Benchmarking and Benchmarking-Plus Policies

KEY FINDINGS

This fact sheet reports the costs, benefits, and city experiences of designing and implementing energy-use benchmarking and disclosure policies. Cities with significant greenhouse gas emissions stemming from the commercial and residential buildings sectors may find that the benefits of benchmarking and disclosure policies are substantial and the costs affordable.

In the cities we examined, the highest costs during the design and implementation phases were those for staff—measured in full-time equivalents (FTEs)—and IT infrastructure (e.g., benchmarking software licenses). The cities we assessed used 1 to 2.5 FTEs to design benchmarking and disclosure policies and 0.5 to 1.5 FTEs to implement those policies. Our findings show that in one city, buildings that consistently benchmarked energy use over two years reduced energy use by about 2.5%, greenhouse gas emissions by 9%, and energy costs by more than $3,000,000.

Benchmarking and benchmarking-plus policies are among the most popular energy efficiency strategies municipalities use to target existing commercial and multifamily buildings. These policies generally establish a minimum size requirement to determine which commercial and multifamily buildings must comply. Both types of policies require building owners to track and report energy use to the municipality. *Benchmarking-plus* policies require owners to take an additional energy efficiency action, such as an energy audit or retrocommissioning, but do not require buildings to achieve a performance standard. As of 2021, about 40 cities, counties, and townships had adopted benchmarking or benchmarking-plus policies for large buildings (IMT 2021).

This fact sheet is part of *By the Numbers*, a series on the costs and benefits of local energy efficiency policies. Each jurisdiction that we studied as part of this series has a population of at least 100,000. We compiled data and identified trends discussed in this fact sheet based on interviews with staff for four cities participating in the project. To view other entries in the series, please visit the *By the Numbers* web page.[1]

[1] For more information on our methodology and scope of research, please see the topic brief in the *By the Numbers* series.

Costs of Benchmarking and Benchmarking-Plus Policies

We collected detailed information from local governments on the administrative and participant costs (i.e., costs to building owners) of benchmarking and benchmarking-plus policies. Table 1 provides a summary and Appendix A offers more detailed data.

Table 1. Costs of benchmarking and benchmarking-plus policies

	Design costs		Annual implementation costs		Participant costs
City	FTEs used	Other costs	FTEs used	Other costs	Financial expenses
City A	1.5	$60,000	0.5	$2,000+	Cost of energy assessment if required
City B	1.25*	$371,000+**	1.25*	$9,500+	—
City C	1	$120,000	1.5	$120,000+	$800 to hire vendor or $3,500 for citation
City D	2.5	$157,000	1	$61,000+	$500 or cost of third-party benchmarking and verification

***City's reported FTEs were insufficient to successfully implement the policy. **Includes $300,000 of IT investments for both the design and implementation periods of multiple policies. Also note: We allowed cities to delineate design and implementation costs; however, formal adoption of the policy was a typical milestone marking the switch from the design phase to the implementation phase. Therefore, design costs can generally be read as one-time costs occurring prior to formal adoption of a policy, and implementation costs can generally be read as annual, recurring costs, although in some instances one-time costs may exist during the implementation phase. Design phase costs are the total amount spent for the entirety of the design phase, which generally lasted one to two years.**

Overall, cities incurred two common costs during the life cycle of a benchmarking or benchmarking-plus policy: staff (as measured in FTEs) and IT infrastructure. Though FTEs represent a major cost for this policy, the administrative commitment used to design and implement the policy is still fairly low. IT infrastructure costs were generally present throughout both phases.

The largest expenses during the design period were those related to consulting services and IT infrastructure. As an initial step in the policy design process, one city commissioned a building stock analysis for $45,000. Costs for IT infrastructure build-outs ranged from

$60,000 to $300,000.[2] In most cases, these funds were used to design websites and online portals and to purchase data procurement software (e.g., ENERGY STAR® Portfolio Manager web services) and online databases (e.g., Salesforce's CRM platform). Other notable costs during the design period included stakeholder engagement expenses, ranging from $1,000 to $50,000, and data management services at around $50,000. Stakeholder engagement costs typically included the cost of space and materials. More expensive stakeholder engagement options include benchmarking ambassador programs and initiatives that recruit residents to engage with and educate other community members on the specifics and benefits of a city's benchmarking policy. Ambassador programs can operate before and/or after formal adoption of a benchmarking policy.

Staff time for program implementation was similar across cities. Other than staff time, annual implementation costs of benchmarking and benchmarking-plus policies ranged widely. For the two cities with high costs, the most significant expenses were the annual costs related to IT infrastructure. These cities commonly licensed software and purchased access to databases to support program implementation. Providing compliance support (e.g., by means of a help desk) was also costly and accounted for the large gap between cities at the upper and lower ends of the cost spectrum. Further, consultant costs fell dramatically for most cities in the implementation phase. For example, City B spent $70,000 on consultants in the design phase but did not have any consultant costs in the implementation phase.

Two cities submitted data on the compliance costs that participating building owners incur. One city reported costs of $800 to hire a vendor for compliance. The city also reported a penalty of $3,500 for noncompliance. Another city reported that there is no cost to the participant to comply with the benchmarking portion of the policy other than staff time to collect and upload data. However, this city stated that if a building is subject to an energy assessment, the owner must pay for it. As for participant costs for benchmarking versus benchmarking-plus, these costs vary depending on the specific aspects of the policy and the context of the local market.

Benefits of Benchmarking and Benchmarking-Plus Policies

Two cities reported the benefits of benchmarking and disclosure policies as they relate to energy use or GHG emissions reductions. Table 2 presents these benefits.

[2] Some cities hired contractors to build out IT infrastructure. To avoid overlap between cost categories, we included IT-related contractor costs under the cost of IT infrastructure when possible.

Table 2. Benefits of benchmarking and benchmarking-plus policies

City	Reporting period	Community-wide			
		Percentage of building stock required to comply	Total energy reductions	Total emissions reductions	Total dollars saved
City A	Two to three years	25%*	—	—	—
City B	First year of compliance	14%	—**	—**	—**
City C	One year average	30%	2.4%***	—	—
City D	Two years†	20%‡	2.5%	9%	$3.06 million

***Percentage of total building area—as opposed to the number of buildings—covered by the policy. **City reported energy reduction of 17%, GHG emissions of 11%, and $61.5 million saved; however, these benefits were contingent on all eligible buildings achieving an ENERGY STAR score of 75 or greater. ***Actual reductions are listed. The city reported reductions of 1.5% after adjusting for the discount rate. †Benefits data presented apply only to buildings that consistently benchmarked data over a two-year period. ‡Commercial building stock only. Also note: Community-wide benefits are those that accrue to privately owned buildings throughout the city. Percentage of building stock required to comply was calculated in all but one case by dividing the total number of buildings required to comply with the policy as provided by the city by the total building count for that city as listed in the NREL's State and Local Planning for Energy database (NREL 2022).**

City D reported energy reductions of 2.5% in covered buildings that consistently benchmarked over two years of implementation. The city reported that about 74% of properties consistently benchmarked emissions data during implementation and experienced a 9% reduction over the two years. Further, about 69% of properties that consistently benchmarked over two years were able to cumulatively save $3,060,000.

City D was the only city to report energy and emissions reductions in local government buildings. It reported a 16% reduction of emissions from covered municipal buildings after two years of implementation.

Hart (2015) notes several additional energy and non-energy benefits to benchmarking policies. For example, policymakers can benefit from having energy use data regarding their local multifamily and commercial building stocks, allowing them to make better-informed decisions on future energy efficiency policies. Further, tenants can benefit by knowing utility costs associated with the properties and by experiencing better health, comfort, and well-being. Meanwhile, building owners who capitalize on benchmarked energy data and make energy efficiency improvements can benefit by experiencing lower vacancy and turnover rates.

As with the other policies in the *By the Numbers* series, cities did not report benefits data specifically to low-income households or households of color. Consequently, cities may have difficulty gauging the extent to which these policies are leading to equitable outcomes.

Policy Design and Adoption Process[3]

KEY TASKS AND ACTIVITIES

In establishing benchmarking policies, engagement with the community and relevant stakeholders was essential. One city reported that its environmental policies have better uptake and buy-in from the community if there's significant community engagement during the design process, and that benchmarking policies were no exception. Giving program leads the authority to form working groups improved the depth and productivity of community engagement.

KEY STAKEHOLDERS

Real estate and buildings community: Building Owners and Managers Association, Apartment and Office Building Association, U.S. Green Building Council

Energy service providers: energy and water utilities, energy service companies

Nonprofit organizations: local economic development organizations

City legislators and staff: city council members, building commissioners

To prepare participants for benchmarking requirements, two cities launched a one-year voluntary benchmarking program prior to the requirements taking effect. To incentivize participation in the voluntary program, one city paid for a building's ENERGY STAR certification if the building met certain criteria, and the other city's executive formally recognized buildings that participated. This city also ran a train-the-trainer model benchmarking ambassadors program to train individuals on how to use ENERGY STAR Portfolio Manager. Building owners could then contact these ambassadors if they had any questions related to the policy. This voluntary period helped develop a network of knowledgeable individuals and identify gaps in the program.

CHALLENGES

Challenges to the adoption of benchmarking policies centered on misperceptions about benchmarking—such as the belief that it was difficult and expensive—and a lack of

[3] Information included in this section and in the Policy Implementation section that follows is specific to benchmarking policies. It should be considered along with the general trends identified in the topic brief that accompanies this fact sheet.

understanding. In two cities, the use of ENERGY STAR Portfolio Manager was a stumbling block, requiring improved education on the technical aspects of the tool. In one of the cities studied, political pushback from stakeholders led to a softening of the penalties for noncompliance.

To overcome the challenges of implementation, cities generally used a phased approach, with larger buildings covered in the first year and coverage expanded in subsequent years. To bolster compliance with the new policy, one city needed to articulate to its legal department the importance of enforcing citations and fines. It was also important to educate stakeholders on the value of data disclosure and to address their concerns about data privacy (such as by reassuring stakeholders that data would not be released to energy service contractors).

Policy Implementation

KEY TASKS AND ACTIVITIES

Although implementation processes varied, common key tasks included compiling and updating a covered buildings list, conducting data quality checks, and performing follow-up with building owners. It was also essential to understand the workings of the department overseeing the policy, identify the building management personnel at participating buildings responsible for policy compliance, establish a clear legal backing for issuing noncompliance citations, and develop a clear appeal process for violations. Cities also educated stakeholders by creating how-to guides and other materials. Finally, data collection and management were critical. Cities performed data quality checks, published data, and worked with utilities to provide aggregated energy data for buildings with multiple tenants.

Lessons Learned for Design and Implementation

Give plenty of advance notice. One city waited until six months before the first compliance deadline to educate building owners on ENERGY STAR Portfolio Manager. This short lead-up period created problems with compliance. It is best to educate building owners as soon as the city determines the first compliance deadline. It is also essential to fully communicate both internally within the city government and externally with stakeholders by making information on the policy available quickly and being active in its distribution.

Simplify the benchmarking legislation. To give program managers flexibility in implementing their programs, cities should avoid specifying details of the implementation process in the legislation. This allows cities to administratively manage the implementation and enables the program managers to make changes to implementation without needing to work through the legislative process to amend the previous law.

Consider benchmarking plus. A city currently with a benchmarking policy stated that it is considering energy efficiency requirements for existing buildings more stringent than both benchmarking and benchmarking plus. The city noted it might have been beneficial to adopt a benchmarking-plus policy at the outset rather than a standalone benchmarking policy. A

benchmarking-plus policy would have served as a stepping-stone between benchmarking and more stringent requirements.

References

Hart, Z. 2015. *The Benefits of Benchmarking Building Performance*. Washington, DC: IMT (Institute for Market Transformation). www.imt.org/resources/the-benefits-of-benchmarking-building-performance/.

IMT (Institute for Market Transformation). 2021. "Map: U.S. City, County, and State Policies for Existing Buildings: Benchmarking, Transparency and Beyond." www.imt.org/resources/map-u-s-building-benchmarking-policies.

NREL (National Renewable Energy Laboratory). 2022. "SLOPE: State and Local Planning for Energy." Accessed January. maps.nrel.gov/slope/.

Appendix A. Detailed Cost Tables

Table A1 lists detailed, itemized costs for benchmarking and disclosure policies. Implementation costs are reported on an annual basis unless otherwise noted.

Table A1. Detailed costs of benchmarking and disclosure policies

Cost type	City A	City B	City C	City D
Design costs				
Minimum FTEs used	1.5	1.25*	1	2.5
Consulting services	—	$70,000	$5,000	—
IT infrastructure build-out	$60,000	$300,000**	—	$100,000
Community outreach	—	$1,000 and 10 events	$70,000	$7,000
Other costs	—	—	$45,000	$50,000
Total non-FTE design costs	**$60,000**	**$371,000+**	**$120,000**	**$157,000**
Implementation costs				
Minimum FTEs used	0.5	1.25*	1.5	1
Consulting services	—	—	$120,000	$5,000
IT infrastructure	$2,000	—	—	$53,000
Marketing	1,000 to 2,000 mailers	$1,500 to $2,000	3 mailers	$3,000
Quality assurance	Staff time***	$8,000 to $10,000	—	Staff time***
Incentives and subsidies	—	—	—	—
Total non-FTE implementation costs	**$2,000+**	**$9,500 to $12,000**	**$120,000+**	**$61,000**
Participant costs				
Approximate cost of compliance	Cost of assessment if necessary	—	$800 for a vendor or $3,500 for noncompliance	$500 or cost of third-party benchmarking and verification

***City's reported FTEs were insufficient for successful implementation. **Includes $300,000 of IT investments for both the design and implementation periods of multiple policies. ***The cost associated with quality control was accounted for in the "minimum FTEs used" value.**