



Data Access: A Fundamental Element for Benchmarking and Building Performance Standards

EPA's *Benchmarking and Building Performance Standards Policy Toolkit* aims to inform and support state and local government decision makers who are exploring policies to reduce energy use and greenhouse gas (GHG) emissions from existing commercial and multifamily buildings in their communities. This section describes the critical role that utilities play in providing readily available and accurate whole-building energy consumption data to enable building owners and operators to comply with building energy benchmarking and transparency requirements, and to meet building performance standards. It also offers key considerations for utilities and state and local decision makers on developing and implementing data access solutions. The toolkit includes four sections—each intended to build on the previous section—that focus on different aspects of policy development, including benchmarking and transparency ([Section 1](#)), building performance standards ([Section 2](#)), state and local government coordination ([Section 3](#)), and data access ([Section 4](#)). Each section lists additional resources on the topic.

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What Is Data Access and Why Does It Matter?

Dozens of state and local governments have enacted building energy benchmarking and transparency laws that require buildings to measure energy use (and in some cases water use and/or waste generation), report usage on an annual basis, and make performance information available to the public. See [Section 1](#) of this toolkit for



EPA's ENERGY STAR Portfolio Manager

The go-to tool for collecting energy and water use data from commercial and/or multifamily housing buildings is **EPA's ENERGY STAR Portfolio Manager**. EPA offers robust, off-the-shelf training materials; regularly hosts webinars; and has a help desk to support users. Some fast facts on the tool include:

- The tool is completely cost-free to use.
- Users enter data into their own secure, password-protected account.
- Any building can be benchmarked in Portfolio Manager.
- At least 25% of building square footage nationwide is benchmarked in Portfolio Manager.
- Buildings can use the tool to track GHG emissions and energy, water, and waste costs.
- 1-100 ENERGY STAR scores indicate a building's energy performance compared to similar buildings nationwide, and are available for approximately 21 building types and 60% of commercial floorspace.
- Portfolio Manager can also be used to:
 - Check for possible errors using the data quality checker,
 - Set goals and track progress toward them,
 - Share or transfer properties,
 - Run custom and pre-populated reports, and
 - Apply for ENERGY STAR certification-EPA recognition for top performance relative to similar buildings nationwide-where eligible.



additional information on benchmarking and transparency. Benchmarking and transparency policies currently in place specify the use of [EPA's ENERGY STAR® Portfolio Manager® tool](#) to collect benchmarking data from covered commercial and multifamily building owners and managers. Benchmarking energy use can also serve as the basis for a building performance standard (BPS), a policy that requires building owners to meet performance targets by actively improving their buildings over time, often with interim targets that drive energy savings and emission reductions. See [Section 2](#) of this toolkit for additional information on building performance standards.

Utilities are not typically responsible for developing or administering local- and state-level benchmarking and transparency laws.ⁱ However, commercial building owners and operators subject to these requirements most commonly look to their utilities for assistance with obtaining the energy consumption data required to benchmark.

Data access becomes especially important in the context of multitenant office and/or multifamily properties, where tenants often pay some or all of their own utility bills. In these cases, the building owner or operatorⁱⁱ required to benchmark may not have access to all energy consumption data for the property. The building owner could conceivably obtain authorization from each individual tenant to obtain those data from the utility; however, at properties where the number of individually metered tenants or residents can run into the tens or even hundreds, this process will be overly burdensome and in many cases unsuccessful. Utility data access, therefore, is not just a matter of convenience for building owners, but rather a fundamental requirement for owners to be able to comply with benchmarking requirements.

As of February 2021, there are at least 35 utilities offering data access solutions for benchmarking that leverage Portfolio Manager web services. These range from municipal utilities like Seattle City Light and Clark Public Utility District in Washington to large investor-owned utilities such as ComEd and PECO. At any given point in 2020, these utilities were providing data to more than 20 percent of all properties actively benchmarking in Portfolio Manager – and these numbers are expected to

grow as additional utilities begin integrating Portfolio Manager web services.

How Are Utility Data Solutions Implemented?

Across the country, many utilities have agreed to implement benchmarking data access solutions as a result of discussion and negotiation with local governments and commercial building customers. In other cases (notably, California, Washington, and the District of Columbia), legislation has formally required utilities to develop data access solutions as part of their statewide benchmarking mandates. Since investor-owned utilities fall under the jurisdiction of a state-level public utilities commission, local governments may not have the authority to compel investor-owned utilities to provide data access for benchmarking. However, discussions between local governments and their utilities can help shape solutions for building owners to obtain the data needed to comply with benchmarking requirements.

Key Data Access Considerations for State and Local Decision Makers

Policy Considerations	Technical Considerations
<ul style="list-style-type: none">• Customer data privacy• Cost recovery	<ul style="list-style-type: none">• Mechanism for delivering data

The following sections will discuss key technical and policy considerations for data access to address in conjunction with a building energy benchmarking and transparency requirement.ⁱⁱⁱ These considerations include the use of data aggregation thresholds to address data privacy concerns and the application of meter-to-building mapping in order to deliver aggregated data in a manner that is both accurate and transparent.^{iv}



Key Considerations for Developing Data Access Solutions



Policy Considerations

The primary policy considerations affecting utility data access for benchmarking include customer data privacy and cost recovery. See EPA's [fact sheet](#) for sample policy language to support utility data access.

Customer Data Privacy

Multitenant buildings present a particular challenge for benchmarking given landlord-tenant data constraints and data privacy concerns. Notably, the building owner required to comply with the benchmarking policy may not be the authorized customer for all energy consumed at the property (i.e., individual tenants/residents may be billed directly by the utility for their energy consumption). When tenants are billed directly by the utility, the landlord is considered a third party—meaning that tenants must formally authorize the utility to release energy data information before the landlord can request it. As the number of tenants increases, the process of pursuing and obtaining these authorizations can rapidly become infeasible for the building owner.

However, many utilities across the country have arrived at a workable solution for providing building owners the data needed for benchmarking while avoiding the release of tenant-specific energy consumption data that could be considered private. This approach—often referred to as “aggregate whole-building data”—provides the building owner with a single monthly consumption value representing total building energy consumption by fuel type, leaving out information about where in the building (or by whom) the energy was consumed. This approach typically involves the application of an “aggregation threshold” to determine when data are considered sufficiently aggregated to address customer data privacy concerns (see *Aggregation Thresholds*). This threshold-based approach typically works as follows:

- If the number of tenants (or energy service accounts) at a property exceeds a minimum threshold, the utility agrees to provide the building owner with aggregated whole-building monthly consumption data, by fuel, upon request.

- If the number of tenants/accounts does not exceed the threshold, the building owner must obtain authorization from each individual tenant before the utility will release aggregated consumption data.

The underlying principle of this approach is that once the number of tenants/accounts meets a specified threshold, then it is no longer possible for the building owner to disaggregate the total consumption value and identify the specific energy consumption of any particular tenant or resident. For this reason, aggregated whole-building energy consumption data can be considered separate from other sensitive or protected customer data. Across the country, the most common aggregation thresholds range from three to five tenants/accounts.

Once the choice to use an aggregation threshold has been made, the utility will need to address subsequent technical considerations in the development of a whole-building aggregated solution to data access. See EPA's [fact sheet](#) that describes these technical considerations.

Cost Recovery

The development of a data access solution will typically require both IT and programmatic investments by utilities. The magnitude and timing of these expenditures will depend on several factors, including the complexity of the data access solution envisioned (e.g., provision of data via spreadsheet vs. the use of Portfolio Manager web services). Other factors are the choice to use internal IT resources versus an external vendor to develop system architecture and the decision to license a software-based solution. The latter option may enable a utility to avoid upfront investment, and instead incur costs based on the number of building owners seeking whole-building data or an annual license fee.



Aggregation Thresholds

Thresholds for the release of whole-building aggregate energy consumption data to building owners are typically established through one or more of the following mechanisms:

- Formal regulatory processes at the public utility commission (e.g., [Colorado](#), [Minnesota](#));
- Statewide legislation (e.g., [California](#) and [Washington](#));
- Direct engagement between a utility and a local government (e.g., [Eversource](#) and [Boston/Cambridge, MA](#));
- Non-regulatory stakeholder input processes (e.g., [Salt Lake City, UT](#) and [Philadelphia, PA](#));
- Internal utility legal/regulatory team determinations.

When considering options for recovering expenses associated with the provision of data access (“cost recovery”), utilities need to determine whether the cost of the data access solution will be:

- Considered an energy efficiency program expense, or
- Allocated to a broader function such as customer support (and therefore included in base rates or other non-energy efficiency cost recovery mechanisms).^v

In the past some utilities have offered data access only to commercial customers that pay for it as a service; however, this is not considered a best practice, nor is it a practice in widespread use. Rather, utilities that offer data access solutions do so for all commercial customers that stand to benefit from benchmarking, or at a minimum for all commercial customers required to benchmark by state or local government mandates.

Finally, many benchmarking and transparency requirements are designed with phased rollouts based on property size, property type, or both. For example, the expansion of New York City’s benchmarking law (Local Law 84) to cover buildings below 50,000 ft² represented an approximate doubling of the properties required to benchmark and report, and therefore the number of properties for which utilities needed to provide data upon request. It will be important to note any such phasing

when assessing the likely costs of a data access solution over time.



Technical Considerations

The primary technical considerations for benchmarking data access include the mechanism for delivering data to the customer and the processes associated with data aggregation and accuracy (including meter-to-building mapping, calendarization, and the treatment of properties with onsite renewables). These considerations are important to keep in mind early in the process as solutions are being outlined and developed. This section discusses different mechanisms for delivering aggregate whole building data to requestors. For further discussion regarding the processes associated with data aggregation and accuracy, please see EPA’s [fact sheet](#) that describes these technical considerations.

Mechanism for Delivering Data

Utilities can deliver whole-building energy consumption data to the requestor, and facilitate data entry into a benchmarking tool such as EPA’s ENERGY STAR Portfolio Manager, using one of two approaches:

- A spreadsheet formatted for easy upload into Portfolio Manager, which is provided directly to the requestor via email or download from a utility web platform, or
- The Portfolio Manager web services application programming interface (API) to directly transfer consumption data from the utility’s data system to the requestor’s Portfolio Manager account.

Either approach can be used to deliver aggregate whole-building data and thereby meet the building owner’s immediate data needs for benchmarking while protecting tenant data privacy. However, the spreadsheet-based approach requires the requestor to enter further data into Portfolio Manager and is considered a one-way, one-time transaction between the utility and the property owner.

By contrast, the use of Portfolio Manager web services allows for a continual connection between the utility data system and the customer’s Portfolio Manager account. This enables ongoing (e.g., monthly) updates to energy consumption data from the utility, allowing building



owners to track their energy performance over time without needing to re-request data. It also enables a “two-way” data flow whereby the utility can view Portfolio Manager energy performance metrics for its customers’ properties if desired.^{vi} This aspect is significant, in terms of the potential for utilities to leverage benchmarking data to design, target, and implement energy efficiency program offerings (see *Emerging Opportunities* section). At present, more than 70 percent of utilities offering data access solutions to support customer benchmarking are using the Portfolio Manager web services API to deliver data.

Emerging Opportunities

In addition to the policy and technical considerations discussed, EPA has observed a number of trends that may inform the national dialogue around utility data access for benchmarking.



Entergy New Orleans’s Energy Smart Program

The Entergy New Orleans Energy Smart Program offers a comprehensive Energy Advisor support service for owners of multitenant buildings in New Orleans that benchmark their buildings using EPA’s ENERGY STAR® Portfolio Manager. This program is designed to use customer benchmarking data (obtained with the assistance of Entergy NOLA’s data access solution, which is integrated with Portfolio Manager via web services) as the starting point for engagement with an energy advisory to identify and develop a plan for subsequent improvements.¹

¹Entergy New Orleans, “Energy Smart Energy Advisor Support Service,” 2020, https://www.energysmartnola.info/wp-content/uploads/2020/08/ENO-Energy-Advisor-Overview_2020.pdf.

- **Programmatic integration.** Data access solutions that leverage EPA’s Portfolio Manager web services API can perform two critical tasks. At the most immediate level, these solutions can send aggregate whole-building consumption data to customers’ property records in Portfolio Manager. Such systems can also be used to pull back important property-level energy performance metrics such as the ENERGY STAR score and whole-building energy use intensity—not to

mention key property operational parameters, such as building size, weekly operating hours, and number of occupants. These operational parameters might not otherwise be available to a utility. An increasing number of utilities using the web services API plan to leverage customer benchmarking data to better target and deliver efficiency program offerings to properties that have the highest potential for energy savings. Utilities also plan to use benchmarking data to drive ongoing relationships with building owners that can result in future projects.

- **Efforts to develop consistent building-level identifiers.**

Because utilities do not typically capture or track the concept of a “building” or “property” as an object in their customer information systems, there is interest among state and local governments and utilities in developing a consistent identifier. This identifier could be used across utilities and could help streamline the process of meter-to-building mapping. One example is the Unique Building Identifier (UBID), which is currently being piloted by the Pacific Northwest National Laboratory.^{vii}



A **Unique Building Identifier (UBID)** seeks to provide a consistent, unambiguous format for uniquely identifying buildings and properties based on geospatial information, including the ability to capture the relationship between individual buildings and larger campuses.

- **Statewide integrated data resources and associated data access frameworks.** States such as New York and New Hampshire are exploring the potential development of statewide databases that would allow a variety of authorized users (utilities, system operators, customers, energy service providers) to access a wide range of data points, including energy consumption data. These databases could also be set up to fulfill data requests from building owners that are trying to benchmark—including the technical processes of meter-to-building mapping. This may remove the need for individual utilities to build out and maintain their own data access platforms—although as the primary collectors of consumption data, utilities would still be responsible for feeding this information into the statewide database.



Green Button

State and local governments and utilities frequently reference [Green Button](#) as part of the discussion around data access. Green Button is an initiative that seeks to define both a standard data format and a standard data authorization protocol by which utilities can deliver energy data to end-users and approved third parties. While meter- and account-level energy consumption data delivered via Green Button could be compiled and formatted to provide the whole-building energy consumption data required for benchmarking, it should be noted that the Green Button protocol is not specifically designed for the purpose of benchmarking in EPA's ENERGY STAR Portfolio Manager. For this reason, utilities that are pursuing Green Button implementations may not necessarily be using it to support solutions for customer benchmarking. In other words, Green Button and Portfolio Manager web services should not be viewed as interchangeable. For more discussion of the differences between Green Button and Portfolio Manager web services, see Chapter 3 (pp. 13-18) of A Utility Regulator's Guide to Data Access for Commercial Building Energy Performance Benchmarking, available online at https://www4.eere.energy.gov/seeaction/system/files/documents/commercialbuildings_data_access_guide_0.pdf (State and Local Energy Efficiency Action Network, May 2013).

Contact EPA

EPA also offers dedicated technical support for utilities, energy efficiency program sponsors, and state/local government entities that are seeking to integrate the use of Portfolio Manager and other ENERGY STAR resources into their programs and policies. For assistance, please contact:

Katy Hatcher, ENERGY STAR Commercial & Industrial, hatcher.caterina@epa.gov

Brendan Hall, ENERGY STAR Commercial & Industrial, hall.brendan@epa.gov

EPA Resources

The following resources support deeper exploration of the key considerations discussed above:

[ENERGY STAR An Overview of Portfolio Manager](#)—Guide describing some of ENERGY STAR Portfolio Manager's basic functions, such as how to navigate through the tool, enter building data, and connect and share data with others.

[ENERGY STAR Data Access Network](#)—Source of resources and best practices for data access and benchmarking, including a series of five downloadable slide modules that address the key decision points that a typical utility will face when considering options for providing enhanced data access to commercial customers.

[Interactive Maps for Energy Benchmarking](#)—Interactive tool to identify where utilities across the country are currently providing data access solutions for benchmarking, with the ability to search by ZIP code.

Additional Resources

The [City Energy Project](#) offers a variety of resources, including a guide on [engaging utilities for access to data](#).

[Institute for Market Transformation and Urban Sustainability Directors Network—Rethinking Energy Data Access](#)—Report that describes how current policies on utility data access limit the availability of data and offers suggestions for how state and local governments can work together with utilities.



[State and Local Energy Efficiency Action Network \(SEE Action\)—A Utility Regulator’s Guide to Data Access for Commercial Building Energy Performance](#)

Benchmarking—Provides an overview of the value of commercial building energy performance benchmarking as a driver of energy and cost savings, identifies key barriers and challenges related to energy data access for commercial customers, and clarifies key decision points and considerations for regulators when reviewing utility data access efforts.

ⁱ An exception to this would be municipally owned utilities in cities with benchmarking ordinances (e.g., the City of Austin, TX, and Austin Energy).

ⁱⁱ From this point forward, the term “building owner” will be used to indicate “building owner and/or operator,” with the understanding that many property owners rely upon third-party management companies to operate the building on their behalf.

ⁱⁱⁱ These considerations are relevant regardless of the mechanism by which energy consumption data are ultimately delivered to the building owner (i.e., via spreadsheet or through the use of Portfolio Manager web services). See further discussion under the “Technical Considerations” section.

^{iv} A fuller discussion of technical and policy considerations related to utility data access solutions can be found at www.energystar.gov/dataaccess.

[U.S. Department of Energy—Better Buildings Energy Data Accelerator](#)—Venue for local governments and their corresponding local utilities to explore barriers and solutions related to data access for benchmarking. The Accelerator effort culminated in the development of a [“Blueprint for Action” Toolkit](#), with multiple resources addressing technical and policy considerations.

^v This will determine whether cost recovery can be pursued via an energy efficiency surcharge or rider, or whether the cost of a data access solution can be included in base rates or other non-energy efficiency cost recovery mechanisms.

^{vi} This is no different from a case where one Portfolio Manager user shares property access with another Portfolio Manager user, without the use of web services. By virtue of sharing a Portfolio Manager property record with a utility’s web services-enabled Portfolio Manager account, the building owner is granting the utility the right to access the property record at the level specified. (Typically, this is full read-write access at the property, if not meter, level.) However, utilities may determine that it is necessary to explicitly describe this dynamic to building owners, to ensure that there is a complete and transparent understanding of this two-way data flow.

^{vii} For further information about the UBID project, see <https://www.energy.gov/eere/buildings/unique-building-identifier-ubid>.