Energy Benchmarking and Transparency

A review of national best practices, California policies and energy efficiency opportunities for the San Diego Unified Port District

November 2015

Prepared for
San Diego Unified Port District

Prepared by
Center for Sustainable Energy

Executive Summary

In the San Diego Unified Port District (District), building energy use accounts for 37% of greenhouse gas (GHG) emissions – second only to transportation. With the goal of reducing emissions 10% by 2020 and 25% by 2035, as set in the 2013 Climate Action Plan (CAP), the District and its tenants can capitalize on energy efficiency and see cost-effective savings of 10% on average with no-cost and low-cost upgrades and operational improvements. Benchmarking monthly building energy use – and making that information transparent – is a foundational step to improving energy efficiency.

Similar to miles-per-gallon (mpg) ratings for automobiles, benchmarking helps building owners, managers, and occupants document building energy use and provides an apples-to-apples comparison of energy consumption to similar buildings nationwide. Benchmarking data can provide a record of improved energy efficiency for building owners and operators as well as help in planning capital investments, such as efficient equipment upgrades, on-site generation, and energy storage systems.

California's Existing Buildings Energy Efficiency (EBEE) Action Plan lays out the framework for a statewide benchmarking and transparency policy that is anticipated to cover commercial and multifamily buildings over 50,000 square feet, phased in starting in 2017. In addition, Assembly Bill 802 (Williams), signed into law in October 2015, requires the Energy Commission to create a benchmarking program through which building owners of commercial and multifamily buildings above 50,000 square feet will publicly report annualized benchmarking metrics, "which enables understanding of a building's energy usage for improved building management and investment decisions." (AB 802 also repeals the section of the Public Resource Code created by AB 1103 that required commercial building energy use disclosure at time of whole-building sale, lease or refinance.)

As California moves forward with a statewide benchmarking program, the District has an opportunity to lead the San Diego region and support tenants as an early adopter of benchmarking and transparency in advance of statewide requirements. Benchmarking would provide a shared platform for the District and its range of tenants to evaluate progress toward energy-saving goals and improve sustainable leasing strategies and incentive programs.

When developing a benchmarking policy, the District can learn from the experience of more than 15 cities across the country. For this report, the Center for Sustainable Energy (CSE) conducted phone interviews with representatives from the Government of the District of Columbia, City of Berkeley, City of Los Angeles, City and County of San Francisco, and City of Chicago. These jurisdictions were selected because they represent medium and large cities in different stages of benchmarking policy development and implementation. In all of the interviews, representatives showed alignment on the following items.

> **Who is required to report energy use data in your jurisdiction?**
>
> Commercial buildings are covered by all of the cities' policies. Some cities include multifamily and industrial facilities.

What tool is used to collect energy use data in your jurisdiction?

EPA's ENERGY STAR® Portfolio Manager is used by the cities as the benchmarking and reporting tool. Reports will be/are collected via a Portfolio Manager data request using the custom reporting feature.

Have stakeholders expressed data privacy concerns, and if so, how were those concerns resolved?

Transparency of annual, building-level energy use information is a core component of each city's policy. The cities interviewed worked closely with stakeholders throughout policy development and implementation and privacy was not a major concern or issue in these discussions. As shown in Figure 2, monthly aggregate whole-building energy use information is low risk for privacy issues.

Do the cities work with any third-party consultants, academic institutions or other partners?

All of the cities interviewed work with partners at various points in the benchmarking policy development, implementation, and reporting cycle. It is common for the cities to work with academic and nonprofit partners to support benchmarking training, compliance, data analysis, and report development. Some of the cities require partners assisting with data analysis to sign nondisclosure agreements with the jurisdiction.

Through these interviews and other research, CSE identified the following best practices for the District's consideration.

- Use U.S. Environmental Protection Agency's (EPA's) Portfolio Manager online tool for benchmarking and reporting
- Provide in-person trainings and help center resources to building owners and managers in advance of any District reporting deadlines and statewide requirements
- Recognize high-performing buildings through case studies, awards, and recognition opportunities
- Make annualized, whole-building benchmarking information transparent, including but not limited to ENERGY STAR score, site and source energy use intensity, weather-normalized source energy use intensity, GHG emissions, primary building type, total square footage, and total fuel use annualized by fuel type
- Analyze reported energy, GHG emissions, and building information

Contents

Appendices, which include benchmarking ordinance language from jursidictions across the country, are available [online](#).

List of Acronyms and Abbreviations

AB	Assembly Bill
BESO	Berkeley's Energy Saving Ordinance
CAP	Climate Action Plan
CSE	Center for Sustainable Energy
DCSEU	District of Columbia Sustainable Energy Utility
District	San Diego Unified Port District
EBEE Action Plan	Existing Building Energy Efficiency Action Plan
Energy Commission	California Energy Commission
EPA	Environmental Protection Agency
GHG	Greenhouse Gas

Introduction

California, a longtime leader in clean energy and climate action, recently became the first state to commit to 50% renewable energy and doubling energy efficiency in buildings by 2030.[1] Energy efficiency is the lowest cost energy resource available to the state;[2] and building energy use will need to be cut 20% by 2030 to meet state goals.[3] Existing buildings offer the most significant opportunity to energy savings, and innovative strategies to realize savings across sectors will be critical to meeting the state's climate goals.

The _Existing Buildings Energy Efficiency (EBEE) Action Plan_, adopted by the California Energy Commission in September 2015, offers a roadmap for achieving these savings, starting with benchmarking and transparency of commercial and multifamily building energy use.

> *Understanding energy use is the first step toward improving energy efficiency*

Benchmarking and transparency of monthly building energy use information are foundational steps to improving statewide energy management in large commercial and multifamily buildings, as well as helpful to local and state agencies, industry stakeholders, and program administrators in better understanding and targeting energy-saving opportunities.

Similar to miles-per-gallon (mpg) ratings for automobiles, benchmarking helps building owners, managers, and occupants document building energy use and provides an apples-to-apples comparison of energy consumption to similar buildings nationwide. Benchmarking using the Environmental Protections Agency's (EPA's) ENERGY STAR Portfolio Manager online tool is a national best practice for commercial real estate, medical, and hospitality industries as well as local, state, and federal government properties. More than 40% of the commercial and multifamily building stock in the U.S. is benchmarked in Portfolio Manager. Benchmarking data can provide a record of improved energy efficiency for building owners and operators as well as help in planning capital investments, such as efficient equipment upgrades, on-site generation, and energy storage systems.

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[1] Senate Bill 350: Clean Energy and Pollution Reduction Act of 2015, Senators de León and Leno.
[2] Maggie Molina, The Best Value for America's Energy Dollar: A National Review of the Cost of Utility Energy Efficiency Programs, American Council for an Energy-Efficient Economy, 2014.
[3] California Energy Commission, _California Existing Building Energy Efficiency Action Plan,_ http://www.energy.ca.gov/ab758/, p. 26.

San Diego Unified Port District Context

Building energy use accounts for 37% of greenhouse gas (GHG) emissions in the San Diego Unified Port District (District), second only to transportation.[4] With the goal of reducing emissions 10% by 2020 and 25% by 2035, as set in the 2013 Climate Action Plan (CAP), the District and its tenants can capitalize on energy efficiency and see cost-effective savings of 10% on average with no-cost and low-cost upgrades and operational improvements.

The District's 2013 CAP sets the goal of achieving 20% of its GHG emissions reductions by 2020 through energy efficiency. The plan includes GHG reduction measures, such as development of green buildings standards and policies for new and existing buildings, as well as enforces the requirements of AB 1103 obligating owners of nonresidential buildings in California to measure and report to the Energy Commission the building's energy use via Portfolio Manager.[5]

Since the adoption of the CAP, the District has undertaken the development of a comprehensive Sustainable Leasing Program and accompanying programs to reduce operational costs, stay on track to meet climate goals, and demonstrate leadership as an environmental front-runner in the San Diego region. Recent changes to AB 1103, discussed in Section III of this report, provide new opportunities for the District to stay on track with identified CAP goals in advance of state requirements from the Energy Commission.
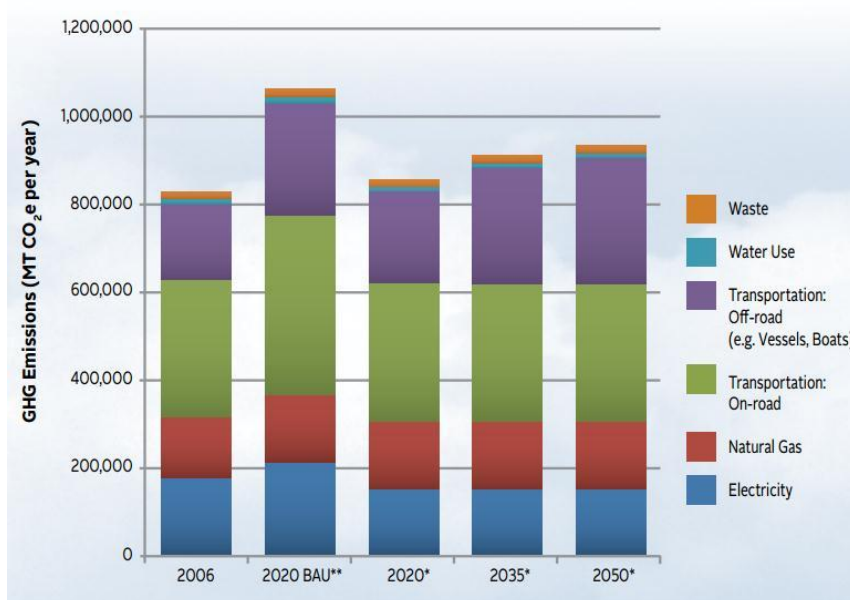

Figure 1, San Diego Unified Port District Current and Projected Emissions by Sector

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[4] Unified Port of San Diego, *Climate Action Plan*, 2013, p.12.
[5] Ibid, 24-25.

California Benchmarking Policies

Existing Buildings Energy Efficiency Action Plan

In 2009, the California legislature passed AB 758 (Skinner) that required the Energy Commission to develop a strategic plan to achieve cost-effective energy efficiency in existing buildings. The final *EBEE Action Plan* is the result of a comprehensive stakeholder process led by Energy Commission staff and Commissioner Andrew McAllister. As the *California Long Term Energy Efficiency Strategic Plan*, which was jointly developed by the California Public Utility Commission and Energy Commission, is updated, the EBEE Action Plan is intended to fulfill the existing residential and commercial buildings strategy sections.[6]

The EBEE Action Plan provides a roadmap for reducing building energy use 20% by 2030 by activating markets for energy efficiency. The plan sets five core goals for ramping up energy efficiency in commercial, multifamily, public, and residential buildings across the state.

1. Increased Government Leadership in Energy Efficiency
2. Data-driven Decision-making
3. Increased Building Industry Innovation and Performance
4. Recognized Value of Energy Efficiency Upgrades
5. Affordable and Accessible Energy Efficiency Solutions

Each of these goals includes strategies for catalyzing energy efficiency markets, reducing barriers to energy-saving measures and technologies, and improving or launching public efforts to facilitate greater energy efficiency across sectors. Within Goal 1, Increased Government Leadership in Energy Efficiency, are "policies, initiatives and programs [targeted to] lead a long-term commitment to achieve energy efficiency at large scales" including Strategy 1.2, Nonresidential Benchmarking and Disclosure.

Strategy 1.2, Nonresidential Benchmarking and Disclosure

Benchmarking and transparency policies make building energy use and relative performance compared to similar buildings visible to owners and tenants. This has been shown to increase investment in energy upgrades in large existing buildings as well as spur behavior-based energy savings in cities where policies have been adopted. Analysis by the U.S. EPA shows that on average, buildings that are benchmarked reduce energy consumption 7% over three years.

Benchmarking and public reporting is meant to catalyze energy efficiency activity in commercial and multifamily buildings across the state – as well as highlight the successes and models of portfolio managers and building owners that are energy efficiency leaders.

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[6] *Existing Building Energy Efficiency Action Plan*, California Energy Commission, September 2015, p.30.
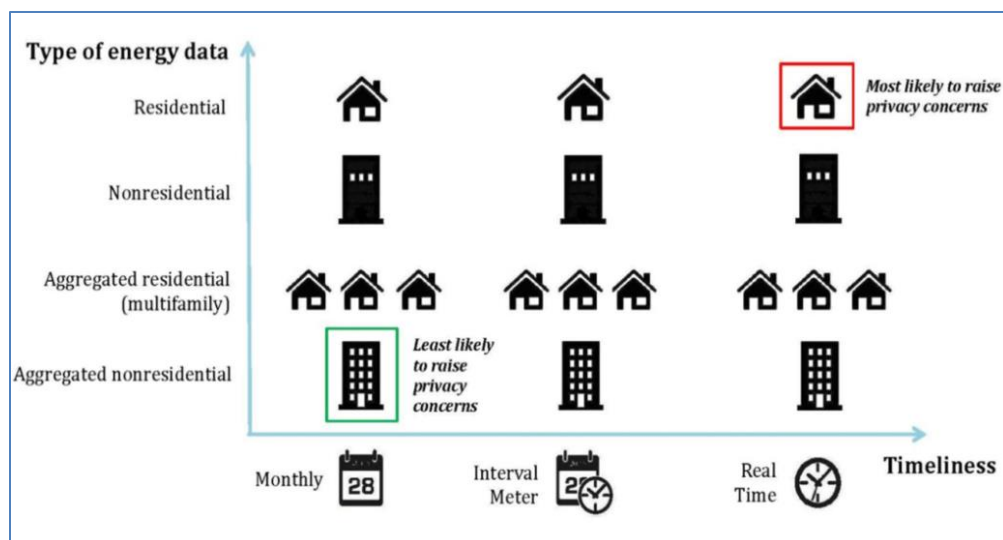
Figure 2, Energy Use Data and Privacy Concerns; *Image credit: Institute for Market Transformation*

Benchmarking and transparency for commercial and multifamily buildings is a priority action within the EBEE Action Plan, which lays out the framework for a statewide benchmarking and transparency policy that is anticipated to cover commercial and multifamily buildings over 50,000 square feet, phased in starting in 2017. Furthermore, the EBEE plan states that the Energy Commission will leverage the Portfolio Manager measurement and tracking tool. The requirements and terms of a statewide benchmarking program will be discussed in a public rulemaking at the Energy Commission, anticipated to start in 2016. The Energy Commission has encouraged local jurisdictions to lead on this effort by adopting benchmarking and transparency programs that align with or go further than the statewide requirements.

Benchmarking Policy	Buildings Covered	Requirements
AB 1103	Commercial buildings > 5,000 sq. ft.	Reporting of building benchmarking data at time of whole-building sale, lease or refinance; repealed in AB 802, passed in 2015
EBEE Action Plan, Strategy 1.2	Commercial and multifamily buildings > 50,000 sq. ft.	Benchmarking and public transparency of annual building-level energy use information, specifics to be determined in a public rulemaking at the Energy Commission
AB 802, Section 5	Commercial and multifamily buildings	Requires that utilities make whole-building energy use data available to building owners starting January 1, 2017, subject to thresholds discussed in Section III b. Requires the Energy Commission to adopt regulations for the public disclosure of benchmarking of energy use, as discussed in the EBEE Action Plan

Figure 3, California Benchmarking Policies

Assembly Bill 802

Assembly Bill 802 (Williams) was passed by the California legislature on September 11, 2015, and signed into law by Governor Jerry Brown on October 9. This bill includes three sections that deal with energy benchmarking.

Section 1 – Requires the Energy Commission to create a benchmarking program through which building owners of commercial and multifamily buildings above 50,000 square feet will publicly report annualized benchmarking metrics, "which enables understanding of a building's energy usage for improved building management and investment decisions." This section aligns with the statewide benchmarking program discussed in the Energy Commission's EBEE Action Plan, Section 1.2.

Section 4 – Repeals the section of the Public Resource Code created by AB 1103 that required commercial building energy use disclosure at time of whole-building sale, lease or refinance.

Section 5 – Defines the terms by which utilities must provide whole-building energy use data to owners or their agents by January 1, 2017. This section sets the "aggregation thresholds" above which utilities must make monthly, whole-building energy information available as follows.

- Three or more active utility accounts, commercial only
- Five or more active utility accounts, residential or commercial

For buildings with fewer utility accounts, building owners or agents will still need to request authorization from tenants for access to energy use information. Access to monthly whole-building energy use information is critical to the success of any benchmarking program. AB 802 ensures that building owners and operators will have access to this information to track energy consumption, improve energy management, and comply with state and local benchmarking and transparency policies. Section 5 of the bill goes on to state that the Energy Commission may move forward with regulations to define the statewide benchmarking and transparency program.

National Best Practices

Since 2007, 15 cities, one county, and the States of Washington and California have enacted benchmarking programs using Portfolio Manager (see list on next page). Local government leaders across the country, as well as national organizations like the Institute for Market Transformation, have supported research on the impacts of benchmarking and transparency, the development of best practices, and implementation of benchmarking and transparency policies.

The experiences of local governments that have emerging or existing benchmarking policies offer helpful lessons learned, examples of best practices, and insight into the many decision points along the way to successful policy adoption, implementation, compliance, and data disclosure. This section includes findings from interviews with representatives from the District of Columbia, Chicago, Berkeley, Los Angeles, and San Francisco. These jurisdictions were selected because they represent medium and large cities in different stages of benchmarking policy development and implementation. Additional resources on national benchmarking best practices, the value of benchmarking, and local policies are provided in the appendices to this report.

In all of the interviews, representatives showed alignment on the following items.

Local Jurisdictions with Benchmarking Policies

- Washington, DC
- Austin, TX
- New York City, NY
- Seattle, WA
- San Francisco, CA
- Philadelphia, PA
- Boston, MA
- Minneapolis, MN
- Chicago, IL
- Montgomery County, MD
- Cambridge, MA
- Berkeley, CA
- Atlanta, GA
- Portland, OR
- Kansas City,MO
- Boulder, CO

Who is required to report energy use data in your jurisdiction?

Commercial buildings are covered by all of the cities' policies. Some cities include multifamily and industrial facilities.

What tool is used to collect energy use data in your jurisdiction?

EPA's ENERGY STAR Portfolio Manager is used by the cities as the benchmarking and reporting tool. Reports will be/are collected via a Portfolio Manager custom report.

Have stakeholders expressed data privacy concerns, and if so, how were those concerns resolved?

Transparency of annual, building-level energy use information is a core component of each city's policy. The cities interviewed worked closely with stakeholders throughout policy development and implementation and privacy was not a major concern or issue in these discussions. As shown in Figure 2, monthly aggregate whole-building energy use information is low risk for privacy issues.

Do the cities work with any third-party consultants, academic institutions or other partners?

All of the cities interviewed work with partners at various points in the benchmarking policy development, implementation, and reporting cycle. It is common for the cities to work with academic and nonprofit partners to support benchmarking training, compliance, data analysis, and report development. Some of the cities require partners assisting with data analysis to sign nondisclosure agreements with the jurisdiction.

In-depth comparisons of benchmarking and reporting requirements for jurisdictions across the U.S. and internationally are available at BuildingRating.org. Following are comments from interviews with local government representatives. Please see Attachment 1 for full interview transcripts.

Washington, District of Columbia

The District's benchmarking and transparency policy was included in the "Clean and Affordable Energy Act of 2008." It covers commercial and multifamily buildings over 50,000 square feet. See Appendix L for full ordinance language.

What reported information does the District of Columbia make available to the public?

The District discloses annualized, building-level metrics. Specifically, disclosed information includes building owner, building address, tax ID, building address, ENERGY STAR score, total square footage, the primary property type, site energy use intensity, weather-normalized source energy use intensity, total greenhouse gas emissions and greenhouse gas emissions intensity, and total fuel use annualized by fuel type.

In order to benchmark, building owners must put in monthly data and many legislators are under the impression that we get that monthly data and that we then will disclose that monthly data. What we get and what we disclose is actually *annualized* data.

What strategies did the District employ to help building owners and managers comply?

The Benchmarking Help Center has been one of the key things that made the benchmarking program successful. The Help Center was originally operated by the District of Columbia Sustainable Energy Utility (DCSEU), which provided hands-on trainings and assistance via phone and email. That was really helpful as people were trying to get up to speed and try to comply with the law. . . . People really appreciate the ability to get a live person on the phone and get answers from them. We now run that help center internally at the Department of the Environment, still in partnership with the DCSEU.

City of Berkeley, California

Berkeley's Energy Saving Ordinance (BESO), adopted March 10, 2015, and effective as of December 1, 2015, will require energy information and disclosure to reduce both energy and water usage in both commercial and residential buildings. See Appendix D for full ordinance language.

The City of Berkeley has an eclectic mix of commercial building types comprising office, retail, industrial, and startup cluster space. Berkeley has an aggregate total of approximately 400,000 square feet of industrial space (actual total 395,878 sq. ft.). The city incorporates benchmarking industrial facilities' office spaces as included in their local ordinance language.

> **Does your policy include any industrial facilities?**
>
> The office portion of industrial buildings is included in Berkeley's ordinance if over 25,000 square feet.

City of Los Angeles, California

Los Angeles is developing a benchmarking and transparency policy that has not yet been adopted. The proposed ordinance will include commercial, multifamily, and industrial buildings.

> **Have stakeholders expressed data privacy concerns, and if so, how were those concerns resolved?**
>
> In most stakeholder outreach, [data privacy] does not come up. As stakeholders learn how data disclosure is taking place in other parts of the country, it becomes less of an issue.
>
> **Do any of your partners have, or is it anticipated they will have, access to building-level energy use information, in addition to what is disclosed publicly?**
>
> With the passing of AB 802, providing building owners/managers with whole-building energy use information is going to be a statewide requirement as of January 1, 2017. So the more we can hash out the technical details at the local level, the more smoothly rolling out statewide implementation will be.

City and County of San Francisco, California

Chapter 20 of the San Francisco Environment Code requires that audits and transparency measures be taken for commercial buildings over 10,000 square feet. The chapter was approved in 2011 and phased in over the following three years.

Who is required to report energy use data in your jurisdiction?

Commercial building owners who have 10,000 sq. ft. or more of conditioned space are required to report energy use data.

What tool is used in your jurisdiction to collect energy use data?

We use the EPA ENERGY STAR® Portfolio Manager tool.

Have stakeholders in San Francisco expressed data privacy concerns, and if so, how have they been resolved?

The issue is commonly communication. In some cases, individual retail tenants from a national branch or brand may have a headquarters office that is unfamiliar with the ordinance or with AB 1103, so that unfamiliarity has been the main issue and it is solved by communication.

It's typically a matter of explaining how the data is used -- there are billions of dollars California ratepayers invest in energy efficiency incentives every year, so communicating that and ensuring people are aware what is available to them is the gap we want to address.

In four years of implementation there has been no application for exemption on the basis of trade secrets.

City of Chicago, Illinois

Chicago's Energy Use Benchmarking Ordinance is being phased in from 2014 to 2016, with a time schedule for buildings to achieve compliance goals for each successive year.

- 2014: Municipal and commercial buildings ≥250,000 sq. ft.
- 2015: Municipal and commercial buildings 50,000-250,000 sq. ft.; multifamily buildings ≥250,000 sq. ft.
- 2016: Multifamily buildings 50,000-250,000 sq. ft.

Please see Appendix J for more Chicago Energy Use Benchmarking compliance requirements.

What data is made available to the public and with what frequency?

Chicago is authorized to disclose data starting with the second year of the building's report. That means with this year being the second year of reporting deadline, the city will disclose data for buildings that were covered last year. The first year data is never made public under the city's ordinance.

Who is required to report energy use data in your jurisdiction?

Chicago's energy benchmarking ordinance applies to all commercial, municipal, and multifamily buildings over 50,000 sq. ft.

Industrial and manufacturing buildings, as well as storage and warehouse buildings, are not covered.

Recommendations for San Diego Unified Port District

With the adoption of increased state goals and a robust energy efficiency roadmap for existing buildings, the District has an opportunity to continue its climate action leadership in the San Diego region by adopting a benchmarking and transparency policy that aligns with the Energy Commission program in advance of state reporting requirements.

The benefits of early adoption include:

- Local and regional leadership
- Tenant utility bill savings
- Ability to track progress toward District CAP goals
- Identify opportunities for energy savings; align incentives and technical assistance accordingly

Steps to Benchmark and Report Building Energy Use

Create Portfolio Manager account

Enter building information and monthly energy consumption

Use dashboard and reports to track energy use and GHG emissions, and compare to similar buildings nationwide

Set targets for energy efficiency improvements and track progress

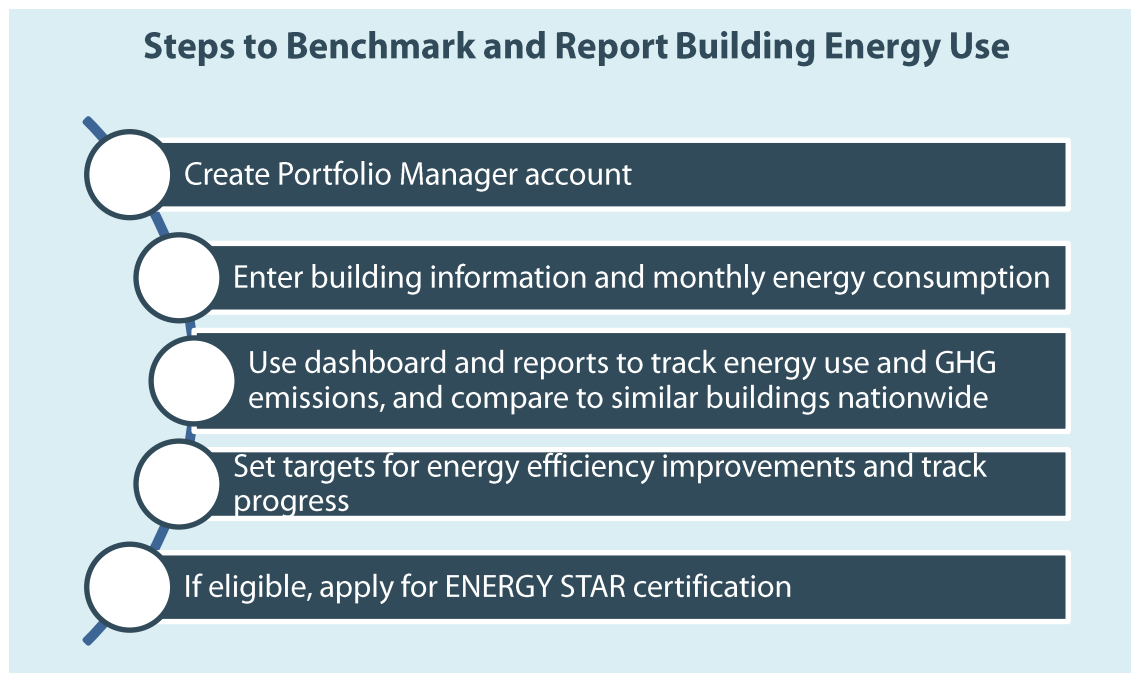If eligible, apply for ENERGY STAR certification

Figure 4, Steps to Benchmark and Report Building Energy Use

As a part of this effort, the District can consider the following strategies, based on local government best practices.

- Use Portfolio Manager for benchmarking and reporting
- Provide in-person trainings and help center resources to building owners and managers in advance of any District reporting deadlines and statewide requirements
- Recognize high-performing buildings through case studies, awards, and recognition opportunities
- Make annualized, whole-building benchmarking information transparent, including but not limited to ENERGY STAR score, site and source energy use intensity, weather-normalized source energy use intensity, GHG emissions, primary building type, total square footage, and total fuel use annualized by fuel type
- Analyze reported energy, GHG emissions, and building information

Although some District tenants already use Portfolio Manager to track monthly energy consumption, many other buildings in the District would benefit from training and assistance. With this in mind, it is recommended that the District provide resources for building owners or their agents to help them benchmark buildings in advance of statewide reporting requirements.

Center for
Sustainable Energy®

As a mission-driven nonprofit organization, CSE works with energy policymakers, regulators, public agencies and businesses as an expert implementation partner and trusted information resource. Together, we are the catalysts for sustainable energy market development and transformation.

Attachment 1: Local Government Interview Transcripts

Washington, District of Columbia

Department of Energy and Environment
Marshall Duer-Balkind, Program Analyst
Data & Benchmarking Division

Who is required to report energy use data in your jurisdiction?
The requirement, passed in 2008, requires owners of privately owned buildings greater than 50,000 square feet to benchmarking and report energy and water use data to the Department of Energy and Environment on an annual basis. This requirement was phased in starting with buildings over 200,000 square feet and will be fully phased in by late 2015, when the District releases 2014 data. Public buildings owned or operated by the District of Columbia greater than 10,000 square feet must also report energy use.

Federal buildings and embassies are not required to report energy use information.

What tool is used to collect energy use data in your jurisdiction?

The District uses EPA's ENERGY STAR® Portfolio Manager tool. We use it because it is an industry standard tool used throughout commercial market, and heavily used here in District of Columbia.

Most Class A real estate in DC was already tracking energy use in Portfolio Manager.

Have stakeholders expressed data privacy concerns, and if so, how were those concerns how resolved?

The privacy concerns around energy benchmarking were very different than concerns around interval data or real time data, and they are all easily resolvable.

The primary privacy concern we had was from building owners who perceived that financial information; energy and water bills would be collected and reported to the District. Building owners in the District were very eager to not have that information disclosed. We solved that by making sure the requirement for reporting did not include financial information.

Stakeholders were also concerned about the initial prospect of having to go to each of their multifamily tenants to request a data release, which was seen as both an imposition and a burden. Once we introduced a tool for buildings to get data aggregated from utilities for five or more tenants, those concerns were resolved.

Do building owners have access to monthly, whole-building aggregate energy use information from the utility?

Yes, multifamily building owners do have whole building, monthly aggregate energy use data. Building owners or their agent provides to the utilities (Pepco and Washington Gas) with a list of meter numbers they want aggregated for each building. There is a little work required the first time they request aggregated whole-building energy use data, but this information is stored and can be used going forward.

As we continue to improve our program, we are working to ensure that the aggregated meter data is accurate and resolve data quality issues with this new tool. This is an essential to making our program work. For the commercial buildings, we actually require that you ask your commercial tenants for data. For residential tenants, without aggregated whole building data, implementation of residential multifamily data, benchmarking would have been impossible.

What metrics do you collect in your benchmarking report?

The District of Columbia pulls almost over 250 different metrics from ENERGY STAR® Portfolio Manager. Many of those come in as blanks because they are building-type specific. We disclose a much smaller set of those metrics. We pull lots of metrics; we use that for public disclosure, for data analysis, and for data quality analysis.

How are benchmarking reports collected?

The District provides a custom report template in Portfolio Manager that building owners/managers use to fulfill annual reporting requirements.

We publish a link on our website to our custom reporting template, people click that link, then it auto-populates the template in Portfolio Manager. The building owner/manager reviews the information for accuracy then they affirmatively consent to releasing it to us.

What data is made available to the public, and with what frequency?

We disclose annualized metrics that we make available through our website, http://doee.dc.gov/page/energy-benchmarking-disclosure. We disclose the building owner, the building address, the tax ID, the address reported by the building owner, the ENERGY STAR® score, the total square footage, the primary property type, the sight energy use intensity (EUI), the web-normalized source energy use intensity, the total greenhouse gas emissions the greenhouse gas emissions intensity, total fuel use annualized by fuel type (how many kwH of electricity over the course of the year/how many kbtus of steam), annual water use (gallons), and longitudinal, and latitudinal (x,y) coordinates for easy mapping.

We pull coordinates from our tax data.

In order to benchmark, building owners/managers have to put in monthly data, so it can be normalized for weather over the year, and some stakeholders are under the impression that we receive and disclose that monthly data. What we get and what we disclose is actually *annualized* data.

Has the District worked with any third party consultants, academic institutions, or other partners?

We work with a lot of partners. Benchmarking would not be successful without all the partners we work with. There are a couple key partners:

The DC Sustainable Energy Utility (DCSEU), they city's third party demand side management program administrator, receives all of our benchmarking data. They use the information to improve program

planning and targeting to achieve greater energy savings in nonresidential buildings. The DCSEU also operated the Benchmarking Help Center for the initial launch of the program and continue to partner with the Help Center that is now housed internally at the Department of Energy and Environment.

We also work closely with the Institute for Market Transformation (IMT) as well as with academic partners such as the NYU Center for Urban Science and Progress. They are doing a lot of research on the data for us.

We have also worked collaboratively with our local BOMA chapter, third party consultants, and affordable housing community to help design and improve the program.

Do partners have access to building-level energy use information?

Yes, because we disclose building-level energy and water use data to the public. Anyone who is interested in working with us or collaborating has access to that information. Additionally, with a select number of partners we have entered into non-disclosure agreements (NDA) to provide them access to the broader dataset. The DCSEU, which was the first organization we partnered with, has access to all the data we get as soon as we get it. That includes all the data quality fields we have and also the contact information for the building owner or manager.

We share the same level of access with the DC PACE program, with NYU, our academic partner, and with the contractor working on the city's comprehensive energy plan.

Initially, the NDA was really important because not all building reporting were subject to public disclosure. Now that we are in multiple years of reporting and pretty much everyone who reports is subject to public disclosure, the NDAs are a little less important. However, because the city collects contact information and space-use information (such as number of workers onsite, computers do I have a number of computers, we maintain NDAs with partners who receive the full dataset.

Based on your experience, what is the best way to work with industrial buildings?

There is some light industry in DC, and we have not encountered issues with benchmarking and reporting. I think benchmarking is just as important for policy design and planning as disclosure, so one could make an exemption that allows industry to still report but not be publicly disclosed. That's what New York did with its trading floors, where tenants had concerns about the release of energy use information that they consider a trade secret.

Whenever anyone wants an exemption for privacy reasons, to the extent one can it is best to still try to get them to report.

What are some lessons learned from the Districts experience with policy and implementation?

I think it's important to define carefully what one means by a building, and to get down to the finest grain level of data that is accurate. So when we say a building, we mean a single structure apart from other structures, unless multiple structures share energy use with one another, In those cases, you can't

say it was building A or building B and pro-rating by floor area is not accurate. The District requires larger institutions that have a central plant or share energy use (sub-meter out to their tenants) to disclose at the campus level.

The data should be accurate and actionable - so it needs to be as specific as possible. In New York, the law applies to buildings over 50,000 square feet, or a complex of 2 or more buildings over 100,000 square feet. In the District, we had a lot of apartment complexes with multiple separately metered buildings, and they've been able to get exempted out.

Please describe any strategies that the District has improved compliance and data quality.

The DC Benchmarking Help Center has been one of the key things that made the program successful. The Help Center was originally operated at the DCSEU and it included phone and email support as well as live trainings. This support helped building owners, managers, and third party consultants get up to speed and prepare for compliance in advance of reporting deadlines.

People really appreciate the ability to get a live person on the phone and get answers from them. We now run that help center internally – still in partnership with the DCSEU.

We see the Help Center as very much a compliance assistance mechanism that follows up with people after they report, helps to ensure the data is correct, and follows up with buildings owners and managers to get them into compliance.

Having the Help Center here in the city itself is very useful. Especially if you have some sort of data sharing arrangement, you could probably have the Help Center encompass multiple jurisdictions.

Berkeley, California

City of Berkeley
Billi Romain, Sustainable Development Coordinator
Office of Energy and Sustainable Development

Who is required to report energy use data in your jurisdiction?

In the City of Berkeley, annual benchmarking is required for large buildings 25,000 sq. ft. or larger. Building owners are required to report energy use data at point of sale, except for large buildings owners who own buildings 25,000 sq. ft. or larger. All building owners are required to report at time of sale.

All building owners, with the exception of single family buildings, have to report at a certain scheduled time; large buildings have to report every five years, report benchmarking annually, and also perform an audit every five years until there is a multi-measure improvement or the building has a high benchmark score.

Medium buildings have to perform an assessment every eight years and report the benchmark score every eight years as well and/or whenever they sell – whichever comes first. Small buildings have to perform an assessment every 10 years and/or whenever they sell – whichever comes first as well.

What tool did city of Berkeley use to collect energy use data?

The city of Berkeley uses ENERGY STAR® Portfolio Manager.

Have stakeholders in Berkeley expressed data privacy concerns? If so, how were those resolved?

Privacy concerns of that nature have not been expressed by stakeholders.

Does your policy include any industrial facilities?

The office portion of industrial is covered by Berkeley's ordinance language and must be reported, if over 25,000 sq. ft.

Do building owners have access to monthly, whole building aggregate energy use information from the utility?

They will, due to AB 802 requirements.

What metrics are collected in your benchmarking reports in Berkeley?

Berkeley is preparing its custom report in Portfolio Manager at this time.

What data will be made available to the public, and with what frequency?

Annual reports will be available to the public with the ENERGY STAR score, site energy use intensity (EUI), and weather-normalized data, along with other metrics.

Will you be releasing any building-specific information? (Square footage or primary space type?)

This information will be available through the same module as our building permitting information. You can look up the building type, buildings permits, and building use type, so adding the energy information is not much more to add on. The way the system works currently, you can only look up the energy in the ENERGY STAR® ordinance model, but we want to eventually feed that into a screen module that integrates all the property information.

Is that something you will share with other agencies within city governments?

The information is public; it's under parcel conditions, it's what the realtors tell you to go look up the address, and it tells you everything about the building.

Have you been working with any third party consultants, academic institutions, or partners or third party efforts, or do you plan to?

Yes, we work with Energy Institute at the UC Berkeley campus.

Will these partners have access to building-level energy use information?

Anything we collect and show to some people, we need to make that available to anyone, so yes our partners have access to building-level energy use information.

We will not be looking at monthly energy use; we do not want too much information. We prefer to use the benchmarks to identify the low performing/high-opportunity buildings. Whether it is the carrot or stick approach, we want to focus on the high opportunity buildings.

We may target some requirements toward buildings that scored under a certain amount, or we might have resources or incentives that are available just for those buildings with low scores or high Energy Use Intensity (EUI).

For the audit information, will third parties be engaged in that effort and have access to that data?

Third parties will only have access to the high-level summary data.

Is there anything else you want to add?

In Berkeley, there are a lot of smaller buildings, so we chose to require buildings below 25,000 sq. ft. to report energy use information and required an audit at time of sale. It is often difficult for these facilities to benchmark on their own due to resource constraints, so pairing the benchmarking with an audit when they have additional support from a contractor works in this case.

San Francisco, California

Barry Hooper, Green Built Environment Manager
San Francisco Department of the Environment

Who is required to report energy use data in your jurisdiction?

Commercial building owners who have 10,000 sq. ft. or more of conditioned space are required to report energy use data.

What tool is used in your jurisdiction to collect energy use data?

We use the EPA ENERGY STAR® Portfolio Manager tool.

Have stakeholders in San Francisco expressed data privacy concerns, and if so, how have they been resolved?

The issue is commonly communication. In some cases, individual retail tenants from a national branch or brand may have a headquarters office that is unfamiliar with the ordinance or with AB 1103, so that unfamiliarity has been the main issue and it is solved by communication.

It's typically a matter of explaining how the data is used -- there are billions of dollars California ratepayers invest in energy efficiency incentives every year, so communicating that and ensuring people are aware what is available to them is the gap we want to address.

In four years of implementation there has been no application for exemption on the basis of trade secrets.

Do building owners have access to monthly, whole-building aggregate energy use information from the utility?

No, not yet, but this information will be available starting January 1, 2017 per AB 802 requirements.

What metrics are collected in benchmarking reports?

The main metrics specified in the ordinance are the energy use intensity; site and source as well as weather normalized and non-weather normalized data. We also collect the 1-100 score when applicable and then EPA calculated GHG emissions for the buildings. The section of the ordinance that is relevant is 2003-A (all sections). We also collect the billing address and descriptive information Portfolio Manager requires.

We are looking at getting more metrics on non-energy building characteristics to understand energy use relative to building use and to provide better context, but this is more sensitive data. Energy use per unit of floor area doesn't tell the full story.

How are benchmarking reports collected?

We provide a URL to a custom report in Portfolio Manager. We (the city) select the set of fields the report should contain. We also set a fixed reporting period tied to each calendar year to take the hassle away from the building owner, as well as eliminate possible errors. They (the building owner or manager) have to assemble information about on how the building is used and enter it in Portfolio Manager to provide context for the EUI and enable ENERGY STAR Portfolio Manager to calculate a 1-100 score.

San Francisco's public buildings are interesting; the San Francisco Public Utilities Commission (SFPUC) provides electricity to those buildings, and does benchmarking for all municipal agencies except for the Port of San Francisco.

What data is made available to the public, and with what frequency?

The main place we make information public is on the city's open data website, Data SF. If you go to datasf.org and you search for energy, and can search with either municipal buildings or commercial buildings as your filter, and then gather raw data from the ordinance. Data is refreshed approximately monthly.

Has the city been working with any third party consultants, academics, or other partners on benchmarking or reporting efforts?

Yes we have; we've been doing it for a while and the level of involvement has varied over the years. The city recently worked with the Greenprint Center at the Urban Land Institute to produce a report on the city's benchmarking data and related findings.

National Renewable Energy Laboratory (NREL) also did an early analysis of data for us and we never released that because it was so positive so we wanted to collect a greater breadth of data prior to releasing it to the public. The additional data didn't change the result, as it is still fairly positive data. We worked with Lawrence Berkeley National Laboratory (LBNL) as well and we contributed our data to the Building Performance Database.

Do partners have access to building-level energy use information?

Yes, because this data is made available to the public. Greenprint received a full set of data including building characteristics for analysis to develop the report.

Los Angeles, California

City Energy Project
Hilary Firestone, Senior Project Manager, Energy Efficiency
Los Angeles Mayor's Office of Sustainability

Who is required to report energy use data in LA?

Los Angeles is currently developing an ordinance that has not yet been adopted. In our proposal for the ordinance, it will be all city facilities over 7,500 sq. ft. and all privately owned buildings over 10,000 sq. ft. That includes commercial, multifamily, and industrial buildings types.

What tool would be used to collect energy use data?

LA's proposed ordinance would require benchmarking and reporting using EPA's ENERGY STAR® Portfolio Manager tool.

Industrial facilities will also use Portfolio Manager to track and report energy use per square foot, but industrial process loads will be excluded. Industrial facilities will benchmark and report energy use required for building operation, such as lighting, air conditioning, etc.

Have stakeholders expressed data privacy concerns, and if so, how were those concerns resolved?

In most of our meetings, it does not come up. When it is a concern, it quickly works out when building owners/managers learn data disclosure is happening in other parts of the country, and that this has not caused any issues or been an area of concern in those cities, their concerns are resolved.

Do building owners have access to monthly whole building aggregate energy use data from the utilities?

Now, under AB 802, the utilities are required by state law to provide this information starting January 1, 2017.

What metrics does the city propose to collect in your benchmarking reports?

We are proposing to collect the basic reporting metrics in Portfolio Manager at a minimum, which includes the ENERGY STAR® 1-100 score, energy use intensity (EUI), total water consumption, and GHG emissions. We would also collect information about the building to provide context and better understand the data.

Will LA collect both indoor and outdoor water use information?

Yes, but most buildings in LA are not separately metered for indoor and outdoor water use, so we will likely request that it be reported together, unless it is separately metered.

How are benchmarking reports collected?

We will use a custom report template in Portfolio Manager. A city can create their own unique URL that will have a link to the custom report, and we get to choose as the city which data fields we want to collect, the building owner populates the report electronically through Portfolio Manager, submits on to the city, and it populates our city account.

What data is or will be made available to the public, and with what frequency?

The proposal is to have the data publicly disclosed once a year in the fall – right now we're saying September 1, so it would be due on May 1, and we would disclose by September 1.

We would include address, basic output metrics such as the ENERGY STAR® score, the EUI, weather normalized, the total water consumption, and the GHG emissions.

Is the city working with any third party consultants, academics, or partners on benchmarking or reporting efforts?

Los Angeles is one of the 10 cities that is a part of the City Energy Project, which is a national program that helps cities with not only benchmarking, but holistic energy efficiency programs for existing buildings. LA is the one city in CA participating, but it is a joint nation-wide effort between the Natural Resources Defense Council and Institute for Market Transformation.

There are a few other networks that the city participates in, such as the Urban Sustainability Directors Network (USDN). The Pacific Coast Collaborative (PCC), a partnership between the west coast states and British Columbia, is looking at aligning benchmarking policies across the region. The PCC recently invited cities in these states and provinces to participate in this collaboration, so cities and states can all be aligned in their benchmarking policies. We are working with these different groups on policy development. In terms of technical research and academic partners, we have been working with UCLA to explore our building data and choose the size threshold of what buildings would be included in the policy.

Is it anticipated that partners will have access to building-level energy use information?

We would include language in the proposed ordinance language to ensure academic partners would be able to get access to the full dataset, because there are a lot of things they want to do with it to better understand building energy use in LA.

Hopefully we can adopt language so data can then be provided to third parties to conduct research and analysis through a non-disclose agreement so they can look at information and analyze.

Is there anything else you would like to add?

With the state passing AB 802, benchmarking is going to be a statewide requirement for large buildings. The more we can work through the technical details at the local level, the more smoothly statewide implementation roll out.

Chicago, Illinois

City Energy Project
Amy Jewel, Senior City Advisor
Institute for Market Transformation

Background information:

My title is Senior City Advisor to the city of Chicago; I work for the Institute for Market Transformation, full-time on the City Energy Project. The City Energy Project is a groundbreaking national initiative to improve the energy efficiency of buildings in 10 major American cities. Chicago is one of the 10 cities participating in the City Energy Project, and one of the main resources provided through the partnership is a full-time, on-the-ground advisor to the city.

Who is required to report energy use data in your jurisdiction?

The Chicago Energy Benchmarking Ordinance applies to municipal, commercial and multifamily buildings over 50,000 sq. ft.

There are a few building types that are not covered; those include industrial manufacturing buildings as well as storage and warehouse buildings.

The policy is being phased in over 3 years. It was passed in 2013 and the first reporting deadline was June 1, 2014. The City just had its second reporting deadline this year in 2015.

In 2014, only the nonresidential buildings 250,000 sq. ft. and greater were required to comply. This year all nonresidential buildings down to 50,000 sq. ft. and multifamily buildings 250,000 sq. ft. and greater were required to report. Next year, 2016, is the final phase in for multifamily buildings down to 50,000 sq. ft.

The full text of the ordinance as well as the rules and regulations provide more details. Both of these documents are online at: www.CityofChicago.org/EnergyBenchmarking

What tool is used to collect energy use data?

The no-cost tool provided by the EPA which is ENERGY STAR® Portfolio Manager.

Have stakeholders expressed data privacy concerns in Chicago- how addressed?

I have heard very few concerns about data privacy. There are two separate utilities serving the city of Chicago – one for electricity and one for natural gas. Property owners and managers or consultants don't ever have access to individual tenant data; they only receive the aggregated data for the whole building. In order to receive that data, they need to request it from the utilities and there must be 4 or more tenants with utility accounts. If there are fewer than four accounts, then the tenants must sign a release form.

Do building owners have access to monthly, whole-building aggregate energy use from the utility?

Yes, building owners have access to monthly, whole-building aggregate energy use from the utilities.

The City and its partners do have some resources and training that describe the data request process with the utilities. There is a step by step benchmarking guide with information on how to access aggregate whole-building energy use information; it is available at www.CityofChicago.org/EnergyBenchmarking. There is also a one page fact sheet and a two page compliance checklist.

The City and its partners also provide free training. The partners offered 20 trainings this year, which are provided by volunteers from partner organizations, and there is also now a web recording of the training available online.

For our electric utility, Commonwealth Edison, there is an online tool called EUDS (energy usage data system). The building owner needs to register their account and then there's a verification process to make sure they're representing the building they say they're representing. For example, the owner/manager provides the property address and other basic information in the registration process. They then receive access to an online tool and through that tool they can request the building data they need. For natural gas, we have a separate utility called Peoples Gas. They have a similar but separate system; you find and create an account and then request the data. The building owner/manager does have to provide meter numbers.

Only the electric utility provides direct uploads to Portfolio Manager at this time. The natural gas utility provides the data by email.

What metrics does Chicago collect in benchmarking reports?

The city's custom reporting template in Portfolio Manager includes metrics for energy use, energy performance, and some basic characteristics about the building.

Cost data is not collected by the City of Chicago, nor is there any water data collected – neither cost nor water data are required under the Chicago ordinance. Any cost information used in the City's annual reports is estimated based on energy data and average energy costs for our region.

How are benchmarking reports collected?

Benchmarking reports are collected through Portfolio Manager via a custom reporting template.

What data is made available to the public, and with what frequency?

The City of Chicago is authorized to publicly disclose data starting with the second year that buildings report. The first year data is never made public under the city's ordinance.

The City is also authorized to disclose data annually. In terms of what specific metrics are made available to the public, the City hasn't yet disclosed data, but is currently exploring disclosure, which is authorized this year.

The City's goal is to complete the public benchmarking report before the end of this calendar year.

Is the city working with any work with third party consultants, academics, or other partners on benchmarking or reporting efforts?

The Chicago Energy Benchmarking working group, comprised mostly of nonprofit organizations, works with the city to implement the ordinance. Trainings are coordinated with the USGBC Illinois Chapter, AIA Chicago Chapter, and ASHRAE Illinois. Another key partner is Elevate Energy, a local nonprofit based in Chicago. They operate the benchmarking help center, and do a lot of work with the data management as well.

Have these partners had access to building-level energy use information?

The city has executed non-disclosure agreements with a small number of partners who work on data analysis.