CITY ENERGY
A JOINT PROJECT of NRDC + IMT

DECEMBER 2018

IMPLEMENTING BUILDING PERFORMANCE POLICIES: HOW CITIES CAN APPLY LEGISLATION FOR MAXIMUM IMPACT

ABOUT CITY ENERGY PROJECT AND THE CITY ENERGY PROJECT RESOURCE LIBRARY

A joint initiative of the Institute for Market Transformation and the Natural Resources Defense Council, the City Energy Project supported bold yet practical ways to deploy energy efficiency at the city level to boost local economies, reduce pollution, and create healthier, more prosperous communities nationwide.

The project partnered with 20 local governments across the U.S. from 2013–2018 to design locally appropriate energy efficiency policies and programs. Building upon the past successes and innovation of cities, the City Energy Project established best-in-class practices for energy efficiency to be customized and replicated nationwide. Models and recommendations have been distilled into the City Energy Project Resource Library. This curated set of resources contains the necessary blueprints for a city government to craft and implement customized solutions to productively manage energy efficiency initiatives across commercial, multifamily, and public buildings in its jurisdiction.

For more information on the participating cities and counties in the City Energy Project, and to search the City Energy Project Resource Library, visit cityenergyproject.org.

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INTRODUCTION

This guide helps cities launch and implement a benchmarking program that tracks building energy consumption and deploys the data to encourage building owners to improve building energy efficiency, saving money and vitalizing a city.

The guide is for cities that have enacted ordinances requiring owners of certain types of buildings to report the building's annual energy consumption. Building owners or their representatives provide data through the U.S. Environmental Protection Agency's (EPA) ENERGY STAR Portfolio Manager tracking tool, which transmits the data to a city.

Cities may have broader ordinances that require building owners to take additional steps such as reporting water use or improving buildings that exceed energy- or water-consumption thresholds. The guide focuses on energy consumption. Although it does not discuss water consumption, the guide and its steps are easily applied to requirements for reporting water consumption.

The guide assigns a degree of necessity to each task. There are steps a city "must" take, steps a city "should" take, and steps a city "can" take. The authors have considered these levels carefully. Cities should understand that steps they "must" take are essential to establishing a benchmarking policy that transforms their market by tracking and publicizing building energy consumption to accelerate action.

This guide is based on the best practices from jurisdictions that participated in the City Energy Project and from other sources. Each of the six chapters covers one major task in implementing a benchmarking program and includes examples of steps cities have taken.

1. **Engage the Community** explains how to ensure building energy policies are achieving the desired impacts—energy savings citywide—by enlisting a broad community of building owners and interested parties to support and challenge a city's approaches.
2. **Develop an Inventory of Covered Buildings** describes the important challenge of compiling a comprehensive list of every building covered by an ordinance and contacts for each building.
3. **Collect and Manage Building Data** guides cities on how to collect energy-consumption data for each covered building while ensuring that the data is accurate and owners comply with reporting requirements.
4. **Engage Utilities** explains the essential role utilities play in benchmarking and the importance of convincing them to give whole-building energy-consumption data to building owners.
5. **Educate to Improve Compliance** describes how a city government can develop guides, training sessions and help centers that will ensure building owners know how to comply with benchmarking.
6. **Communicate Results** explains why and how city governments must publicize benchmarking results for both individual buildings and an entire city in order to generate awareness of energy efficiency and spur owners to improve their buildings.

This guide complements other City Energy Project resources, which provide further examples and time frames for each activity. For more information and to search the City Energy Project Resource Library, visit www.cityenergyproject.org.

BUILDING PERFORMANCE POLICY IMPLEMENTATION TIMELINE

- Engage the Community
- Develop an Inventory of Covered Buildings
- Collect and Manage Building Data
- Engage Utilities
- Educate to Improve Compliance
- Communicate Results

SETTING THE FOUNDATION PRE-ORDINANCE PASSAGE	0-6 MONTHS AFTER ORDINANCE	6-9 MONTHS BEFORE FIRST COMPLIANCE DATE	AFTER FIRST COMPLIANCE DATE
✓ Convene an Implementation Advisory Group	✓ Meet with Implementation Advisory Group		
✓ Engage Utilities on Implementation	✓ Create a Website to Inform, Educate, and Inspire Action		
✓ Create a Covered Buildings List		✓ Notify Building Owners to Win Their Participation	
	✓ Acquire Accurate Contact Information		✓ Enforce Compliance
	✓ Develop or Procure a Software Platform		✓ Share Data to Enable Transparency
	✓ Establish Access to Whole-Building Data		✓ Analyze Data and Report Results
		✓ Maintain Covered Buildings List	
		✓ Improve Data Quality	
		✓ Engage Utilities on Implementation	
		✓ Develop and Deliver Trainings	
		✓ Create Compliance Support Materials	
		✓ Establish a Building Performance Help Center	

BUILDING PERFORMANCE POLICY IMPLEMENTATION CHECKLIST

ENGAGE THE COMMUNITY

- **Convene an Implementation Advisory Group**
  Identify stakeholders, and convene an advisory group to provide input to help with effective and streamlined implementation of the policy.
- **Meet with Implementation Advisory Group**
  Continue to meet with advisory group members on a regular basis throughout the first few years of implementation, to maintain a forum for learning about challenges and opportunities for improving energy efficiency within the local market.
- **Create a Website to Inform, Educate, and Inspire Action**
  Develop a web presence for the city to share background and updates on the policy, and provide resources to assist building owners with compliance.
- **Notify Building Owners to Win Their Participation**
  Notify all owners identified in the covered building list about the policy, and their obligation to benchmark and report their building's performance.

DEVELOP AN INVENTORY OF COVERED BUILDINGS

- **Create a Covered Buildings List**
  Develop an initial inventory of all of the buildings that will be subject to the policy's reporting requirements.
- **Acquire Accurate Contact Information**
  Refine thebuilding inventory by identifying all of the contacts associated with each covered building.
- **Maintain the Covered Buildings List**
  Continue to update the building inventory through on-going outreach and research, to respond to changes in ownership and in the building stock.

COLLECT AND MANAGE BUILDING DATA

- **Develop or Procure a Software Platform**
  Secure a system for collecting data submissions from covered buildings, and tracking/managing all interactions with parties subject to the requirements.
- **Improve Data Quality**
  Develop standardized processes for verifying the accuracy and completeness of reports submitted to the city.
- **Enforce Compliance**
  Ensure that all covered buildings have submitted benchmarking reports that meet expected levels of accuracy and completeness.

ENGAGE UTILITIES

- **Engage Utilities on Implementation**
  Ensure that local utilities are aware of their role in supporting the policy, including provisioning of whole building usage data and aligning their incentives with the policy.
- **Establish Access to Whole-Building Data**
  Work with utilities to develop streamlined processes so that each building owner can easily request and acquire monthly energy use data aggregated for their entire building.

EDUCATE TO IMPROVE COMPLIANCE

- **Create Compliance Support Materials**
  Develop resources to help stakeholders understand the intent of the policy, assist building owners with compliance, and guide them on next steps to improve their building's performance based on their benchmarking results.
- **Develop and Deliver Trainings**
  Provide online and in person trainings to stakeholders on the benchmarking compliance process, and using the data to improve the performance of their buildings.
- **Establish a Building Performance Policy Help Center**
  Establish an internal or outsourced help center to respond to stakeholder questions and proactively reach out to building owners who could benefit from additional guidance.

COMMUNICATE RESULTS

- **Share Data to Enable Transparency**
  Publicly post key metrics for each building required to report its benchmarking results.
- **Analyze Data and Report Results**
  Analyze benchmarking and, where available, audit and retuning reports to establish an annual baseline for the performance of local building stock and to identify key trends and opportunities for greater energy efficiency.

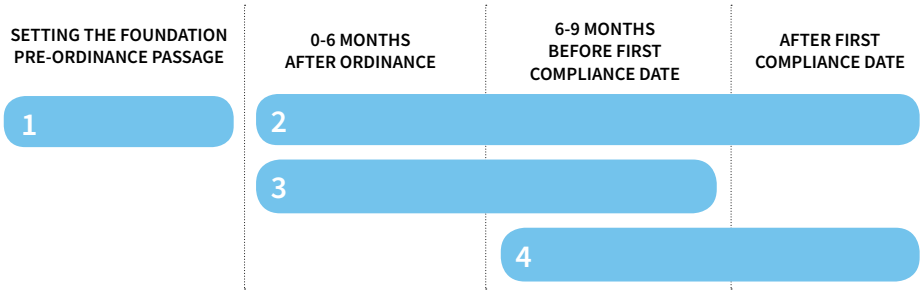
STEP 1

ENGAGE THE COMMUNITY

Cities should engage a wide range of people while implementing a benchmarking program, just as they engaged their communities while debating and enacting the program.

CHECKLIST AND TIMELINE

1. Convene an Implementation Advisory Group
2. Meet with Implementation Advisory Group
3. Create a Website to Inform, Educate, and Inspire Action
4. Notify Building Owners to Win Their Participation



STEP 1

ENGAGE THE COMMUNITY

LEARN MORE

Engaging the Community in Policy Development

This gude provides key insights and recommnedations for cities engaging the community and stakeholders to soliticit feedback and participate in the planning and implementation of building performance policies and programs.

VIEW GUIDE >

Engagement ensures that city officials understand the perspectives of a community; reflect local priorities in policy implementation; communicate the requirements of a building performance policy; convey the benefits of energy efficiency to spur action; receive ongoing feedback and urge building owners to invest in improving energy efficiency. The engagement should be designed to build partnerships and should last for multiple years.

CITIES MUST ENGAGE TWO GROUPS:

- Individuals subject to the ordinance such as building owners, managers, engineers, and tenants.
- Individuals and groups with an interest in policies that promote high-performance buildings; that includes environmental advocates, energy efficiency service providers, community organizations, and building groups.

Cities should develop cooperative relationships with building owners that emphasize the benefits of benchmarking and not just compliance with an ordinance. City officials must encourage building owners to use their benchmarking data to improve energy efficiency.

Engagement should take multiple forms—notices, emails, meetings, newsletters, a website, and an implementation advisory group.


KANSAS CITY

A. CONVENE AN IMPLEMENTATION ADVISORY GROUP

Cities are strongly encouraged to create an implementation advisory group and to work closely with community leaders and the largest building owners and property managers. The support of these people is essential to the policy's success.

An implementation advisory group should be composed of individuals and groups that can provide training, resources, and feedback. Advisory group members are champions for energy efficiency and should be encouraged to challenge the city's approach to policy implementation. Only with community engagement and action will owners make their buildings more efficient. Group members ideally serve as models for building owners and as catalysts for market transformation.

As a starting point, cities should look to individuals and groups that offered guidance while the benchmarking ordinance was being considered.

See the next page for a list of segments this group should include.

THE GROUP SHOULD INCLUDE SEGMENTS SUCH AS:

OWNERS, MANAGERS, AND TENANTS

- Individual building owners and property managers with a large local presence
- Major local tenants

LOCAL CHAPTERS OF REAL ESTATE PROFESSIONAL ORGANIZATIONS

- Building Owners and Managers Association (BOMA)
- Institute of Real Estate Management (IREM)
- International Facility Management Association (IFMA)
- National Apartment Association (NAA)
- National Association for Industrial and Office Parks (NAIOP)

BUSINESS INTERESTS

- Chambers of Commerce
- Individual businesses with a large local presence
- Local community and economic development organizations
- Small business associations

ENERGY EXPERTS

- ASHRAE
- Association of Energy Engineers (AEE)
- Energy efficiency service providers
- Energy efficiency trade associations
- Regional energy efficiency organizations (REEOs)
- Utilities

GREEN BUILDING, ENVIRONMENTAL, LABOR, AND OTHER ADVOCACY GROUPS

- American Institute of Architects (AIA)
- Higher education/technical institute faculty and staff
- Labor groups
- Local environmental groups
- U.S. Green Building Council (USGBC)

AN IMPLEMENTATION ADVISORY GROUP CAN HELP A CITY:

- Increase compliance by improving data collection and reporting processes.
- Develop engagement and messaging that will maximize involvement of the real estate community.
- Design implementation activities such as education, training, outreach, compliance resource development, and data analysis.
- Recruit building owners to pilot the compliance process—a crucial step that will identify problems before citywide roll-out of the requirements.
- Create champions for energy efficiency that realize the advantages of energy efficiency and serve as models for their peers and catalysts for market transformation.

CITY EXAMPLES

Chicago

Chicago created an 86-member Chicago Energy Benchmarking Working Group consisting of the AIA Chicago, ASHRAE–Illinois Chapter, C40 Cities Climate Leadership Group, Energy Center of Wisconsin, Elevate Energy, Midwest Energy Efficiency Alliance, Natural Resources Defense Council, and the U.S. Green Building Council–Illinois Chapter. The group saved the city money by providing education and training, outreach, and a help center, and assisted building owners in understanding and acting on benchmarking results. The group comprised many of the members who helped design regulations for the ordinance.

Denver

Denver created the Energize Denver Benchmarking Advisory Group of building owners, managers and investors, housing advocates, green building experts, and officials from Xcel Energy. The group helped the city maximize the effectiveness of its outreach and compliance efforts, providing input on the scheduling, format, and messaging of the notifications the city sent to building owners. Members also provided input on data and metrics that would be most compelling in driving action and helped to inform the design of the city's benchmarking map and building scorecards so that these resources would provide useful and actionable information to targeted users.

The Energize Denver Benchmarking Advisory Group represents a long-term commitment between the city and its stakeholders. In the almost five years since the city first enacted its benchmarking requirements the group has continued to meet monthly, with about 10 to 15 members typically attending each meeting. Since many of the initial implementation issues are now resolved, members have drawn upon their real-world experiences in this process to help the city identify and design its programs in ways that will achieve the community's goals. This includes providing input on Denver's Energy Smart Leasing initiative, which is designed to improve energy efficiency, worker productivity, and sales in commercial leased space; and Denver's proposed Green Building Policy, where the members helped city staff craft provisions to address affordable housing and to promote energy master planning for large campus settings.

B. CREATE A WEBSITE TO INFORM, EDUCATE, AND INSPIRE ACTION

Cities must create a website that will be the primary information hub for anyone seeking to understand the policy and its requirements. The site should include background information about benchmarking and links to technical resources, training sessions, webinars, and workshops.

The website should go live eight to 12 months before the first compliance deadline. Creating the website may take weeks or months. The website should include at a minimum the following elements.

REQUIRED	DESCRIPTION
Compliance resources	• Clear instructions on how building owners comply with the ordinance. See the section, Educate to Improve Compliance. • Reporting links, including a link to the city's ENERGY STAR Portfolio Manager custom reporting template and other compliance resources
Background information	• Description of the benefits of benchmarking • Explanation of how the building performance policy fits into the city's sustainability goals • Copies of or links to the benchmarking ordinance and related documents such as regulations • Links to websites of utilities to help building owners get whole-building energy consumption data
Training and help center information	• Schedule and registration information for upcoming trainings • Video archives of training sessions and webinars
Additional information	• A place for building owners to enter contact information • Suggestions on ways building owners can improve energy efficiency after benchmarking • Information on utility incentive programs

The website should evolve with the benchmarking program to feature timely and relevant information. Websites will focus initially on explaining program requirements and benefits. As compliance deadlines approach, the website should instruct building owners on the steps they must take. After the initial compliance period, the website should emphasize resources that let building owners interpret their benchmarking data and find help in improving building performance. Cities should urge interested groups to promote the building performance policy through their websites, email lists, and membership rosters. These groups can amplify the city's message and provide information that cities may be precluded from posting such as names of service providers.

CITY EXAMPLE

Philadelphia

Philadelphia's **WEBSITE** includes an about page that provides background on the purpose of building benchmarking, describes the role that the policy plays within the city's sustainability framework, provides links to the ordinance and regulations, lists key statistics that demonstrate what the program has accomplished, and highlights local and national organizations with whom the city has partnered. The city website has links to all resources that owners will need when benchmarking their buildings and a troubleshooting guide that addresses how owners can fix errors in their benchmarking reports. The site also includes a prominently displayed "Report Data" button that connects to Portfolio Manager so owners can easily report their benchmarking results to the city.

C. NOTIFY BUILDING OWNERS TO WIN THEIR PARTICIPATION

Cities must make considerable effort to notify each owner of a covered building about the benchmarking ordinance and its requirements. Cities should not assume that people subject to the ordinance know anything about it.

Notification is a crucial and difficult task that requires contacting thousands of people including building owners, property managers, and tenants who may be responsible for compliance.

Cities should target a variety of outlets and channels to raise awareness, especially in the initial years of a new policy. Cities will need to develop a covered buildings list that shows each building that is covered by the policy requirements. See the section, Create a Covered Buildings List.

I. INITIAL NOTIFICATION

The initial notification to building owners and others responsible for implementation should be done by mail and answer the following at a minimum:

- The types of properties the ordinance covers
- Action required to comply with the ordinance
- The consequences of not complying
- The ways building owners can find a unique building ID assigned by the city
- Places to find additional information

Cities should make a reasonable effort to notify building owners and other responsible parties but should expect that they will not be able to notify an individual for every covered building. Cities may have difficulty identifying the right parties to receive notifications and getting accurate contact information.

Some cities found that in the first years of a benchmarking policy they were unable to notify anyone at up to 20 percent of the covered buildings. It is reasonable to acknowledge that some percentage of property owners will not receive notification during the first year but that the shortcoming will decrease over time.

Cities should write notices that grab recipients' attention. The tone of the messaging has varied between cities. Some cities have emphasized the consequences of noncompliance while others stressed the benefits of benchmarking. The visual presentation has varied as well, ranging from stern and formal-looking official notices on city letterhead to eye-catching postcards with colorful messages. Some cities have hired marketing and design firms to design effective notification materials. There is no single approach that has proven to be most effective, so each city should assess the strategy (or strategies) that will be most effective in getting the attention of targeted recipients.

LEARN MORE

Sample Building Owner Notification

To help cities prepare notifications for building owners, this template identifies the required and additional information that should be included.

VIEW TEMPLATE >

II. ONGOING COMMUNICATIONS

Notifications should evolve each year. The city's initial communications should introduce benchmarking and present detailed compliance instructions. As building owners become familiar with the requirements, communications may evolve into simple compliance reminders and messaging that urges owners to use benchmarking scores and implement energy conservation measures. Communications in later years may emphasize newly enacted building performance requirements, explaining the targets that buildings are expected to achieve and the actions required at properties that miss the targets. Policy updates should be shared with building owners as soon as they are enacted and well before new requirements take effect.

Email is an important and inexpensive way to communicate. Cities can use targeted email blasts to send notifications on upcoming deadlines and training sessions. Building owners should be able to find information and support resources on utility and partner websites. Free and low-cost online services such as MailChimp and ConstantContact simplify sending email blasts, managing contact lists and tracking responses. Some cities use customer relationship management (CRM) software such as Salesforce to send communications.

Gathering accurate email addresses can be difficult. Though there is no single way to compile a comprehensive email list of building owners and others, the following are recommended strategies:

- Get contact lists from partners and membership organizations. These lists will grow and can be refined as new members join. Some building owners may not be represented if they are not connected to the groups that supply contact information.
- Include a link on the city's benchmarking website where owners can submit contact information and subscribe to the city's benchmarking listserv.
- Collect email and contact information during the stakeholder engagement meetings process.
- Gather email addresses from benchmarking data the city collects through ENERGY STAR Portfolio Manager. This is the simplest and most complete method for gathering emails. However, addresses will be collected only after a building has completed its first data reporting cycle, preventing pre-compliance outreach in the initial year.
- Purchase a marketing list.


DES MOINES

III. ADDITIONAL COMMUNICATIONS CHANNELS

Cities should use other channels to reach parties subject to compliance and in particular channels that parties recognize and trust. Information that originates from partner organizations through blogs, newsletters, and conferences is often considered trustworthy and can more strongly influence building owners than city outreach. Following is a list of communications channels that cities should consider using.

Table 1. Communications Channels for Distributing Compliance Information

CITY COMMUNICATIONS CHANNELS	DESCRIPTION
City mailings	Building owners should be notified of compliance through direct mailings about four to six months before the deadline. This notification should include the date of first reporting deadline. To reduce costs, cities can include notices in regular mailings such as tax bills.
Monthly meetings	Cities may benefit from holding monthly presentations for a general audience at a central location.
City newsletters	Cities can send newsletters digitally or in print that include FAQs, training dates, and upcoming deadlines. Cities should send newsletters at regular intervals with updates and information on implementation activities.
City website	A list of covered buildings posted on the city's website can be a helpful notification and list-refinement tool. This can also help service providers connect more cost-effectively with prospective customers. Some cities choose to not disclose the list during the first years of compliance to reduce solicitations to building owners from energy service providers.
Partners	Cities should partner with local organizations and trade associations for outreach. Organizations may have extensive membership and subscriber lists, making them useful conduits. Cities should prioritize working with groups that were involved in crafting a benchmarking ordinance.
Consultants	Cities can encourage service providers to connect with industry associations, schedule presentations and take other steps.

To reach as many people as possible, cities must use multiple channels in parallel. For example, though adding a compliance insert in tax bill mailings can be inexpensive, not all buildings are subject to property taxes. Owners of those properties might be better reached by working through community organizations or nonprofit partner organizations.

CITY EXAMPLES

Atlanta

Atlanta mailed postcards with simple compliance instructions. The city used paper notifications in the first year of compliance to collect email addresses. After gathering a more comprehensive email list, the city used **POSTCARDS** and digital communication for reminders and to notify buildings owners of submission errors.

Atlanta also conducted outreach through press releases, webinars, two major mailing campaigns, and partnerships with local organizations including community-improvement districts, the local BOMA chapter, and the nonprofit Southface Energy Institute. By providing educational presentations through these organizations, Atlanta reached about 400 of the 1,300 building owners who needed to comply in the first year.

Chicago

Chicago collaborated with nonprofits such as the Illinois Green Alliance and the Midwest Energy Efficiency Alliance to publicize its benchmarking program and the compliance requirements. The city used the groups' membership email lists and collected email addresses of people who attended training sessions or contacted the city's help center. The city sent compliance notification letters and emails to owners of covered buildings approximately three months before the initial reporting deadline, with an additional mailing and email sent 30 to 45 days before the deadline. Building owners who missed the deadline received two additional letters or emails.

Salt Lake City

Salt Lake City mailed formal notification letters to building owners asking them to fill out benchmarking contact information on the city's website and to find their building ID. Having contact information ensured that the city reached both the owner responsible for compliance and the person who was most likely doing the benchmarking.

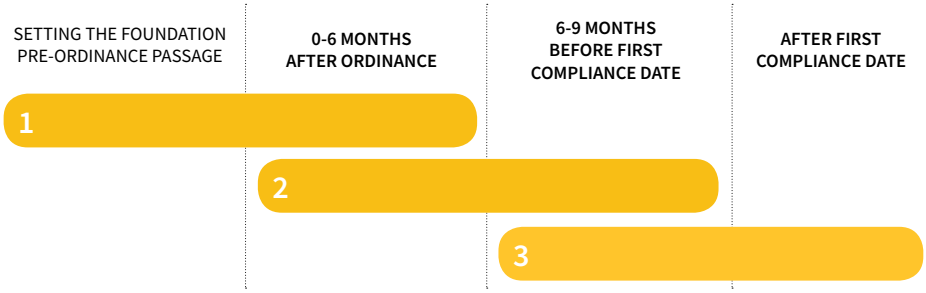
STEP 2

DEVELOP AN INVENTORY OF COVERED BUILDINGS

Cities must create an inventory of each building covered by its building performance ordinance and include multiple contacts for each building. The inventory, called a covered buildings list, will be used for all outreach and compliance activities. Compilation should start soon after an ordinance is enacted.

CHECKLIST AND TIMELINE

1. Create a Covered Buildings List
2. Acquire Accurate Contact Information
3. Maintain Covered Buildings List



STEP 2

DEVELOP AN INVENTORY OF COVERED BUILDINGS

Cities should understand the importance and difficulty of developing the list. Many benchmarking cities have found there is no single listing of every building in the city and that they must combine data sets to create a covered buildings list. Completing the task can take months.

A. CREATE A COVERED BUILDINGS LIST

A covered buildings list must show at a minimum each building's street address, square footage, primary use, and contact information for owners and property managers. The list should identify those buildings that are subject to requirements beyond benchmarking such as meeting a performance standard.

Cities will use the list to assess and track compliance and to document interactions with building representatives.

I. FIND INFORMATION SOURCES

Cities should start compiling a covered buildings list using a tax assessor's database, though they should understand that assessment rolls can have shortcomings. They might exclude tax-exempt properties or lack complete or accurate data for buildings located on a multi-building tax parcel. For condominium or co-op buildings, assessment rolls usually list each unit as its own tax parcel; that means the city will have to manually combine the unit listings into a single building.

For these reasons, cities should augment their tax assessor's database with datasets maintained by other public and private entities as listed below. Developing an accurate and comprehensive covered buildings list will likely require combining data from several of these sources.

Table 2. Data Sources for Developing a Covered Buildings List

DATA SOURCE	MOST USEFUL FOR
Building permit department	Verifying building size and use; tracking annual new construction, demolitions, and major renovations.
CoStar Group	Collecting contact information, especially for tenants and property managers; identifying building use and address.
Internal city GIS datasets from planning, economic development, or IT departments	Verifying building size and footprint.
Municipal electric and water utilities	Contact information for homeowner associations (HOAs) and agents for condominiums; metering configurations (identifying master-metered vs. individually metered buildings).
State department of revenue or licensing, responsible for issuing business licenses	Contact info for HOAs (for condominiums) and for agents of buildings owned by an LLC or corporation.
Online mapping services (e.g. Google Maps or Microsoft Bing)	Building footprints; overhead and street-level imagery of buildings to help confirm building location and configuration (especially for campuses with multiple structures).
Trade associations (e.g. the Building Owners and Managers Association [BOMA] and the National Association for Industrial and Office Parks [NAIOP])	Contact information for owners who are members.

When possible, cities should include the geospatial representation for each building so it can be mapped. Mapping lets staff perform GIS operations such as geospatial matching of data records based on building locations and calculating the solar potential for buildings.

Most cities have used their own employees to compile a covered buildings list. Some have partnered with outside groups or hired consultants.

Cities should expect that they will not be able to create a complete and accurate list in the first year. Some buildings won't show up on any lists or will have inaccurate building owner information. Cities should develop a covered buildings list in the first year that is sufficient to launch the benchmarking program and should augment the list over time through ongoing outreach and research.

CITY EXAMPLE

Chicago

Chicago hired a nonprofit, Elevate Energy, to create the covered buildings list using tax assessment rolls, water department records, and CoStar data. The city needed an estimated 1.5 full-time employees for two months to help Elevate develop the list for the first year. Elevate Energy took advantage of its experience improving building energy efficiency and its relationships with building owners and managers, contractors and nonprofits to compile a covered buildings list. Chicago also hired Elevate to manage its benchmarking help center.

Cities should access department databases other than those of the tax assessor regularly to capture and incorporate into the buildings list new construction, ownership changes and major retrofits.

II. ASSIGN A UNIQUE BUILDING IDENTIFIER

Cities must assign each covered building a unique identifier. Cities should not use mailing or street addresses, which can be imprecise. A building with several tenants may have several addresses. In addition, address formats are often inconsistent (for example, Northeast 1st St. vs. NE First Street), making it challenging to match data records from different sources.

If GIS shape files representing building footprints are available, the city should consider using the U.S. Department of Energy's Unique Building ID (UBID) methodology. The UBID methodology can use 2-D shape files to generate a unique ID for each building, which describes both the location and area of a property. This type of spatially derived building ID can be used in programs beyond benchmarking and be adopted by other city departments to track building activities.

Cities that do not have GIS data or another existing numbering scheme for their buildings should generate a new, unique identifier for each covered building. Employees managing the covered buildings list must ensure that numbers are assigned correctly, with no duplication, and that the list is maintained accurately as buildings are built and demolished.

Although many benchmarking cities have created building IDs based on tax assessor, those cities have learned that buildings and tax lots may not correspond precisely. A tax lot can have more than one building; a building may extend across multiple tax lots. This can complicate a numbering scheme and be difficult to manage. Assessment rolls are often incomplete and omit tax-exempt properties. For these reasons cities should not use tax parcels for building IDs.

Unique building IDs should be used in all written communication with responsible parties. Cities should share the ID with building owners as soon as it is created and make it available in an online portal.

B. ACQUIRE ACCURATE CONTACT INFORMATION

Cities must include in their covered buildings lists contact information for key personnel at each building. Contacts are crucial both for ensuring compliance and for motivating people to improve building performance.

Acquiring accurate contact information can be difficult. For example, an owner's mailing address often differs from the covered building address. Cities will need to establish the appropriate contact for notifications.

Cities should maintain contact information for anyone who has a significant role in collecting and reporting benchmarking results or in improving building performance. This may include building engineers, facility and property managers, homeowners' association agents and directors, major tenants (especially in single-tenant buildings), and efficiency service providers working with a building. The following table describes the roles of potential building contacts.

Table 3. Contact Roles for Covered Buildings

ROLE	DESCRIPTION
Building owner	Legally responsible for submitting benchmarking reports. For smaller properties they may complete the report. Building owners will typically make final decisions on improving a building's efficiency.
Property manager	Oversees larger properties and is often responsible for ensuring that benchmarking is completed. Property managers with large portfolios can be contacts for multiple properties.
Building engineer/ facility manager	Handles day-to-day running of building operating systems. They often have the greatest interest in making the building operate efficiently and can be benchmarking champions.
Large tenants	Responsible for operations, maintenance, and equipment upgrades in properties with a single large tenant under a triple-net lease. Although a building owner will be responsible under an ordinance for compliance, large tenants can be active in benchmarking and targeted for city outreach because they will benefit from improved energy efficiency.
Condominium homeowners' association or boards	Can submit data and make improvements that will affect an entire condominium building. Condominium owners, by contrast, are responsible for only their units.
Energy efficiency service providers	Often responsible for benchmarking and submitting results for building owners. Service providers have a business interest in using benchmarking to persuade owners to invest in energy efficiency and will want to understand and use the results.

Maintaining multiple contacts for each building will improve the response to communications. Notices of deadlines can be sent to a building owner and a property manager while training updates and informal communication can go to a service provider or to engineering and facilities maintenance staff.

CITY EXAMPLES

Seattle

Seattle worked with its municipal water department to get contact information for agents and homeowners' associations that received water bills for common areas in condominium buildings. As contact information for condos was not available in other common sources such as the tax assessor's database, this allowed the city to include this information in its covered buildings list and improve outreach and compliance efforts targeting the multifamily sector.

Washington, D.C.

Washington, D.C., had 10 percent of its initial mailings returned because of inaccurate addresses. The District lowered its bounce rate to 1–2 percent by sending letters to multiple contacts and locations: the building owner (at both the physical address of the property and the owner of record address obtained from the Office of Tax and Revenue), and the registered agent, using the Registered Agent address obtained from the Department of Consumer and Regulatory Affairs.

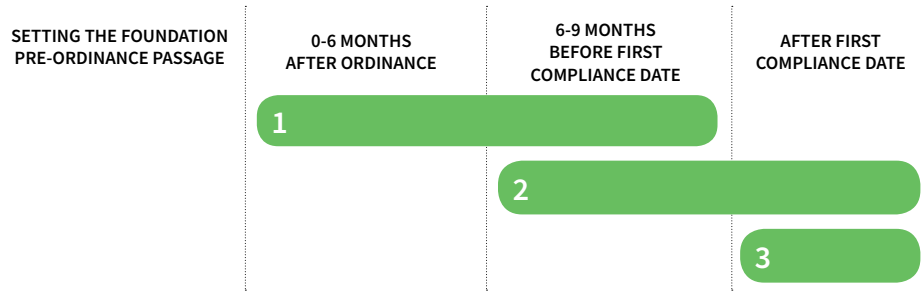
STEP 3

COLLECT AND MANAGE BUILDING DATA

Cities must create systems and processes to manage their communication with building owners. The systems and process will: identify covered buildings and their owners; communicate with and support the owners; verify ordinance compliance and encourage owners to improve energy efficiency. Without these, cities will spend excessive time collecting and processing data rather than using data to motivate building owners to improve energy efficiency.

CHECKLIST AND TIMELINE

1. Develop or Procure a Software Platform
2. Improve Data Quality
3. Enforce Compliance



STEP 3

COLLECT AND MANAGE BUILDING DATA

A. DEVELOP OR PROCURE A SOFTWARE PLATFORM

Cities should build or buy a software platform to collect and manage information for each covered building.

Although some cities have tried to manage data using spreadsheets or simple database solutions, these are inadequate for the complexity of managing building information. Cities can save hundreds of hours a year with custom software that collects and manages building information and has customer-relationship management capabilities to document and automate interactions with building owners.

A software platform should let a city automate repetitive tasks such as collecting and validating data submissions, notifying owners of deadlines and training opportunities, and presenting benchmarking results to owners and the public. It also will be essential to running a help center.

Developing or buying software involves time-intensive design and development, making it a high priority after ordinance enactment. Often a single vendor will want to develop the software and run the city's help center. See the section, Establish a Building Performance Help Center.

CITY EXAMPLE

Denver

Denver hired a consultant to develop the software and run its help center. The consultant built an application using Salesforce to collect Portfolio Manager data, track compliance, process exemptions, maintain the covered buildings list, send scorecards to building owners, and publish a map of the benchmarking data. The city estimates that automation saves nearly 1,000 hours a year, allowing the consultant to handle other tasks. By flagging benchmarking errors within just 24 hours of data submission, the system strengthened public perception of the city's commitment to benchmarking.

B. IMPROVE DATA QUALITY

Cities must clean data that building owners submit, and correct or remove inaccurate submissions.

Accurate submissions are essential to benchmarking. Accurate benchmarking information will show vividly the value of energy-efficient buildings. Inaccurate information can result in misguided decisions by real estate investors and incorrect conclusions by governments, utilities and researchers about the state of a local building stock. Information that is especially poor could completely undermine the credibility of a benchmarking program.

LEARN MORE

Putting Data to Work: How Cities are Using Building Energy Data to Drive Efficiency

This IMT report helps cities identify common sources data errors and outlines the steps to take to improve data quality.

VIEW RESOURCE >

Cities should have data-quality provisions such as requiring building owners to undertake automated error checking and have a qualified professional review data before submitting it.

During implementation, cities should continue to improve data quality before and after submission by:

- Establishing processes for utilities to upload automatically energy use data to each owner's Portfolio Manager account.
- Validating and cleaning data been received by the city.

I. IMPROVE DATA QUALITY PRIOR TO REPORTING

Cities must ensure that the individuals responsible for benchmarking understand how to do it correctly. Cities must make technical resources including documentation, training and a help center readily available. Each of these is covered in detail in Chapter 5: Improve Compliance with Support Resources in this guide. The resources aim to increase compliance rates and improve data quality, by reducing errors in data entry and in using Portfolio Manager.

II. DATA VERIFICATION AND CLEANING

After a city receives benchmarking data, it must verify that the data meet quality standards. Many benchmarking cities have established data parameters to detect outliers that need scrutiny. For example, Denver's automated data-validation process and informs building owners within 24 hours of submission if their data is acceptable or if it requires attention.

Errors fall into three levels of severity:

- Class I: Compliance errors. These are the most egregious errors and have key data fields blank or obvious mistakes such as an incorrect building ID or no data for 12 months of energy consumption. Cities should return reports with Class I errors for correction.
- Class II: Outliers for key fields. These are data entries that fall outside the expected range in important fields such as energy use intensity and gross floor area. Class II errors require attention to determine if data is erroneous and needs correction or is correct but atypical and needs confirmation.
- Class III: Outliers for the ENERGY STAR score. These are questionable data entries in fields such as "weekly operating hours" or "number of workers on main shift" that affect only a building's ENERGY STAR score. Class III errors should be corrected if resources allow. Correction is important if the city has building performance requirements that are linked to an ENERGY STAR score.

Cities generally see data quality improve over time. Cities can promote improvement by increasing expectations for data accuracy and completeness.

More information on best practices for validating and cleaning building performance data can be found in IMT's report, Managing Benchmarking Data Quality.

CITY EXAMPLE

New York City

New York City's 2014 and 2015 benchmarking results were analyzed by the Urban Intelligence Lab of New York University's Center for Urban Science and Progress. See **NYC'S SEPTEMBER 2017 BENCHMARKING REPORT.** The Lab developed parameters establishing acceptable upper and lower limits for key fields, to detect likely errors and questionable entries. The Lab's system flagged 21 percent of the initial data entries for removal, demonstrating the need for data checking.

New York also found benchmarking consultants helpful in improving data accuracy because a group of just 30 consultants handled benchmarking for two-thirds of the covered buildings. When common errors were found in the initial benchmarking, city staff met with the 30 consultants to explain the errors and to give them a list of errors found across their portfolios.

C. ENFORCE COMPLIANCE

Cities must have compliance and enforcement policies that maintain the integrity of benchmarking programs while encouraging building owners to use benchmarking data to improve buildings. Noncompliant buildings weaken the effort to improve energy efficiency and are a missed opportunity for owners to cut costs and emissions.

A city's approach to enforcement will be guided by the overseeing department's regulatory authority and by enforcement practices. A city's ability to penalize owners is set in its building-performance ordinance.

Cities should avoid imposing fines on non-compliant owners in a program's first year or two even if they are authorized to do so. This will generate goodwill with building owners and encourage a city to focus on supporting owners with outreach, training, and resources.

At some point cities with regulatory authority must begin enforcement. The approach will depend on a city's goals. After a compliance deadline, a city typically sends noncompliant building owners warning letters or violation notices followed by fines. Cities may want to generate additional goodwill with the building community by continuing to give owners every reasonable opportunity and resource to comply. Some cities may postpone fines until after they have provided several rounds of warning letters, while others choose to issue fines more readily to demonstrate that they are serious about compliance.

Cities such as Denver and Seattle improved compliance rates by giving owners frequent and fast feedback about data submissions. Seattle's help center reaches out to owners it suspects are struggling with benchmarking. See the section, Establish a Building Performance Help Center.

Cities should maintain records of interactions with building owners over compliance, which will help deal with owners should litigation arise.

CITY EXAMPLES

Denver

Denver emails non-compliance notices for several data-quality issues including missing natural gas data and unusually high or low energy-use intensity or ENERGY STAR scores. Building owners must correct a Portfolio Manager account and respond to Denver's data request with a new report that meets the data-quality checks.

Minneapolis

Minneapolis sent violation notices instead of citations or tickets to non-compliant building owners in the first year of compliance. In the second year, the city sent violation notices that gave owners 45 days to comply or face an initial $200 fine. The fine increases each month a building remains out of compliance, reaching a maximum of $2,000 after the fourth month.

St. Louis

St. Louis' benchmarking program is managed by the city's building department, which uses a custom solution that integrates benchmarking data with its building permit system. The integration lets benchmarking data be shared in the building department so that buildings that have not complied with benchmarking requirements will be denied an occupancy permit. The city also sent inspectors into the field to meet with building engineers at every building that failed to report.

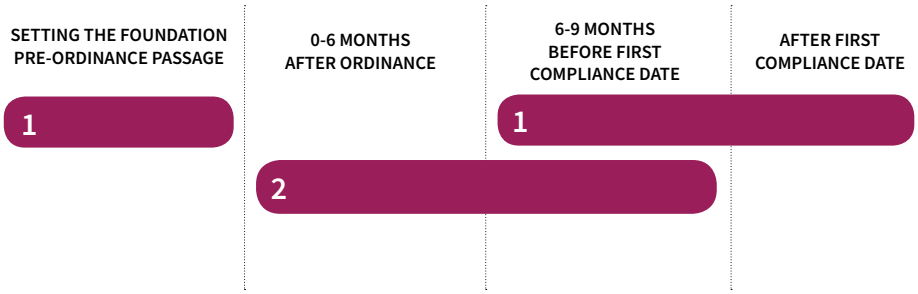
STEP 4

ENGAGE UTILITIES

Cities must work closely and extensively with utilities to get them to cooperate with energy data requests.

CHECKLIST AND TIMELINE

1. Engage Utilities on Implementation
2. Establish Access to Whole-Building Data



STEP 4

ENGAGE UTILITIES

Utilities are essential to the success of a building performance policy. They must give building owners clear, actionable data about how much energy buildings use. They can help owners find programs and services that make their buildings more efficient.

Cities implementing a benchmarking program should help utilities understand that the program's goal is to create a robust market for high-performing buildings. Cities should engage with utilities—whether they are investor-owned, municipal or cooperative—early and often about developing building performance policies.

Utilities are critical to benchmarking compliance because they maintain the energy data that buildings need to submit. Buildings with multiple meters or tenants must have their energy use combined—or aggregated—to measure the building's overall energy performance.

A growing number of utilities are releasing aggregated, whole-building data to certain building owners. (See this listing from ENERGY STAR for a roster of applicable utilities as of August 2018.) Most utilities will release whole-building data for buildings with at least four tenants, according to the EPA. Owners of buildings with fewer than four tenants must get the consent of tenants to receive their data. This process helps building owners obtain the necessary information while protecting tenant privacy. Cities should work closely with utilities to help them understand what is being asked of them and how it benefits the utility.

In addition to setting up data request processes, cities should work with utilities to improve benchmarking compliance and promote energy efficiency services. Cities can work with utilities to explore how to use benchmarking data to drive more robust markets for energy efficiency. Cities support utilities by telling building owners about utility rebate programs.

The City Energy Project resource, Engage with Utilities to Implement Energy Performance Policies provides a comprehensive checklist for establishing partnerships with utilities. Because of the importance of utility data and the long lead times required to collaborate with utilities, cities should consult this resource early in their development of a benchmarking program.

LEARN MORE

Engage with Utilities to Implement Energy Performance Policies

This guide helps cities and utilities identify tools and tactics for working together to implement strategies that make it easier for building owners to meet the requirements of energy performance policies.

VIEW GUIDE >

CITY EXAMPLES

Chicago

Chicago's Commonwealth Edison (ComEd) has offered building owners whole-building electricity consumption data since 2008. ComEd's online process lets owners set up an account, add building addresses and verify tenants. ComEd can compile the data needed to benchmark more than 7,000 buildings per year with less than one full-time-equivalent staffer. In addition, Peoples Gas provides whole-building natural-gas use data to building owners on request.

St. Louis

St. Louis electric utility Ameren and gas company Spire Inc. worked with the city and the USGBC's Missouri Gateway chapter to develop a data-request process that was ready before the first benchmarking compliance deadline. The process included a single request form that owners need to complete only once and is honored by both utilities. Ameren identified automating the benchmarking process and using the resulting data to enhance its outreach to customers as key elements of an energy efficiency proposal it developed for consideration by the Missouri Public Service Commission.

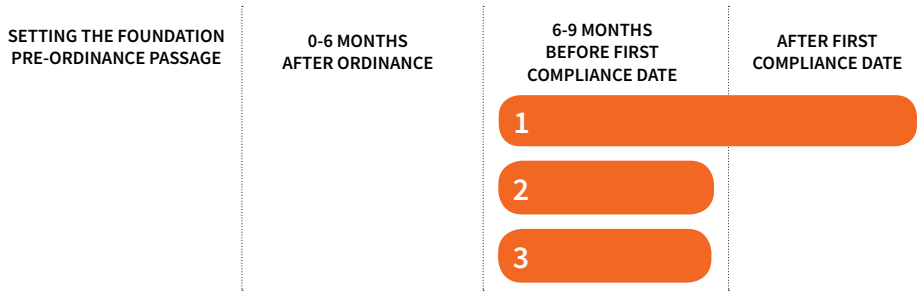
STEP 5

EDUCATE TO IMPROVE COMPLIANCE

Cities must help building owners comply with benchmarking by providing materials and training that explain the policy and compliance steps. Cities should help owners understand the value of benchmarking and of improving energy efficiency.

CHECKLIST AND TIMELINE

1. Develop Compliance Support Materials
2. Develop and Deliver Trainings
3. Establish a Building Performance Help Center



STEP 5

EDUCATE TO IMPROVE COMPLIANCE

Cities should provide written material, develop training sessions and establish a help center. Training and assistance should begin months before the first compliance deadline.

A. CREATE COMPLIANCE SUPPORT MATERIALS

The goal of compliance is to ensure a city's building energy ordinances is having its intended effect: reducing energy consumption in buildings. Beyond submitting the required data, cities hope that a compliant building owner is also an energy-aware and interested building owner who will see the benefits of efficiency and improve their building accordingly. That said, to achieve this broader goal, there are a few nuts and bolts of compliance that need to be covered, as outlined below.

Cities should produce detailed documents that tell building owners how to: benchmark, obtain data from utilities, and verify and submit data.

Compliance documents should include:

- A detailed how-to guide of up to 30 pages that shows each compliance step, including how to get energy bills and whole-building data from utilities. Screenshots showing where and how building information is entered in Portfolio Manager are helpful.
- A one- to two-page overview and checklist that provides a high-level summary of the compliance process.
- FAQs or a fact sheet on the ordinance that are updated regularly to answer new questions.
- All forms that building owners will have to submit for compliance such as a utility account release request and an exemption/extension request.
- Resources and documents that describe steps after benchmarking, including ways to improve energy efficiency and to use benchmarking data. See the IMT resources in the Putting Data to Work Toolkit.

LEARN MORE

Communications Materials for Compliance

These templates detail four key city-issued communications resources: notifications to comply, compliance checklists, extensions and exemptions forms, and violations alerts.

VIEW TEMPLATES >

CITY EXAMPLE

Los Angeles

Los Angeles worked with the nonprofit Los Angeles Better Buildings Challenge (LABBC) to create a website to help owners comply. Prior to the city's benchmarking policy the LABBC had worked with hundreds of the larger commercial building owners in Los Angeles, overseeing a network that represented over 100 million square feet of the top-performing buildings across the city. Their role as a partner of the city allowed the LABBC to not only assist owners with the benchmarking process but, more importantly, help owners interpret their benchmarking results and turn this knowledge into the actions needed to improve their building's performance.

The LABBC website explained which buildings were required to comply and provided materials—such as a compliance overview, FAQs, a detailed benchmarking how-to guide, and training videos—describing how to comply. With guidance developed by Pacific Gas & Electric of San Francisco, LABBC customized the documents to meet the needs of different users. Owners of properties with master meters or with no tenants were instructed on how to manually upload energy use data, while owners of properties with tenants who are billed directly by the utilities were instructed on how to submit a request for their utilities to upload the prior calendar year's aggregated data.

B. DEVELOP AND DELIVER TRAINING

Cities should train anyone responsible for benchmarking. Training sessions should explain the goals of benchmarking, describe how to take steps such as entering data in Portfolio Manager and highlight the benefits of using benchmarking data to improve buildings. Cities can provide advanced training on topics such as auditing, retrocommissioning and building operations.

Training sessions should be offered at least once a month starting three to five months after a benchmarking ordinance has been enacted–and at least six months before the first compliance deadline. Frequency should increase to several sessions per month in the two months prior to a compliance deadline.

Training sessions can be done in person or online through webinars or videos. Cities should maintain archives of training sessions for ongoing viewing.

Each type of session has benefits and drawbacks. In-person sessions allow for one-on-one engagement but might attract a small audience. Online training can reach a larger group but may preclude participant questions.

Tailored sessions that focus on types of buildings such as multifamily properties or class B and C office buildings can highlight nuances that are unique to a sector. Cities should hold special sessions to educate energy efficiency service providers on the policy and its requirements. Service providers are motivated to educate the market and generate business.

Benchmarking cities have worked with local environmental and energy groups to develop and hold in-person training. The EPA and EPA contractors can provide train-the-trainer sessions. Local chapters of professional associations including ASHRAE, BOMA, IFMA, USGBC, and local utilities can provide training for and promote the training to their members.

Because people are more likely to respond to information from sources they trust, having partner organizations publicize, host, or deliver trainings can increase attendance.

CITY EXAMPLES

Atlanta

Atlanta partnered with three community improvement districts, BOMA, and local nonprofit Southface Energy Institute to hold nine training sessions of about two hours each. The sessions described the city ordinance, how to comply, and how to get help. An energy professional explained how to benchmark, use energy audits, find a qualified energy auditor, and read an audit report. Georgia Power explained its incentives and savings programs. Energy professionals volunteered to help lead the training sessions and benefitted from the exposure.

Chicago

Chicago partnered with the ENERGY STAR program, utilities and the local USGBC chapter, which developed training that explained the ordinance background and requirements and provided a step-by-step guide to compliance. Trainers included volunteers from the Illinois Green Alliance, AIA–Chicago and ASHRAE–Illinois.

Most training sessions were held in space donated by a Chicago Energy Benchmarking Working Group partner or supporter. Some sessions were webinars. The sessions were held once or twice a week in the eight to 10 weeks before the initial benchmarking deadline in 2014.

Minneapolis

Minneapolis provided one-on-one training on request. The city's nonprofit partner, the Center for Energy and Environment, held two in-person workshops one to two months before the first compliance deadline in the first two years of the program. The workshops explained how to navigate Portfolio Manager and find resources for building owners to get help, which prompted owners to start thinking about the ordinance and compliance. The Center provides recordings of the workshops on the benchmarking website.

C. ESTABLISH A BUILDING PERFORMANCE HELP CENTER

Cities must establish systems and processes to field questions about benchmarking and compliance. Help centers are an important way to assist building owners, energy services firms, and others. A help center typically includes a staffed call center.

The help center should not replace training sessions. Its main purpose is to answer questions about how to enter information into Portfolio Manager and how to comply with an ordinance. Help center staff can guide building owners on steps to improve building performance and refer them to utility programs and other organizations that support energy efficiency.

While the help center does not need to be operational until three to six months before the first compliance deadline, setting it up can take months. Benchmarking cities can take various approaches including having helping centers run by a community college, a nonprofit or by city employees.

I. HELP CENTER LOGISTICS

A city should decide whether to operate a help center itself or to hire a contractor. Each approach has advantages and disadvantages.

A city-run center allows cities to have direct contact with building owners. Contractor-run centers can share names of benchmarking service providers, overcoming potential restrictions on cities.

Cities could hire community colleges with programs in energy efficiency, which would give students valuable experience.

Cities can redirect different types of help requests to reduce the demands on their own staff. Los Angeles relied on the Los Angeles Better Buildings Challenge to manage the city's benchmarking help center and provide front-line technical assistance on the mechanics of the process, and the benefits of benchmarking. Questions of a regulatory nature, or related to a building's ID number, were redirected to the city's Department of Building and Safety, which was responsible for compliance and enforcement.

Benchmarking cities have found that help centers must be staffed most heavily in the weeks immediately before and after a compliance deadline. For slower periods, cities have set up voicemails on which building owners can leave questions. Some help centers offer drop-in hours.

Help centers will be busiest in the first year of a benchmarking ordinance and will continue to receive inquiries in subsequent years. Seattle found that each year about 10 percent of the properties subject to reporting requirements changed ownership management, prompting a need for assistance. See the City Energy Project resource, Creating and Running a Building Performance Help Center.

LEARN MORE

Creating and Running a Building Performance Help Center

A city creates and runs a help center to provide buildings owners with one-on-one assistance and guidance in meeting the requirements of building energy performance policies.

VIEW GUIDE >

CITY EXAMPLES

Atlanta

Atlanta hired Southface Energy, a local non-profit already active in promoting energy efficiency, to set up and operate the help desk because it had expertise. One project manager and two FTEs ran the desk. The months before and after the compliance deadline were the busiest times for the help desk staff, who were answered questions, provided technical assistance, and made site visits to ensure building owners understood how to benchmark. Questions regarding compliance, exemptions and building IDs were directed to the city's sustainability office.

Boston

Boston ran its help desk internally, using a city employee to respond to calls and emails. In the weeks before the compliance deadline, a second city employee was added to help handle increased demand. Questions requiring in-depth or technical assistance were referred to EPA Region 1 staff or to employees at the three local utilities – Eversource, National Grid and Veolia – for follow-up, though the city help center continued to serve as the primary point of contact; contact info for representatives at the EPA and the utilities was not shared with the public. Eversource provided an embedded employee, who was physically located in the city's Department of Environment and was available to assist with help desk questions.

Minneapolis

Minneapolis established a benchmarking helpline and partnered with the Center for Energy and Environment, a local nonprofit, and Minnesota Retiree Environmental Technical Assistance Program to help provide technical assistance. A city employee handled questions about compliance, including how to get extensions and exclusions. The Center and the Retiree Program answered Portfolio Manager and building-related questions. The Center also provided help through screensharing meetings. The Retiree Program helped using screenshots and some in-person meetings.

Pittsburgh

Pittsburgh worked with the department that handles calls to its 311 help phone to train people on the benchmarking ordinance and steps for compliance. Two, one-hour training sessions were held providing context and details on the FAQ posted online. The call center handles simple questions and directs more technical issues to the city Sustainability and Resilience Department.

STEP 6

COMMUNICATE RESULTS

Cities must use benchmarking information to inform building owners and communities of potential and actual energy savings. Benchmarking data that is presented effectively can motivate owners to make building improvements.

CHECKLIST AND TIMELINE

1. Share Data to Enable Transparency
2. Analyze Data and Report Results

SETTING THE FOUNDATION PRE-ORDINANCE PASSAGE	0-6 MONTHS AFTER ORDINANCE	6-9 MONTHS BEFORE FIRST COMPLIANCE DATE	AFTER FIRST COMPLIANCE DATE
			1
			2

STEP 6

COMMUNICATE RESULTS

Public reporting is crucial because it can drive building owners to improve energy efficiency. The city should share data for individual buildings, as well as aggregate and analyze that data to present sector level and city-wide results. Building owners, contractors, service providers, tenants, advocates, city officials and ordinary citizens should have easy access to this information and understand its significance.

Transparency is the publishing of the results by the city for individual buildings. Building owners, contractors, service providers, tenants, advocates, city officials, and ordinary citizens should know about this information and understand how they can use it to identify which properties are high or low performers, as that will impact the cost of operations for those buildings. The city should also share this information with utilities who can proactively reach out to property owners most likely to benefit from the utility's incentives and other energy efficiency offerings.

Cities should analyze and synthesize the benchmarking data to develop a snapshot of changes in citywide energy use and savings each year, in a format that the public can easily understand. Cities should also periodically release longer, more detailed summary reports about their benchmarking programs.

Cities should be creative in releasing the data and aim to reach the broadest audience possible.

For communicating more broadly and promoting the progress and results of building performance policy implementation, see the City Energy Project resource, Must-Haves for Publicly Launching and Ongoing Communications.

LEARN MORE

Must-Haves for Publicly Launching and Ongoing Communications

For guidance on the best practices for communicating more broadly and promoting the progress of building performance policy implementation, view the City Energy Project resource on communications which is designed to help a city plan and strategize the most effective outreach tactics.

VIEW GUIDE >

A. SHARE DATA TO ESTABLISH TRANSPARENCY

Benchmarking is only half of the process toward improving building performance. Using the data to stimulate efficiency improvements and to target buildings with large room for improvement is the goal of any benchmarking ordinance.

CITY EXAMPLE

Seattle

Seattle distributes data on buildings in various ways: an **ONLINE LISTING** of all buildings, an **INTERACTIVE DATA VISUALIZATION MAP** and **BUILDING SCORECARDS.** The scorecards outline performance metrics and savings opportunities based on EUI and include links to utility incentives and energy efficiency experts. These were formerly sent individually to each property owner, but the city now generates them automatically and links them directly to a data visualization map. The map serves as a central portal for accessing all building performance information, which reduced production and distribution costs and allows owners to click on their building to get a detailed understanding of their results.

CITY EXAMPLES

Boston, Chicago, Denver, Philadelphia, and Washington, D.C.

BOSTON, DENVER, PHILADELPHIA, and **WASHINGTON D.C.** created interactive maps that show each building's ENERGY STAR score, size, and energy usage data.

CHICAGO, **DENVER,** and **PHILADELPHIA** also provide tailored scorecards to each building that show its rank against similar buildings and highlight resources to improve energy efficiency.

Transparency tells the public how individual buildings are performing. Publicly available information should include at a minimum:

INFORMATION TYPE	REQUIREMENTS
Descriptive Information	1. Property address 2. Primary use 3. Gross floor area 4. Number of floors 5. Entity responsible for the benchmarking submission
Performance information	1. Energy use per square foot (also known as energy use intensity or EUI) 2. The ENERGY STAR score, where available 3. Total annual greenhouse gas emissions 4. Monthly energy use, by fuel type 5. Compliance status

Benchmarking cities have shared data using interactive maps, spreadsheets and lists. Making this information public enables everyone—building owners, tenants, energy efficiency consultants, and lenders—to consider a building's energy performance when deciding where to work, live and invest. Because energy use affects operations costs, making this information more accessible will increase the awareness of and demand for higher performing buildings. That will generate additional investments in energy efficiency.

Cities should also develop targeted scorecards for individual buildings. These one- to two-page documents provide building owners more detailed and actionable information, explain how to interpret an energy score, recommend steps to improve energy efficiency, project cost savings and generate friendly competition and motivation to improve. Please refer to IMT's Sharing Data to Motivate Action for more detail.

These different methods for sharing information about the performance of individual buildings target different audiences. Lists of covered buildings let service providers easily identify buildings to target with their energy efficiency sales and marketing efforts. Policy makers, prospective tenants and buyers, investors, and the public are best served by an interactive map, which lets viewers see and compare in a highly visual format how different buildings are performing. Users can filter data to focus on types of buildings or locations.

Scorecards are most useful for building owners and property managers. They provide a more detailed peer comparison along with suggestions for next steps and calculations of potential savings.

B. ANALYZE DATA AND REPORT RESULTS

Once cities have collected and scrubbed benchmarking data, they must aggregate and analyze it to understand community-wide energy use and emissions trends across different market sectors, and the city as a whole. A benchmarking ordinance might require such analysis, as it is the city's way to communicate results.

Cities have used a variety of partnerships and methods to analyze data and publish their findings. Analyses should cover a calendar year and be released as soon as possible once they are complete. At a minimum, a city should publish an annual snapshot or infographic that highlights in an easy-to-understand format key metrics showing the impact of the policy. This information is intended for the public and should clearly illustrate the impact and benefits of the policy, including citywide energy- and cost-savings and a summary of year-to-year changes in citywide energy use.

Every three to five years, cities should release longer, more detailed summary reports about their benchmarking programs. These reports, often written by a consultant, synthesize data and give communities a detailed understanding of the performance of their building stock. The report should be released soon after data cleansing and analysis. Please refer to Analyzing Benchmarking Data produced by IMT and the Urban Sustainability Directors Network, as well as Appendix A: Implementation Costs Memo for expected external costs for preparing summary reports.

Summary reports require more work to produce than an annual snapshot, but provide much more information for building owners, utilities, energy efficiency consultants, policy makers and others interested in understanding how performance is changing across different market sectors, building types and sizes.

Cities can use the reports to inform holistic energy and climate planning. For example, during development of the Clean Energy DC plan, Washington, D.C. relied heavily on its benchmarking analysis to determine the role buildings would play in achieving the city's 80x50 goals.

Summary reports should include at a minimum:

- Compliance rates showing the percentage of buildings that submitted usable data. Higher compliance rates give a more accurate picture of the city's energy performance.
- Citywide and sector-specific changes in energy consumption each year. Tracking consumption changes against a baseline helps a city and community understand where to target energy efficiency efforts. It can be helpful to analyze groups of buildings according to their use, size and age.
- Median building metrics, such as site energy use intensity (EUI), weather-normalized EUI, and ENERGY STAR score by sector.

Additional topics may include:

- Summary information about the building stock (e.g. number and floor area of buildings by type)
- Changes in greenhouse gas emissions
- Changes in energy and water costs
- Analysis of potential energy savings
- Job creation potential
- Individual building highlights or case studies

Elements of the report can be used in a broader city sustainability or climate-initiative report that lets a city highlight how building energy-efficiency has reduced the need for additional energy generation and accelerated the achievement of its climate goals.

CITY EXAMPLES

New York City

New York City directed the Urban Green Council, the local affiliate of the affiliate of the U.S. Green Building Council, to analyze and report on the results of both the city's benchmarking and audit policies. For more information view the New York City's Energy and Water Use 2014 and 2015 Report. The report found that after five years of benchmarking, benchmarked buildings cut their energy use by more than 10 percent and their total greenhouse gas emissions by almost 14 percent. This information helped city staff measure progress toward the city's goal of reducing greenhouse-gas emissions 80 percent by 2050.

By looking at both benchmarking and audit information, the report also found that air conditioning was responsible for 9 percent of energy use in large buildings and is expected to grow. This data has motivated the city to examine the differences in energy use between central air-conditioning systems and distributed cooling systems so it can encourage the use of efficient cooling systems.

Philadelphia

Philadelphia worked with the University of Pennsylvania and the U.S. Department of Energy on analyses of the first year of benchmarking data and published a public report in slideshow format. A second stand-alone report was published in October 2014, and the city now publishes benchmarking information through a data visualization platform and in annual updates to its Greenworks sustainability plan. Reports are vailable at www.phila.gov/benchmarking.

CONCLUSION

In 1973, the Environmental Protection Agency forced automakers to disclose the fuel economy of new automobiles sold in the U.S. The landmark regulation gave car buyers long-hidden and crucial information that let them understand the cost not just of buying a new vehicle but of owning it.

Consumers began demanding fuel-efficient cars. The auto industry was changed forever.

Today, cities across the U.S. are taking the lead in transforming another energy-intensive industry. The nationwide movement to reduce energy consumption in large buildings rests on the same principle that the EPA espoused 45 years ago: transparency.

From Boston to Reno, cities are betting that they can motivate building owners to invest in energy efficiency by showing them—and their communities—the true cost of keeping structures heated, cooled, powered, and lit.

But benchmarking and transparency ordinances are only the start. After elected officials enact the measures, the real work begins. Implementing programs is a big task for overworked city planners, building inspectors, programmers, clerks, and communications specialists.

This guide seeks to help. It is built on the collective wisdom of hundreds of people around the U.S. who have led the way in changing the real-estate industry. The requirements, suggestions, and anecdotes can be boiled down to a few principles.

- Build and maintain a broad community of support.
- Recognize the complexity of tasks that may seem simple.
- Work with—not against—building owners and utilities.
- Share stories of the accomplishments of the city government and business community to demonstrate that public-private collaboration solves our most vexing climate challenges.

APPENDIX A: ESTIMATED COSTS FOR IMPLEMENTATION

This appendix discusses costs that cities should anticipate when implementing energy benchmarking ordinances, including city staff time and external activities. The City Energy Project analyzed a range of costs collected from implementing cities inside and outside of the project. This analysis showed that it is difficult to predict the exact cost for any activity because of variations in ordinance scope and the availability of contractors and partners in a community.

The first year of a benchmarking ordinance requires the most effort because many necessary processes may not exist. After the first year, the time spent by city staff decreases as processes become routine. On average, in the first year of implementation, cities dedicated about 1.5 full-time employees (FTE) for this work, with a range of one to four FTEs. After the first year, cities estimate the workload requires about 0.75 FTE, with work increase in the three months around a deadline. In the first year, the most time-consuming activities involving compiling a building inventory and providing help center services.

Cities can outsource a range of activities. Outsourcing has tradeoffs, especially with owner-support activities such as training or help centers because a city loses the opportunity to establish direct communication with building owners and gain their trust as a partner in energy efficiency.

However, outsourcing these activities can save a time for city staffers, who may not be trained in customer support or call-center activities. A contractor may have resources and technical infrastructure to conduct training sessions or run a help center. A contractor overseeing several projects that demand similar skills may be able to reallocate staff between projects as demands shift, allowing them to mitigate peaks in demand that could occur for staff that are dedicated to supporting a single program.

The ranges presented in the table below come from cities of many sizes, so budget costs on the higher end could be expected for cities with large commercial building stocks who would need to comply with the law (3,000 buildings and greater). Smaller cities with fewer implementation resources can cut implementation costs by working with partners who may be willing to provide pro bono support and internalize some of the less involved activities such as outreach to building owners and creating a benchmarking website. These costs are not necessarily additive because investing in one item could lead to a smaller need in another item. For example, investing in a robust data management platform could significantly reduce the staff needed to run a help center.

ACTIVITY	BUDGET	DESCRIPTION
Covered buildings list	$1,500–$7,000	Almost always performed with in-house staff. Can require two to three months or more to develop depending on the number of buildings and the quality of the source data sets. Many cities have used interns or summer fellows for this activity.
Benchmarking website	$150–$10,000	Generally developed in-house, though some cities have worked with nonprofits.
Outreach	$3,000–$60,000	In addition to in-house labor costs, this can require $3,000 to $15,000 for materials and mailing services to deliver initial notifications. Most cities transition to email notifications as soon as they collect contact information.
Help center	$50,000–$150,000	Running a help center can be one of the most expensive aspects. The work can be out-sourced, assigned to city staff or handled in part by a city's general information line after staff are trained. The help desk will experience a large spike of activity during in the three months before and after a reporting deadline. Resource demands are greatest during the first year and decrease to about 20 percent to 40 percent of the annual labor needs thereafter.
Training	$2,000–$40,000	These costs are often combined with help center costs, as many training sessions will be organized and led as part of the city's support activities.
Data management platform	$60,000–$200,000	Some cities, especially those with smaller programs, have tried to avoid developing a dedicated data management platform and use spreadsheets. However, a dedicated software solution can streamline and automate program activities, saving enough in labor costs to more than pay for itself in the first few years.
Data analysis/ Report generation	$6,000–$70,000	Many cities lack the expertise and resources to perform rigorous data analysis. This activity is often assigned to a consultant, university or nonprofit.
Data visualization	$5,000–$40,000	The cost for a data visualization platform is primarily for developing a solution. After that, the annual updates generally require only a few staff hours each year.

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