

Commercial and Multifamily Building Energy Benchmarking, Transparency, and Labeling in US Cities

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Several local US governments have adopted energy benchmarking, transparency, and labeling policies that require the owners of large commercial and multifamily buildings to assess their properties' annual energy use and make the results transparent to the public.¹ Among the interested members of the public are potential property buyers, tenants, energy service vendors, utilities, and independent researchers (Hart 2015). These energy policies also inform property owners about their buildings' energy efficiency and allow them to prioritize energy-saving improvements in inefficient buildings. Such investments, coupled with the public release of building energy-use information, may increase the value of energy-efficient buildings across the wider real estate market. In 2008, Washington, DC, and Austin, Texas, became the first two US cities to adopt building benchmarking and transparency requirements (Dillingham and Badoian-Kriticos 2016). To date, 24 US cities and 1 county government have enacted some form of these mandatory policies (IMT 2017); figure 1 shows the cities and the policies they adopted.



Figure 1. Jurisdictions with mandatory benchmarking and transparency policies. *Source:* IMT 2017.

These policies typically require property owners to enter energy-use data and building characteristics into the Environmental Protection Agency (EPA) ENERGY STAR® Portfolio Manager software and share the results with their local government to be made public through a website. In 2017, New York City and Chicago, Illinois, became the first US cities to adopt labeling

¹ City definitions for large buildings vary in square footage.

requirements obligating property owners to also physically post an energy efficiency rating on their building based on benchmarking results (New York 2018; Chicago 2017b).² Since these policies are yet to be implemented, we have confined our discussion of building labeling to these cities' case studies below.

Policy Goals and Benefits

Dillingham and Badoian-Kriticos (2016) found that climate change mitigation was a primary motivator for many cities to adopt benchmarking and transparency policies. Several cities view these policies as a modest cost option to help them achieve a community-wide goal of reducing greenhouse gas (GHG) emissions while promoting job growth, economic development, quality of life, and the sustainable use of local resources. Cities may also be motivated by a desire to increase the private market value of energy-efficient buildings in order to incentivize owners to pursue energy efficiency upgrades. Regardless of a city's primary motivation, these policies can potentially convey a wide range of community benefits, as table 1 shows.

Table 1. Possible benefits of benchmarking and transparency policies for local stakeholders

Stakeholder	Possible benefits of policy adoption
Property owners	Identify energy- and cost-saving opportunities in buildings, which can potentially reduce vacancy rates, increase net operating income, and raise property values.
Tenants	Increase consumer awareness of energy-efficient buildings, allowing prospective tenants to choose buildings with lower energy costs and improved indoor air quality and comfort.
Building operators	Increase market demand for building operators who know how to maintain and operate efficient building equipment and systems.
Policymakers	Increase access to data on the energy use of the existing building stock to both inform future policy development and track progress toward meeting local climate and/or energy reduction goals for buildings. Enable government staff to target poor-performing buildings for improvements. Create a local market for energy efficiency while contributing to city energy and climate goals.
Contractors	Gain new customers as property owners pursue energy efficiency retrofits or construction projects, especially if financial incentives are available to customers.
Utility-sector energy efficiency program managers	Experience an increase in participation from property owners leveraging available technical and financial assistance to make energy efficiency improvements that improve benchmarking scores. They can also use benchmarking information to better target program participants and help programs achieve their participation and energy savings goals.

Source: Hart 2015

² Outside the United States, several European nations and Australia have adopted building energy labeling requirements (Cluett and Amann 2013).

Policy Design and Adoption

Although cities have taken various approaches to designing and adopting local benchmarking and transparency ordinances, commonalities exist. In all cities, senior city staff and elected officials have led the policy development and adoption process, and they often turn to various local and national stakeholders for information and support. Further, many cities turn to task forces and the public to help determine the final provisions of an ordinance.

DEVELOPMENT PROCESS LEADERS

Historically, adopting these policies requires leadership from both elected officials and senior government staff. Cities have been able to develop and adopt benchmarking policies more quickly when a mayor or city council members provide support and leadership. Further, an intergovernmental team of city staff, led by a senior government official, has always supported the policy development. When needed, external organizations and networks have offered these teams information and resources (Dillingham and Badoian-Kriticos 2016).

The first US cities to adopt benchmarking ordinances looked to the European Union and California for research and advice. As more US cities have adopted policies, peer-to-peer networks of city governments have become important information sources. The Urban Sustainability Directors Network and the C40 Climate Leadership Group have provided helpful information to cities considering a benchmarking ordinance (Dillingham and Badoian-Kriticos 2016).

LOCAL AND NATIONAL STAKEHOLDERS SUPPORT

Cities also look to technical experts for advice on developing policy language and benchmarking support tools and programs. National organizations and the federal government have played an important role in complementing the work of local technical experts. Organizations such as the American Council for an Energy-Efficient Economy (ACEEE) and the City Energy Project, led by the Institute for Market Transformation (IMT) and the Natural Resources Defense Council, have conducted and disseminated best practice research. The US Department of Energy (DOE) and EPA have also provided support (Dillingham and Badoian-Kriticos 2016).

Once it is drafted, cities generally offer the public an opportunity to comment on the proposed ordinance. Public support from key stakeholders is often a determining factor in whether an ordinance is passed and how quickly it is implemented. For example, the support or opposition of professional organizations such as the Building Owners and Managers Association can determine whether a proposed ordinance is approved or rejected. The City Energy Project and Urban Land Institute have often played key supporting roles in facilitating the involvement of critical stakeholders such as these (Dillingham and Badoian-Kriticos 2016). The case studies here provide examples of other community stakeholders.

Local utility companies play a key role in determining whether property owners are able to fully comply with benchmarking and transparency requirements that call for reporting an entire building's annual energy use. Because utility companies typically require that tenants agree to share their energy-use data before owners can access it, building owners do not always have access to energy-use data for individually metered tenants. While it may be feasible to obtain the individual consent of a few commercial tenants to share their energy-use data, it is much more difficult to obtain consent for every tenant of a large apartment or condominium building (Samarripas and Bastian 2017). To address this challenge, some cities have collaborated with local

utilities to give owners aggregated whole-building energy-use data that removes all identifying tenant information. This collaboration typically begins with a stakeholder engagement process led by cities or a public utility commission (DOE 2016).

SHAPING THE FINAL PROVISIONS

Dillingham and Badoian-Kriticos (2016) find that most cities use a task force of local stakeholders and public comments to determine a benchmarking and transparency ordinance's final provisions. Given this approach, policy provisions vary across localities. For example, as figure 1 shows, some require that buildings perform an energy audit and make energy-saving improvements, while others do not. City thresholds for the size of buildings that must comply with benchmarking requirements also vary across local jurisdictions.

Implementation Resources

While the resources needed to implement a benchmarking and transparency policy can vary by city, local governments often rely on several common forms of support.

BENCHMARKING SOFTWARE

All cities require property owners to use some form of energy benchmarking software to record their energy-use data and share them with city officials. Most cities use EPA's ENERGY STAR Portfolio Manager for this purpose (Mims et al. 2017). The program is freely available to building owners; it uses data from national building energy surveys to compare the energy efficiency of each building with others that are comparable in size, use, and climate. To best use benchmarking tools such as these, building owners must aggregate whole-building energy-use data from their utility company.

DEDICATED SUPPORT STAFF

Samarripas and Bastian (2017) argue that cities are more likely to achieve energy savings through their benchmarking policies if they dedicate at least one or two full-time staff members to monitor compliance and assist building owners in understanding the steps required to comply. These staff members are typically tasked with several responsibilities:

- Staffing a help desk that answers calls and emails from property owners
- Facilitating in-person workshops
- Disseminating informational material on required actions and deadlines
- Working with owners to ensure that the data they provide is accurate

Some cities also have formed partnerships with local nonprofit organizations or directed government staff to help property owners and managers identify opportunities for improving their buildings' energy efficiency through operational and maintenance changes or retrofits.

DATA-SHARING PLATFORM

Finally, cities need a way to disseminate benchmarking results to the public. Most achieve this through an online data portal that allows the public to download a spreadsheet of energy use for each reporting building. Other common spreadsheet information includes location, ENERGY STAR score, square footage, site energy-use intensity (energy use per square foot), and the building's GHG emissions (Mims et al. 2017). Some cities have taken steps to visualize these data using maps

that let the public more easily evaluate building energy efficiency in their community (Samarripas and Bastian 2017). Figure 2 shows the energy benchmarking map for Seattle, Washington.

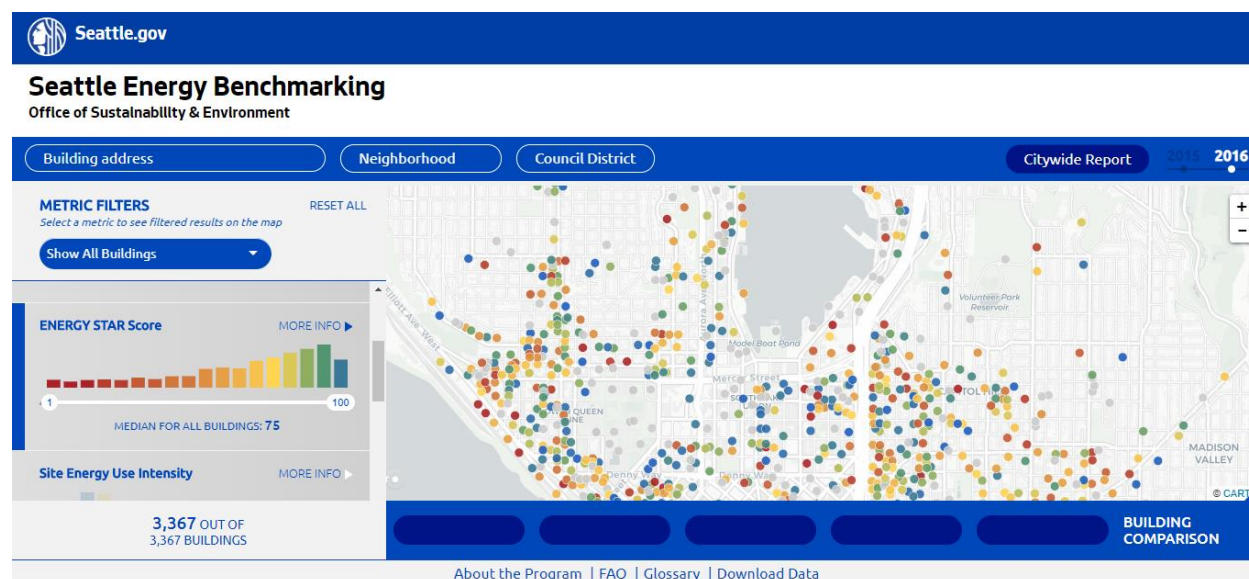


Figure 2. Seattle's online interactive energy benchmarking map. *Source:* Seattle 2018b.

While data are available to the public, there is no guarantee that the public will access and use the data. This has led cities such as New York City and Chicago to adopt policies requiring that buildings prominently display an energy efficiency rating label for public view.

Energy Savings

All benchmarking and transparency ordinances have shown a correlation with local reductions in building energy use, costs, or intensity. Based on available data from cities, Mims et al. (2017) found that benchmarked buildings reduced their energy use by 1.6–14% over a two- to four-year analysis period after a benchmarking ordinance went into effect. In a separate analysis, Antonoff (2017) found that affected buildings in the cities of Chicago (Illinois), Minneapolis (Minnesota), New York (New York), and San Francisco (California) achieved energy savings of 1.3–4.3% over a three- to six-year period.

Energy savings in benchmarked buildings can vary by building type. For example, commercial buildings show higher savings than multifamily buildings. Samarripas and Bastian (2017) pointed out that this may be because multifamily property owners and managers tend to have limited staff and resources for making energy efficiency improvements to their buildings. Mims et al. (2017) found that owners of smaller or older buildings share this same challenge. Given these limitations, multifamily and small building owners and managers will require additional support to identify energy efficiency opportunities and obtain financing for upgrades.

Case Studies

In the following sections, we highlight benchmarking and transparency policies in the cities of Chicago, Seattle, and New York.³ These three cities have demonstrated some of the highest benchmarking compliance rates and energy savings in the United States. We also briefly examine building labeling policies adopted in Chicago and New York City. Using information collected from published reports and interviews with staff responsible for policy implementation, we examine how each city has approached the design, adoption, implementation, and evaluation of these mandates.

CHICAGO, ILLINOIS

Policy

Chicago adopted its benchmarking and transparency ordinance in 2013 with the primary goal of reducing utility costs for the city's business and residents (Chicago 2017c). The ordinance requires that owners of commercial, institutional, and residential buildings larger than 50,000 square feet report their annual whole-building energy use (Chicago 2017a). These buildings account for 20% of the city's carbon emissions and city government staff estimate that they could save \$40 million per year if they reduced their energy use by at least 5% (Chicago 2017a).

The city took a carefully planned approach to developing and adopting the policy. City staff members conducted research on other cities' experiences in enacting benchmarking mandates. They also developed and launched a voluntary energy challenge one year prior to ordinance adoption, which included an energy benchmarking component. City staff members were also responsible for facilitating stakeholder engagement efforts to collect feedback on both ordinance provisions and implementation rules.

The process of developing ordinance provisions also led staff members to investigate a requirement that property owners have their benchmarking data undergo verification every three years to ensure accuracy. They also investigated how building staff members could verify the data themselves, rather than hiring a third party to do so. Consequently, the city's policy allows any professional with one of seven city-recognized licenses or training programs to verify benchmarking data. This gives building owners and managers a flexible, low-cost way to meet the verification requirement.

Four years after adopting the benchmarking ordinance, city staff researched three new requirements to further improve building energy performance across the city:

- Mandate that building owners conduct energy auditing or retrocommissioning, or adhere to an energy performance standard
- Increase the number of buildings required to comply with the benchmarking ordinance by lowering the size threshold of buildings required to comply
- Require that buildings publicly display an assigned energy rating

³ Although these three cities are comparable in several ways, they have substantially different population sizes. One-year estimates from the American Community Survey administered by the US Census Bureau (2018) show the following 2017 population figures: New York City, 8,622,698; Chicago, 2,716,462; and Seattle, 724,764.

After extensive analysis of each policy option's costs and benefits, as well as consideration of stakeholder input, the city ultimately moved forward with requiring property owners to publicly display an assigned energy rating. Having adopted this new requirement in 2017, the city is currently undergoing a stakeholder engagement process to inform the rulemaking process. Stakeholders include real estate professionals, building owners and operators, engineers, energy efficiency advocates, local utility companies, and researchers (Chicago 2018). The city is also researching the Australian government's approach to building labeling since both Chicago and Australia use a star-based energy rating system.

Chicago program staff are primarily responsible for benchmarking implementation, but several community nonprofit partners assist with this work. To ensure a high compliance rate among buildings, city staff worked with Elevate Energy, a local nonprofit organization, to develop a help center and issue annual building report cards to building owners. The city worked with the Illinois Green Alliance (formerly the US Green Buildings Council Illinois) to conduct free group trainings for property staff and provide free assistance for nonprofits and buildings in need. Although demand for these services was high during the first three years of policy implementation, demand has subsided in recent years. This has allowed the city to scale back the size of the help center and conduct fewer in-person trainings; it now conducts three or four in-person trainings per year and often refers property staff to recordings of previous trainings on YouTube.

In addition to technical assistance, the city began issuing fines for noncompliance in early 2018. City staff has worked closely with local real estate and property management industry groups to disseminate information about the need for compliance among owners and managers. All building contacts (not just the principal owner) receive two letters or emails to remind them of upcoming deadlines. These contacts also receive two warnings after the annual reporting deadline before fines are issued. Initial fines are \$100 per property for the first day of noncompliance and \$25 for each additional day of noncompliance (Goby 2018).

Results

As of 2017, 85% of the large properties required to benchmark their energy use – that is, 92% of the city's floor area – had complied with Chicago's benchmarking and transparency requirements. Between 2015 and 2017, ENERGY STAR scores increased in affected buildings by 8% and the buildings reduced their GHG emissions intensity by 19% (Chicago 2017a).⁴ Compliance rates have steadily increased over time. City staff has found that compliance rates tend to increase as owners and managers become familiar with benchmarking requirements. Different-sized buildings have been required to comply at different times; smaller buildings started to submit benchmarking data as of 2015 and 2016. Consequently, these buildings have lower compliance rates, but city staff expects these rates to increase with time.

Data Quality

Because the city requires verification of energy-use data every three years, data quality problems have tended not to occupy a large amount of city staff time. However staff members have had to

⁴ The ENERGY STAR score is a screening tool that helps evaluate a building's energy performance, assessing its physical assets, operations, and occupant behavior with a quickly derived and easy-to-understand number. ENERGY STAR scores range from 1 to 100, with a score of 50 being the median (EPA 2018).

engage in some data cleanup efforts. For example, some submissions have included null values or duplicate entries. This is especially true for campus properties with multiple buildings. Although property owners should submit only one entry for each property, some have submitted separate data for individual campus buildings. Staff members examine every benchmarking submission for accuracy and follow up with an email if data appear unusual or if required data – such as electricity usage or square footage – are missing. The email includes a link to instructions on how to review and fix the problem and then resubmit the report to the city.

Lessons

Chicago's experience developing and implementing its benchmarking, transparency, and labeling requirements is unique in many regards, but our case study profile highlights several lessons that may be instructive for other jurisdictions:

- Community stakeholders can contribute to both policy development and implementation.
- With the right support from city staff and community partners, benchmarking compliance rates will rise over time as property owners and staff become more accustomed to performing the required actions.
- Chicago's three-year data verification requirement is helpful in ensuring that submitted benchmarking data are accurate.

SEATTLE, WASHINGTON

Policy

Seattle adopted its benchmarking and transparency ordinance in 2010 to track and motivate progress toward its climate mitigation goals. When Seattle's benchmarking requirements became effective in 2014, benchmarked buildings accounted for 7.4% of the city's total GHG emissions (Erickson, Down, and Broekhoff 2015; Seattle 2018c).⁵ The ordinance has required that owners of nonresidential and multifamily buildings larger than 20,000 square feet report their annual whole-building energy use (Seattle 2018a). The goal is to encourage these building owners to understand and increase their energy efficiency (Seattle 2015).

The city's benchmarking and transparency requirements grew out of a larger effort to improve the sustainability of the local building stock. In 2008, staff working for the city's Office of Sustainability and Environment (OSE) and the former Green Buildings department convened 40 stakeholders as part of a green-ribbon task force. These stakeholders included real estate professionals, building owners and operators, green building experts, architects, engineers, low-income housing providers and advocates, historic preservation advocates, energy suppliers, and financial institutions (Seattle 2009). The task force was divided into two groups: one focused on developing approaches to reduce energy use in new buildings, while the other focused on energy-saving strategies for existing buildings.

City staff led these sessions by first presenting participants with a range of different actions the city could pursue to reduce buildings' energy use and GHG emissions. Stakeholders then provided their feedback on each possibility and made additional suggestions. Multifamily building owners

⁵ In Seattle, the benchmarked buildings' share of GHG emissions was calculated by dividing the total 2014 GHG emissions reported by building owners by the total community-wide GHG emissions in the city's 2014 inventory.

were particularly concerned that benchmarking requirements might place a large burden on their limited staff and resources. In response, staff worked with these owners to test how they might approach benchmarking building energy use and identify energy cost-saving opportunities. This testing was extremely helpful in obtaining the support of multifamily stakeholders.

The Seattle City Council used recommendations from both stakeholders and city staff members to develop the city's benchmarking requirements and climate action plan. Community stakeholders were especially helpful in specifying the timeline for benchmarking implementation and the types of buildings that should be targeted. They recommended that commercial and multifamily buildings larger than 50,000 square feet be required to conduct benchmarking by 2010 and that smaller buildings be required to comply by 2011 (Seattle 2009). Private consultants estimated potential energy savings from the benchmarking and transparency mandate.

After the ordinance's adoption, OSE staff assisted building owners with compliance. This assistance has subsided over time as compliance rates have improved. In an evaluation of the city's compliance efforts, Slobe and Heller (2014) found that its call center has been critical in helping achieve near-universal compliance with the ordinance. In addition to phone calls and email exchanges with owners, call center staff have facilitated compliance workshops and one-on-one sessions with building staff. When implementation began, the center employed three full-time city staff members. This has since been reduced to 1.2 full-time equivalent (FTE) staff members. Staff members now tend to do workshops or one-on-one sessions only when requested or in situations where it seems necessary; for example, a property management firm with recent staff turnover may be unfamiliar with benchmarking requirements and thus need hands-on assistance.

In addition to providing technical assistance, Seattle also began issuing fines for noncompliance two years after the ordinance went into effect. Initial fines are \$1,000 for each building larger than 50,000 square feet and \$500 for each building between 20,000 and 50,000 square feet (Goby 2018). These penalties double in value every quarter year until the building data are submitted. The city decided fines were needed because some building owners might not feel they would incur any adverse effects from noncompliance. However staff members responsible for issuing fines found that owners and managers are typically quick to respond with the necessary data, as they do not want to be on record for having a building out of compliance with a city law. Seattle has issued fewer fines over time; the city found that fewer fines are needed when call center staff reach out directly to building owners or managers for energy-use data.

The city also issues annual building benchmarking scorecards to property owners; Appendix A shows an example. These documents show building owners how their buildings compare to others in the city in terms of energy efficiency. They also highlight how a building's energy use has changed over time. Whenever possible, city staff have coordinated with local energy efficiency programs administered by utilities. Utilities provide the city with information regarding the programs that buildings have previously participated in, which lets benchmarking staff customize each scorecard to highlight other potentially suitable programs for each building.

Results

The results of all these efforts have been encouraging. Seattle has maintained a 99% compliance rate for the past three consecutive years, witnessed a 3.7% decrease in benchmarked building energy

consumption between 2014 and 2016, and reported a 4.8% drop in GHG emissions from buildings over that same period (Seattle 2018c).

Data Quality

Like several other cities, Seattle is working to improve the quality of submitted benchmarking data. Whenever possible, city benchmarking staff follows up with owners, asking them to double-check their submitted data if the values seem unusually high or low. Unlike Chicago, Seattle originally did not require periodic verification of benchmarking data. However the city adopted a building tune-up policy in 2016 that requires owners of inefficient benchmarked buildings to make energy-saving improvements.⁶ Once in effect, this ordinance will require that tune-up specialists evaluate the previously submitted benchmarking data of buildings undergoing tune-ups to better compare energy use before and after improvements are made.

Lessons

Seattle gained several insights from developing and implementing its benchmarking and transparency policy:

- Discussions with community stakeholders were productive when they began with a focus on the broad issue of building energy efficiency.
- Coordination with local utility energy efficiency programs has allowed the city to customize its annual property scorecards with building-specific energy efficiency recommendations.
- The city's call center and fines for noncompliance have been important in maintaining a high compliance rate.

NEW YORK CITY

Policy

New York adopted its benchmarking and transparency requirements in 2011 as part of the Greener, Greater Buildings Plan, a package of bills that focused on reducing GHG emissions from buildings. Benchmarked buildings account for 23% of the city's total GHG emissions (New York 2017). Currently, the law requires that owners of all privately owned buildings larger than 25,000 square feet report their annual whole-building energy use (New York 2016). In addition to providing input on the city law's creation, staff members from the Mayor's Office of Sustainability and the city's Department of Buildings were responsible for drafting the rules that laid out specific benchmarking and transparency regulations. These staff members conducted research, crafted proposed regulations, and solicited public feedback on a proposal.

The city adopted building labeling requirements in 2017 after a New York University researcher published an op ed arguing that such requirements could motivate property owners to make additional energy-saving investments in buildings (Spiegel-Feld 2017). City sustainability staff drafted legislation for a building labeling requirement based on similar European systems, Seattle's building scorecards, New York's existing restaurant grading system, and findings from an evaluation of the city's benchmarking policy conducted by the DOE and Navigant Consulting.

⁶ Seattle's tune-up requirements are like New York City's retrocommissioning requirements but with several local modifications.

Unlike Chicago, New York decided to rate buildings based on a letter grade system. City staff prepared several possible grading systems and worked with City Council staff to select the final building grades. The labeling requirement was well received by council members and passed quickly. City staff members are currently developing the rules governing the labeling initiative's implementation.

The Mayor's Office of Sustainability is responsible for implementing the city's benchmarking requirements. The city has regularly published and disseminated a newsletter for building staff that includes information about benchmarking compliance and opportunities to increase building energy efficiency. The city has also operated a help call center to assist with compliance. Call center staff numbers have fluctuated based on need, with staff decreasing as compliance increased. In recent years, a smaller number of city staff members have focused on replying to emails and returning missed calls rather than answering calls as they occur. However, in late 2016, help center staff were increased to two full-time employees to assist owners of 25,000–50,000 square foot buildings with compliance. These owners had originally stated that, given their limited resources, benchmarking their buildings would be too challenging; help center staff thus focused on answering their questions and directing them to appropriate resources.

Results

Like most other cities, benchmarking compliance rates in New York City have improved over time. Currently, 90% of qualifying buildings have complied with the city's requirement (New York 2017). Between 2011 and 2015, the city reported that, in benchmarked buildings, GHG emissions decreased by nearly 14% and energy use decreased by just over 10%. However independent evaluations of New York City data have differed; Meng, Hsu, and Han (2016) found that energy-use intensity decreased by 14% over that same period. Also, Navigant Consulting (2015) found that, between 2010 and 2013, benchmarked buildings reduced their energy use by 5.7% and GHG emissions by 9.9%.

Data Quality

The city has a multistep strategy to ensure high data quality. While the city reduced its help center staff after the first few years of implementation, it recently increased staff to improve the quality of benchmarking submissions. It has been working to minimize the amount of work required by building owners and staff to prepare data for submission. It has asked local utilities to allow building owners to easily download aggregated whole-building energy data directly to Portfolio Manager at no cost. Finally, the city has started issuing fines to building owners and managers with incomplete or inaccurate data. Each noncompliant building can receive a \$500 fine for not filing annual energy benchmarking data or not submitting complete and accurate data by a May 1 deadline. These fines increase by \$500 for each quarter year of noncompliance up to \$2,000 (Goby 2018).

Lessons

New York City staff has arrived at several determinations regarding the development and implementation of the city's benchmarking and transparency policy:

- Help center staff levels may fluctuate over time based on need; for example, more staff may be needed to address data inaccuracies and when a new set of buildings first begin submitting data.

- Periodic newsletters can be effective at delivering information to property staff regarding compliance requirements and opportunities for energy efficiency upgrades.
- Coordination with local utilities can be important to streamlining the process of delivering energy-use data for benchmarking.

Conclusion

The three cities highlighted here have each pursued a unique approach to creating and implementing benchmarking, transparency, and labeling policies. These differences reflect the unique needs and resources of the local community, but commonalities do exist. Each city tracks its policy performance in terms of compliance rates, energy savings, and GHG emissions reductions, and makes these data publicly available as both a downloadable spreadsheet and on an interactive online map. All three cities have engaged in some form of evaluation or data verification.

Evaluators have assessed New York City's energy savings and GHG emissions reductions and Seattle's compliance rates. In Chicago, individual data submissions from property owners must be verified by professionals with specific certifications. Anecdotal information from the three cities indicates that energy researchers, professional service companies, and property managers are downloading and using publicly disclosed benchmarking data, but none of the cities is tracking who downloads the data, nor have any of them set specific internal performance goals for staff.

While our case studies have focused on each city's unique strategies and actions, readers should consult additional ACEEE, DOE, and IMT research that documents common best practices across all cities with benchmarking and transparency requirements.

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Appendix A. Sample Building Scorecard from Seattle, Washington



SEATTLE GREEN MIDSIZE OFFICE 2015 ENERGY PERFORMANCE PROFILE

100 MAIN ST, SEATTLE, WA 98100 | Square Feet: 20,400 | Type: Mid-size Office Building (20-100K SF) Benchmarking ID: 99999 | EPA Building ID: 0000000

Thank you for benchmarking your building's energy use with the City of Seattle! This energy performance profile shows how your building is doing **year to year**, and how it compares to **similar mid-size office buildings** in Seattle. We appreciate your continued leadership in helping the City meet its energy reduction targets.

YOU CURRENTLY SPEND

\$0.57 / SF

ANNUALLY ON ENERGY*
or \$11,500 per year.



Your building's EUI
decreased (2.7 KBTU/SF)
from 2014 to 2015.*

* The information in this report is self-reported and subject to verification. Costs and potential savings are estimated at \$0.0175 per kBtu using the average mix of fuel sources (electric, gas, steam) for a mid-size office building. Average EUI is based on Seattle median EUI, not normalized for weather.



GET RECOGNITION THROUGH ENERGY STAR®



The ENERGY STAR score shows your building's energy performance as a whole: its assets, its business operations, and the people who use it. More than 85% of Americans recognize the ENERGY STAR label, and certified buildings generate more income and have higher occupancy rates when compared to similar buildings. Scores of 75 or higher may be eligible to apply for ENERGY STAR certification.

Learn more at www.energystar.gov/buildingcertification

YOUR
SCORE **81**

Congratulations! Get certified to promote your success with customers and tenants!



www.seattle.gov/energybenchmarking

Questions?
energybenchmarking@seattle.gov
206.727.8484

Report prepared: 09/12/16

SAMPLE

YOUR BUILDING'S PATH TO IMPROVEMENT

Take advantage of low and no-cost options to optimize your building's assets, increase its marketability and reduce annual energy costs.

1. GET A FREE ENERGY SAVINGS ASSESSMENT

from an energy expert to identify energy saving opportunities and qualify your building for rebates on controls, HVAC and more. Rebates can cover up to 70% of the cost of upgrades.

Seattle City Light
www.seattle.gov/light/assessment

2. UPGRADE TO ENERGY EFFICIENT LIGHTING

and controls in common areas, parking garages and tenant spaces for significant cost savings. Qualifying businesses can save up to 70% on project costs through rebates.

Seattle City Light
www.seattle.gov/saveenergy

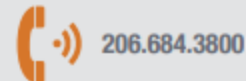
3. ACCESS THE TOOL LENDING LIBRARY

and borrow data loggers, power meters, infrared cameras & more! Tools from SBC's free lending library can help you troubleshoot problems and provide info to help fine tune your building's performance.

Smart Buildings Center
www.smartbuildingscenter.org

IT ALL STARTS WITH A CALL!

Our Energy Advisors are ready to help you find the best ways to get started reducing your building's energy costs.



ENERGY STAR®

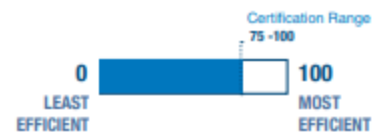


Your building's ENERGY STAR score shows you how your building is performing as a whole: its assets, its operations and the people who use it. Scores of 75 or higher may be eligible to apply for certification.

Learn more at www.energystar.gov/buildingcertification

YOUR SCORE **75**

Congratulations! Get certified to promote your success with customers and tenants!



ON THE HORIZON: BUILDING TUNE-UPS

Beginning in 2018, the Building Tune-Ups ordinance will phase in by building size a periodic (every 5 years) tune-up requirement for commercial buildings 50,000 SF and larger. Tune-ups are intended to identify and correct no- and low-cost adjustments to building operations, measures that often offer a 2 to 3-year payback. Learn more about the requirement and exemptions for high performing buildings: www.seattle.gov/buildingtuneups.

WE WANT YOUR FEEDBACK

Did you find the information in this Performance Profile useful? Please let us know. Take a short survey at:

www.surveymonkey.com/r/2016benchmark

Source: Hart, Young, and Prieto 2018