 2 |
| **Puget Sound Energy** (Washington) | 5 |
| **Rocky Mountain Power** (Utah) | 5 |
| **Seattle City Light** (Washington) | 2 |
| **Xcel Energy** (Minnesota, Colorado) | 4/50% |

**Table 1. Summary of Utility Aggregation Thresholds.** The first number represents the minimum number of meters at a property that must be available for aggregation. The percentage figure (where noted) represents the maximum percentage contribution of any single meter to the aggregated energy consumption total. If the meter threshold is not met, or if the percentage threshold is exceeded, the utility will not provide whole-building data access. These thresholds are intended to safeguard customer confidentiality. [1] [2]

[1] These thresholds are the minimum number of accounts in a building required for aggregated data to be released to the building owner without tenant authorization. Thresholds such as Austin Energy's (4/80) mean that there must be more than four accounts in the building, and that no single account represents more than 80% of the total building energy consumption.

[2] Although California investor-owned utilities and certain large public utilities (LADWP, SMUD) have been engaged in a conversation on whole-building aggregated data, they are omitted from this chart given the recent passage of California Assembly Bill 802 (see www.energy.ca.gov/benchmarking/documents/AB_802_chapter_590.pdf). Although AB 802 specifically references an aggregation threshold of "three or more active utility accounts," the implementing regulations for AB 802 are still under development.

[6] See Livingston et al. (2014). Commercial Building Tenant Energy Usage Data Aggregation and Privacy. Pacific Northwest National Laboratory. Prepared for the U.S. Department of Energy under Contract DE-AC05-76RL01830. Accessed February 2015: www.pnnl.gov/main/publications/external/technical_reports/PNNL-23786.pdf.

PNNL found that the greatest improvements in privacy protection take place as aggregation thresholds increase from two to six meters. If an aggregation threshold reaches six meters or higher, the incremental increase in privacy protection is small compared to the loss of eligible properties.

This analysis is consistent with the experience of multiple utilities that are already providing (or are planning to provide) aggregated whole-building energy consumption data to building owners at aggregation thresholds of two to five tenants. It is also consistent with observations from the marketplace that higher aggregation thresholds (such as 15 meters) may prevent the vast majority of buildings from benefiting from whole-building data access.

### Legal Limitations on Data Usage

In concert with whole-building data aggregation, utilities can require building owners to agree to legal terms of use that restrict the re-dissemination of aggregated whole-building data for uses other than benchmarking.[7] Such terms of use can be written to only allow the sharing of aggregated data with property managers or designated vendors, to the extent that they are identified and authorized as "owners' agents" that will be involved in the benchmarking process.[8]

### Data Sharing between Owners and Tenants

Even when utilities are offering whole-building data aggregation services, building owners should include provisions in their lease agreements with tenants that give them the right to access tenant energy consumption information. Utilities should recognize such lease terms as authorization that enables property owners to access tenant energy consumption information from the utility without additional release forms.[9]

### Streamlined Tenant Authorization Processes

When individual tenant-level consent is required for the utility to release aggregated whole-building data, utilities can establish streamlined processes—such as standard, web-based forms across their service territories—for collecting the necessary authorizations.

## Conclusion

Accelerator partners have successfully worked together to create whole-building data access solutions that enable benchmarking while protecting utility customer confidentiality. These innovative solutions will provide a best practices roadmap for other utilities and cities as the need for whole-building data access continues to emerge in communities across the nation.

[7] The goal for many utilities will be to transfer liability from the utility to the owner in the case that an unauthorized release of data takes place.
[8] Con Edison (New York City) allows building owners/managers to designate an "Authorized Representative" that will receive the aggregated whole-building data. Accessed February 2015: www.coned.com/energyefficiency/PDF/con_edison_authorization_form_with_instructions.pdf.
[9] Philip Henderson and Charlie Harak, "How Utilities Can Give Building Owners the Information Needed for Energy Efficiency while Protecting Customer Privacy." The Electricity Journal, Volume 28, Issue 9, November 2015, pp. 33–44. www.sciencedirect.com/science/article/pii/S1040619015002018.


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