Building Energy Compliance Services

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Whitepaper

Schneider Electric
Sustainability Services

What are Building Energy Compliance Programs?

Building energy compliance programs are set by county, city, or state governments that mandate building owners and managers to benchmark and disclose their building's energy consumption, water consumption, and/or greenhouse gas (GHG) emissions. These programs have varying requirements and differ in severity from one locale to the next. More and more county, city, and state governments across the United States are requiring benchmarking and disclosure for public, commercial, and other non-residential buildings in their jurisdiction.

Benchmarking refers to the practice of evaluating a building's energy and resource efficiency while normalizing for factors such as gross square footage, local climate, and occupancy of the building. Benchmarking results come in the form of a performance rating that is disclosed to external parties such as governmental agencies, prospective buyers, lessor, lenders, or for public disclosure for the purpose of identifying buildings in need of energy audits and efficiency upgrades as well as promoting investments in improving the energy and resource performance of those buildings.

Energy performance ratings can enable the comparison of the building's energy performance against similar buildings, such as in the form of an energy use intensity (EUI) value. Other metrics that can be benchmarked are water performance and greenhouse gas (GHG) emissions.

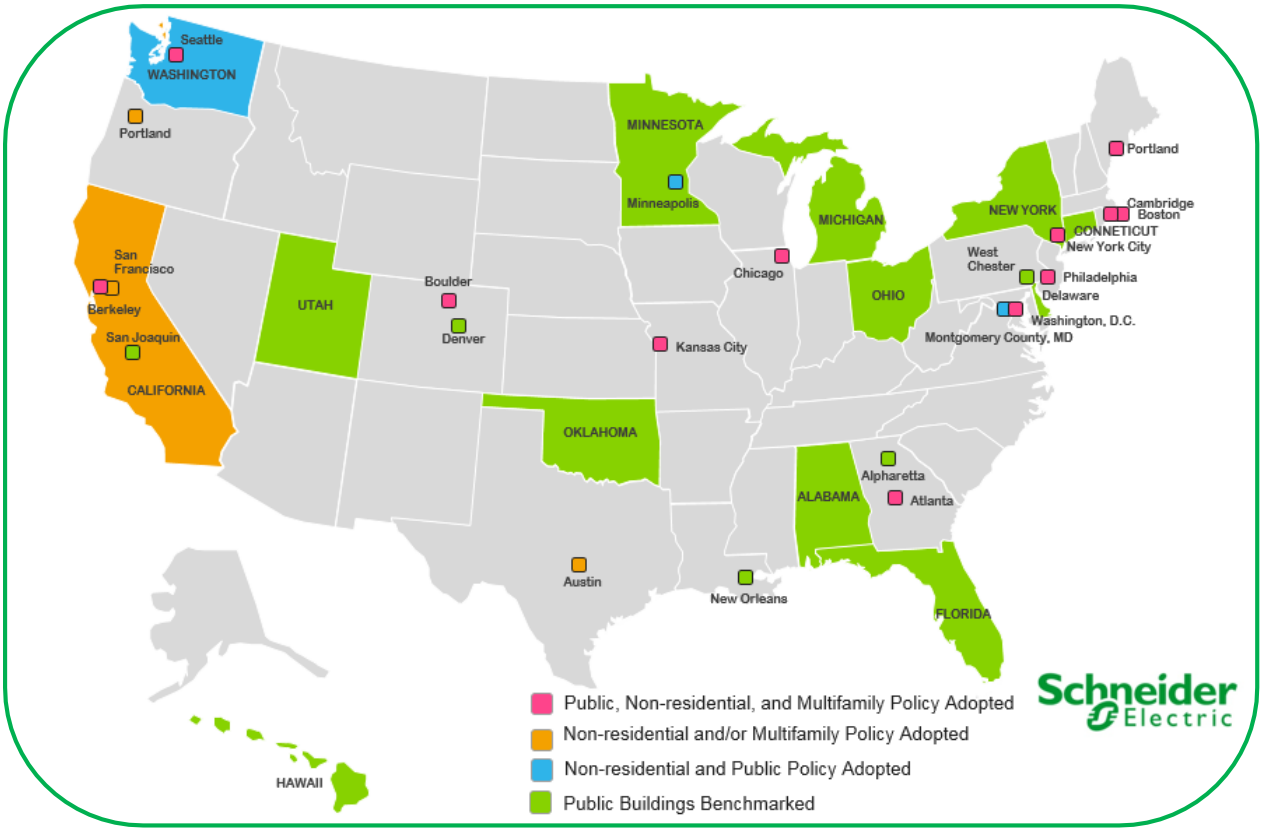
Benchmarking building metrics can be done through online platforms, such as the U.S. Environmental Protection Agency's Portfolio Manager tool, which determines relative energy efficiency within a specific building type or sector, using a year's worth of energy consumption data and relevant facility metrics. Real utility data can either be automatically or manually uploaded into the benchmarking platform enabling users to generate an energy performance rating, share data with relevant parties, view year to year trending, and generate building performance reports. In parallel to enabling disclosure and compliance, facility owners are also able to leverage the platforms to view their portfolio of properties in context to their peers and see how their building performance stacks up.

Key Points:

- Compliance programs enable localities to track and summarize building metrics in their jurisdiction.
- Benchmarking requires property owners or managers to submit, usually on an annual basis, month by month cost and usage of energy data and water data for a full calendar year, or the most recent 12 months.
- Online platforms, such as the EPA's Portfolio Manager, are used to house benchmarking data that is then used to generate performance reports for disclosure.
- Energy use intensity (EUI) score allows the comparison of a building's energy performance against buildings of the same type, expressed as energy per square foot per year.

Where are they located?

Currently, 19 region-specific ordinances are mandating benchmarking and disclosure of affected building types depending on the minimum square footage of the building. An additional 16 cities and state governments require public-sector buildings to undertake ongoing energy benchmarking, but do not have specific annual reporting cycle or associated penalties. Each program has specific requirements such as building applicability (square footage and building type), type of data to benchmark, type of data to disclose, types of compliance reports to generate, and additional actions that need to be taken such as third party data verification, energy audits and retro-commissioning measures. More and more localities are enacting building energy compliance programs every day.



Which building types are affected?

The following building types are affected by the various energy and resource benchmarking and disclosure mandates throughout the country: **public/government buildings** (those owned by the city or state), **non-residential buildings** (those used for commercial purposes and/or industrial manufacturing purposes), and **multi-family buildings** (those designed to have separate residential units). Benchmarking and disclosure exemptions within the building types exist, depending on the locality. Exemptions exist for industrial/manufacturing facilities in certain localities, buildings of new construction, buildings with less than 50% physical occupancy, and high performance buildings in many localities.

Jurisdiction	Policy Name	Implementation	Building Type (ft^2)		
			Public/government	Non-residential	Multi-family
Portland, ME	Order 67 16/17	5/1/2017	5,000+		
		5/1/2018			50+ Units
		5/1/2018		20,000+	
Boulder, CO	Ordinance No. 8071	5/1/2016	5,000+		
		6/1/2016		Large industrial campuses	
		8/1/2016		50,000+ (existing)	
		8/1/2016		10,000+ (new)	
		6/1/2018		30,000+	
		6/1/2020		20,000+	
Portland, OR	Commercial Building Energy Performance Reporting Ordinance	4/22/2016		50,000+	
		4/22/2017		20,000+	
Atlanta, GA	Atlanta Commercial Buildings Energy Efficiency Ordinance	4/30/2015	10,000+		
		6/1/2015		50,000+	
		6/1/2017		25,000+	25,000+
Kansas City, MO	Energy Empowerment Ordinance	5/1/2016	10,000+		
		5/1/2017	10,000+	100,000+	100,000+
		5/1/2018	10,000+	50,000+	50,000+
Berkeley, CA	Berkeley Energy Saving Ordinance	10/1/2016	50,000+	50,000+	50,000+
		10/1/2017	25,000+	25,000+	25,000+
		10/1/2018	15,000+	15,000+	15,000+
		10/1/2019	5,000+	5,000+	5,000+
		10/1/2020	0+	0+	0+
Cambridge, MA	Cambridge Building Energy Use Disclosure Ordinance	12/31/2014	10,000+		
		5/1/2015		50,000+	50+ Units
		5/1/2016		25,000+	
Chicago, IL	Chicago Energy Use Benchmarking Ordinance	6/1/2015	50,000+	50,000+	250,000+
		6/1/2016			50,000+

Montgomery County, MD	Bill 2-14, Environmental Sustainability - Buildings - Benchmarking	6/1/2015	50,000+		
		6/1/2016		250,000+	
		6/1/2017		50,000+	
Boston, MA	Building Energy Reporting and Disclosure Ordinance	6/15/2013	0+		
		5/15/2014		50,000+	
		5/15/2015			50,000+ SF or 50+ Units
		5/15/2016		35,000+	
		5/15/2017			35,000+ SF or 35+ Units
Minneapolis, MN	Commercial Building Rating and Disclosure Ordinance	6/1/2013	0+		
		6/1/2015		50,000+	
Philadelphia, PA	Bill No. 120428-A	6/30/2013	0+	50,000+	
		TBD			50,000+
San Francisco, CA	Existing Commercial Buildings Energy Performance Ordinance	4/1/2014		10,000+	
Washington	Senate Bill 5854	7/1/2010	10,000+		
		1/1/2012		10,000+	
Seattle, WA	Ordinance 123226	4/1/2013	20,000+	20,000+	20,000+
New York City, NY	Local Law 84	5/1/2010	10,000+		
	Local Law 84, Local Law 87	5/1/2011		50,000+	50,000+
Washington, D.C.	Energy Performance Benchmarking of Privately-Owned Buildings	4/1/2010	10,000+		
		4/1/2014		50,000+	50,000+
Austin, TX	Energy Conservation Audit and Disclosure Ordinance	6/1/2011			5+ Units
		6/1/2014		10,000+	
California	AB 1103 Non-residential Building Benchmarking and Disclosure	7/1/2015		5,000+	

Why are localities enacting these programs?

County, city, and state governments are enacting these compliance mandates due to several reasons:

- To meet internal sustainability goals,
- To reduce energy and water consumption - thus saving money,
- To participate in mandated environmental initiatives (federal and local) and,
- To increase energy efficiency through projects that supports the local economy.

Buildings in local jurisdictions account for nearly 60% of all GHG emissions compared to other sources such as transportation, street lights, fugitive, industrial, waste, and wastewater treatment. Buildings also consume an average of 40% of all energy within a municipality. In order to meet the county, city, or state government's aggressive sustainability targets, mandating the benchmarking and disclosure of the energy consumption, water consumption, and/or GHG consumption will provide building owners, energy providers, and other key stakeholders with the necessary tools to reduce the carbon footprint. Information obtained from benchmarking and disclosure also gives these key stakeholders the right information to make decisions and take action on cost-saving investments as well as enabling better management of the property. The information obtained from benchmarking enables government officials to analyze the data and learn a significant amount about their localities building make up. This allows more progress towards achieving internal sustainability targets because they can be more strategic about setting priorities and allocating resources.

Studies have shown that benchmarking a building's energy consumption helps reduce the consumption over time and therefore lead to energy savings. In 2012, the EPA analyzed results from 35,000 buildings that received an ENERGY STAR score from 2008 - 2011, they obtained, on average, 2.4% in energy savings per year. In order for building owners and managers to reduce energy use and the costs associated with energy use, they must first know how much is being used – through benchmarking.

Counties, cities, and states that mandate benchmarking and create opportunities for building owners to upgrade their buildings to be more energy efficient support their local economy by creating jobs for contractors, engineers, and other building professionals.

What are the non-compliance consequences?

In the 14 regions with mandatory ordinances for benchmarking energy performance of public, non-residential buildings, and multi-family buildings, there are monetary fines that are associated with non-compliance in 12 of those localities. The level of severity of the fines differs from one locality to the other. Penalties typically begin with a notice of violation being sent to the non-compliant entity, and can escalate to a monetary penalty of up to $200 per violation, per day beyond the compliance deadline. For example, in Minneapolis, Minnesota, failure to comply not only results in a monetary fine but can also lead to the denial, suspension, revocation or refusal to issue the Certificate of Commercial Building Registration by the city.

	First Violation	Additional Violation(s)
Chicago, IL	$100	$25 per day
Boston, MA	$200 (50k+ SF)	
	$75 (35k-49k SF)	
	$35 (non-residential tenants)	
Minneapolis, MN	Subjected to civil fines and the denial, suspension, revocation or refusal of certificate of commercial building registration (or any applicable business license)	
Philadelphia, PA	$300 (first 30 days)	$100 per day
San Francisco, CA	$100 - $2,500 (25k+ SF)	
	$50 - $1,500 (<25k+ SF)	
Seattle, WA	$1,000 per quarter (50k+ SF)	
	$500 per quarter (20k-49k SF)	
New York City, NY	$500	$500 per quarter
Washington, D.C.	$100 per day	
Austin, TX	$500 - $2,000	
California	$500 - $2,000	
Montgomery County, MD	Up to $250	
Berkeley, CA	Written warning	Monetary fine
Atlanta, GA	Written warning	$1,000 if 30 days late, an additional $1000 per year
Kansas City, MO	Written warning	Between $50 and $500 per day after 60 days passed the written warning
Portland, OR	Written warning	Up to $500 for every 90 days
Boulder, CO	$0.0025 per square foot up to $1,000 per day of non-compliance	
Portland, ME	Written warning	$20 per day

Who are the stakeholders affected?

Primary:

- **Real estate owners and managers:** Owners and managers of affected buildings perform the mandatory reporting of a building's performance metrics. They are required to be up to date with their property's compliance mandates as well as ensuring disclosure of necessary documents to governmental agencies overseeing the benchmarking. Owners and managers also play a key role in controlling the operational efficiency of the building and having the ability to improve the market value of the asset through benchmarking and disclosure.
- **Electric and gas utilities:** Energy suppliers provide the energy data that is necessary for benchmarking. In some localities, energy suppliers are required to provide an automatic feed of energy data to benchmarking customers. Building owners and managers can request utility companies to automatically provide a live feed of energy data into the online benchmarking platform if it is not already mandatory that the utility companies do so. Electric and gas utilities also participate in "Green Button", a federal initiative aimed at providing utility customers a transparent and easy-to-access view of their building's energy consumption year-round.
- **Building, energy, or environmental agencies:** Agencies that mandate benchmarking requirements, such as governmental agencies, go through the process of reviewing and posting building performance data online either for internal purposes or for public disclosure.

Secondary:

- **Energy services experts:** In addition to benchmarking and disclosing energy performance, several localities also require third party verification of the data as well as energy audits to be performed. Energy services experts such as engineers, consultants, contractors, and building service firms can provide third-party compliance support.

What are the general steps to comply?

Each region-specific energy benchmarking and disclosure program has different steps to take in order to comply with the ordinance. General steps are as follows:

1. Determine if building type is applicable (building type and size)
2. Gather building information using tailored attribute templates, by building type and sector
3. Gather comprehensive and auditable utility data
4. Set up organizational profile and building profiles in benchmarking platform
5. Review, audit, and upload all relevant consumption data
6. Generate necessary compliance reports, data verification statements, and other required documentation
7. Report to respective parties in compliance with each program's compliance date
8. Perform energy audits and energy action plans (if required)
9. Perform retro-commissioning study (if required)
10. Maintain physical records of the underlying data and report filings for required record retention periods and provide, as requested, access to these in support of audits
11. Maintain ongoing benchmarking data to support subsequent years' disclosures

What building energy compliance service offers can Schneider provide?

Schneider Electric's Building Energy Compliance Services, along with our team of Professional Engineers, Certified Energy Managers, Sustainability Analysts and award winning data management software, Resource Advisor, can support 100% of the ongoing benchmarking and disclosure effort. Through our cost effective and data secure solution, we can facilitate whole-building metrics to eliminate the need for manual aggregate and data load of whole-building metrics that could span across thousands of buildings in your portfolio. Utilizing the resources and intelligence of our energy management system and managed services team, we are equipped to satisfy your portfolio's benchmarking and compliance requirements and provide recommendations on process improvement decisions such as identification of less-than-optimal performance in facility equipment with the goal of reducing energy consumption and spend. Our benchmarking and disclosure services provide a full spectrum solution:

- **Market Intelligence:** Provide details of up and coming energy legislation occurring in the United States affecting your portfolio and their various compliance requirements.
- **Benchmarking Support:** Determine applicability of sites in your portfolio, gather and aggregate metrics, setup of initial portfolio in benchmarking platform, generate compliance reports to requesting parties, provide data verification support, and maintain ongoing benchmarking efforts.
- **Audit Support:** Provide on-site energy audits, retro-commissioning services, Energy Action Plans, and third-party data verification support.

Resource Advisor and its most recent enhancement, ENERGY STAR Link, ensures data integrity in both platforms by fully automating the data exchange between Resource Advisor and Portfolio Manager. Through this automatic exchange, monthly consumption data is extracted from your energy invoices, warehoused in Resource Advisor and automatically exchanged with Portfolio Manager. ENERGY STAR scores for the numerous sites in your portfolio are always up to date and able to be accessed anywhere, anytime, through the single Resource Advisor dashboard that normalizes performance over time for a portfolio-wide performance view.

Schneider Electric professionals can support 100% of the ongoing benchmarking and reporting process based on the affected key sectors.

Building Owners and Managers:

Mandatory Compliance	Optional Ad-hoc
Market intelligence	Voluntary recognition
Benchmarking support (ENERGY STAR)	Data analytics and portfolio optimization
Site energy audits and action plan support	Retro-commissioning
Data verification support	Energy Action Plan
Disclosure services	

Electric and gas utilities

Mandatory Compliance
Automated data feed
Strategic program planning
Data analytics

County, cities, & state governments:

Mandatory Compliance
Peer/market review
Program design
Compliance services for public buildings

Schneider Electric's team of Professional Engineers, Certified Energy Managers, and Sustainability Analysts provide a broad range of energy audits & retro-commissioning services:

American Society of Heating, Refrigerating and Air-Conditioning Engineers –

ASHRAE Audits:

Preliminary Energy – Use Analysis

- Calculate energy use per square foot
- Compare to similar buildings

Level 1 – Walk-through Analysis/Preliminary Audit

- Rough costs and savings for resource efficiency measures (REMs)
- Identify capital projects
- Outline applicable local and federal incentive programs (up to 50% reimbursement)

Level 2 – Energy Survey and Analysis

- End-use breakdown
- Detailed analysis
- Cost and savings for REMs
- Operation and maintenance changes

Level 3 – Investment Grade Audit

- Refined analysis
- Additional measurements
- Hourly simulation

Retro-commissioning (RCx)

- Identification of less-than-optimal performance in facility equipments, lighting, and control systems
- Recommendations for improvement of existing equipment performance