



BUILDING ENERGY TRANSPARENCY:

A Framework for Implementing U.S.
Commercial Energy Rating
& Disclosure Policy

July 2011



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Institute for Market Transformation

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FOREWORD

States and cities are breaking new ground in the United States with innovative policies to rate the energy performance of buildings and provide that information to consumers. Already enacted in some of the nation's largest real estate markets, these policies will impact billions of square feet of floor space in offices, malls, apartment complexes, warehouses, government facilities and other buildings large and small nationwide. They have the potential to influence the real estate decisions of tens of thousands of businesses, tenants, investors, pension funds, lenders and building owners and operators. Needless to say, that is no small thing.

There are challenges. Nothing of the sort has been tried here before. States and cities are implementing and experimenting, and literally writing the rules as they go.

In November 2010, the Institute for Market Transformation convened senior policymakers from 10 U.S. states and cities, national building energy efficiency experts, and leaders from the real estate industry to discuss challenges and best practices in implementing commercial rating and disclosure policies. The *Roundtable on Implementing Benchmarking and Disclosure Policy* was the first event of its kind in the United States and a bellwether for the swift and continuing evolution of rating and disclosure policies throughout the nation.

This report draws from the *Roundtable*, both in structure and substance. In doing so, it presents the most comprehensive review to date of U.S. rating and disclosure policies, and creates the first framework policymakers can use to identify challenges and apply best practices piloted by leading jurisdictions in policy implementation.

As more states and cities pursue rating and disclosure policies, we hope this report allows stakeholders to anticipate and respond to implementation challenges, resulting in more effective and transformative policy. For jurisdictions that are already implementing policy, including many of the *Roundtable* participants, we hope this report helps inform, align and contribute to the success of their pioneering work.

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EXECUTIVE SUMMARY

Over the past decade, energy performance rating and disclosure has emerged as a global policy tool to spur market demand for energy-efficient buildings and motivate building energy performance improvements. Rating and disclosure policies enable the flow of building energy performance information among real estate stakeholders, allowing property and financial markets to compare the energy performance of buildings during a transaction and appropriately value energy efficiency. Today, more than 50 national, regional and local governments around the world have rating and disclosure policies for commercial buildings.

Local governments in the United States are following suit. Within the past five years, two states and five major cities have passed policies that will affect some of the nation's largest metropolitan real estate markets, including New York City, Los Angeles, Washington, DC, and Seattle. The energy performance of several billion square feet of floor space in those markets and others must be benchmarked using the U.S. Environmental Protection Agency's Energy Star Portfolio Manager tool and disclosed to consumers over the next few years.

For local policy implementers, this is a large and complex task. Responding to the need for greater collaboration between jurisdictions, the Institute for Market Transformation

WITHIN THE PAST FIVE YEARS, TWO U.S. STATES AND FIVE MAJOR CITIES HAVE PASSED POLICIES THAT WILL AFFECT SOME OF THE NATION'S LARGEST METROPOLITAN REAL ESTATE MARKETS, INCLUDING NEW YORK CITY, LOS ANGELES, WASHINGTON, DC, AND SEATTLE

convened the *Roundtable on Implementing Benchmarking and Disclosure Policy* in Nov. 2010, in Washington, DC. The event brought together senior policy implementers from 10 states and cities, national building energy efficiency experts, and leaders from the commercial real estate industry for the nation's first coordinated discussion on the numerous challenges and emerging best practices in rating and disclosure policy implementation.

This report is an outcome of the *Roundtable* and ongoing collaboration with *Roundtable* participants. **The central conclusion of this report is that best practices are rapidly emerging that can help policy implementers overcome barriers and effectively implement rating and disclosure policies.** Many of these approaches have broad

Jurisdiction	Benchmarking (Building Type and Size)		Disclosure					
	Non-residential	Multi-family	On public web site	To local government	To tenants	To transactional counterparties		
						Sale	Lease	Financing
Austin	10k SF+	-	-	✓	-	✓	-	-
California*	1k SF+	-	-	✓	-	✓	✓	✓
District of Columbia	50k SF+	50k SF+	✓	✓	-	-	-	-
New York City	50k SF+	50k SF+	✓	✓	-	-	-	-
San Francisco	10k SF+	-	✓	✓	✓	-	-	-
Seattle	10k SF+	5+ units	-	✓	✓	✓	✓	✓
Washington	10k SF+	-	-	-	-	✓	✓	✓

Table 1: U.S. Rating and Disclosure Policy Summary

*Requirements subject to change by the California Energy Commission

applicability both to current policy implementers and to jurisdictions that may implement rating and disclosure policies in the future.

This report is presented in two sections: The first section is a review of the policy requirements and implementation practices in nine U.S. jurisdictions. They are:

- Austin, Texas
- California
- District of Columbia
- Massachusetts[†]
- New York City
- Portland, Oregon[†]
- San Francisco, California
- Seattle, Washington
- Washington

The second section is a comprehensive assessment of policy implementation challenges and best practices. Fundamentally, rating and disclosure is quite simple – millions of people see the concept applied every day in appliance energy labels, fuel economy stickers on vehicles and nutritional labels on food. Yet, its mandatory application to buildings presents unique challenges. Unlike national labeling requirements for appliances or vehicles, rating and disclosure policy requirements vary greatly between jurisdictions. Existing energy rating systems have never been applied through public policy and often require policy implementers to promulgate new rules and guidelines.

[†]Policies are proposed but not enacted

The commercial building stock and its stakeholders are diverse and decentralized, ranging from institutional property investors that own and operate large portfolios of high-rise offices to individual owners that may hold a single asset, as well as commercial

MANY JURISDICTIONS DELAYED POLICY IMPLEMENTATION DUE TO INITIAL CHALLENGES, BUT ARE NOW DEPLOYING INNOVATIVE APPROACHES TO OVERCOME OBSTACLES

tenants, third-party building operators, energy services companies and utilities. Fully engaging with this sector can be challenging. In addition, many jurisdictions are implementing policies under severe budget constraints.

Many jurisdictions delayed policy implementation due to initial challenges, but are now deploying innovative approaches to overcome obstacles and implement their policies effectively. Many of these best practices were developed by current policy implementers, while others are recommendations by IMT staff familiar with the challenges in each jurisdiction. These best practices, described in greater detail in the report, include:

Outreach, Education and Training

Jurisdictions should develop and deploy a comprehensive public outreach, benchmarking training and stakeholder education program in advance of initial policy implementation. Proactively administering this type of program can significantly increase stakeholder awareness, potentially boosting compliance rates and benchmarking data quality. The program should include:

1. Communication plans to reach different constituencies, including large and small building owners, operators and investors, property and facilities managers, energy services businesses, tenants, utilities and the general public
2. Partnerships with organizations and industry associations to help conduct outreach and benchmarking training sessions
3. Direct correspondence with building owners and operators to explain compliance responsibilities
4. A media outreach campaign to increase awareness and build public support
5. Robust web and social media resources
6. Ongoing benchmarking training and assistance, as resources allow

Benchmarking Guidance

EPA has technical rules for benchmarking with Portfolio Manager. To prevent market confusion, policy implementers should reference and reinforce these rules in policy implementation, especially in the following areas:

1. Floor area definitions
2. Building type classifications

3. Benchmarking inputs
4. Mixed-use benchmarking
5. Vacancy and tenancy requirements

Because benchmarking has traditionally been a voluntary activity, EPA has not promulgated rules for mandatory benchmarking applications. Jurisdictions must develop procedural guidance to further define stakeholder compliance responsibilities. Jurisdictions should establish deadlines by which building owners must request information from utilities and tenants to enable benchmarking, and by which those parties must report that information back to owners. Jurisdictions should also provide guidance where special considerations may complicate or prevent compliance with benchmarking requirements, including for:

1. The construction or significant renovation of a building where the structure has no energy consumption data
2. Situations where a building owner's access to full-building energy consumption data or space use characteristics is limited
3. Condominiums where benchmarking and reporting responsibilities between multiple owners must be defined
4. The inclusion of certain energy loads in benchmarking

In some cases, jurisdictions may need to modify existing Energy Star benchmarking rules to meet localized implementation needs. Jurisdictions must balance this need against potentially negative effects from issuing conflicting benchmarking rule sets.

Compliance and Enforcement

Few if any U.S. jurisdictions have reliable data on the size, type and ownership of their privately owned building stocks, yet jurisdictions must have the ability to measure policy compliance rates and enforce policies to deter noncompliance. Policy implementers should use tax assessment data and other available information sources to create an inventory of privately owned buildings and building owner and management contacts to assess compliance rates. Tax assessment data should be cross-referenced with other data sources and reviewed directly by stakeholders to ensure accuracy. Annual systematic reviews of compliance rates will help jurisdictions detect market-wide compliance trends, gather feedback on the effectiveness of existing compliance measures, and target resources. Additionally, stakeholder education and benchmarking training programs may help increase compliance rates.

Data Quality Assurance

Jurisdictions must ensure reported benchmarking information is accurate. At a minimum, policy implementers should require the signature of building owners on all reported benchmarking information to increase accountability for data quality, and administer periodic audits of reported benchmarking information. Administering benchmarking training programs will help increase data quality by reducing the

potential for accidental benchmarking errors by stakeholders. Annual systematic reviews of data quality will help jurisdictions detect market-wide data quality trends.

Energy Consumption Data

Building owners must have historical energy consumption data for their building to conduct benchmarking, however many owners cannot access this data. Where one or more tenants are separately metered for their energy consumption, the owner must seek permission from each tenant to capture the data. In large buildings with many separately metered tenants, this exercise may make benchmarking difficult or impossible for an owner. In some cases, a tenant may simply refuse to provide the owner with consumption data.

Utilities can help overcome this challenge by providing owners with access to whole-building consumption data. A utility can aggregate the consumption data for all the energy meters in a building and send a single consumption number to the building owner each month. Aggregation typically satisfies the confidentiality regulations governing the utility's release of customer data, enabling the owner to conduct benchmarking without having to manually gather data from each tenant. This strategy is being employed by several utilities to support voluntary or mandatory benchmarking. As an added convenience to owners, utilities can automate the upload of consumption data directly into a building owner's Portfolio Manager account.

Policy implementers must work with utilities to facilitate whole-building data access solutions, which are critical to the implementation of benchmarking policy. Without this type of utility support, policy implementers may need to create alternative energy consumption data collection procedures to enable benchmarking.

Disclosure

Policy implementers must define the benchmarking information required in disclosures, considering that some information should not be disclosed for confidentiality reasons. They must also determine how disclosure can maximize consumer awareness and market demand for energy-efficient buildings. The timing and format of the disclosure can impact its effectiveness. Jurisdictions should make public disclosure web sites functional for users and especially real estate consumers, the target audience. Users should have the ability to search by building address, certain benchmarking metrics, ownership information and traditional real estate metrics, such as submarket and building size. Additional functionality enhancements, such as displaying recognition for buildings that are LEED certified, Energy Star labeled, or have demonstrated energy performance improvement, may help position the web site as a resource for industry.

Jurisdictions implementing a transactional disclosure policy should require disclosure as early in the transaction process as possible, provided they have the authority to influence the disclosure point.

1

INTRODUCTION

1.1 A Global Language

Certificación Energética de Edificios. Building Energy Efficiency Certificate. Statement of Energy Performance. Energieausweis. These are just a few of the names of building energy performance ratings around the world. Today, more than 50 national, regional and local governments, including world economic leaders such as the European Union, China, Australia and Brazil, have policies requiring the rating and disclosure of commercial building energy performance, creating a new international vocabulary and global recognition of this important energy efficiency strategy for new and existing buildings.

As the term implies, rating and disclosure has two complementary components: the comparative energy performance rating of buildings and the disclosure of energy performance ratings to the real estate marketplace.

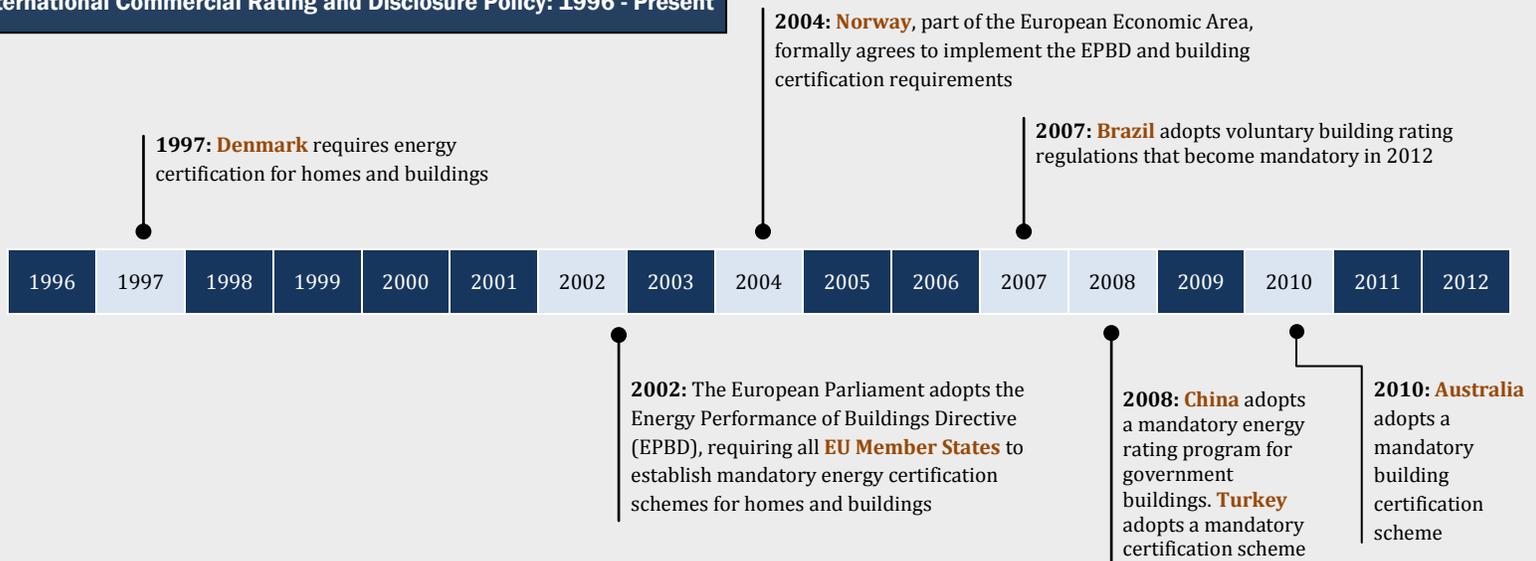
Energy performance ratings are grouped into two categories: asset ratings that measure the structural energy performance of buildings based on simulated operating conditions, and operational ratings that measure how much energy a building actually consumes.

TODAY, MORE THAN 50 NATIONAL, REGIONAL AND LOCAL GOVERNMENTS HAVE POLICIES REQUIRING THE RATING AND DISCLOSURE OF COMMERCIAL BUILDING ENERGY PERFORMANCE

Terms for asset and operational ratings, as well as specific rating tools and methodologies, typically differ between jurisdictions and programs. For instance, EU Member States are implementing a variety of commercial rating and disclosure programs based on both asset and operational ratings, known to Europeans as “calculated” ratings (asset) and “measured” ratings (operational). In China, asset ratings (known as “theoretical” ratings) are the foundation for most rating programs and policies. In the United States, generating an operational rating is referred to as “benchmarking” in the commercial real estate sector. Existing U.S. rating policies are typically based on operational ratings.

Similarly, the disclosure of energy performance ratings takes many forms. Some policies require disclosure to consumers, including tenants, buyers and lenders, during a real estate transaction, while other policies require ratings to be posted on a public web site. Additionally, many policies require the reporting of ratings to government agencies.

International Commercial Rating and Disclosure Policy: 1996 - Present



U.S. Commercial Rating and Disclosure Policy 2007 - Present

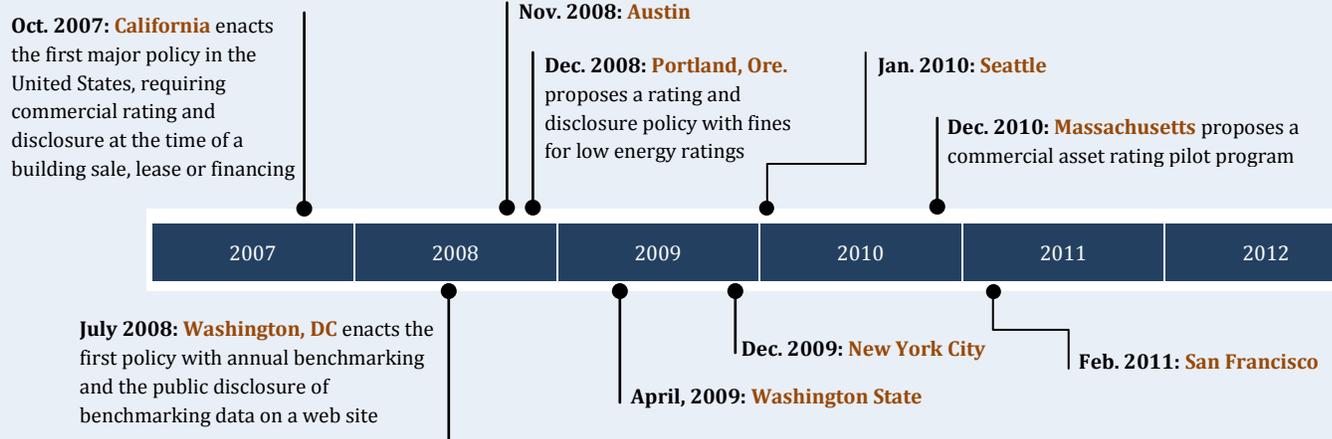


FIGURE 1: International and U.S. Policy Timelines

1.2 A Policy Foundation for Existing Buildings

Governments around the world are becoming aware of the vast amounts of energy consumed in existing commercial buildings. But where many jurisdictions have codes and standards to regulate the energy consumption of new buildings, there are few equivalent measures for the massive existing building sector. Policy to control energy consumption in existing buildings is a wilderness that few governments have explored. Yet there is no question that older, existing buildings hold the key to unlocking vast energy consumption savings. In the United States, more than 40 percent of commercial buildings are already at least 30 years old.¹ In New York City, where commercial buildings account for 80 percent of the city's greenhouse gas emissions and \$15 billion

ABOUT ENERGY STAR PORTFOLIO MANAGER



EPA's Energy Star Portfolio Manager is the most widely used energy benchmarking tool in the United States. Cumulatively, more than 21 billion square feet of floor space has been benchmarked using Portfolio Manager since its introduction in 2000. For most commercial building types, Portfolio Manager generates an operational energy rating from "1" to "100" (100 is best) comparing the building's energy performance to that of similar buildings nationwide.

Quick Facts

- Portfolio Manager is a free benchmarking tool available online.
- Portfolio Manager requires 12 consecutive months of utility bills and basic building and space use characteristics, such as the building's size and location, operating hours and number of occupants, to compute performance metrics. It normalizes for factors including climate, vacancy and space use.
- The 1-100 energy rating is available for 15 nonresidential building types, however all nonresidential and multifamily buildings can generate other performance metrics.
- EPA recognizes the nation's most energy-efficient buildings (energy rating > 75) with the Energy Star Label.

each year in energy costs, 85 percent of buildings standing today will still be in use in 2030.²

Why is it so difficult to make our existing buildings more energy efficient? A primary reason is that historically, building operators have failed to measure and track energy performance. This information gap prevents property and financial markets from comparing building energy performance and valuing energy-efficient buildings, limiting the market forces that should be driving investments in energy efficiency.

Rating and disclosure is a market-based policy tool to help overcome informational barriers to energy efficiency. Systematically assessing or "rating" building energy performance puts important information in the hands of owners and operators, helping them identify opportunities to improve energy efficiency. Disclosing ratings empowers tenants, investors and banks to identify and compare the energy performance of buildings, unlocking the market's ability to drive demand and competition for energy-efficient space. The premise mirrors transparency rules in other market sectors, such as nutritional labels on food and fuel economy ratings on vehicles, which are recognized around the world as consumer protections and keystones of free and fair enterprise.

1.3 Rating and Disclosure Policy in the United States

Rich innovation occurring in states and cities is driving national progress on rating and disclosure policy. Over the past five years, the states of California and Washington, the cities of Austin, New York, San Francisco and Seattle, and the District of Columbia have enacted policies requiring the benchmarking and disclosure of commercial building energy performance. Those policies will have a significant impact on U.S. property markets. In New York City alone, more than 25,000 nonresidential and multifamily buildings totaling approximately 2.5 billion square feet of floor space must be benchmarked and disclosed by 2013. In Seattle, nearly 9,000 buildings and almost 95,000 multifamily units will be affected by new regulations. When fully implemented, current policies could impact more than 60,000 buildings totaling an estimated 4.1 billion square feet of floor space. Commercial policies have also been proposed in states and cities including Colorado, Connecticut, Maryland, Massachusetts, New Mexico, Portland, Ore., and Vermont.

Jurisdictions with policies are leveraging the Energy Star Portfolio Manager commercial benchmarking tool to rate buildings. Administered by the U.S. Environmental Protection Agency, Portfolio Manager is already used extensively by commercial building owners

and operators to conduct voluntary benchmarking. It provides an energy performance rating from “1” to “100” for many nonresidential building types, as well as additional energy performance metrics.⁴

U.S. jurisdictions have recently become more interested in asset ratings, however a range of technical, workforce and financial cost barriers have limited their near-term applicability in existing buildings policy. California and Massachusetts are administering energy efficiency programs leveraging asset ratings and asset rating tools, including the Commercial Energy Services Network (COMNET) modeling guidelines and procedures.⁵

Although no national commercial rating and disclosure policy exists, federal agencies are now becoming more engaged. In late 2009, with support from the Obama Administration, the U.S. Department of Energy launched the National Building Rating

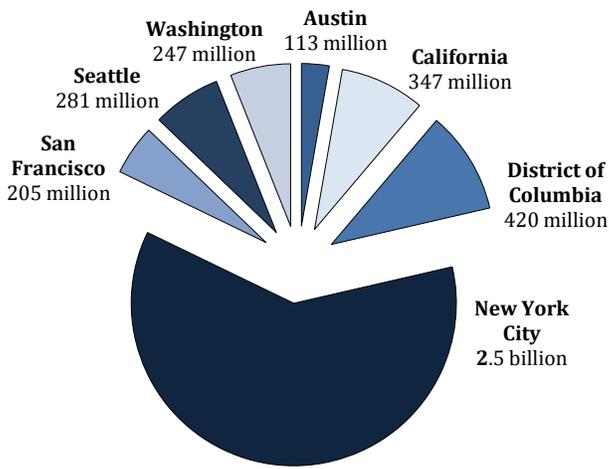


FIGURE 2: Policy Impact Projection on Building Area (in Square Feet) by Jurisdiction³

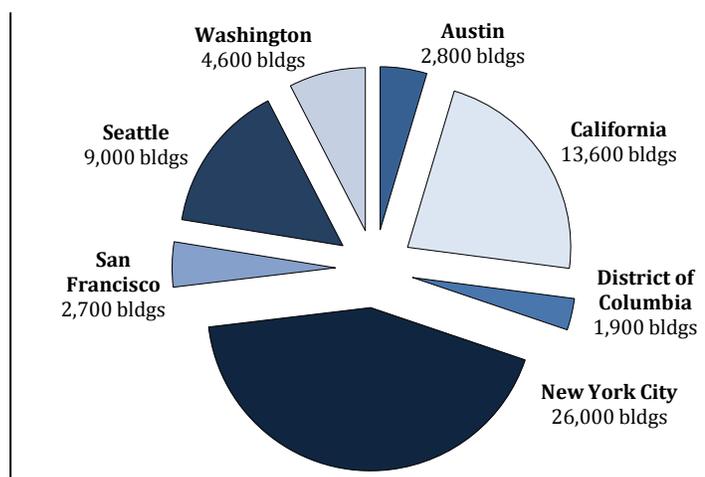
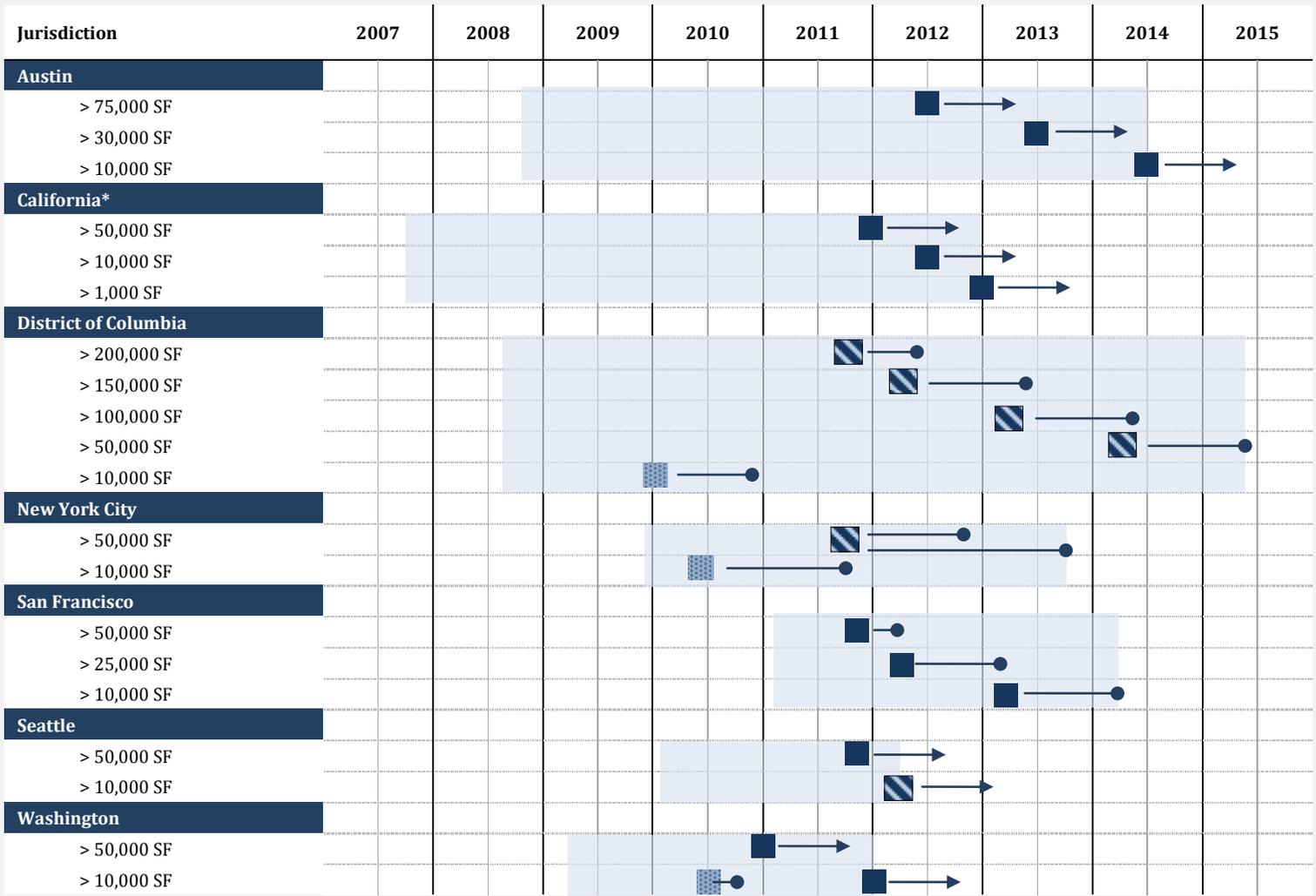


FIGURE 3: Policy Impact Projection on Number of Buildings by Jurisdiction

Program (NBRP), a joint effort with EPA to develop national building energy labels and rating methodologies for homes and commercial buildings.⁶ The commercial elements of the program are still being developed, however it appears likely initial efforts will focus on asset ratings. Additionally, in Dec. 2010, a new requirement came into force requiring federal agencies, including the U.S. General Services Administration, to lease commercial space only in buildings with the Energy Star Label, EPA’s recognition for top-performing commercial buildings.⁷ The provision is intended to motivate building owners competing for federal tenants to benchmark their buildings and make energy efficiency improvements. Local Australian governments have used similar leasing procurement measures to set de facto energy efficiency minimums in existing buildings and motivate energy performance improvements in the commercial sector.⁸



*Requirements subject to change by the California Energy Commission



TABLE 2: U.S. Policy Implementation Schedule: Reporting Dates by Jurisdiction, Building Type and Floor Area

1.4 From Legislation to Implementation

In the absence of federal policy, states and cities have tailored rating and disclosure policies according to their local needs and political considerations. This has resulted both in local policy innovation and sweeping variations in legislative requirements.

Some variations define the fundamental structure of the policy, such as whether benchmarking is triggered by a real estate transaction or an annual requirement, or whether disclosure is required to transaction counterparties or to the general public. Other variations are complementary to policy structure but no less consequential, such as whether benchmarking information must be reported to local governments, or whether utilities are required to provide energy consumption to building owners. The legislation in most jurisdictions exempts small buildings and phases-in benchmarking and disclosure requirements over multiple years according to building sizes and types, although the details vary between policies.

Given the diversity of legislation and other local factors such as building stocks, implementation budgets and stakeholder support, there is no one-size-fits-all approach to implementation. The energy consumption data challenges in the District of Columbia, where utilities are considering how to support benchmarking, are very different than those in Seattle, where utilities are required to provide whole-building energy consumption data to building owners. Transaction-based disclosure in California involves different considerations than public web site-based disclosure in San Francisco. New York City, which is receiving benchmarking records for more buildings than Seattle, San Francisco, Austin, the District of Columbia and the state of Washington combined, has unique challenges in ensuring data quality, compliance and enforcement. In many jurisdictions, simply conducting an inventory of privately owned buildings and building ownership is a challenging task without precedent.

This report examines the many challenges faced by jurisdictions in implementing commercial rating and disclosure policies, and identifies best practices that policy implementers can use, or are already using, to implement effective policies that will result in more energy-efficient buildings. While some of these best practices respond to the unique policy requirements in each jurisdiction, many are relevant across multiple jurisdictions and policies. To provide context and background, the report begins by presenting a comprehensive review of the existing rating and disclosure policies and regulations in U.S. states and cities.

2

POLICY PROFILES

[Austin](#) [California](#) [District of Columbia](#) [Massachusetts](#) [New York City](#) [Portland](#) [San Francisco](#)
[Seattle](#) [Washington](#)



2.1 Austin, Texas

Background

The Austin City Council approved the Energy Conservation and Audit Disclosure (ECAD) Ordinance on Nov. 6, 2008. It requires benchmarking and disclosure for nonresidential properties, time-of-sale audits for single-family residential properties and a combination of energy audits, disclosure and mandatory energy retrofits for multifamily properties. In April 2011, the City Council amended several provisions of the ordinance and delayed implementation of the benchmarking requirements.⁹

Austin's Climate Protection Plan, authorized by the City Council in 2007, recommended energy audits and energy disclosure for homes and buildings.¹⁰ In response to these recommendations, Austin created the Energy Efficiency Upgrades Task Force, a 27-member body representing public sector and private sector stakeholders that met during 2008. The recommendations of the task force formed the basis for the ECAD Ordinance.¹¹

Policy Requirements

Nonresidential Buildings

Building owners must annually benchmark nonresidential buildings of 10,000 square feet or more using Portfolio Manager or the Austin Energy Business Energy Analysis rating tool available through Austin Energy, the municipal utility administering and enforcing the ordinance. Energy ratings must be disclosed to prospective buyers prior to the contract signing for a building sale and to Austin Energy within 30 days of the transaction. Whereas most other rating and disclosure policies require the disclosure of multiple energy performance metrics, the ECAD Ordinance only requires disclosure of the energy rating. Initial compliance is being phased-in from 2012 to 2014 according to the following schedule:

- **June 1, 2012:** Buildings 75,000 square feet and greater
- **June 1, 2013:** Buildings 30,000 square feet to 74,999 square feet
- **June 1, 2014:** Buildings 10,000 square feet to 29,999 square feet

Building owners must calculate energy ratings by June 1 each subsequent year following initial compliance. Industrial facilities used for manufacturing are exempt from the

ordinance. A building owner may contact Austin Energy to request an exemption from the ordinance.

The ordinance originally required owners of buildings greater than 10 years old to generate energy ratings by June 1, 2011, and did not specify any ongoing benchmarking requirements following the initial reporting deadline.

Data Collection and Reporting

Energy Conservation Audit and Disclosure Ordinance Reporting Form

An Energy Conservation Audit and Disclosure Ordinance Reporting Form must be emailed or faxed to Austin Energy to demonstrate compliance with the ordinance. Building owners are required to submit the building's energy rating, but are not required to submit any additional energy performance metrics.

Utility Support

The ordinance does not require Austin Energy to assist customers in collecting energy consumption data for benchmarking, however Austin Energy is providing this service voluntarily and developing a tool to aggregate the metered energy consumption of a building. The aggregation of metered consumption will allow Austin Energy to release whole-building energy consumption data to a building owner each month without the consent of separately metered tenants. To comply with customer privacy requirements in the Texas Utilities Code, Austin Energy must meet the following conditions when aggregating data:

- At least four separate meters must be aggregated together
- The energy consumption from any single meter cannot account for 80 percent or more of the total aggregated energy consumption

Austin Energy will provide the aggregated data to building owners in a form compatible with uploading to Portfolio Manager.

Data Quality Assurance

Austin Energy is in the process of determining data quality assurance measures.

Compliance and Enforcement

Austin Energy is using tax assessment data, as well as Premises Numbers and Electric Account Numbers assigned to Austin Energy customers, to verify compliance with the ordinance. Noncompliance is a Class C misdemeanor and subject to a fine of up to \$500. If criminal negligence is found, a fine of up to \$2,000 may be assessed.

Outreach, Education and Training

Public outreach efforts include distributing information to customers through a direct mail newsletter, utility bill inserts, social media networks, Austin Energy's online blog, marketing brochures and presentations to local organizations. Online resources are available through an ECAD homepage on the Austin Energy web site.¹² The section devoted to commercial buildings explains the benchmarking and disclosure requirements and contains the following resources:

- ECAD Commercial Disclosure Form for reporting to Austin Energy
- ECAD Commercial Disclosure Form instructions
- Application for a variance
- Links to Energy Star Portfolio Manager and Austin Energy Business Energy Analysis tools
- Energy efficiency rebates offered by Austin Energy
- Electronic copies of the ECAD Ordinance and ECAD rules for implementation

Austin Energy partnered with Austin Community College to offer monthly ECAD Ordinance compliance classes for building owners, managers and tenants. The classes teach participants how to comply with the ordinance, report ratings to Austin Energy, assess energy improvement opportunities, and use Portfolio Manager. Austin Energy is also administering a small business outreach program that sends Austin Energy interns to businesses to assist them with the benchmarking process and promote rebate programs.

Program Impact Evaluation

Austin Energy will conduct ECAD impact analysis as required by the ECAD Resolution, a companion measure to the ECAD Ordinance that was approved by the City Council on the same day.¹³ The ECAD Resolution sets goals in 2014 and 2016 for energy efficiency improvement in nonresidential buildings, as measured either by high achievement in benchmark scores or improvement in scores over a baseline score. Austin Energy must make its first progress report toward these goals to the City Council in 2011.



2.2 California

Background

The state of California passed Assembly Bill 1103 in Oct. 2007.¹⁴ It requires benchmarking and disclosure for nonresidential buildings involved in a financial transaction and the automated upload of building energy consumption data to Portfolio Manager by utilities. The law was scheduled to come into force in 2009 for utilities and in 2010 for building owners, however implementation challenges significantly delayed the development and adoption of enabling regulations. Assembly Bill 531, enacted in 2009, allowed the California Energy Commission (CEC) to develop a new compliance schedule for AB 1103.¹⁵

Prior to AB 1103, Executive Order S-20-04, signed in Dec. 2004, required the tracking of energy consumption in all state buildings.¹⁶ The CEC subsequently specified Portfolio Manager as the preferred tool for state benchmarking activities.

Policy Requirements

Nonresidential Buildings

Building owners must benchmark nonresidential buildings of 1,000 square feet or greater and disclose benchmarking information to transactional counterparties and the CEC when an entire building is sold, leased or financed. Initial compliance is being phased-in beginning in 2012 according to the following schedule:

- **Jan. 2012 or later:** Buildings 50,000 square feet and greater
- **TBD:** Buildings 10,000 square feet to 49,999 square feet
- **TBD:** Buildings 1,000 square feet to 9,999 square feet

The CEC is still finalizing the implementation schedule. Compliance will begin in Jan. 2012 at the earliest, however that deadline, as well as subsequent compliance deadlines and minimum building size thresholds, are subject to change.

To comply with AB 1103, a building owner is required to take two actions after benchmarking is completed. The owner must send a California Building Energy Use Report to the CEC and disclose a California Building Energy Use Disclosure (CBEUD) to the following parties:

- The prospective buyer of an entire building, at or before the time a sale contract is presented
- The prospective lessee of an entire building, at or before the time a lease is presented
- The prospective lender financing an entire building, at or before the time a loan application is presented

AB 1103 does not apply to the partial sale, lease or financing of any nonresidential building. The CBEUD is valid for 120 days following its generation. If a building owner must make a subsequent disclosure outside of this time period, they must re-benchmark the building and generate a new CBEUD. A building owner may contact the CEC to request an exemption from the benchmarking and disclosure requirements.

Data Collection and Reporting

California Building Energy Use Report and CBEUD

The California Building Energy Use Report is generated by the building owner and transmitted to the CEC using automated functionality in Portfolio Manager. It contains the following information about the building:

- Portfolio Manager energy performance rating, if available
- National average Energy Use Intensity (EUI) for the Portfolio Manager building type, if available
- Annual energy consumption data, including but not limited to, electricity, natural gas, and renewable energy; and total site energy use for the previous 12 months measured in kBtus
- Gross building area
- Space use and operational characteristics, including weekly operating hours, number of occupants, number of computers, and the percent of the floor area heated and cooled
- Identification characteristics, including Portfolio Manager identification number, building name and address, and owner name and information
- Ending date of the 12-month reporting period

The CEC will use the information in the California Building Energy Use Report to generate a CBEUD, which it will email to the building owner. Only the CBEUD must be disclosed to transactional counterparties. Additionally, the CEC plans to add a California-specific energy performance rating to the CBEUD representing the building's energy performance compared to the energy performance of similar buildings in California.¹⁷

Utility Support

Beginning Jan. 1, 2009, all electric or gas utilities in California were required to maintain customer energy consumption records in a format compatible with Portfolio Manager for at least the most recent 12 months, and upload consumption data into a building

owner's Portfolio Manager account within 15 days of a request from the owner, in a form that preserves the confidentiality of tenants.

Large investor-owned utilities worked with EPA, the California Public Utilities Commission (CPUC) and other stakeholders over the past few years to enable the automated upload of consumption data in Portfolio Manager. Those utilities include Pacific Gas and Electric Co. (PG&E), Southern California Edison (SCE), San Diego Gas and Electric (SDG&E) and Southern California Gas Co. (SoCalGas), as well as the Sacramento Municipal Utility District (SMUD). However, many of California's smaller utilities and municipal utilities do not yet have the capability to upload consumption data in Portfolio Manager.¹⁸ It is unclear how the CEC will address noncompliant utilities.

Utility Data Confidentiality Issues

Even where utilities are complying with AB 1103, unresolved issues related to utility data confidentiality are impacting implementation. To comply with customer data confidentiality rules in the California Public Utilities Code and other CPUC privacy regulations, utilities are requiring the signed consent of all separately metered tenants to enable the automated upload of tenant consumption data in Portfolio Manager. Building owners are responsible for securing tenant consent, which can be extremely difficult (for additional details on this issue, please see Section 3.5.)

The CEC, CPUC and individual utilities are attempting to facilitate the upload of consumption data to Portfolio Manager without tenant consent. Senate Bill 1476,¹⁹ enacted in 2009 to protect customer privacy related to California's emerging smart grid, allows utilities to share customer data under certain circumstances. It may be interpreted to allow utilities to release consumption data to owners without tenant consent to comply with AB 1103. The CPUC is in the process of developing a staff-initiated resolution to further clarify tenant confidentiality issues for utilities. The ultimate applicability of SB 1476 to these matters is not yet clear.

Given these ongoing issues, the CEC is reconsidering whether the AB 1103 requirements should apply to buildings with tenants that pay their own utility bills. Officials at the CEC have expressed interest in developing energy rating tools that provide greater support for benchmarking specific building segments, such as leased space, individual tenant spaces and common areas. This type of benchmarking may align more closely with traditional owner-tenant "boundaries" and diminish utility data confidentiality issues related to whole-building benchmarking.²⁰

Data Quality Assurance

The CEC will rely on the private market to enforce the quality of benchmarking disclosures at the time of a building transaction.

Compliance and Enforcement

The CEC is authorized to fine building owners for failing to submit a California Energy

Disclosure Report, but has limited authority to enforce transactional disclosure requirements to counterparties.

Outreach, Education and Training

The CEC has materials available to educate private sector stakeholders on AB 1103. It has created an AB 1103 page on its web site and posted previous committee workshops, recordings, presentations and workshop materials for the public to access.²¹ It plans to publish an AB 1103 compliance manual in 2011 and may engage a marketing company to conduct additional public outreach activities.

The CEC is relying mostly on existing training resources available through EPA to provide instruction on Portfolio Manager.

Program Impact Evaluation

The CEC has no planned activities to evaluate AB 1103, however it may do so under the scope of Assembly Bill 758.²² Enacted in 2009, AB 758 requires the CEC to develop and implement a comprehensive program to achieve energy savings in California's existing residential and nonresidential building stock. The program may include new measures related to energy rating and disclosure, regional energy ratings, asset ratings and mandatory energy performance improvements.



2.3 District of Columbia

Background

The Council of the District of Columbia unanimously passed the Clean and Affordable Energy Act of 2008 (CAEA) in July 2008.²³ The rating and disclosure provisions of the law amend the Green Building Act of 2006 to require annual benchmarking and the public disclosure of benchmarking information for new and existing nonresidential and multifamily buildings. The DC Council approved amendments to the law in Dec. 2010 delaying the initial benchmarking reporting deadline and granting the District of Columbia Department of the Environment (DDOE) authority to enforce the benchmarking provisions and collect water consumption data in buildings.²⁴

The Green Building Act of 2006 requires that nonresidential municipal buildings constructed in 2009 or later achieve at least 75 points using the Energy Star Target Finder tool, and be benchmarked annually thereafter using Portfolio Manager.²⁵ It also requires the District of Columbia to make benchmarking information publicly accessible within 60 days from the time it was generated.

Policy Requirements

Existing Nonresidential and Multifamily Buildings

Building owners must annually benchmark nonresidential and multifamily buildings totaling 50,000 square feet or more using Portfolio Manager, and annually report benchmarking information to DDOE. Initial compliance is being phased-in from 2011 to 2014 according to the following schedule:

- **July 1, 2011 (Oct. 1):** Buildings greater than 200,000 square feet
- **April 1, 2012:** Buildings greater than 150,000 square feet
- **April 1, 2013:** Buildings greater than 100,000 square feet
- **April 1, 2014:** Buildings greater than 50,000 square feet

In June 2011, DDOE delayed the initial July 1 deadline indefinitely pending the completion of policy regulations. DDOE is targeting Oct. 1, 2011, to begin enforcing

initial compliance.²⁶

Building owners must report benchmarking information for the previous calendar year to DDOE by April 1 each year following the initial compliance date. If a building changes ownership, the new owner is required to report benchmarking information to DDOE for the first full calendar year following the change in ownership.

DDOE will post benchmarking information for each building to a public web site upon the second annual receipt of the information, according to the following schedule:

- **Summer 2012:** Buildings greater than 200,000 square feet, based on calendar year 2011 benchmarking data
- **Summer 2013:** Buildings greater than 150,000 square feet, based on calendar year 2012 data
- **Summer 2014:** Buildings greater than 100,000 square feet, based on calendar year 2013 data
- **Summer 2015:** Buildings greater than 50,000 square feet, based on calendar year 2014 data

No benchmarking information reported to DDOE in the first year of a building's scheduled compliance will be posted. The specific benchmarking information that must be reported, as well as the exact public disclosure dates, will be determined in DDOE's pending regulation.

New Construction and Renovation Projects

Newly constructed and substantially renovated nonresidential and multifamily buildings filing a first construction permit after Jan. 1, 2012, are required to generate energy performance projections using Energy Star Target Finder, and report that information to DDOE prior to the start of construction. Administered by EPA, Target Finder is an energy rating tool for new and renovated buildings that provides an energy performance estimation on the same "1" to "100" scale as Portfolio Manager. The requirement affects projects of 50,000 square feet or more. Additionally, those projects must be benchmarked using Portfolio Manager and report benchmarking information to DDOE for the first full calendar year after initial occupancy, and each year thereafter.

Public Buildings

Municipally owned or operated buildings totaling 10,000 square feet or more must be annually benchmarked using Portfolio Manager beginning in 2010 and disclosed on a public web site each year. In Dec. 2010, DDOE posted the benchmarking results for nearly 200 municipal facilities online.²⁷

Data Collection and Reporting

Tenant Data Collection

Nonresidential tenants are required to provide energy consumption and space use information to the building owner so that the owner can conduct benchmarking. Residential tenants are not required to provide this information. DDOE created the

following documents to aid building owners in collecting benchmarking information from tenants:

- A Tenant Notification Letter that building owners may distribute to tenants outlining tenant reporting responsibilities under CAEA
- A Tenant Information Collection Form for building owners to collect and document information from tenants that is needed by the owner to benchmark

If an owner is unable to submit whole-building benchmarking information to DDOE because of a nonresidential tenant's failure to report information, the owner must submit partial benchmarking information to DDOE accompanied by a Partial Non-Residential Data Explanation Form. The owner uses the form to identify the specific nonresidential tenants that failed to report information. Those tenants may be subject to penalties by DDOE.

Alternative Methods to Determine Energy Data

For buildings with residential tenants, DDOE is allowing the following alternative methods to determine whole-building energy consumption if actual energy data cannot be collected from utilities or tenants:

- **Extrapolation:** The owner can estimate total building energy consumption by acquiring energy data for building common areas and at least 10 percent of dwelling units in each apartment line in the building.²⁸
- **Common areas:** The owner can benchmark and report only the energy consumption for common areas of a building, accompanied by a Partial Residential Data Explanation Form.

Owners submitting partial benchmarking records or records that use alternative energy data to DDOE must also submit an explanation of why a full benchmarking record was not feasible.

Utility Support

The law does not include any requirements on local utilities, however Pepco is voluntarily supporting benchmarking by providing historical consumption data to customers upon their request, and by providing tenant consumption data to building owners with the signed consent of separately metered tenants. Pepco has trained members of its Key Account Support Team to respond to data requests, and is in the process of developing new third-party data release forms specific to the law.

Pepco is considering new methods to streamline customer access to historical consumption data and help facilitate the exchange of consumption data between owners and tenants for benchmarking. Under a proposed program, Pepco would proactively send its customers energy usage reports containing 12 months of historical consumption data, information on the DC benchmarking law and a web link to Portfolio Manager. Pepco is in the process of determining the feasibility of this program.

Data Quality Assurance

DDOE will conduct random audits on reported benchmarking information. The DC Sustainable Energy Utility (SEU) may provide additional data quality assurance and compliance assistance.

Compliance and Enforcement

DDOE is using tax assessment data to create an inventory of buildings that must comply with the law. Building owners and nonresidential tenants who fail to comply with reporting requirements are subject to fines of \$100 per day for each day of noncompliance. Owners will not be penalized for reporting partial benchmarking information, provided they comply with all partial benchmarking requirements. Residential tenants are not subject to any penalties related to data collection or reporting.

Outreach, Education and Training

DDOE is administering a comprehensive public outreach, education and training program that includes:

- Distributing notices and resources to local industry associations about the requirements of the law
- Partnering with EPA, the Apartment and Office Building Association of Metropolitan Washington, District of Columbia Building Industry Association, Pepco and the U.S. Green Building Council National Capital Region chapter to conduct live information and Portfolio Manager training workshops
- Administering benchmarking webinars with EPA to educate stakeholders and provide Portfolio Manager training
- Directly notifying building owners who must comply with the ordinance
- Conducting sector-specific benchmarking training sessions for factions of the local building community, including the hotel, embassy, university, cooperative housing, healthcare, multifamily residential and office sectors.

DDOE created a page on its web site explaining the benchmarking provisions and including links to Portfolio Manager resources.²⁹

Program Impact Evaluation

DDOE benchmarked roughly 200 municipal facilities in 2010 and has completed an initial evaluation of the results.³⁰ The DC SEU may evaluate energy consumption reductions attributable to the ordinance. DDOE has not determined further evaluation activities.



2.4 Massachusetts

Background

The Massachusetts Zero Net Energy Buildings Task Force convened in 2008 to determine practices to achieve zero net-energy commercial and residential construction in Massachusetts by 2030. The Task Force's final report, released in 2009, recommended legislative action to require energy performance rating and disclosure for new and existing commercial buildings by 2012.³¹

Building on the Task Force's recommendations, the Massachusetts Department of Energy Resources (DOER) is now administering a home energy rating pilot in western Massachusetts and a commercial building asset rating pilot in eastern Massachusetts. The home rating pilot is providing workforce training for clean energy jobs and testing complementary innovations, including energy labeling and widespread thermal imaging of homes, to help homeowners implement "deep" energy efficiency upgrades.³² The commercial pilot is intended to reduce cost barriers and test best practices related to building energy asset ratings, and identify the necessary steps to establish a sustainable asset rating program for existing commercial buildings. The National Governors Association's Policy Academy for Building Energy Retrofits provided the initial technical assistance for this project.

DOER is also participating in the Building EQ (bEQ) national building energy rating pilot program administered by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE). DOER enlisted five buildings in the operational rating pilot phase in 2010 and enlisted one building in the asset rating pilot phase, scheduled to begin in the summer of 2011. DOER is on the ASHRAE sub-committee that is developing the program for the asset rating pilot phase.

Proposed Commercial Asset Rating Pilot Program

An outline of the DOER pilot was released in Dec. 2010 in the whitepaper, "An MPG Rating for Commercial Buildings: Establishing a Building Energy Asset Labeling Program in Massachusetts".³³ The pilot is scheduled to launch in the fall of 2011 and run for a period of up to three years. As outlined in the whitepaper, the pilot would evaluate the technical and financial elements of a building energy asset rating program, including

- Energy modeling, audit and benchmarking protocols
- Integration with operational ratings
- Cost management and integration with incentives and financing options
- Program management
- Evaluation, measurement, and verification (EM&V)
- Workforce development and training
- Marketing and outreach strategy
- Future program scope

DOER has proposed to administer voluntary energy assessments and asset ratings for approximately 25 commercial office buildings in the initial protocol testing phase of the pilot. It intends to create a rating database for program evaluation purposes and the voluntary disclosure of pilot ratings. Operational ratings will be part of the pilot and the complementary relationship between the two types of ratings will be examined.

DOER is engaging a broad constituency of local, national and international stakeholders from the real estate, utility, energy assessment, financial services, government and nonprofit sectors to develop and implement the pilot project.

Proposed Policy Framework

In its whitepaper, DOER proposed a policy framework for a future mandatory asset rating program that could follow the pilot. The framework is contingent upon the experience and outcomes of the pilot project, and thus likely to evolve significantly in the near-term. Many elements of the framework have not been fully developed. Additionally, legislative approval would be needed to implement a mandatory program for privately owned buildings.

According to the proposed framework, commercial buildings greater than 10,000 square feet would be required to generate an asset rating. The initial proposed triggers for a rating are

- The listing or advertisement of the sale of a building
- The lease or lease renewal by a tenant comprising 50,000 square feet or at least 50 percent of a building's leasable area
- A financing transaction, subject to certain minimum thresholds relating to deal and asset values
- The modification of any building energy system that must comply with Massachusetts State Building Code requirements

Additionally, the renewal of the asset rating would be required

- Between 10 and 15 years after the initial trigger event if a subsequent trigger event occurs
- Within 10 years of the initial trigger event if changes in building use result in a 20 percent or greater increase in energy consumption
- Within 15 years of an initial trigger event, absent a second trigger event

The framework identifies the possibility of requiring periodic operational ratings to complement asset ratings, as well as the public disclosure of building rating information.



2.5 New York City

Background

The New York City Council unanimously passed Local Law 84 in Dec. 2009.³⁴ It requires annual energy and water benchmarking for nonresidential and multifamily buildings, and the annual public disclosure of benchmarking information. Initial implementation of LL84 was delayed by three months in 2011.

The law is one component of the *Greener Greater Buildings Plan* (GGBP), a six-point strategy led by the New York City Mayor's Office of Long-Term Planning and Sustainability (OLTPS) to increase the energy efficiency of large nonresidential and multifamily buildings. The GGBP includes energy efficiency financing and workforce development initiatives, as well as legislative mandates requiring energy audits and retro commissioning, lighting upgrades, sub metering for large commercial tenant spaces, and energy code improvements for existing buildings. Those requirements passed the City Council on the same day as LL84. The GGBP was first outlined in 2007 as part of *PlaNYC*, New York City's climate action and sustainability plan that aims to reduce the city's greenhouse gas emissions by 30 percent by 2030.

Policy Requirements

Nonresidential and Multifamily Buildings

Building owners must annually benchmark nonresidential and multifamily buildings totaling 50,000 square feet or more using Portfolio Manager, and annually disclose a New York City Benchmarking Compliance Report for the previous calendar year to the city. Multiple buildings exceeding 100,000 square feet that are on the same tax lot or managed by a single condominium board must also comply with the ordinance. Initial compliance is on Aug. 1, 2011.

The city will post benchmarking information for each building to a public web site upon the second annual receipt of the information, according to the following schedule:

- **Sept. 2012:** Nonresidential buildings 50,000 square feet and greater, based on calendar year 2011 benchmarking data
- **Sept. 2013:** Multifamily buildings 50,000 square feet and greater, based on calendar year 2012 data

No benchmarking information reported to the city in 2011 will be posted.

Building owners must submit a Compliance Report by May 1 each year following the initial compliance date. If a building changes ownership, the new owner is required to file a Compliance Report for the first full calendar year following the change in ownership. The owner of a newly constructed building must file a Compliance Report for the first full calendar year following the year a first Temporary Certificate of Occupancy was issued. Owners may be exempted from compliance if 10 percent or more of a building's gross floor area contains a data center, television studio or trading floor.

Public Buildings

Municipally owned or leased buildings totaling 10,000 square feet or more must be annually benchmarked beginning in May 2010. The city is required to publicly post benchmarking information on municipal buildings each year beginning in Sept. 2011.

Data Collection and Reporting

New York City Benchmarking Compliance Report

Building owners must submit a Compliance Report to the city using automated functionality in Portfolio Manager. The Compliance Report includes, at a minimum, the following information:

- EUI
- Water consumption per gross square foot
- Portfolio Manager energy and water performance ratings, if available
- Comparison of the building's benchmarking information across two or more calendar years, if available

Tenant Data collection

Nonresidential tenants are required to provide energy consumption and space use information to the building owner so that the owner can conduct benchmarking. Residential tenants are not required to provide this information.

Building owners must request benchmarking information from nonresidential tenants between Jan. 1 and Jan. 31 each year using the Non-Residential Tenant Information Collection Form, created by OLTPS. Tenants must report the requested information to the building owner by Feb. 15. Nonresidential tenants that are vacating a building are required to report benchmarking information to the building owner for the relevant occupancy period prior to vacating the space.

Alternative Methods to Determine Energy Data

A building owner may use the following alternative methods to determine whole-building energy consumption if actual energy data cannot be collected from utilities or tenants:

- **Default energy values:** Default energy values identified by OLTPS may be used to approximate energy consumption for nonresidential space or dwelling units.³⁵
- **Extrapolation:** For multifamily buildings, the owner can estimate a building's total energy consumption by acquiring energy data for building common areas and at least 10 percent of dwelling units in each apartment line in the building.³⁶

Utility Support

LL84 does not require local utilities to assist customers in collecting energy consumption data for benchmarking, however ConEd is voluntarily providing aggregated consumption data to building owners for a fee of \$102.50 per building. ConEd will email consumption data to the owner within 15 days of the receipt of payment in a spreadsheet, with consumption aggregated monthly by customer service class.

Building owners must identify one meter at each service address to enable ConEd to identify other meters at the same location. ConEd is not requiring authorization from separately metered tenants to provide aggregated consumption data, except where a small number of meters may be insufficient to mask the identity of individual tenants within a service class.

National Grid, which provides natural gas service to a limited number of customers in the city, is providing whole-building gas consumption data upon request.

Data Quality Assurance

Benchmarking information for many buildings will be verified at least once every 10 years by a Professional Engineer or Registered Architect in connection with energy audit and retro commissioning reporting requirements established under Local Law 87. OLTPS may administer other data quality assurance measures as it deems necessary.

Compliance and Enforcement

OLTPS is using data from the New York City Department of Finance tax assessment database to create an inventory of buildings that must comply with the ordinance. Building owners that fail to submit a Compliance Report by the deadline each year are subject to a \$500 fine by the New York City Department of Buildings (DOB). Fines may be levied quarterly for continued noncompliance.

Outreach, Education and Training

In partnership with the city, the Urban Green Council is offering multiple free information sessions to educate stakeholders on LL84 and additional information sessions upon the request of industry groups. In Feb. 2011, the Urban Green Council, in

partnership with NYSERDA, New York City, ConEd and Related Cos., published its Local Law 84 Compliance Checklist & User's Guide to help real estate owners and operators comply with the law.³⁷

NYSERDA is funding a benchmarking help center to assist stakeholders with benchmarking issues. The center was developed by NYSERDA, OLTPS and City University of New York (CUNY) and began operating in March 2011. NYSERDA is also funding benchmarking training workshops administered by CUNY and the Association for Energy Affordability. OLTPS and EPA are offering joint webinars to provide Portfolio Manager training and educate stakeholders about LL84.

Online resources are available through the GGBP web page at *PlaNYC* web site.³⁸ The page explains LL84 and contains the following resources:

- Benchmarking submission link and instructions
- List of all buildings that must comply with LL84
- Non-Residential Tenant Information Collection Form
- Links to ConEd and National Grid benchmarking support resources
- Links to the LL84 bill and the Final Rule on energy and water benchmarking
- Links to the Portfolio Manager tool and Portfolio Manager resources
- Upcoming training sessions and public outreach events

Program Impact Evaluation

OLTPS is required to submit an annual report to the mayor and the speaker of the city council by Dec. 31 of 2011, 2012 and 2013 evaluating the administration and enforcement of LL84. The report must contain the following information:

- Energy and water efficiency of buildings in the city
- The accuracy of benchmarked data and whether there is a need to train and/or certify individuals who benchmark
- General compliance with the requirements of LL84
- Administrative and legislative recommendations for strengthening the administration and enforcement of LL84
- The effectiveness of Portfolio Manager in accounting for New York City conditions, including high density occupancies, use of steam, large building size, and specific high-energy uses such as data centers, television studios and trading floors



2.6 Portland, Oregon

Background

The City of Portland Office of Sustainable Development (OSD) published policy recommendations to improve the energy and environmental performance of Portland's building stock in Dec. 2008.³⁹ The report was commissioned by the Portland City Council and developed through a series of public stakeholder meetings in early and mid 2008. It addressed new and existing buildings in the nonresidential and residential sectors, and included recommendations on nonresidential rating and disclosure policy and mandatory building energy improvements. Additionally, the City of Portland and Multnomah County Climate Action Plan,⁴⁰ which was adopted by both jurisdictions in 2009, calls for the benchmarking of all nonresidential and multifamily buildings by 2012.

Proposed policy

OSD's policy recommendations, as published in 2008 in the City of Portland Proposed High Performance Green Building Policy, called for energy and water benchmarking using Portfolio Manager in nonresidential and multifamily buildings. Building owners would be required to disclose to OSD an Energy Star SEP or a similar report for each building according to the following schedule:

- **Jan. 1, 2011:** Buildings greater than 100,000 square feet
- **Jan. 1, 2012:** Buildings 50,000 square feet to 100,000 square feet
- **Jan. 1, 2013:** Buildings 20,000 square feet to 49,999 square feet

After the initial reporting deadline, owners would be required to submit updated benchmarking information to OSD at least once every three years. New nonresidential and multifamily construction would begin disclosing benchmarking information to OSD within three years of receiving a Certificate of Occupancy. OSD would not make benchmarking information publicly available, however OSD would assist owners with voluntary disclosure.

OSD would require verification of benchmarking information by a Professional Engineer. To enforce disclosure, OSD would levy fines of 30 cents per gross square foot on building

owners who fail to comply. All collected fines would fund energy and environmental technical assistance and outreach programs for existing buildings.

Additionally, OSD would require mandatory upgrades for poorly performing buildings. Buildings that do not achieve a Portfolio Manager rating of at least 30 would be required to achieve either a rating of 30 or a 15 percent reduction in energy consumption within three years of the initial reporting date. Buildings that fail to achieve those improvements would be assessed a fine at 1 cent per gross square foot for every point below a rating of 30. OSD would work with owners with ratings below 30 to identify strategies, financing options and incentives to reduce building energy consumption enough to avoid penalties.

Policy Update

In Jan. 2009, OSD merged with the City of Portland Bureau of Planning to form the Bureau of Planning and Sustainability (BPS). Shortly thereafter, the High Performance Green Building Policy process was placed on hold. As of June 2011 Portland had not enacted a rating and disclosure policy, however the city is now pursuing such a policy once again. Several elements of OSD's proposed policy are being reconsidered by BPS. Under an alternative approach, Portland may follow the City of Chicago's partnership model, where a third-party nongovernmental organization gains access to utility data for individual buildings and assists building owners in conducting benchmarking. Energy performance information for buildings would likely be aggregated at the neighborhood level prior to disclosure. Separate policy options requiring the transactional disclosure of benchmarking information for individual buildings could be explored. Details on implementation have not been addressed.



2.7 San Francisco, California

Background

The San Francisco Board of Supervisors unanimously passed the Existing Commercial Buildings Energy Performance Ordinance in Feb. 2011.⁴¹ The ordinance requires annual benchmarking, periodic energy audits and the public disclosure of benchmarking information for nonresidential buildings. It augments a nonresidential benchmarking and disclosure law enacted by the state legislature in 2007.

The ordinance is based on proposals by the Mayor's Task Force on Existing Commercial Buildings, which convened in 2009 to develop and recommend actions to reduce energy consumption and carbon emissions, enhance electricity reliability and improve the competitiveness of commercial buildings in San Francisco. The Task Force included local commercial real estate owners, building operators, green building consultants, utilities and banks, and was advised by city and state policymakers. It published its findings in Dec. 2009.⁴²

Policy Requirements

Nonresidential Buildings

Building owners must annually benchmark nonresidential buildings of at least 10,000 square feet using Portfolio Manager and report an Annual Energy Benchmark Summary (AEBS) to the San Francisco Department of the Environment (SFDOE) and to existing tenants in the building. Initial compliance is being phased-in from 2011 to 2013 according to the following schedule:

- **Oct. 1, 2011:** Buildings 50,000 square feet and greater
- **April 1, 2012:** Buildings 25,000 square feet to 49,999 square feet
- **April 1, 2013:** Buildings 10,000 square feet to 24,999 square feet

Building owners must report the AEBS to SFDOE by April 1 each year following the initial compliance date. SFDOE will post benchmarking information for each building to a public web site beginning with the second AEBS submitted by an owner.

The owner of a newly constructed building must report an initial AEBS within 24 months of the issuance of a Certificate of Occupancy. Owners may be exempted from

compliance if a building is unoccupied for the 12-month period prior to the AEBS submittal, or if reporting or disclosing the required benchmarking information would compromise confidential business information.

Public Buildings

Municipally owned buildings totaling 10,000 square feet or more must be annually benchmarked in accordance with the compliance schedule established for privately owned buildings. Benchmarking information must be posted publicly. The general manager of the San Francisco Public Utilities Commission will develop additional implementation guidance in 2011 for municipal buildings.

Data Collection and Reporting

Annual Energy Benchmark Summary

The AEBS will be generated and transmitted to SFDOE using automated functionality in Portfolio Manager. It must be based on 12 months of continuous energy consumption data ending no later than two months prior to the building owner's compliance date, and will include the following information:

- Descriptive building information, such as the address and gross square footage
- Portfolio Manager rating and California energy performance rating, if available
- Weather-normalized and non-normalized energy use intensity (EUI)
- Estimated annual greenhouse gas emissions

Utility Support

California utilities are compelled by state law established under AB 1103 to support the collection and upload of building energy consumption data to Portfolio Manager. The San Francisco ordinance does not specify additional requirements on utilities.

Data Quality Assurance

SFDOE will conduct random audits and quality checks of benchmarking information. It can levy fines if the quality of reported benchmarking information is not deemed sufficient.

Compliance and Enforcement

SFDOE is using tax assessment and local Light Detection and Ranging (LiDAR) data to create an inventory of buildings that must comply with the ordinance. Written warnings will be issued to building owners who fail to comply with ordinance requirements. After 30 days of noncompliance, SFDOE is authorized to indicate the building owner's noncompliant status in the public database. After 45 days of noncompliance following a written warning, SFDOE may levy the following fines:

- Up to \$100 per day for a maximum of 25 days, for buildings 50,000 gross square feet and greater
- Up to \$50 per day for a maximum of 25 days, for buildings 49,999 gross square feet or less

SFDOE will use collected fines to fund implementation and enforcement of the ordinance.

Outreach, Education and Training

A comprehensive public outreach, education and training program is being developed that may include partnerships with local utilities, building owners and managers and trade associations. SFDOE will notify the owners of buildings who must comply with the ordinance.

Program Impact Evaluation

SFDOE will post annual summary statistics on nonresidential building energy consumption derived from AEBS reports and summary statistics on compliance with the ordinance each year.



2.8 Seattle, Washington

Background

The Seattle City Council unanimously approved Seattle's energy disclosure ordinance in Jan. 2010.⁴³ It requires benchmarking and disclosure for nonresidential and multifamily buildings, and includes requirements on utilities to upload energy consumption data in Portfolio Manager. Initial implementation of the ordinance was delayed by six months in 2011. It augments a nonresidential benchmarking and disclosure law enacted by the state legislature in 2009.

The ordinance is based on proposals by the City of Seattle's Green Building Task Force, a 50-member group comprised of public sector and private sector stakeholders. The Task Force met in 2008 and 2009 to develop policy recommendations to achieve energy efficiency targets outlined in former Seattle Mayor Greg Nickel's Green Building Capital Initiative. It issued its findings in April 2009.⁴⁴

Policy Requirements

Nonresidential and Multifamily Buildings

Building owners must annually benchmark nonresidential buildings totaling 10,000 square feet or more and multifamily buildings with five or more units and disclose benchmarking information to the Seattle Department of Planning and Development (DPD) and to tenants and transactional counterparties upon request. Initial compliance is being phased-in from 2011 to 2012 according to the following schedule:

- **Oct. 1, 2011:** (1) Nonresidential buildings 50,000 square feet and greater, and (2) mixed-use buildings with four or fewer residential units
- **April 1, 2012:** (1) Nonresidential buildings 10,000 square feet to 49,999 square feet, and (2) mixed-use buildings with five or more residential units, and (3) multifamily buildings with five or more units

Building owners must annually report benchmarking data to DPD and disclose an Energy Star Statement of Energy Performance (generated by Portfolio Manager) upon the request of the following parties:

- A current tenant, within seven days of the request

- A prospective tenant, within seven days of the request and at or before the time a lease agreement is presented
- A prospective buyer, within seven days of the request and at or before the time a sales contract is presented
- A prospective lender financing or refinancing the building, within seven days of the request and at or before the time a loan application is presented

Heavy industrial and manufacturing facilities are exempted from the ordinance. For new buildings with initial occupancy after the initial compliance date, benchmarking must begin one year after the building receives a certificate of occupancy. If no certificate is applicable, benchmarking must begin one year after the first billing for utility service.

Data Collection and Reporting

Reporting

DPD will download benchmarking information from a building owner's Portfolio Manager account each year using automated functionality in Portfolio Manager. DPD is assigning each building a unique identification number, enabling it to automatically sync the downloaded information to a city database. The information DPD is downloading includes a building's total annual energy consumption, the energy performance rating (where available), EUI and estimated greenhouse gas emissions.

Tenant Data Collection

Nonresidential tenants are required to provide energy consumption and space use information to the building owner within 30 days of a request so that the owner can conduct benchmarking. Building owners are highly encouraged to leverage automated upload capabilities by utilities to gather building consumption data.

Sub-Buildings and Owner Benchmarking Responsibilities

In some cases, DPD is allowing the owners of mixed-use buildings to benchmark two or more space uses separately. Benchmarking and reporting by "sub-building" is permissible if the following conditions apply:

- Each sub-building is under common legal ownership or managed by a single owners' association with reporting responsibility
- Each sub-building is served by separate HVAC systems
- Each sub-building is separately metered from other portions of the building

For condominium buildings, the owners' association is responsible for complying with benchmarking and reporting requirements for the entire building. Where no owners' association or similar entity exists, the owner of the largest portion of the building's gross square footage is responsible for complying with benchmarking and reporting requirements for the entire building.

Utility Support

Beginning June 1, 2010, utilities providing service to buildings in Seattle are required to

maintain customer energy consumption records in a format compatible with Portfolio Manager for at least the most recent 12 months, and upload consumption data in a building owner's Portfolio Manager account within 60 days of a request by the owner, and in a form that preserves the confidentiality of tenants. Utilities are required to automatically re-upload consumption data into a building owner's Portfolio Manager account at least once per calendar quarter.

Alternately, building owners can manually input utility meter data if they meet the following conditions:

- Confirm with their utilities that all meters serving the building have been identified
- Confirm that the energy data for all meters associated with the building has been accurately input in Portfolio Manager
- Provide signed documentation to DPD verifying these actions are completed

Seattle's three utilities, Seattle City Light, Puget Sound Energy and Seattle Steam, are complying with the ordinance in different ways. Seattle City Light is developing the capability to associate individual meter numbers with building addresses, allowing it to upload whole-building consumption data in Portfolio Manager when the building owner identifies the subject building by address. City Light has the dual capability to upload aggregated consumption data over a 24-month period, which does not require consent from individual tenants, or upload consumption data per meter, which does require tenant consent.

Puget Sound Energy is requiring owners to identify and forward each meter number serving a building before it uploads consumption data in Portfolio Manager. Building owners must therefore acquire the meter number from each separately metered tenant before the upload process can commence.

Seattle Steam is requiring electronic consent from customers to upload consumption data in Portfolio Manager, however most Seattle building owners with steam service already have access to that data.

Data Quality Assurance

Building owners can be penalized for reporting inaccurate energy benchmarking reports. DPD has not determined specific data quality assurance measures.

Compliance and Enforcement

DPD is using tax assessment data to create an inventory of buildings that must comply with the ordinance and creating unique identification numbers for each building that owners must use when reporting benchmarking information to DPD. It is authorized to enforce violations of the ordinance by building owners and tenants. Owners who fail to prepare an accurate energy benchmarking report or energy performance rating are subject to

- A \$150 fine for the first violation
- Beginning 15 days following the initial citation, a fine of \$150 per day for the first 10 days of noncompliance, then \$500 per day

Owners who fail to disclose an accurate energy benchmarking report or energy performance rating, or tenants who fail to provide benchmarking information to the building owner, are subject to

- A \$150 fine for the first violation
- A \$500 fine for each subsequent violation

Outreach, Education and Training

DPD convened a stakeholder group in 2011, comprised of local building owners, property managers, tenant associations, energy services companies and utilities, to solicit feedback on the implementation of the ordinance. A separate working group to advise DPD on implementation of the multifamily requirements is planned. In March 2011, DPD hosted an open house event at City Hall to educate stakeholders on the ordinance. It is in the process of creating a reference guide to assist building owners in benchmarking, initiating the automated upload of energy data into their Portfolio Manager accounts, and complying with reporting requirements. Additional resources, such as a staffed support center, may also be created.

DPD mailed letters to owners and property managers who must comply with the ordinance in May 2011. The notification alerted owners and managers to ordinance compliance requirements and identified any building for which the owner or manager is responsible for benchmarking and reporting benchmarking data. DPD is using feedback from owners and managers to ensure its building information and ownership records are correct. In conjunction with direct mail campaign, DPD also launched a public outreach campaign in the local media to build support and awareness for the ordinance.

Online resources are available through a web page at the DPD web site.⁴⁵ The page explains the ordinance and contains the following resources:

- Draft Director’s Rule for implementation of the ordinance
- Links to the ordinance bill and the Green Building Capital Initiative Summary Report
- Link to the Washington benchmarking and disclosure law and information about the law
- Link to the Portfolio Manager tool

DPD is planning to launch a new web site on the ordinance with additional resources in the summer of 2011. Additionally, it has published information about the ordinance on its public BuildingConnections blog.⁴⁶

DPD has partnered with the Northwest Energy Efficiency Alliance’s BetterBricks program to administer Portfolio Manager training workshops to support the ordinance.

It is also planning to administer joint webinars with U.S. EPA to educate stakeholders about the ordinance and provide Portfolio Manager training.

Program Impact Evaluation

DPD will measure the ordinance's impact on reducing energy consumption in buildings as it evaluates its progress toward citywide energy reduction goals. The Pacific Northwest National Laboratory may assist DPD in these evaluations.



2.9 Washington

Background

The Washington state legislature passed Senate Bill 5854 in April 2009.⁴⁷ It requires benchmarking and disclosure for nonresidential buildings involved in a financial transaction, and benchmarking and public disclosure for state-owned buildings. The benchmarking provisions are based on recommendations from the Washington Climate Action Team to reduce greenhouse gas emissions in Washington. The Climate Action Team included public sector and private sector stakeholders and published its findings in Nov. 2008.⁴⁸ Those findings were included in a separate report on climate change reported by state agencies to the legislature in Dec. 2008.⁴⁹

Policy Requirements

Nonresidential Buildings

Building owners must benchmark nonresidential buildings totaling 10,000 square feet or greater and disclose benchmarking information to prospective buyers, tenants and lenders when a building is sold, leased or financed. Initial compliance is being phased-in from 2011 to 2012 according to the following schedule:

- **Jan. 1, 2011:** Buildings 50,000 square feet and greater
- **Jan. 1, 2012:** Buildings 10,000 square feet to 49,999 square feet

State officials did not conduct a rulemaking prior to the implementation of the law.

Public buildings

State agencies and colleges were required to benchmark buildings and campuses of 10,000 square feet or more that are owned or leased by the state by July 1, 2010. K-12 schools are encouraged but not required to benchmark. Agencies must report benchmarking information to the Washington State Department of General Administration (GA), which is required to make benchmarking information publicly available on a web site and prepare biannual reports summarizing benchmarking information for public buildings.⁵⁰ GA must complete its first report by Dec. 1, 2012.

Buildings owned or leased by the state with a Portfolio Manager rating of less than 50 are required to conduct an energy audit. As determined by GA, high EUIs in non-ratable

buildings will also trigger an audit. Cost-effective energy reduction measures identified in the audits must be implemented. Additionally, state agencies may not sign a new lease or a lease renewal in a privately owned building with a Portfolio Manager rating of less than 75, unless certain energy efficiency measures are utilized.

Utility Support

Beginning Jan. 1, 2010, consumer or investor-owned electric and gas utilities providing service to more than 25,000 customers in Washington are required to maintain customer energy consumption records in a format compatible with Portfolio Manager for at least the most recent 12 months, and upload consumption data in a building owner's Portfolio Manager account, upon the request of the owner and in a form that preserves the confidentiality of tenants.

Avista Utilities, Puget Sound Energy and Seattle City Light have added this capability, however as of July 2011, most qualifying Washington utilities are not in compliance with SB 5854.

Data Quality Assurance

No data quality assurance measures are specified in SB 5854.

Compliance and Enforcement

No compliance or enforcement measures are specified in SB 5854.

Outreach, Education and Training

GA provided support to state agencies to benchmark and report information, including:

- Creating a web site for state agencies and colleges with benchmarking resources and information
- Partnering with EPA to provide live and recorded Portfolio Manager training sessions
- Partnering with Washington State University to offer technical benchmarking assistance to state agencies and institutions

Washington has provided limited outreach, education and training to private sector stakeholders. It has relied on existing resources for voluntary benchmarking programs administered by the Northwest Energy Efficiency Council and the Northwest Energy Efficiency Alliance's BetterBricks program, in partnership with regional property and business associations.

Program Impact Evaluation

GA is required to issue a biannual report summarizing benchmarking information for public buildings beginning in 2012. No evaluation of the private sector rating provisions is currently planned. The Washington Department of Commerce is considering amendments to SB 5854 that would require the reporting of benchmarking information for privately owned buildings to WDC, which could enable future program and compliance evaluation.⁵¹ Any such amendments would need to be approved by the state legislature.

3

BEST PRACTICES IN IMPLEMENTATION

[Outreach, Education and Training](#) [Benchmarking Guidance](#) [Compliance and Enforcement](#) [Data Quality Assurance](#)
[Energy Consumption Data](#) [Disclosure](#)

3.1 Outreach, Education and Training

Conducting stakeholder outreach, education and training activities related to policies is one of the most essential activities to successful implementation. Administered well, these activities have the capacity to build stakeholder support for policies and proactively support compliance and data quality assurance.

With budget constraints, jurisdictions must develop outreach plans to make the most of limited resources. Identifying and communicating with affected stakeholders can be difficult, and defining an appropriate role in providing training resources may be a challenge. Jurisdictions should survey their local market and determine how they can best leverage existing programs, partnerships and resources to achieve the broadest possible outreach.

BEST PRACTICES

Develop a comprehensive outreach program

Policy implementers should quickly develop a comprehensive plan for reaching out to building owners and operators, managers, tenants, utilities and other stakeholders. The plan should include outreach strategies to communicate with different constituencies, a list of potential partner organizations to help conduct information and training sessions, direct stakeholder correspondence activities, marketing and consumer education activities, a media campaign, and the development of web and social media resources. Austin, New York City and Seattle have developed outreach programs with most or all of these elements.

Contact building owners directly

Jurisdictions should directly contact building owners and other parties with benchmarking or reporting responsibilities. Most jurisdictions have acknowledged this need and are sending letters to each building owner explaining compliance requirements and identifying the building or buildings for which the owner is responsible. Policy implementers should consider notifying multiple parties associated with each building to ensure awareness. To the greatest extent possible, Seattle is sending letters to both the owner and the property manager to increase compliance awareness.

Partner with local and regional organizations

Partnering with organizations, including real estate trade associations, nonprofit environmental organizations, utilities and educational institutions, allows jurisdictions to cost-effectively leverage existing stakeholder networks to distribute resources and conduct programming. Many jurisdictions are providing information and benchmarking training sessions in partnership with the local chapters of the Building Owners and

Manager Association (BOMA) International, the U.S. Green Building Council (USGBC) and the International Facility Managers Association (IFMA). The local membership of these groups typically represents a significant share of affected stakeholders.

Jurisdictions should also survey local organizations for opportunities to leverage voluntary benchmarking programs to support implementation. For instance, existing programs in Washington administered by BOMA, the American Society for Healthcare Engineering and the Northwest Energy Efficiency Alliance's BetterBricks program are already providing Portfolio Manager training, energy improvement assistance and other benchmarking resources to building owners and operators.

Additionally, many jurisdictions are partnering with local colleges to offer Portfolio Manager training. Austin Energy and Austin Community College are jointly offering monthly benchmarking compliance and training courses. City University of New York is providing similar classes in New York City. The Washington State Department of General Administration has partnered with Washington State University to offer technical benchmarking assistance to state agencies and institutions.



CREATING BUZZ, CREATING JOBS

Ecological, a New York-based sustainability services firm, is educating prospective clients on New York's benchmarking ordinance and reaping the benefits. **This small business has doubled its payroll in the past 12 months and added approximately 400 new clients** as market demand for benchmarking services has increased due to the law.⁵² It expects to add even more business as benchmarking motivates clients to pursue additional energy efficiency services.

Ecological has dedicated part of its web site to educating consumers about New York's *Greener, Greater Buildings Plan* and compliance requirements. Other businesses are engaging in similar policy education activities as they seek new clients. Policy implementers should recognize the value in proactively engaging businesses and leveraging their outreach capabilities.

For more, see <http://www.ecologicalgroup.com>

Identify Industry Partners

Positive messaging from key stakeholders is important to build support for any policy. Jurisdictions should identify real estate stakeholders that can act as ambassadors for media and peer-to-peer outreach and education efforts. Jurisdictions may also wish to tap these stakeholders for constructive feedback and advice on broader implementation issues.

Conduct Benchmarking Training for Real Estate Subsectors

There is wide variation in the technical benchmarking inputs required by Portfolio Manager for different building types, a reflection of the diversity of the commercial building stock. Jurisdictions can maximize the impact of benchmarking trainings by providing individualized training sessions for real estate subsectors. The District of Columbia has provided targeted training sessions for local stakeholders in the hotel, embassy, university, cooperative housing, healthcare, multifamily residential and office sectors.

Leverage EPA resources

EPA is supporting many jurisdictions by providing live Portfolio Manager training sessions and webinars during the implementation phase. In some cases, policy implementers have leveraged these opportunities by providing joint Portfolio Manager training and policy information sessions. While EPA does not have resources to conduct events in specific jurisdictions indefinitely, policy implementers can continue to leverage existing Portfolio Manager training and guidance materials on the Energy Star web site.

Provide ongoing benchmarking assistance

If funding permits, jurisdictions should consider creating benchmarking

help centers or hotlines to provide ongoing technical support to building owners and operators. Real-time support is an extremely valuable resource to prevent benchmarking errors. New York City has established a benchmarking and compliance help center.

Leverage and educate local businesses

Rating and disclosure policies have created a flurry of marketing activity from for-profit energy services businesses in several jurisdictions. As these businesses seek new customers, they often promote policies on their web sites and conduct other outreach and consumer awareness activities. Policy implementers should be aware of this type of activity and consider strategies to engage this sector. Providing specific outreach to for-profit businesses may be one of the most effective and self-perpetuating long-term outreach strategies.

Create a web site

Jurisdictions should create a web site to serve as a clearinghouse for policy and implementation resources. At a minimum, the site should include the following elements:

- Overview of the policy requirements and a link to the legislation
- Implementation rules
- Compliance guidelines
- Frequently asked questions
- Links to Portfolio Manager resources
- Information on upcoming outreach, information and training events

Other web resources should also be utilized. Austin Energy and Seattle have published implementation-related updates to online blogs and social media sites. New York City, in partnership with local groups, has created and posted a downloadable implementation guidebook for stakeholders.

Conduct a media campaign

Jurisdictions can increase public understanding of benchmarking and disclosure policies, inform stakeholders about deadlines and other information, and support outreach goals by conducting a media campaign and generating press coverage. Press can also be an effective conduit to positively frame issues and shape public opinion.

MEET THE PRESS

A highly effective media campaign administered by the City of Seattle in support of its benchmarking ordinance **generated more than 30 unique media stories** in May 2011, as the program officially launched.⁵³ Working with Resource Media, a nonprofit communications organization, Seattle's media campaign included:

- Press releases and promotional materials publicizing the ordinance with statements from city officials and industry stakeholders
- Case studies highlighting the business case for benchmarking and energy efficiency
- Development and distribution of a media package to more than 200 local, regional and national press contacts



3.2 Benchmarking Guidance

EPA has established technical rules for benchmarking with Portfolio Manager, however it has not been within EPA's scope to create rules and procedures for mandatory benchmarking applications. Jurisdictions must develop additional guidance to further define stakeholder compliance responsibilities.

Typically, this type of guidance defines procedural requirements related to regulations (rather than technical rules), such as the delineation of benchmarking responsibilities between multiple parties, or the timeframe in which owners must request benchmarking information from utilities and tenants. In a few cases, jurisdictions have issued guidance that differs from Energy Star benchmarking rules where they find it necessary to meet localized needs related to policy implementation. Jurisdictions must balance this need against potentially negative effects from issuing benchmarking rule sets that conflict with Energy Star rules.

BEST PRACTICES

Align benchmarking guidance to Energy Star benchmarking rules

Offering conflicting guidance with established benchmarking rules has significant potential to confuse the market and impair voluntary efforts by building owners to achieve EPA recognition for top performance. Jurisdictions establishing benchmarking guidance should defer to Energy Star benchmarking rules wherever possible, including in the following areas:

- Benchmarking inputs
- Building type classifications
- Floor area calculations
- Mixed-use facilities
- Vacancy and tenancy
- Campus facilities

EPA Energy Star provides details on these rules and others at the EPA Energy Star web site. Policy implementers should familiarize themselves with these rules.

Many jurisdictions are proactively reinforcing established benchmarking rules where a specific rule has a high potential for misinterpretation. For instance, EPA specifies the use of gross building area in all building floor area calculations. This rule has a tendency to confuse building owners and operators because most operational, financial and leasing decisions are based on a related metric known as rentable building area. A building owner may accidentally use rentable building area (or a related metric known as gross leasable area) when benchmarking, which will lead to flawed benchmarking outputs. The difference in a building's rentable area and gross area is substantial,

typically exceeding 15 percent. Policy implementers are responding by proactively specifying the use of gross building area in regulatory rules and outreach activities.

Consider where local conditions may require specialized benchmarking guidance

Jurisdictions have occasionally issued technical guidance that differs from Energy Star benchmarking rules to meet localized conditions or specific regulatory needs. For instance, Seattle is allowing building owners to divide mixed-use buildings by space type into so-called “sub-buildings” and benchmark each sub-building separately, provided the sub-buildings are separately metered and served by separate HVAC systems. Energy Star benchmarking rules specify that all buildings, including those with mixed-uses, should be benchmarked as a single structure representing all energy loads and building area. However, feedback from Seattle’s real estate community indicated that allowing benchmarking by sub-building provided owners, operators and consumers with more actionable energy performance information than a single benchmark.

There are a few other prominent examples. Seattle and New York City are allowing owners to exclude certain energy loads in benchmarking, such as electric vehicle charging stations, cell phone towers, broadcast antennas and some regulated signage. Additionally, New York City and the District of Columbia are allowing the partial benchmarking of buildings where benchmarking is required but the owner cannot access energy consumption or space use data for a portion of the building. Both cities have also created alternative benchmarking methods related to energy consumption data in response to local data access challenges. That topic is covered in detail in Section 3.5 of the report.

Jurisdictions must weigh the potential costs and benefits of issuing benchmarking guidance which conflicts with established Energy Star benchmarking rules. Adapting these rules may strengthen the effectiveness of local policies and help inform the overall evolution of the Energy Star benchmarking program by serving as case studies. However, it is important to note that even where owners are given benchmarking guidance to comply with local regulations, they must still follow established Energy Star benchmarking rules for eligibility to achieve EPA recognition for top performance, and for compliance under USGBC’s LEED for Existing Buildings: Operations and Maintenance program.

Establish benchmarking rules for new buildings and condominiums

Since energy consumption data for 12 consecutive months is needed to benchmark a building in Portfolio Manager, benchmarking cannot occur immediately for new buildings. Jurisdictions should specify benchmarking to begin for new buildings at some point after issuance of a Certificate of Occupancy, such as within 12 or 18 months. Policy implementers should be aware that some new buildings are not substantially occupied for many months following the completion of construction, particularly in the current commercial real estate down cycle.

Condominiums present a unique challenge because a single structure has multiple owners. Jurisdictions should outline compliance responsibilities for multiple owners and other relevant parties, such as condominium associations.

Establish deadlines for requesting and reporting information

To help guide the benchmarking process, jurisdictions should establish deadlines by which building owners must request information, such as space use attributes and energy consumption data, from utilities and tenants to enable benchmarking. Similarly, parties reporting benchmarking information back to the owner should be required to do so within a certain number of days or weeks. Deadlines should provide sufficient time for parties to gather and report information to the owner and for the owner to conduct benchmarking in compliance with regulations. In situations where owners must request information from tenants or utilities, jurisdictions should create standard reporting forms to assist data collection efforts.

3.3 Compliance and Enforcement

As with any regulation, there are many ingredients that contribute to stakeholder compliance. On the front end, policy implementers can encourage compliance by helping building owners overcome benchmarking challenges, such as access to energy consumption data, and conducting outreach, education and benchmarking training activities to increase market awareness and preparedness. On the back end, regulations must be appropriately enforced to deter noncompliance. Finding the right mix of these ingredients can be difficult. Poor compliance with building energy rating policies has been a chronic issue in Europe, where mandatory programs are being implemented in nearly 30 countries. Research conducted in 2010 indicated that three-quarters of these programs had compliance rates that were “undesirably low”.⁵⁴

Most benchmarking and disclosure regulations authorize jurisdictions to issue fines for noncompliance on building owners. Some regulations also authorize enforcement against tenants. But for many policy implementers, there is a much more basic compliance issue: how do they identify buildings and stakeholders? Most jurisdictions have never conducted large-scale inventories of their privately owned building stock at the building level. Many regulations are phased-in according to building types and sizes. Jurisdictions must be able to identify buildings to proceed with implementation and verify, measure and monitor compliance. Jurisdictions also need to identify the owners of buildings to conduct critical outreach activities and enforce violations.

BEST PRACTICES

Use tax assessment data to initially identify buildings and owners

Most jurisdictions are utilizing local tax assessment databases to inventory buildings and identify building owners that must comply with regulations. This solution is imperfect. Assessment data is typically based on parcel numbers rather than building addresses, and a single parcel may contain several buildings. Buildings may have multiple addresses, either on different streets or a range of addresses on the same street, which may not be reflected in assessment data. Significant variations between recorded and actual building area are typical, and some assessor entries may not include building area at all. Additionally, assessment data may or may not include ownership contact information. Where ownership information is listed, it is often a limited liability corporation or other type of shell company, rather than the true owner.

Despite these drawbacks, tax assessment data is the most comprehensive and accessible resource of its kind currently available to jurisdictions for this purpose.

Consider augmenting assessment data and encouraging stakeholder feedback

Other information resources are available that may be helpful to policy implementers. Local permit applications may have useful information about building area and ownership, however this data is likely to vary by jurisdiction. Some jurisdictions, such as San Francisco, have local Light Detection and Ranging (LiDAR) data that can be useful in

identifying buildings and estimating building area. Policy implementers should consider requesting information from local chapters of building trade associations, such as the Building Owners and Managers Association (BOMA) International and NAIOP, the Commercial Real Estate Development Association. Local data available by subscription from the real estate research company CoStar Group, Inc. may be helpful to cross-reference with assessment data.

Given the challenges in identifying buildings and owners, jurisdictions should encourage stakeholders to provide feedback on the accuracy of information. Policy implementers in Seattle and New York City are sending letters to stakeholders with compliance obligations and encouraging stakeholders to help them resolve inaccuracies related to building size, type and ownership.

Educate the market

Developing comprehensive outreach, education and training programs and resources to inform the market about regulations will encourage compliance. Some jurisdictions have created step-by-step compliance guideline documents to ensure compliance responsibilities are clear to stakeholders. For more, see Section 3.1 of this report.

Enforce noncompliance

Many of the compliance issues experienced by building energy rating programs in Europe were a product of poor enforcement by national governments. Where necessary, jurisdictions should utilize enforcement mechanisms early in the implementation process to deter the market from perceiving that noncompliance is tolerated. This may entail sending warnings to noncompliant parties, issuing fines or openly denoting noncompliance where benchmarking information is published online.

Assess systematic compliance in program evaluations

Policy impact evaluations as required in several jurisdictions should include a systematic assessment of compliance. This type of review can detect market-wide compliance trends, provide feedback on existing compliance measures, and identify areas that require greater or fewer resources.

3.4 Data Quality Assurance

Policy implementers must ensure that benchmarking information and energy ratings meet a high level of quality. Inaccurate or unreliable data undermines the ability of real estate consumers to use benchmarking information to value buildings and compromises other policy goals.

Jurisdictions may encounter significant challenges related to data quality. While benchmarking is a relatively simple exercise for many building owners and operators, benchmarking information can be negatively affected by data entry errors, omitted data, misinterpretations of Portfolio Manager benchmarking guidance, and purposeful misrepresentations of data. Portfolio Manager does not provide any data quality assurance, and EPA requires the third-party verification of benchmarking information only in conjunction with applications for the Energy Star label, which constitutes just a fraction of benchmarked buildings. Many jurisdictions are receiving benchmarking information for thousands of buildings in a relatively short timeframe and have limited budgets to conduct rigorous quality assurance measures. Requiring the third-party verification of benchmarking information prior to its required disclosure is not an option for most jurisdictions without seeking legislative approval.

BEST PRACTICES

Provide benchmarking training and resources

Jurisdictions should provide Portfolio Manager training and ongoing benchmarking assistance to stakeholders as a preventative measure to limit data entry errors and misinterpretations of benchmarking rules. This type of program should leverage existing EPA training resources and local organizations that may already offer Portfolio Manager training. New York City has created a benchmarking help center available for free to building owners and operators.

Perform audits of benchmarking information as resources allow

As a base quality assurance measure, jurisdictions should perform periodic audits or spot checks of benchmarking information. Alerting stakeholders to these quality assurance measures should help discourage accidental errors in benchmarking. Jurisdictions may choose to conduct a combination of random audits and targeted checks. Buildings with atypically high or low ratings or EUIs may have a higher tendency toward errors in benchmarking. Audits may be difficult to conduct where jurisdictions are not receiving benchmarking inputs, which limits their ability to assess the data.

In conjunction with data audits, jurisdictions may consider specifying penalties for repeated occurrences of inaccurate benchmarking information or purposeful benchmarking misrepresentations.

Require signatures on submitted benchmarking information

Increasing accountability for erroneous benchmarking information may help reduce accidental data entry errors and purposeful misrepresentations. As a no-cost quality assurance measure, jurisdictions should consider requiring the signatures of the building owner and any party involved in benchmarking a building to accompany benchmarking information that is disclosed.

Publish benchmarking inputs

Requiring the disclosure of benchmarking inputs, such as gross building area, operating hours, space type and other information, maximizes benchmarking transparency and thus discourages willful misrepresentations of inputs to achieve better benchmark ratings. Benchmarking disclosures made under AB 1103 in California will include benchmarking inputs. However, most other jurisdictions have decided not to publish benchmarking inputs due to privacy concerns from real estate stakeholders. Policy implementers should determine the feasibility of publishing benchmarking inputs after soliciting feedback from industry partners.

Assess systematic data quality in program evaluations

Similar to compliance best practices, policy impact evaluations should include a systematic assessment of benchmarking data quality to identify data quality trends, provide feedback on existing measures and target resources.

Support consumption data uploading by utilities

The uploading of whole-building energy consumption data by utilities directly to a building owner's Portfolio Manager account can significantly reduce the likelihood of data entry errors related to manually inputting energy meter information.

3.5 Energy Consumption Data

Access to building energy consumption data is a longstanding benchmarking challenge and arguably the most complicated implementation issue facing jurisdictions. The amount of energy consumed in a building is the most important factor in benchmarking a building's energy performance. Although it seems logical that the owner or operator of a building would know how much energy it uses, this is often not the case. While some building owners find energy consumption data to be readily accessible, many others face complex technical, legal and bureaucratic challenges that prevent them from accessing all of the energy meters within a building. These challenges can severely restrict an owner's ability to benchmark a building using Portfolio Manager or other benchmarking tools, and limit the owner's general capacity to drive energy efficiency investments, evaluate energy efficiency opportunities and quantify energy reductions.

In the course of voluntary benchmarking, building owners and operators routinely experience the following challenges in accessing whole-building energy consumption data:

Tenant spaces and metering

Building owners typically do not have access to consumption data for spaces where a tenant is individually metered and pays utility bills directly. Because the tenant maintains the utility account, the building owner is regarded by the utility as a third party. To access this data, the owner normally must request it from the tenant. Retail and multifamily residential tenants are commonly separately metered, as are office tenants in some commercial real estate markets.

Manual data collection and tenant authorization

Collecting monthly consumption data from separately metered tenants can be time intensive and procedurally complex for building owners. Some large commercial buildings have more than 100 separate energy meters that can be accessed only with authorization from each corresponding tenant. In some cases, tenants are sensitive about disclosing operational information to owners and may refuse to share consumption data. In other cases, an onsite tenant may not know its energy consumption or have the ability to grant authorization to share data. Large businesses, retail chains and corporations typically process operating expenses, including energy bills, for multiple locations at a single office. Decisions on data sharing must advance through multiple levels of management and can present bureaucratic hurdles. Data collection challenges can be even greater in the multifamily sector, where large apartment buildings routinely have hundreds of separately metered units and residential expectations of privacy are greater.

Limited support from utilities

Given that utilities have access to all the energy meters in a building, they are well positioned to assist building owners in collecting consumption data. Some utilities are supporting the implementation of benchmarking policies by providing whole-building

data access to owners, however this is not common industry practice. The barriers to greater utility support for benchmarking include:

Customer confidentiality: To protect the confidentiality of customers, utilities are subject to state laws or regulatory rulings that restrict the release of consumption data to third parties. While confidentiality rules serve an important purpose, they prevent many building owners from directly accessing whole-building consumption data without the consent of multiple tenants. Individual utilities within the same state may interpret confidentiality rules differently, adding another level of complexity to this issue. Even in situations where utilities are providing whole-building data access to owners, confidentiality restrictions continue to present challenges in some jurisdictions.

Billing practices: Utilities bill their customers based on the energy consumption per meter, and the customer billing systems of most utilities do not associate meters with building addresses. In other words, building owners may need to collect and report the energy meter number for each tenant before a utility can provide whole-building data access, rather than simply reporting the building address.

Cost and labor: The resources required to enable whole-building data access vary by utility depending on many factors. Utilities that automate the uploading of consumption data to Portfolio Manager will incur financial costs to upgrade their IT systems, whereas providing consumption data directly to owners on a case-by-case basis requires staff time. Utilities may view these measures as cost or time prohibitive.

Lack of credited energy efficiency savings: To date, no utility has received credit toward energy efficiency resource standards or other mandated energy reduction goals for providing whole-building data access to support benchmarking programs. As a result, many utilities perceive little value in pursuing these types of measures.

Simply put, if building owners cannot access consumption data and input it in Portfolio Manager, they cannot benchmark their buildings. Policymakers are confronting these issues to enable compliance with benchmarking regulations. Several jurisdictions, such as California, Washington and Seattle, have mandated local utilities to provide whole-building data access to support benchmarking regulations. In lieu of a data access mandate, New York City is working extensively with local utilities to enable similar data access support, while the District of Columbia is compelling tenants to release consumption data directly to owners. Some jurisdictions are also allowing the use of estimated consumption data where building owners cannot access actual data.

BEST PRACTICES

Work with utilities to enable whole-building access to consumption data and automated data uploading

Utilities have the unique ability to provide whole-building energy consumption data to building owners. They are the key piece of the puzzle to overcoming the data access challenges related to benchmarking policy implementation. Where utilities are offering whole-building data access solutions, the barriers related to metering, data collection

and tenant authorization are diminished. Where these solutions are not offered, many building owners will continue to struggle accessing consumption data to benchmark, leading to additional compliance and data reporting challenges for policy implementers.

Utilities are providing whole-building data access to owners in a number of ways. Some utilities, such as Pacific Gas & Electric, Puget Sound Energy and ComEd, are uploading whole-building consumption data directly to a building owner's Portfolio Manager account, either in aggregate for the entire building or meter-by-meter. Other utilities, such as ConEd and Austin Energy, are providing aggregated consumption data to the owner but lack the capability to upload data to Portfolio Manager. While the direct upload of data is more convenient for owners, both of these methods remove most of the barriers to data access. EPA has resources to work with utilities to enable automated data uploading to Portfolio Manager, known as the Automated Benchmarking System (ABS).⁵⁵

Policy implementers should work with local utilities to enable whole-building data access (if they have not already done so) and automated data uploading, and develop data access procedures. Jurisdictions can support this process in the following ways:

Encourage aggregated data strategies and electronic tenant authorization:

Utilities can provide a single, aggregated consumption number to building owners each month representing energy consumption for the entire building, rather than meter-by-meter consumption. Aggregation masks the identity of individual tenants, allowing the utility to report consumption data to the owner in a manner that satisfies most data confidentiality laws without requiring authorization from each tenant. Jurisdictions should work with utilities to determine the feasibility of providing aggregated consumption data and to address any remaining challenges related to confidentiality restrictions. In some situations, such as where a single tenant occupies an entire building or where the aggregation of a small number of meters may not sufficiently mask tenant identities, utilities may still need to require tenant authorization to access meter data. Where tenant authorization is needed, jurisdictions should encourage utilities to provide an electronic authorization option for tenants.

Standardize whole-building data access processes at utilities: The process by which a building owner accesses whole-building consumption data is likely to vary by utility. In Seattle, each of the three local utilities providing whole-building data access has very different procedures and forms for owners to make data requests and authorize data uploads. One utility, Puget Sound Energy, requires owners to provide the identification number of every meter in each building for which the owner requests consumption data.

ABOUT ENERGY STAR AUTOMATED BENCHMARKING SYSTEM (ABS)

Energy Star benchmarking requires 12 consecutive months of metered utility data to be uploaded into Portfolio Manager for each building. Although this can be done manually, utilities can utilize EPA's Automated Benchmarking System (ABS) to securely transfer energy consumption data directly into the accounts of Portfolio Manager users, saving building owners valuable time and decreasing the likelihood for data entry errors. Many utilities are already utilizing EPA's ABS. They include:

- Commonwealth Edison (ComEd)
- Avista Utilities
- Puget Sound Energy
- WPPI Energy
- Pacific Gas & Electric (PG&E)
- San Diego Gas & Electric (SDG&E)
- Southern California Gas
- Southern California Edison
- Sacramento Municipal Utility District (SMUD)

EPA provides technical support to utilities that want to utilize ABS. Additionally, the nation's largest associations representing commercial building owners and managers, the Building Owners and Managers Association (BOMA) International and the Real Estate Roundtable, support automated benchmarking solutions.

ComEd ENERGY USAGE DATA SYSTEM

A number of utilities are offering solutions to help building owners access whole-building energy consumption data, but ComEd's Energy Usage Data System (EUDS) stands apart.

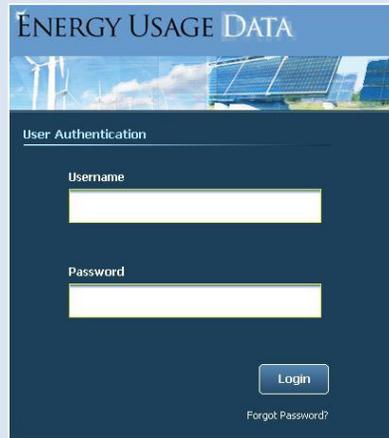
The Chicago electric utility with nearly 4 million customers launched EUDS in 2008 to improve access to whole-building consumption data for owners and operators. The free, online software tool aggregates the energy usage data across meters in a multi-tenant building, providing a single, convenient consumption figure each month to the owner or operator. By aggregating metered consumption, the EUDS frees owners from having to secure consent from tenants to access whole-building consumption data, while protecting the confidentiality of individual tenants.

Prior to EUDS, ComEd was manually fulfilling whole-building data requests for approximately 70 commercial buildings to facilitate energy benchmarking. The process was very slow, typically requiring 10 to 12 days of processing time for each request. ComEd charged building owners hundreds of dollars to account for staff time.

Today, the EUDS is serving more than 1,700 buildings, an increase of more than 2,000 percent in just two years. The processing time for data requests now typically takes 24 hours instead of 12 days. The EUDS also seamlessly integrates benchmarking, allowing owners and managers to send their consumption data directly from ComEd into their Portfolio Manager account with the click of a button. In 2010, ComEd estimated it had automated the upload of consumption data to Portfolio Manager for more than 300 million square feet of office space.⁵⁶



An Exelon Company



Another utility, Seattle City Light, requires only that the owner provide a building address. While some procedural variations are unavoidable, jurisdictions should help coordinate utilities to standardize data access procedures and documentation.

Support utilities in recovering costs and earning efficiency credit for data access:

Utilities may be able to provide whole-building data access using existing funding from energy efficiency programs or customer service budgets. Where that is not feasible, jurisdictions should support utilities in recovering costs through reasonable service fees or rate surcharges, or offsetting initial costs in other ways. For example, the Chicago-area utility ComEd was authorized by legislation to add a monthly surcharge to pay for a broad energy efficiency portfolio which includes the costs of its whole-building data access tool. ConEd, serving New York City, is collecting a fee of roughly \$100 per building to provide aggregated, whole-building consumption data to building owners to support the New York City benchmarking and disclosure law. Southern California Edison received funding from the California Public Utilities Commission (CPUC) to enable data uploading to Portfolio Manager.

Jurisdictions should also explore ways to allow utilities to earn credit toward mandated energy efficiency goals by providing whole-building data access in support of benchmarking. Aligning this incentive may motivate more utilities to consider adding whole-building data access capabilities.

Engage with smaller utilities: Many utilities are unaware of the important role they can play in addressing data access challenges. While some large investor owned utilities (IOUs) are already offering solutions, other utilities with commercial customers, such as cooperatives, public utility districts, municipal utilities and IOUs with small customer

bases, are not typically engaged on this issue. In California, only a handful of the roughly 40 utilities required to offer enhanced data access to building owners currently have the capability to do so.⁵⁷ The situation in the state of Washington is similar. Jurisdictions should prioritize engagement with utilities with large commercial customer bases, but should provide guidance and education on whole-building data access to smaller utilities as well.

Consider requiring utilities to provide whole-building data access: Jurisdictions that do not require utilities to provide enhanced data access should strongly consider proposing additional legislation or working with state regulatory commissions to make data access procedures mandatory for utilities serving large commercial customer bases. In some cases, it may be possible to require whole-building data access as a component of Advanced Meter Systems or other Smart Grid-compliant systems implementation.

Develop alternative compliance measures where consumption data is inaccessible

Jurisdictions should develop alternative methods for owners to comply with benchmarking regulations where whole-building consumption data is not accessible. Even where utilities are providing whole-building consumption data to owners, situations may still occur where the owner or utility lacks access to certain meters. Additionally, some utilities may have difficulty accessing historic consumption records for closed customer accounts, such as when a tenant vacates a space.

Alternative compliance measures should allow the building owner to conduct benchmarking using proxy or estimated consumption data for a portion of the building. New York City and the District of Columbia are allowing the owners of multifamily buildings to extrapolate whole-building consumption data from a sample of actual consumption data. In some cases, New York City is also allowing the use of specified proxy consumption values. Jurisdictions should ensure that alternative compliance measures do not undermine or deter the use of actual consumption data.

Encourage building owners to add data access clauses in lease contracts

As a long-term strategy, jurisdictions should encourage building owners and real estate brokers to add language in lease contracts authorizing the owner to collect tenant consumption data at defined intervals. Some commercial real estate services firms are already counseling building owners to add these types of clauses in new leases and lease renewals.

3.6 Disclosure

Making energy ratings and benchmarking information available to the marketplace is the final consideration for policy implementers. Although the mechanics of public and transactional disclosure are very different, the question facing jurisdictions is the same: How can disclosure maximize consumer awareness and market demand for energy-efficient buildings?

For public disclosure, the primary implementation issues relate to the functionality of the web site where information is displayed. Highly functional web sites that allow users to find and process information quickly will increase stakeholder usage and make disclosure more effective, however jurisdictions are challenged by budget constraints and, in many cases, a lack of in-house web programming expertise. Conversely, a web site with poorly organized information and low functionality may limit the market's use of information. For transactional disclosure, the primary issue is designating a point in the transaction process where disclosure is required.

Additionally, jurisdictions often have latitude in determining what benchmarking information is required in a disclosure. Policy implementers must balance the information needs of the market against the privacy needs of building owners in making this determination.

BEST PRACTICES

Define the disclosure

Portfolio Manager generates a number of energy performance metrics for a building. While most regulations specify the disclosure of the energy rating (where it is available), the disclosure of other metrics is not always defined. In cases of transactional disclosure, some jurisdictions are specifying the disclosure of the Statement of Energy Performance (SEP), a formatted report generated by Portfolio Manager that includes standard building information and energy performance metrics such as the building address and floor area, owner information, energy rating, whole-building energy consumption, greenhouse gas emissions and EUI and national average EUI statistics for similar building types. For public disclosure, most jurisdictions are posting similar information to what is found in the SEP. New York and the District of Columbia are also posting water consumption metrics for buildings.

Policy implementers should recognize that building owners may be sensitive to the disclosure of certain benchmarking inputs or metrics. Posting occupancy statistics or data on the number of employees or computers in a building or the weekly operating hours of a building is likely to raise confidentiality issues. Energy consumption data at the tenant or meter levels should not be posted.

Make disclosure web sites functional for consumers

Posting benchmarking information to a public web site that nobody visits compromises the goals of disclosure. At a minimum, jurisdictions must ensure that web information is well organized and easily accessible to consumers. Some advanced functionality may enhance effectiveness, especially for real estate stakeholders. Policy implementers should consider including the following elements in a disclosure web site:

- User search capability by address, submarket building type and owner
- User search capability by energy performance metrics, including rating and EUI
- User ability to compare buildings and export or print information
- Integration with interactive maps
- Recognition of the Energy Star label and LEED certification for applicable buildings
- Recognition by local government of superior energy performance or energy performance improvement for applicable buildings

Real estate brokers and investors using the web site to gather building energy performance information will find value in search functionality, mapping tools and the ability to print or export result sets. In addition to including recognition for LEED and Energy Star-labeled properties, policy implementers should consider leveraging the web site in local recognition programs. For instance, jurisdictions could highlight buildings in some manner that have ratings above a “90”, or that demonstrate significant energy performance improvement. Integrating this type of recognition into the site may incentivize improvement by building owners.

Consider integrating public disclosure with other databases

Leveraging existing databases may improve the effectiveness of disclosure and save jurisdictions time and money developing new resources. USGBC’s Green Building Information Gateway (GBIG) is an online data portal utilizing GIS maps to display building information, such as LEED scorecards or Energy Star scores, which may support public disclosure goals. GBIG includes functionality enabling the comparison of dozens of information metrics.⁵⁸

Some jurisdictions are considering integrating disclosure web sites with online tax assessment databases. Policy implementers should consider this option carefully. The potential benefits include conserving resources by leveraging an existing, searchable property database, however tax assessment databases are not typically user-friendly and may present data coordination challenges. The feasibility of integration is likely to differ by jurisdiction.

Allow periodic updates to posted benchmarking information

Most jurisdictions are posting benchmarking information based on the previous calendar year to the disclosure web site. Under this system, building owners that improve their energy performance throughout the year may not have an opportunity to update previously posted information until the next cycle begins. To help motivate building energy performance improvements, policy implementers should allow the voluntary updating of posted information at intervals throughout the year.

Require transactional disclosure early in the transaction process

Where policy implementers have the authority to determine the disclosure point in transactional disclosures, they should require benchmarking information be disclosed as early in the transaction process as possible. Requiring disclosure at the time a property is listed for sale or lease should increase the disclosure's potential to impact on the transaction. Disclosure late in the process, such as the time of a contract signing, is likely to have a diminished effect.

Policy implementers could require disclosure in published listings and advertisements or prospectuses, or alternately, upon the request of a prospective buyer or lessee at any point during the transaction process. However, because the listing process is not regulated, implementing and enforcing disclosure during the process may be challenging. Additionally, where regulations already specify a disclosure point in the transaction process, policy implementers will not have the authority to make adjustments.

4

Beyond Rating and Disclosure Policy

Rating and disclosure policy is a beginning, not an end. Benchmarking buildings and disclosing energy performance information creates a foundation for greater energy efficiency in buildings, yet more can be done to unlock the full potential of these policies.

Jurisdictions must start by taking advantage of the vast amount of building performance information becoming available to them. With benchmarking data, policymakers can identify energy performance trends in their building stock. They can set building energy performance goals and track progress at a neighborhood, city or state level. They can target financial incentives to segments of the building sector where the money is most needed, potentially achieving larger reductions in energy consumption and consumer energy costs with fewer taxpayer dollars. They can verify the effectiveness of energy efficiency policies and direct resources more efficiently. In other words, benchmarking data can enable policymakers to exercise smarter public policy and incentives in smarter ways. Government officials in the District of Columbia, New York City, Seattle and other jurisdictions are assessing the breadth of new energy efficiency opportunities that benchmarking data can unlock.

Additionally, a number of jurisdictions are leveraging rating and disclosure policies in comprehensive programs to reduce energy consumption in existing buildings. In its *Greener, Greater Buildings Plan*, New York City combined rating and disclosure with mandatory energy audits, retro commissioning measures, sub metering requirements and retrofit financing options. San Francisco recently enacted a legislative package requiring benchmarking and energy audits. Seattle is leveraging benchmarking information in an innovative project on outcome-based codes, one of the world's first efforts to tie building energy code compliance to a building's actual energy consumption in operation. California and Massachusetts are developing pilots to integrate benchmarking and asset ratings, as well as workforce development initiatives and new financing options through utilities and financial institutions.

Over the next few years, commercial rating and disclosure policy is likely to continue its rapid proliferation in U.S. states and cities. The pipeline of proposed policy and legislation includes nearly a dozen jurisdictions. As jurisdictions consider new policies, they should also consider how rating and disclosure fits into a comprehensive energy efficiency program for existing buildings. Doing so will help in the formulation of long-term energy efficiency strategies and goals, and ultimately enhance the opportunities for rating and disclosure policies to make a significant impact.

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[http://www.mass.gov/?pageID=eoeeterminal&L=5&L0=Home&L1=Grants+%26+Technical+Assistance&L2=Guidance+%26+Technical+Assistance&L3=Agencies+and+Divisions&L4=Department+of+Energy+Resources+\(DOER\)&sid=Eoeea&b=terminalcontent&f=doer_Energy_Efficiency_New-Approaches&csid=Eoeea](http://www.mass.gov/?pageID=eoeeterminal&L=5&L0=Home&L1=Grants+%26+Technical+Assistance&L2=Guidance+%26+Technical+Assistance&L3=Agencies+and+Divisions&L4=Department+of+Energy+Resources+(DOER)&sid=Eoeea&b=terminalcontent&f=doer_Energy_Efficiency_New-Approaches&csid=Eoeea)

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APPENDIX

A. Glossary

ABS: Automated Benchmarking System, a web-service administered by EPA allowing utilities and energy service providers to upload building energy consumption data to a user's Portfolio Manager account.

Aggregate consumption data: Single number representing the total energy consumption from multiple energy meters within a building over a given time period.

Asset rating: Comparative energy performance assessment of a building's structural components based on simulated operating conditions.

Benchmarking: Process of comparing building energy performance against a baseline and generating performance metrics. Some types of benchmarking can produce an operational rating.

Building EQ (bEQ): Commercial building energy rating system under development by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE).

Building owner: The person or entity that holds title to a property. As used in this report, the term is synonymous with the building operator or any authorized agent representing the building owner or operator for policy compliance purposes.

Certificate of Occupancy (C/O): Document issued by a local government to a building developer permitting public occupants within a new or renovated structure.

COMNET: Commercial Energy Services Network, an initiative to establish technical rules for commercial building energy modeling and streamline modeling procedures.

Energy Star: Joint program of the U.S. Environmental Protection Agency and U.S.

Department of Energy recognizing superior energy efficiency in products, appliances and structures, including homes, commercial and industrial facilities, and plants.

Energy Star label: Recognition awarded by EPA for energy-efficient buildings. To qualify, buildings must achieve at least 75 out of 100 points on the Energy Star scale, signifying building energy performance is within the top 25 percent of buildings nationwide.

Energy Star rating: Numeric score from "1" to "100" indicating the energy performance of a building as compared to other buildings nationwide. The rating is available for 15 commercial building types.

EUI: Energy use intensity, a measurement of the energy consumed by a building relative to its size. Energy Star calculates EUI by dividing the building's total energy consumption in a 12-month period (measured in kBtu) by its gross floor area. EUI can be calculated using site energy or source energy.

GBA: Gross building area, the total floor space in a building, typically measured from its outside walls. Energy Star references GBA for all building area calculations.

GLA: Gross leasable area, the total floor space in a building that can be used by tenants.

LEED: Leadership in Energy and Environmental Design, recognizing sustainable buildings as measured by certain criteria. The program is administered by the U.S. Green Building Council.

Operational rating: Comparative energy performance assessment of a building based on actual energy consumption and operating conditions, typically normalized for climate,

occupancy, operating hours, floor area and other factors.

Portfolio Manager: Building energy rating tool administered by EPA that generates energy performance metrics for commercial and multifamily building types.

Public disclosure: Release of building energy performance metrics in a manner accessible by the general public, such as a web site.

RBA: Rentable building area, the floor space in a building that can be rented to tenants and upon which rental payments are based. Typically excludes common areas and space devoted to heating, cooling and other equipment in a building.

SEP: Statement of Energy Performance, a summary report on building energy performance generated in Portfolio Manager after benchmarking.

Separately metered tenant: Tenant whose energy consumption is metered separately by a utility company from other tenants in a building. Separately metered tenants typically pay the utility company directly for their energy usage.

Target Finder: Commercial building energy rating tool administered by EPA that estimates energy performance based on energy modeling data.

Transactional disclosure: Release of building energy performance metrics to transactional counterparties triggered by a building transaction, such as a sale, lease or financing.

B. Government Agencies and Utility Companies Cited

Austin Energy: Publicly owned electric utility serving the Austin metropolitan region and overseeing implementation of rating and disclosure policy in Austin.

Avista Utilities: Investor-owned electric and gas utility serving Washington, Idaho and Oregon.

BPS: City of Portland Bureau of Planning and Sustainability, the agency overseeing development of rating and disclosure policy in Portland.

CEC: California Energy Commission, the agency overseeing implementation of rating and disclosure policy in California.

ComEd: Commonwealth Edison Co., an investor-owned electric utility serving Chicago and Northern Illinois.

ConEd: Consolidated Edison Co., an investor-owned electric and gas utility serving the New York metropolitan region.

CPUC: California Public Utilities Commission, regulates privately owned electric, gas, telecommunications, water, railroad, rail transit, and passenger transportation companies in California.

DDOE: District of Columbia Department of the Environment, the agency overseeing implementation of rating and disclosure policy in Washington, DC.

DOE: U.S. Department of Energy.

DOER: Massachusetts Department of Energy Resources, the agency overseeing development of the Massachusetts commercial building asset rating pilot program.

DPD: Seattle Department of Planning and Development, the agency overseeing implementation of rating and disclosure policy in Seattle.

EPA: U.S. Environmental Protection Agency

GA: Washington State Department of General Administration, the agency overseeing rating and disclosure policy for state buildings in Washington.

GSA: U.S. General Services Administration, the federal agency overseeing acquisition and procurement services.

National Grid: Investor-owned electric and gas utility serving the Northeastern United States.

NYSERDA: New York State Energy Research and Development Authority

OLTPS: New York City Mayor's Office of Long-Term Planning and Sustainability, the agency overseeing implementation of rating and disclosure policy in New York City.

Pepco: Investor-owned electric utility serving the Washington, DC, metropolitan area.

PG&E: Pacific Gas and Electric Co., an investor-owned gas and electric utility serving northern and central California.

Puget Sound Energy: Investor-owned electric and gas utility serving western Washington.

SCE: Southern California Edison, an investor-owned electric utility serving central and southern California

SDG&E: San Diego Gas and Electric Co., an investor-owned gas and electric utility serving the San Diego metropolitan region.

Seattle Steam: Privately owned steam utility serving approximately 200 buildings in Seattle.

Seattle City Light: Publicly owned electric utility serving Seattle.

SFDOE: San Francisco Department of the Environment, the agency overseeing implementation of rating and disclosure policy in San Francisco.

SMUD: Sacramento Municipal Utility District, a publicly owned electric utility serving Sacramento County.

SoCalGas: Southern California Gas Co., an investor-owned gas utility serving Southern California.

Washington Gas: Investor-owned gas utility serving the Washington, DC, metropolitan area.

WDC: Washington Department of Commerce, the agency overseeing implementation of rating and disclosure policy in Washington.

C. Methodology – Policy Impact Projections

This report provides projections on the impact of rating and disclosure policies by [1] number of buildings and [2] by floor area volume in each jurisdiction that is implementing a policy. All projections assume full implementation of each policy (many policies are phased-in over multiple years according to building type and/or size) and assume 100 percent compliance, except as noted. All projections should be considered estimates.

- Austin data from personal communication with Austin Energy, June 7, 2011.
- California data from personal communication with CoStar Group, May 20, 2011.
- District of Columbia data from personal communication with District Department of the Environment, June 8, 2011.
- New York City data from personal communication with New York City Mayor’s Office of Long-Term Planning and Sustainability, June 8, 2011. Approximately 16,000 properties must comply with LL 84. Some properties contain multiple buildings.
- San Francisco data from personal communication with San Francisco Department of the Environment, May 6, 2011.
- Seattle data from personal communication with Seattle Department of Planning and Development, Aug. 9, 2010. Additional data from EIA RECS.
- Washington data on privately owned buildings from personal communication with CoStar Group, May 20, 2011. Data on state owned and leased buildings from personal communication with Washington Department of General Administration, Aug. 9, 2010.

Use of CoStar data

For policy impact projections in California and Washington, IMT used historical real estate transaction data from CoStar Group, Inc., a commercial real estate information, analytics and marketing services firm. This data was necessary because certain benchmarking requirements in California and Washington are triggered by building transactions. In California, 13,587 commercial buildings totaling 346,893,044 rentable square feet were subject to a full-building sale or lease transaction in 2010. In Washington, 2,924 commercial buildings totaling 166,999,330 rentable square feet were subject to a full- or partial-building sale or lease transaction in 2010. Washington and California data does not include financing transactions.

Use of EIA data

For multifamily floor area impact projections in Seattle, IMT used data from the U.S. Energy Information Administration’s Residential Energy Consumption Survey (RECS). City officials provided the number of multifamily units impacted by local policy but could not provide multifamily floor area data. IMT assumed a floor area of 820 square feet per unit, the average unit size in apartment buildings with five or more units in the Pacific Northwest (Table HC1.1.4 Housing Unit Characteristics by Average Floorspace--Apartments, 2005.)

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- **Rebecca Baker**, City of Seattle Department of Planning and Development
- **Kevin Bricknell**, ComEd
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The Institute for Market Transformation (IMT) is a Washington, DC-based nonprofit organization promoting energy efficiency, green building and environmental protection in the United States and abroad. IMT's work addresses market failures that inhibit investment in energy efficiency and sustainability in the building sector.

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