Building Energy Performance Standards (BEPS) Handbook

Office of Building Performance – City of St. Louis

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Historically & Dynamically
SUSTAINABLE

THE COMMON SEAL OF THE CITY OF ST. LOUIS.

SEPTEMBER 2022

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1 INTRODUCTION TO BEPS

In this section:

- About the Building Energy Performance Standards (BEPS) program
- Basic requirements and impacts
- Properties covered by BEPS
- BEPS history
- Definitions of key terms

Building owners/managers/representatives will henceforth be referenced collectively as "properties."

1.1 What are the Building Energy Performance Standards?

The Building Energy Performance Standards (BEPS) is a City of St. Louis program and associated local laws born out of a desire to combat climate change and increase St. Louis' competitiveness. BEPS is built upon two local ordinances (laws), Building Energy Awareness (Benchmarking) (Ordinance #70474) and Building Energy Performance Standards (Ordinance #71132). This program establishes minimum energy efficiency (performance) Targets to regulate the energy that buildings covered by BEPS consume or generate for use on-site.

BEPS includes 3 broad requirements:

- Reporting energy and water use (Benchmarking).
- Improving energy efficiency.
- Hitting performance Targets.

Properties will work to achieve Targets every 5 years, although Houses of Worship and Qualified Affordable Housing properties follow a 7-year Cycle.

1.2 When Does BEPS Go into Effect?

Qualified Affordable Housing
A building in which the majority of households make less than 80% of area median income for the City of St. Louis. See "HOME Income Limits" table.

As described above, BEPS went into effect in 2021 with the release of the first set of building performance Targets that properties would strive to hit (see Understanding Targets). The requirement for properties to annually report energy and water use has been in effect since 2017. Failure to report does not exempt a property from having to achieve its Target, but other exemptions may apply (see EXEMPTIONS AND EXTENSIONS).

1.3 Properties Covered by BEPS

Municipal and privately owned commercial and residential properties in St. Louis with buildings that are 50,000 square feet or larger in gross floor area (GFA) must report annual energy and water consumption as they appear on utility bills by May 1 each year for the previous calendar year. Reporting must include all of the energy that buildings and their tenants consume or generate for use on-site, such as electricity, natural gas, steam, biomass, fuel oil, or renewable energy.

Some properties may be annually or permanently exempt from either reporting or BEPS requirements entirely for the reasons outlined in EXEMPTIONS AND EXTENSIONS.

1.4 Improving Energy Efficiency to Hit Performance Targets

BEPS requires all covered properties to make improvements to reduce energy use and increase energy efficiency. Properties have the flexibility to determine the combination of physical or operational improvements that will best enable them to perform more efficiently and hit the required Targets.

Targets represent a minimum building performance, or energy efficiency, that properties will aim to achieve. Targets are determined by assessing similar properties over a selected period of time using mostly local and some national building energy use data. The Targets are precisely calculated to spur improvements in the worst performing, least efficient 65% of properties. This threshold will be reset each Cycle. Almost all properties will operate on 5-year Cycles. Houses of worship and Qualified Affordable Housing properties will operate on 7-year Cycles.

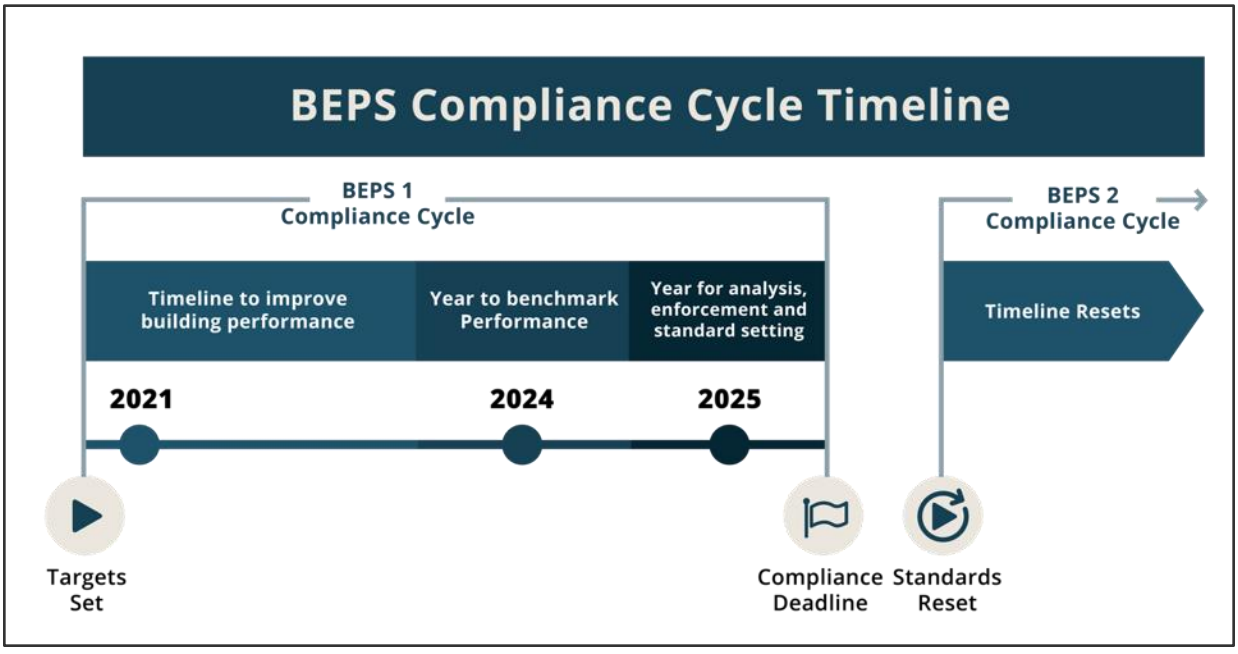


Figure 1 *- Most properties will work within 5-year compliance Cycles, with the semifinal year being used to assess compliance. OBP will use the final year of each Cycle to reevaluate and reset Targets for the next Cycle.*

1.5 How Do I Report?

Since 2017, properties have been required to submit energy use data annually using a free, online tool called Energy Star Portfolio Manager (PM). PM will automatically calculate useful building performance metrics that are included in each report and used to assess whether properties have hit their Targets each Cycle.

1.6 History Of BEPS: Why Did St. Louis Establish BEPS?

BEPS has its roots in the City of St. Louis Climate Protection Initiative, which comprises numerous City climate protection plans, projects, and initiatives that are helping make St. Louis a cleaner, healthier, greener, and more sustainable place to live, work, learn, and play.

One aspect of the Initiative is regular assessments of greenhouse gas emissions in the City, which have identified buildings as the primary emitters. According to the U.S. Environmental Protection Agency (EPA), as much as 30% of energy used in buildings is wasted through inefficiency, and half of all energy savings are possible through low or no-cost improvements. St. Louis buildings are older and less efficient than the nationwide average, so the City saw building energy efficiency as an area ripe for improvement.

Requiring large buildings to Benchmark and report their energy use on an annual basis has been shown to be an effective driver of behavioral, operational, and capital improvements to building energy performance. But reporting alone is not enough to achieve the impact needed for St. Louis.

In the past several years, the City of St. Louis has participated in two programs that have supported its efforts to advance building energy efficiency. In 2016 and 2017, St. Louis participated in the City Energy Project, which focused on improving energy efficiency in buildings. In 2018, St. Louis was selected as one of 25 cities to participate in Bloomberg Philanthropy's American Cities Climate Challenge, which focused on actions to reduce emissions in the building and transportation sector and supported the BEPS ordinance.

With broad support from the above named programs and the St. Louis Board of Aldermen (the Board), assistance from nonprofits, and the enactment of the Building Energy Awareness (Benchmarking) and Building Energy Performance Standards ordinances (laws), the City created the Building Energy Performance Standards (BEPS) program in 2020.

St. Louis was the 4th jurisdiction in the country and the first in the Midwest to adopt this type of forward-thinking sustainability program aimed at achieving efficient energy and water use in large buildings. Since then, many other cities have begun considering similar policies and joined the national Building Performance Standard Coalition. shows cities around the country with policies addressing existing building energy use.

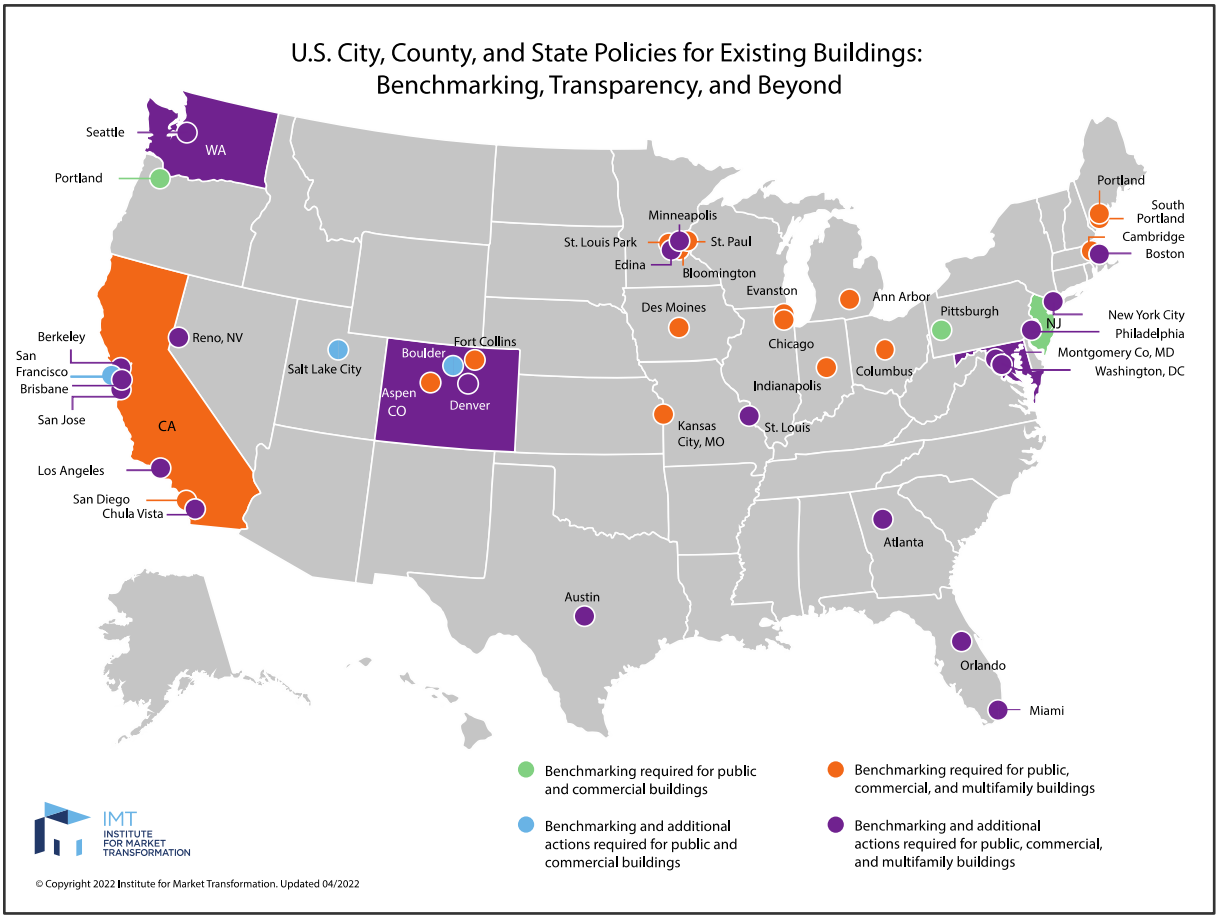


Figure 2 *– There are 46 building energy performance programs operating in the United States as of April, 2022. Those most similar to St. Louis' BEPS, comprising both reporting and performance requirements, are shown here in purple.*

1.7 What is the Office of Building Performance (OBP)?

As part of BEPS legislation, the City created two new oversight bodies:

1. The Office of Building Performance (OBP), within the Building Division, oversees BEPS implementation, compliance, and enforcement.
2. The mayoral-appointed, 9-member Building Energy Improvement Board (BEIB), provides technical expertise and represents the interests of properties and tenants, utilities, labor, building professionals, environmental non-profits, and others in the St. Louis region.

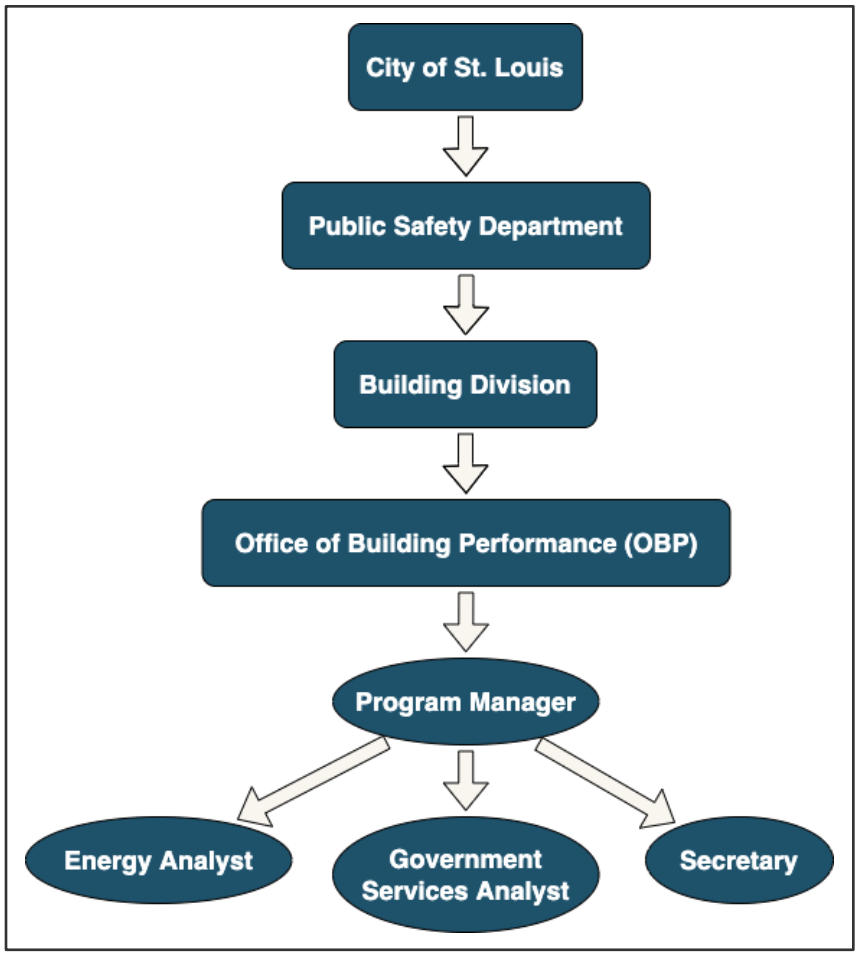


Figure 3 *- Organizational chart showing the Office of Building Performance and its staff positions.*

2 BENCHMARK REPORTING

In this section you will find information about:

- BEPS program annual reporting requirements (Benchmarking)
- Introduction to the web platform used for reporting
- Reporting guide and resources for properties
- Third-party verification of data

Properties have been required to report annual energy and water use for Benchmarking purposes since 2017. Unless a building is brand new or otherwise recently became covered by BEPS, a property should already have a PM account set up to facilitate meeting this requirement.

PM is a free, interactive energy management tool developed and managed by the EPA for the commercial building market. PM aggregates utility bills and collects required energy and property data. If you do not yet have a PM account, use the information below to establish an account.

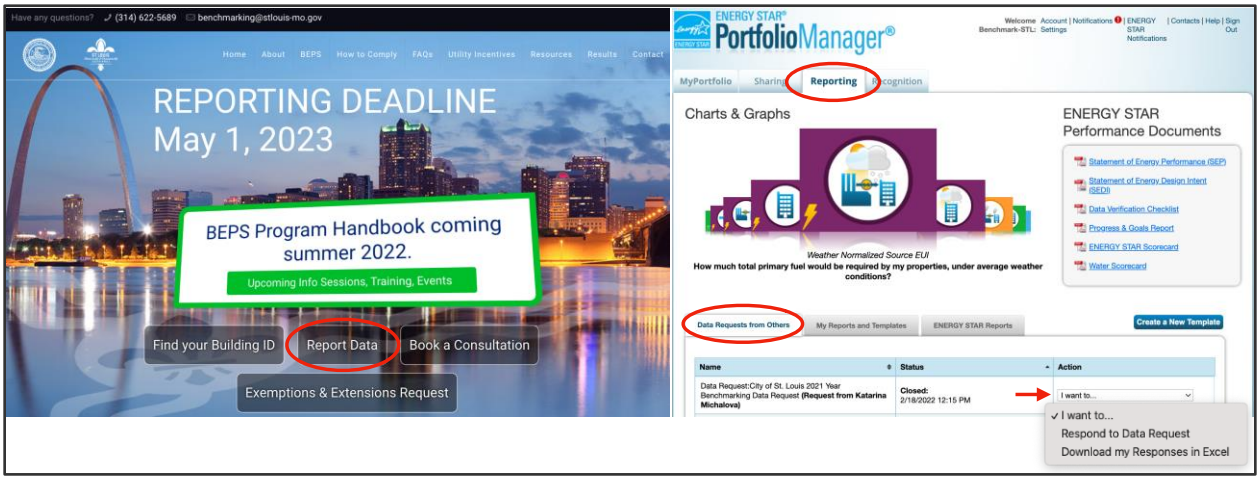


Figure 4 *- Start the annual reporting process by visiting STLbenchmarking.com and clicking "Report Data." From that point forward, OBP's request for data will also appear in PM under "Reporting."*

2.1 Using ENERGY STAR Portfolio Manager (PM)

2.1.1 New Properties: Setting Up a PM Account

After creating a private PM account at https://portfoliomanager.energystar.gov/pm/signup properties will:

- Add buildings covered by BEPS using a few key pieces of information
- Self-select a Property Type (see Identifying Property Types).

- Securely track and assess energy and water consumption across their entire building portfolio using utility bills.
- Respond to annual data report (Benchmarking) requests from OBP by submitting reports through PM, which is accessible on the OBP homepage, STLBenchmarking.com .
- Manage PM account, including sharing editing access. Here, "virtual ownership" of properties can be transferred should the person responsible for Benchmarking or ownership of a building change (see Troubleshooting PM).

PM Setup

Setting up your PM account is typically a one-time action. OBP encourages the use of shared company emails for login. If you have already been reporting your building energy and water use data to the City annually, you have already done this step. Congrats! Now keep up the good work and keep reporting your data to us!

Apart from the annual reports, OBP cannot see any property's PM account details unless explicitly granted shared access, nor can it directly obtain a property's energy use without signed consent on a utility release form.

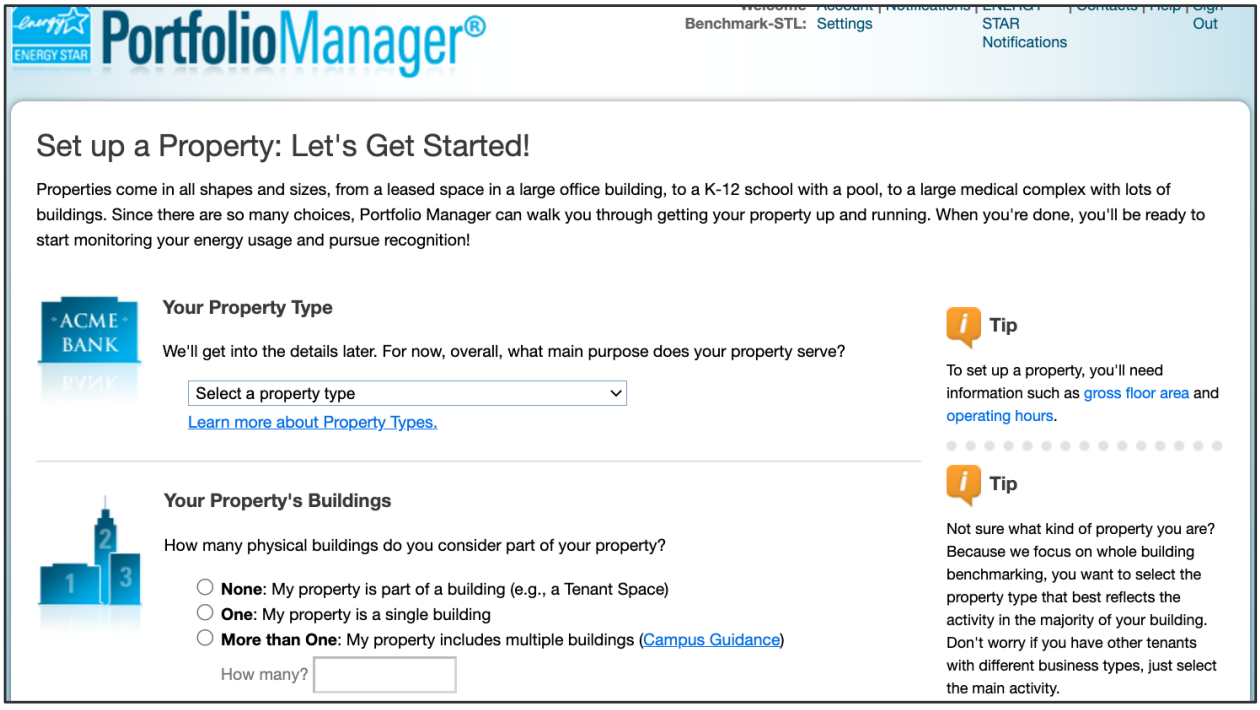


Figure 5 *- PM guides users through the process to set up a new property by specifying a few key details.*

2.1.2 Resources: Learn How to Use PM to Submit Reports

To get started using PM to comply with the reporting requirement of BEPS:

- Use this presentation developed by the EPA to learn the basics of PM. By the end of the presentation, you will know how to add a property and enter its use details, enter energy and water consumption data, and generate reports to assess progress.
- Follow the steps in this three-page PM Quick Start Guide developed by the EPA to get started using PM to Benchmark your properties, assess performance, and view results.
- Use the City of St. Louis Benchmarking Guide (also accessible as "Reporting Checklist" at STLbenchmarking.com/HowToComply) to respond to OBP's annual data report request by following the simple checklist.
- Review this detailed presentation, titled Basics of Benchmarking and BEPS, for key term definitions and additional guidance.

2.1.3 Troubleshooting PM

OBP supplements the many guides found on the PM Support page with its own how-to guides addressing common questions and specific issues that may arise with reporting through PM:

- How to Fix Missing Weather Normalized Site Energy Use Intensity (EUI)
- How to add or verify the St. Louis Building ID (BID) in PM
- How to move billing data from one meter to another
- How to merge data for a property with 2 PM Property IDs
- How to change a natural gas meter's unit of measure from therms to CCF
- How do I transfer properties between accounts, or transfer an entire account? What if the account holder left the company?

2.1.4 Contact Support for PM

For additional guidance and property specific questions:

- Contact OBP at Benchmarking@stlouis-mo.gov or 573-416-0296.
- Explore the excellent PM Support page where you can search the EPA's vast library of FAQs and documentation.
- Contact PM Support to get answers to tough questions, typically within just a few days.
- Schedule a consultation with OBP, either virtual or in person.

2.2 Data Verification Requirements

Properties shall obtain third-party data verification from an accredited verifier to validate the reported Benchmarking data used to determine BEPS compliance (i.e., 1 year per Cycle).

Data verification consists of:

1. Completion of a "Data Verification Checklist" provided by PM (view an example).
1. Sign-off by an accredited verifier as described below.
2. Electronic submission through the BEPS Owner Portal (expected to launch late 2022).

Professional verification services for an annual report cost roughly $1500.

2.2.1 When Verification is Required

Verification is required only for the second to last year of each compliance Cycle, known as the Verification Year. So, most properties will need verification of data for calendar years 2024, 2029, 2034, and so on, while Qualified Affordable Housing and Houses of Worship will need verification of data for calendar years 2026, 2033, 2040, and so on. Since verification can only be done for a full year's worth of data, it will occur following the end Verification Year and prior to the May 1 reporting deadline of the subsequent year.

OBP recognizes properties that have achieved ENERGY STAR Certification as having satisfied this data verification requirement, provided the property's ENERGY STAR certified data includes at least 6 months of reported year.

2.2.2 Verifier Accreditation

An accredited verifier:

- Must not be an employee of the property in any way, nor of the organization, if one was used, that prepared or submitted the property's report
- Must possess one of the certifications, licenses, or credentials listed in Table 1 below

An accredited list of verifiers is also available through BE-Ex STL (be-exstl.org)

Table 1 *- Professionals completing a data verification must possess at least one of these credentials.*

	Verifier Credential	Institution / Association
1	Associate Commissioning Professional (ACP)	Building Commissioning Association (BCA)
2	Building Energy Assessment Professional Certification (BEAP)	American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE)
3	Building Energy Modeling Professional (BEMP)	American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE)
4	Building Operator Certification (BOC)	Midwest Energy Efficiency Alliance
5	Certified Building Commissioning Professional (CBCP)	Association of Energy Engineers (AEE)
6	Certified Commissioning Authority (CxA)	AABC Commissioning Group (ACG)
7	Certified Commissioning Professional (CCP)	Building Commissioning Association (BCA)
8	Certified Energy Auditor (CEA)	Association of Energy Engineers (AEE)
9	Certified Energy Manager (CEM)	Association of Energy Engineers (AEE)
10	Certified Facility Manager (CFM)	International Facilities Management Association (IFMA)
11	Certified Measurement and Verification Professional (CMVP)	Association of Energy Engineers (AEE)
12	Certified Property Manager (CPM) with caveat requirements	Institute of Real Estate Management (IREM)
13	Commissioning Process Management Professional Certification (CPMP)	American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE)
14	Energy Management Professional (EMP)	Energy Management Association
15	Existing Building Commissioning Professional (EBCP)	Association of Energy Engineers (AEE)
16	LEED Fellow	US Green Building Council (USGBC)

17	LEED Professional with specialty in Building Operations + Maintenance (LEED-AP O+M)	US Green Building Council (USGBC)
18	Operations & Performance Management Professional (OPMP)	American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE)
19	Professional Engineer (PE)	Missouri Division of Professional Registration (Professional Engineers)
20	Real Property Administrator (RPA)	Building Owners and Managers Institute (BOMI) International
21	Registered Architect (RA)	Missouri Division of Professional Registration - Board for Architects, Professional Engineers, Professional Land Surveyors and Professional Landscape Architects (APEPLSPLA)
22	RPA/FMA High Performance Designation (RPA/FMA-HP)	Building Owners and Managers Institute (BOMI) International
23	Sustainability Facility Professional (SFP)	International Facilities Management Association (IFMA)
24	Systems Maintenance Administrator (SMA)	Building Owners and Managers Institute (BOMI) International
25	Systems Maintenance Technician (SMT)	Building Owners and Managers Institute (BOMI) International

2.2.3 How to Verify Data

Properties and verifiers shall follow these steps to complete the data verification in the semi-final Benchmarking year of a compliance Cycle using the required PM Data Verification Checklist:

Step 1/3: Property

Enter all energy use for the building(s) and then generate an ENERGY STAR Data Verification Checklist for each property (see Figure 6).

1. Under the "Reporting" tab, in the "ENERGY STAR Performance Documents" section, click "Data Verification Checklist" and complete the fields as follows and complete the fields as follows (see Figure 7).

Figure 6 *- Properties will access a template of their Data Verification Checklist in PM under the "Reporting" tab.*

a. Check “Data Verification Checklist.”
b. Select property. Repeat the steps to generate a Checklist for each property.
c. Specify time frame of “Single Year” ending December 31 of the desired Benchmarking year.
d. Add contacts for “Primary Contact” and “Property Owner” as needed. Specify a “Verifying Professional” that satisfies the criteria stated in the section above.
e. Click “Generate & Download Report.”

2. Send the generated Checklist to your Verifier to complete.

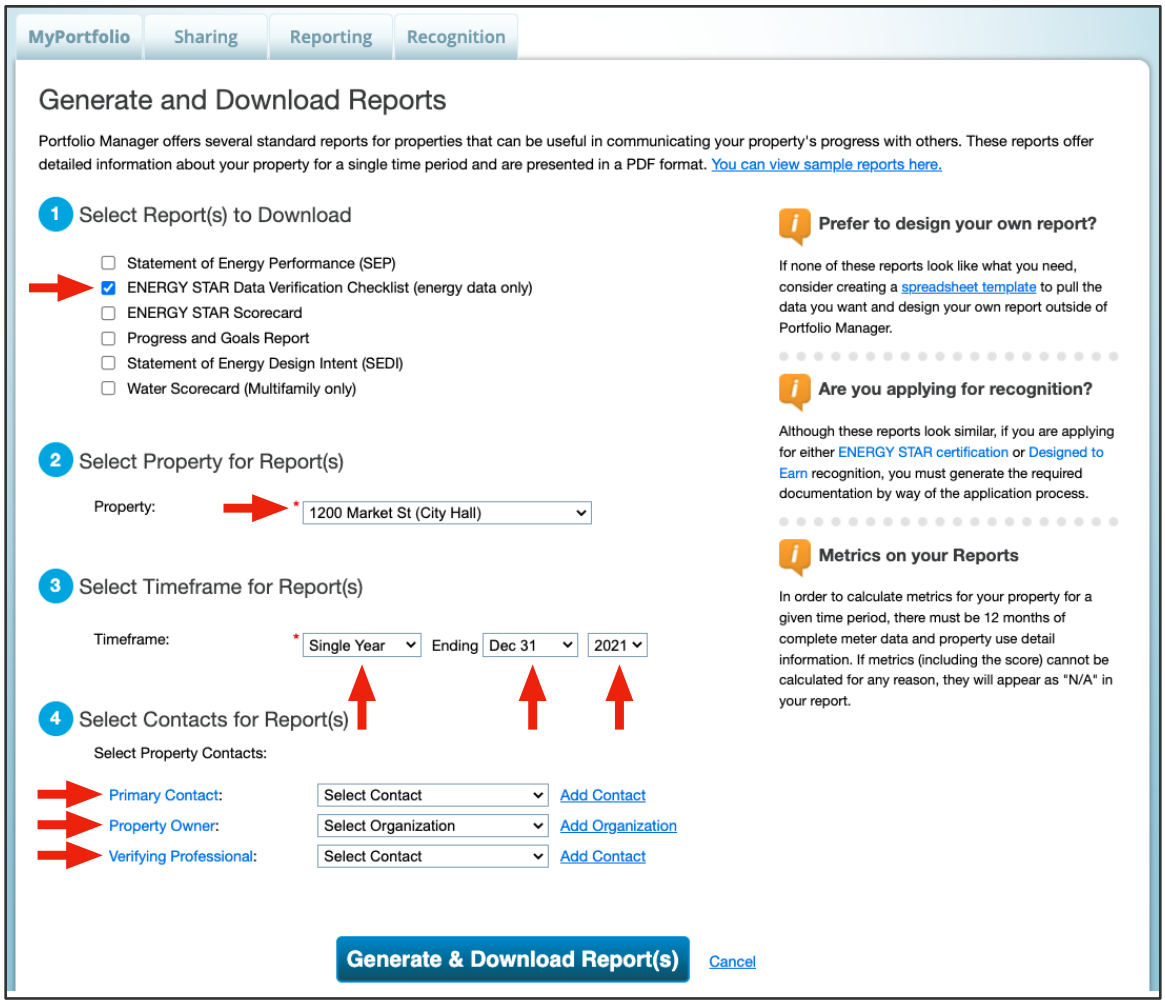
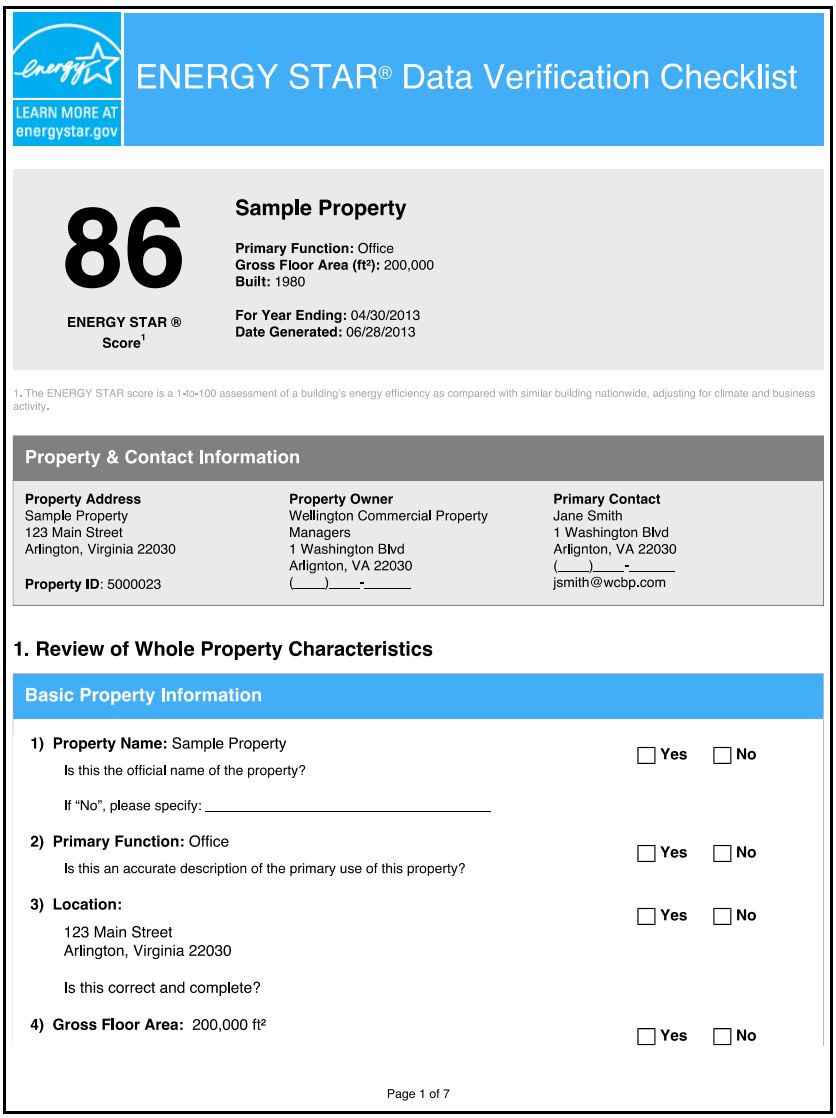


Figure 7 *- Generating a property-specific, fillable Data Verification Checklist in PM requires just a few key inputs.*

Step 2/3: Verifier

Follow the instructions in the Checklist to complete all fields (see Figure 8). Return the completed, signed Checklists to the property as requested.



ENERGY STAR® Data Verification Checklist

LEARN MORE AT energystar.gov

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ENERGY STAR ® Score[1]

Sample Property

Primary Function: Office
Gross Floor Area (ft²): 200,000
Built: 1980

For Year Ending: 04/30/2013
Date Generated: 06/28/2013

1. The ENERGY STAR score is a 1-to-100 assessment of a building's energy efficiency as compared with similar building nationwide, adjusting for climate and business activity.

Property & Contact Information

Property Address	Property Owner	Primary Contact
Sample Property 123 Main Street Arlington, Virginia 22030 **Property ID**: 5000023	Wellington Commercial Property Managers 1 Washington Blvd Arlignton, VA 22030 (____)____-_____	Jane Smith 1 Washington Blvd Arlignton, VA 22030 (____)____-_____ jsmith@wcbp.com

1. Review of Whole Property Characteristics

Basic Property Information

1) **Property Name:** Sample Property — ☐ Yes ☐ No
Is this the official name of the property?
If "No", please specify: _____

2) **Primary Function:** Office — ☐ Yes ☐ No
Is this an accurate description of the primary use of this property?

3) **Location:** — ☐ Yes ☐ No
123 Main Street
Arlington, Virginia 22030
Is this correct and complete?

4) **Gross Floor Area:** 200,000 ft² — ☐ Yes ☐ No

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Figure 8 *- An example of the first page of a Data Verification Checklist.*

Step 3/3: Property

Upon completion of the Checklist(s) by your verifier(s), upload a copy of the Checklist to your BEPS Owner Portal, which is expected to launch late 2022.

3 ASSESSING BUILDING PERFORMANCE

In this section you will learn about:

- How OBP Evaluates a Property's Energy Efficiency (Performance)
- About BEPS Targets
- Cycles and deadlines

3.1 EUI: The Chief Building Performance Metric

PM calculates and tracks many useful metrics used to assess building performance using energy and water consumption data submitted by properties each year. The chief energy performance metric that both forms the basis for a property's Target and will determine compliance is their Weather Normalized Site Energy Use Intensity (EUI).

Lower EUIs indicate higher energy efficiency and better building performance, while higher EUIs indicate the opposite. The goal of BEPS is for properties to make improvements that increase energy efficiency and reduce energy use as reflected in a lowering of their EUI.

- The EUI represents the total energy, across all energy types, a property consumes on-site in a year, divided by its gross floor area (GFA) in square feet. It is reported in units of kBtu (thousands of British thermal units, a unit of energy like a kilowatt hour or therm) per square foot per year.
- EUIs are adjusted to account for local weather anomalies, like unusually hot summers and cold winters that demand increased energy use, through a process known as normalization. These adjustments make the EUI a useful, objective tool in comparing a property to itself over time.
- Low-performing properties consume relatively large amounts of energy for their size and will have higher EUIs, possibly in the hundreds. High performing, more efficient properties consume little energy relative to their size and will have lower EUIs, even approaching 0.

3.2 Understanding Property Baselines

A Baseline is the EUI for a chosen year that serves as a reference for measuring a property's improvement. Determining this reference point is commonly known as Benchmarking or setting a Benchmark. For the first compliance Cycle beginning in 2021 and effectively ending with the reporting deadline on May 1, 2025 (see Compliance Cycles and Timelines), the Baseline for each property shall be that property's EUI for calendar year 2018.

For properties without a verified EUI for calendar year 2018, the Baseline shall be the EUI from their first valid year of reporting annual utility data to OBP. Properties may appeal to OBP for an alternate Baseline based on a verified EUI for a different 12-month period. In its sole discretion,

OBP may accept a property's proposed Property Baseline or assign a different Property Baseline. In making this decision, OBP will exercise its discretion, prioritizing energy savings and setting fair standards.

3.3 Identifying Property Types

A property's Target will depend on its Property Type, which the property will choose for each of its covered buildings when first being added to a PM account. There are more than 80 possible Property Types (PDF of Types and definitions) in PM to describe the building's primary function. Properties that have already reported, as required since 2017, will already have selected a Property Type.

The Property Type should be chosen carefully. OBP may challenge inappropriate choices using available records. A property's self-selected Property Type should reflect its primary use or "best fit," which is typically the use for the majority of the building's square footage. In cases where a property has multiple dedicated uses, properties should follow reporting guidelines to select the primary Property Type and identify each secondary qualifying Property Type (see Using ENERGY STAR Portfolio Manager (PM)). Selecting multiple Property Types can affect a property's Target, so it is important to accurately select secondary types, if needed.

There are 4 Property Types exempt from BEPS in its entirety because their energy use is not clearly reflective of building performance:

- Manufacturing/industrial
- Wastewater treatment
- Data Centers
- Stand-alone parking lots and garages, which are not part of a larger property

3.4 Understanding Targets

As previously discussed, Targets represent a minimum building performance, or energy efficiency, that properties will aim to achieve. Each property will be assigned a specific Target for each 5-year Cycle (7 years for Qualified Affordable Housing or

Houses of Worship). OBP determines Targets by assessing the EUIs of all similar properties over a selected period of time using mostly local and some national building energy use data. Therefore, many similar Property Types will have the same Target. For more information on this process, reference Methods for Grouping Property Types.

Targets are set by OBP with BEIB approval such that when they are released at the beginning of each Cycle:

- Approximately 65% or more of properties will have a noncompliant EUI above the Target and must make improvements.
- Approximately 35% or less of properties will have a EUI that is already compliant by being below the Target.

The 65%/35% threshold is required by ordinance. However, BEIB may approve OBP to set more stringent Targets requiring more than 65% of properties to make improvements over a Cycle.

The Multifamily Housing figure on the next page shows the distribution of EUIs in 2018 for the Property Type, "Multifamily Housing." OBP set the Target at 42.5 (red dashed line) where approximately 35% of properties would have been immediately on-track for compliance (shaded green, left of the red dashed line) while approximately 65% would need improvement to hit the Target (shaded blue, right of the red dashed line) by the end of 2024.

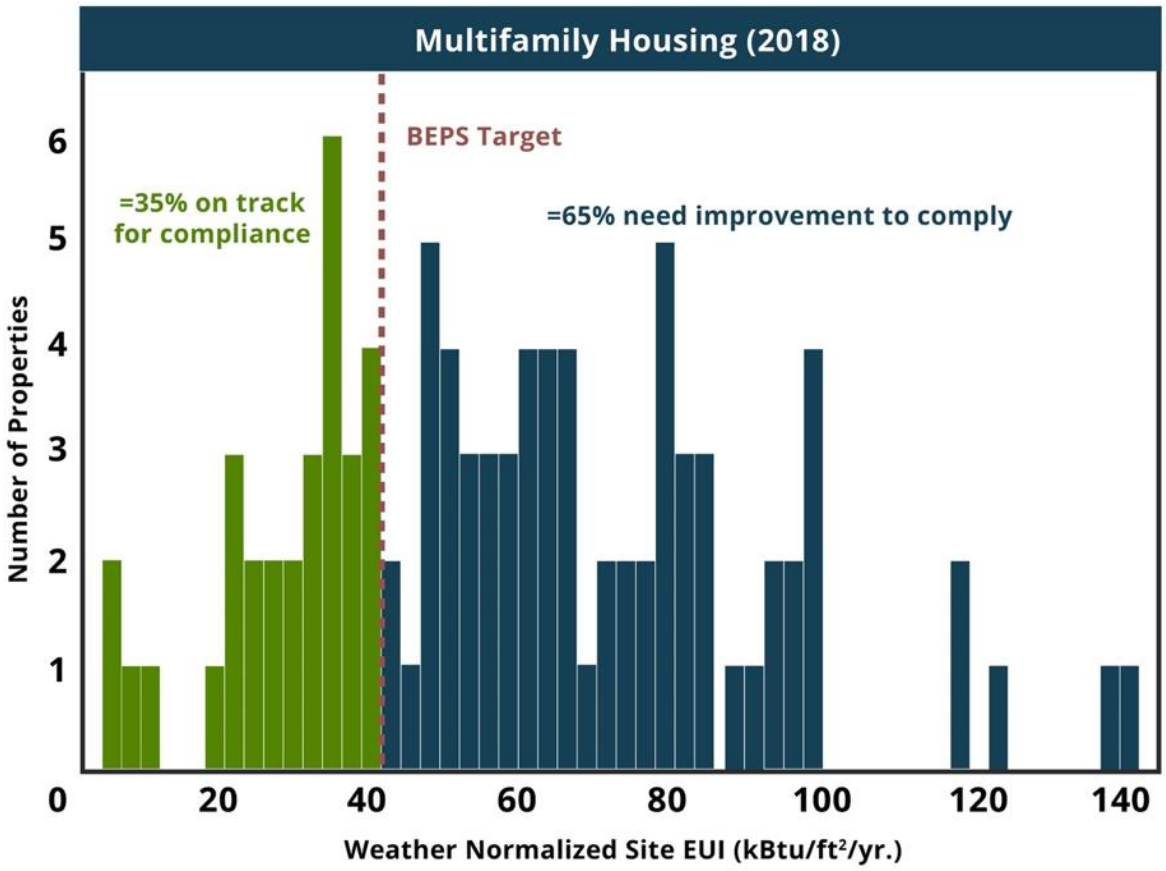

Figure 9 *- The distribution of EUIs for the Property Type "Multifamily Housing" in 2018, which was used to set their Target at 42.5 for Cycle 1.*

The Targets of future Cycles can only be predicted, but not accurately determined, because Targets depend on the distribution of EUIs within each Property Type, which in turn dictates where the 65% dividing line falls. Targets are strongly expected to trend down over time given incremental property updates and the development of new technologies (e.g., LED light bulbs). Each Cycle will spur properties to make improvements. Eventually all covered properties will be required to make improvements. Cycle 1 (current) Targets for Property Types represented in St. Louis are shown in the Table below.

***Table 2** - PM offers more than 80 Property Types to choose from when setting up a new property. Property Types represented in St. Louis were assigned Targets using mostly local energy use data, where similar Types were grouped to share a common Target. Those not listed here will be added as needed.*

Targets			
Property Type	**Target (EUI in kBtu/ft^2/yr.)**	**Property Type**	**Target (EUI in kBtu/ft^2/yr.)**
Adult Education	80.1	Performing Arts	77.3
Automobile Dealership	79.3	Personal Services (health/beauty, dry cleaning, etc.).	79.3
Bar/Nightclub	77.3	Police Station	112.3
College/University	113.8	Prison/Incarceration	112.3
Courthouse	112.3	Refrigerated Warehouse	84.1
Data Center	Exempt	Repair Services (vehicle, shoe, locksmith, etc.).	79.3
Distribution Center	17.6	Residence Hall/Dormitory	64.5
Financial Office	71.7	Residential Care Facility	111.3
Fitness Center/Health Club/Gym	77.3	Restaurant	181.9
Food Service	181.9	Retail Store	79.3
Hospital (general medical and surgical)	259.9	Self-Storage Facility	17.6
Hotel	89.4	Senior Living Community	111.3
Indoor Arena	77.3	Social/Meeting Hall	77.3
K-12 School	63.5	Stadium (open)	77.3
Laboratory	219.2	Strip Mall	101.1
Library	57	Supermarket/Grocery Store	256.5
Manufacturing/Industrial Plant	Exempt	Urgent Care/Clinic/Other Outpatient	105.9
Medical Office	105.9	Veterinary Office	105.9
Multifamily Housing	42.5	Vocational School	80.1
Museum	118.4	Wastewater Treatment Plant	Exempt
Non-Refrigerated Warehouse	17.6	Wholesale Club/Supercenter	79.3
Office	71.7	Worship Facility	63.4

3.5 Compliance Cycles and Timelines

Almost all properties will operate on 5-year Cycles, with effectively the first 3 years used to make improvements (and submit annual reports). Year 4 reporting is exclusively used to

evaluate whether properties hit their Targets or achieved other performance goals for the Cycle. In Year 5, properties should simply maintain performance or plan improvements in anticipation of the next Cycle while OBP reevaluates the Targets. Houses of worship or Qualified Affordable Housing (see What are the Building Energy Performance Standards?) will operate on similar 7-year Cycles in a 5+1+1-year scheme. Figure 10 below shows timelines of the first 3 Cycles, highlighting important dates that will fall similarly in all Cycles.

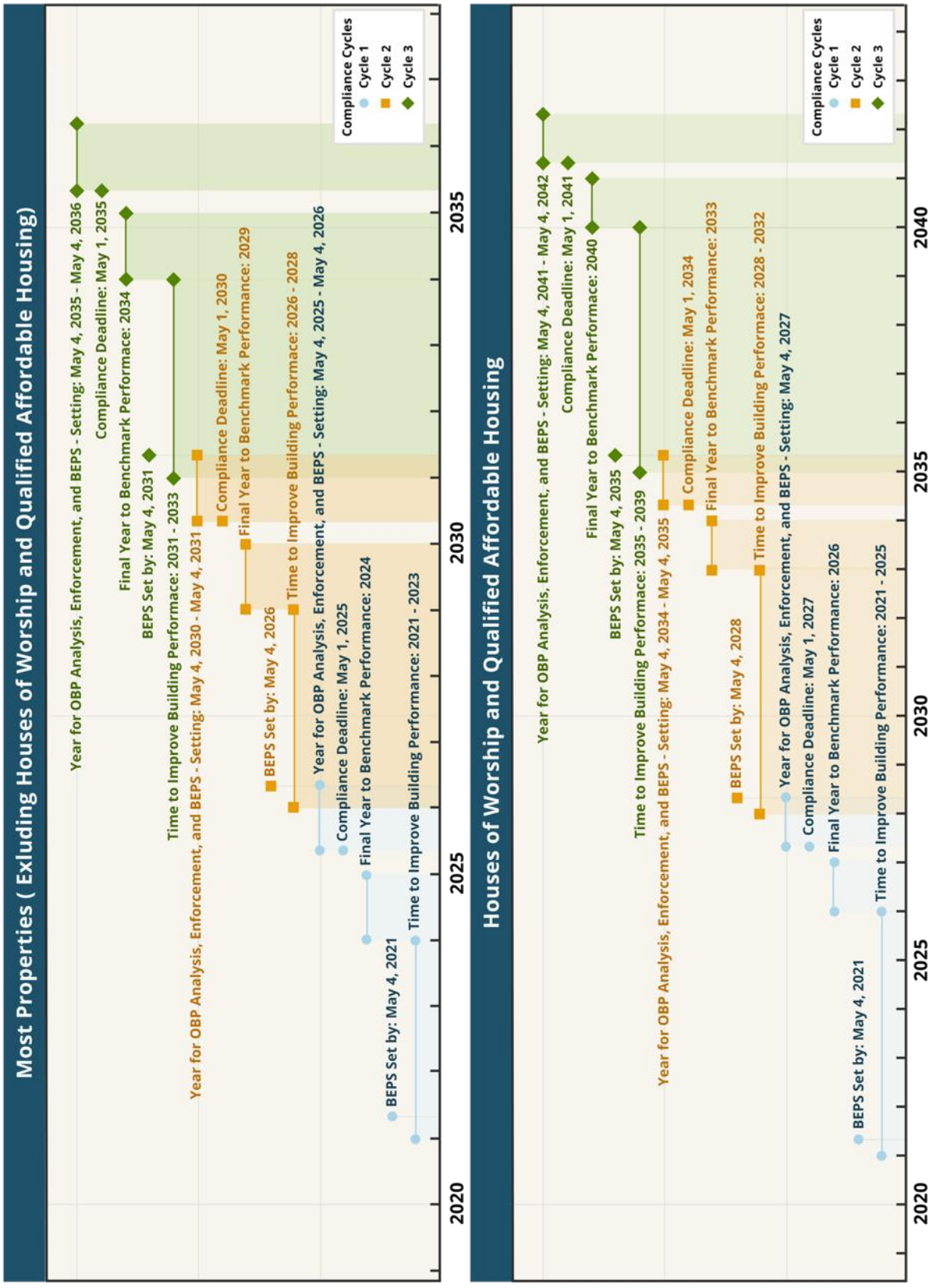

Figure 10 *- Timelines of the first 3 Cycles for both classes of property.*

4 COMPLIANCE

In this section you will learn about:

- Expectations for BEPS-covered properties
- The first steps to comply and improve energy efficiency
- 4 paths properties may choose to achieve compliance

4.1 How Will Properties Comply?

The law mandates specific levels of performance based on Property Type, but not the means to get there. Because the Target for each Property Type is based on the consumption of all types of energy (see INTRODUCTION TO BEPS), properties have the freedom to focus improvement efforts on any of their energy systems, daily operations, or maintenance practices. Properties can select smart investments based on their unique knowledge of property operations, planned expenditures, and financing Cycles (see First Steps).

1. Properties with EUIs already in compliance may simply maintain their performance and report performance data with third-party verification (see Data Verification Requirements).
2. As described in more detail later in this guide, properties in need of improvements will invest in Energy Conservation Measures or building systems upgrades to hit their Target or achieve an approved, "alternative" compliance (see Compliance Paths).

4.2 First Steps

Properties that need to improve energy performance in order to hit their Target by the end of a Cycle or are voluntarily interested in reducing energy consumption should begin with the following steps.

1. Double check to make sure your Benchmarking data is accurate and up-to-date in PM.
2. Get an on-site energy audit to understand your building characteristics, equipment, and energy use. Not ready for a full energy audit? Try starting with an ENERGY STAR Treasure Hunt.
3. Identify Energy Conservation Measures (ECMs). Use this Energy Efficiency Checklist to get started.
4. Create an internal team to start your planning and implementation strategies.
5. Develop a strategic energy management plan to help guide your energy performance improvement.
6. Engage with your building tenants if a multi-tenant or multi-family building.

OBP's official support partner, the Building Energy Exchange St. Louis (BE-Ex STL) has provided several Industry Playbooks for different stakeholders in the building industry and will be collecting additional resources and case studies as well (see The Building Energy Exchange St.

Louis (BE-EX STL)).

4.3 Compliance Paths

OBP, the BEIB, and the Board intend that most properties will increase energy efficiency and hit their Target by taking the steps outlined in the "First Steps" section. However, some buildings may underperform due to unique constraints or circumstances, so OBP has established allowable alternative paths to compliance (see

Table 3).

__Table 3__ – A summary of the 4 paths that a property can take to compliance with BEPS.

Compliance Paths				
Compliance Path Name	**Compliance Type**	**Special Requirements (How Many)?**	**Eligibility Rqmts.?**	**Description**
1. Performance Path	Preferred	No	No	Properties that hit the Target for their Property Type can be considered compliant for that Cycle.
2. Early Adopter Path		Yes (1)	No	Properties that both (a) hit the Target for their Property Type and (b) achieve at least 20%/50% reduction in their EUI compared to Baseline year performance can be compliant for that Cycle and the next 1-2 Cycles.
3. Narrow the Gap Path	Alternative	Yes (2)	Yes	Properties that are unable to hit their Target achieve compliance by reducing their EUI to halfway between their Property Baseline and Target. This is only available for the first 2 compliance Cycles and to properties that submitted a valid 2018 Report.
4. Custom Alternative Compliance Path (CACP)		Yes (many/varies)	Yes	Properties that demonstrate they can neither hit their Target (Paths 1 and 2) nor Narrow the Gap (Path 3) due to unique limitations may apply for an CACP, which entails undergoing a 3rd-party energy audit and obtaining OBP approval of a proposed plan of action.

Each Cycle, properties will pursue one of 4 Compliance Paths. Paths 1 and 2 are preferred in that properties pursuing them will hit their Targets. Paths 3 and 4 are designed to accommodate properties that are unable to hit their Target.

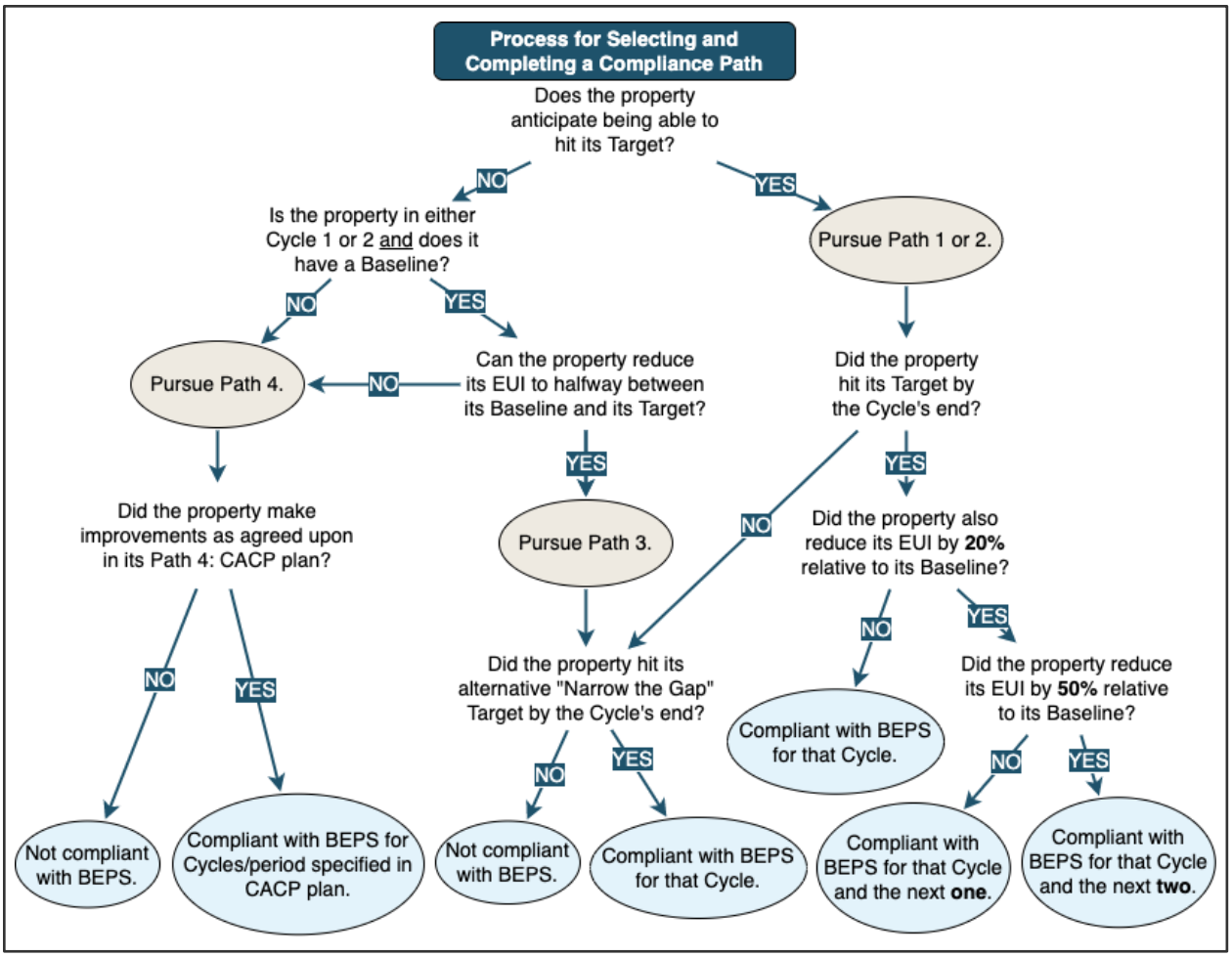

Figure 11 *- The basic process for a property to select and see a Path through to compliance with BEPS.*

Paths 1-3 may be pursued by any property. However, pursuit of Path 3: Narrow the Gap is restricted to the first 2 Compliance Cycles and to properties that submitted a valid 2018 report. Additionally, Paths 1-3 center on a property's Target. Properties that need to improve their Baseline performance to hit their Target will first achieve Path 3 compliance by making half of the necessary reductions in energy consumption. Further improvements can lead to Path 1 compliance (hitting the Target) and even Path 2 compliance (far exceeding the Target). See the bullseye schematic in Figure 12.

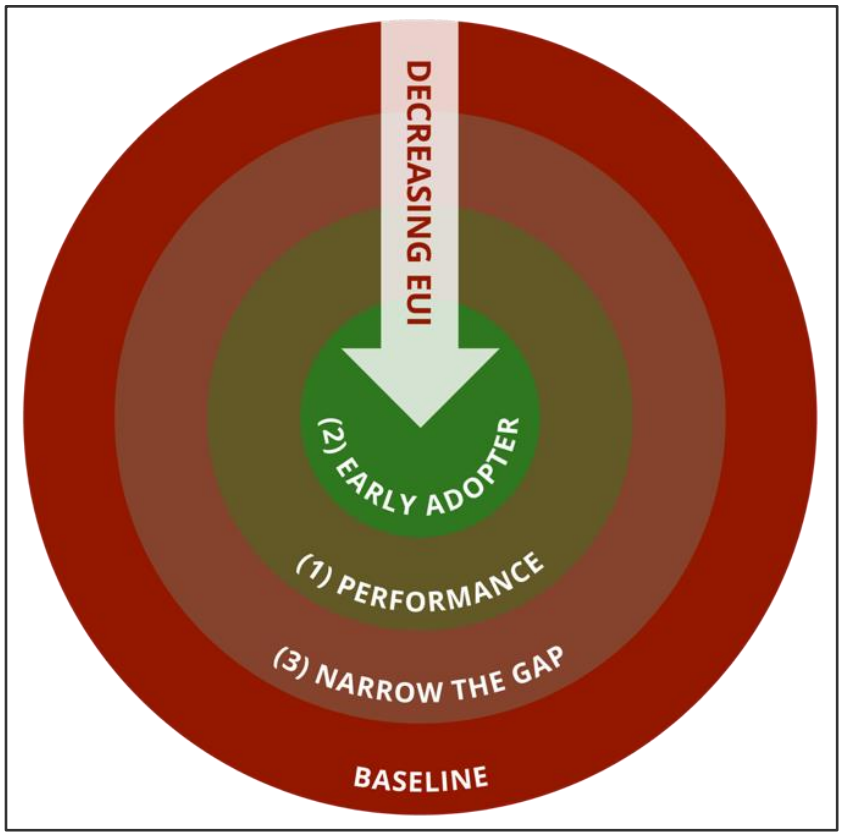

Figure 12 *- A schematic of compliance Paths 1-3, which are all based on a property's relationship to its Target. This depicts a property's progression from its Baseline performance through its Target to Path 2: Early Adopter compliance.*

Entirely different from the other Paths, the multifaceted and unique Path 4 establishes alternate Targets, timelines, and deadlines for eligible properties.
Figure 13 depicts various Energy Conservation Measures and potential timelines that could constitute a CACP plan of action. Note that Path 4 requires approval through an Eligibility Application.

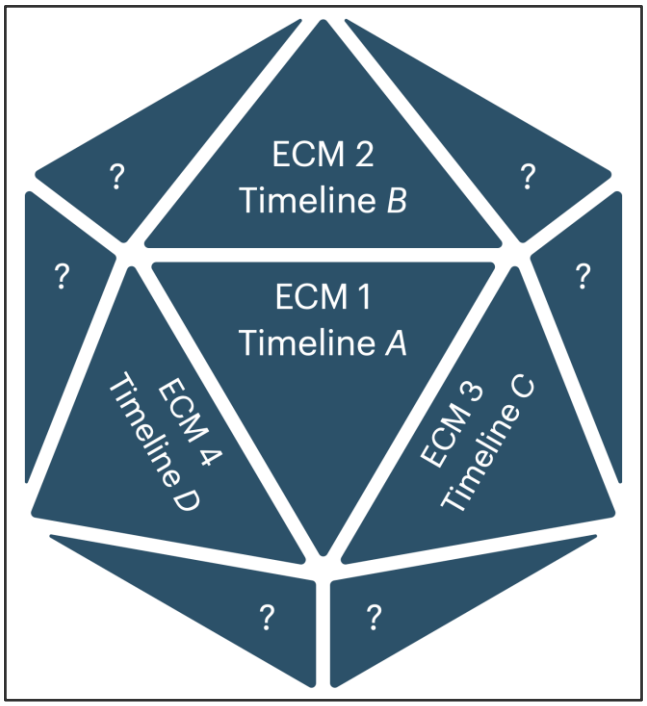

Figure 13 *- Path 4: CACP will be multifaceted and unique to each eligible property, involving carefully chosen ECMs taken on particular timelines that may even span multiple Cycles.*

4.3.1 Path 1: Performance

Path 1: Performance requires that the EUI achieved by the property is less than or equal to the Target for its Property Type.

4.3.2 Path 2: Early Adopters

To incentivize properties to invest deeper and earlier in energy retrofits/upgrades that may improve performance more than is necessary to hit their Target for the current Cycle, compliance for multiple Cycles can be achieved simultaneously as follows.

1. Earning Compliance for 2 Cycles

If at the conclusion of a Cycle a property's EUI is at or below the Target for its Property Type, and the EUI of the property was reduced by 20% or more compared to its Property Baseline, the property may be compliant for that and the next Cycle.

2. Earning Compliance For 3 Cycles

If at the conclusion of a Cycle a property's EUI is at or below the Target for its Property Type, and the EUI of the property was reduced by 50% or more compared to its Property Baseline, the property may be compliant for that and the next 2 Cycles.

4.3.3 Path 3: Narrow the Gap (Alternative Compliance)

Properties with high EUIs may have a difficult time reducing their energy use to the

level of their Targets because of reasons such as constraints on staff, time, or capital. Path 3 provides an alternative, more attainable performance standard for properties that can make some but not all necessary improvements. Be aware that this path incurs a debt to future Compliance Cycles. Properties that pursue Path 3 will lag most other properties of their Property Type, potentially making the next Cycle's Target more challenging to attain.

Properties pursuing Path 3 shall be considered compliant for the current Cycle if they can reduce their EUI by 50% of the difference between their Baseline performance and the Target. For example, if the Property Baseline EUI is 100 and the Target is 50, a property pursuing Path 3 need only reduce their EUI to 75 to achieve compliance.

4.3.4 Path 4: Custom Alternative Compliance Path (CACP)

Path 4: Custom Alternative Compliance Path (CACP) is the most flexible of the four. This path gives properties that are unable to hit their Target or even "narrow the gap" due to unusual circumstances the opportunity to customize a path that upholds the spirit of BEPS. Unlike the Paths 1-3, properties must apply to pursue a CACP and not all will be deemed eligible. This is done using a BEPS "Owner Portal," which will be operational late 2022.

Properties pursue a CACP in phases as depicted in Figure 14. The implementation deadline for all CACPs is May 4, one year prior to a Cycle's final reporting deadline. For example, the CACP implementation deadline for Cycle 1 is May 4, 2024. Because the CACP phases depicted in Figure 14 play out over several months, especially when appeals are involved, interested properties should plan ahead and take early action.

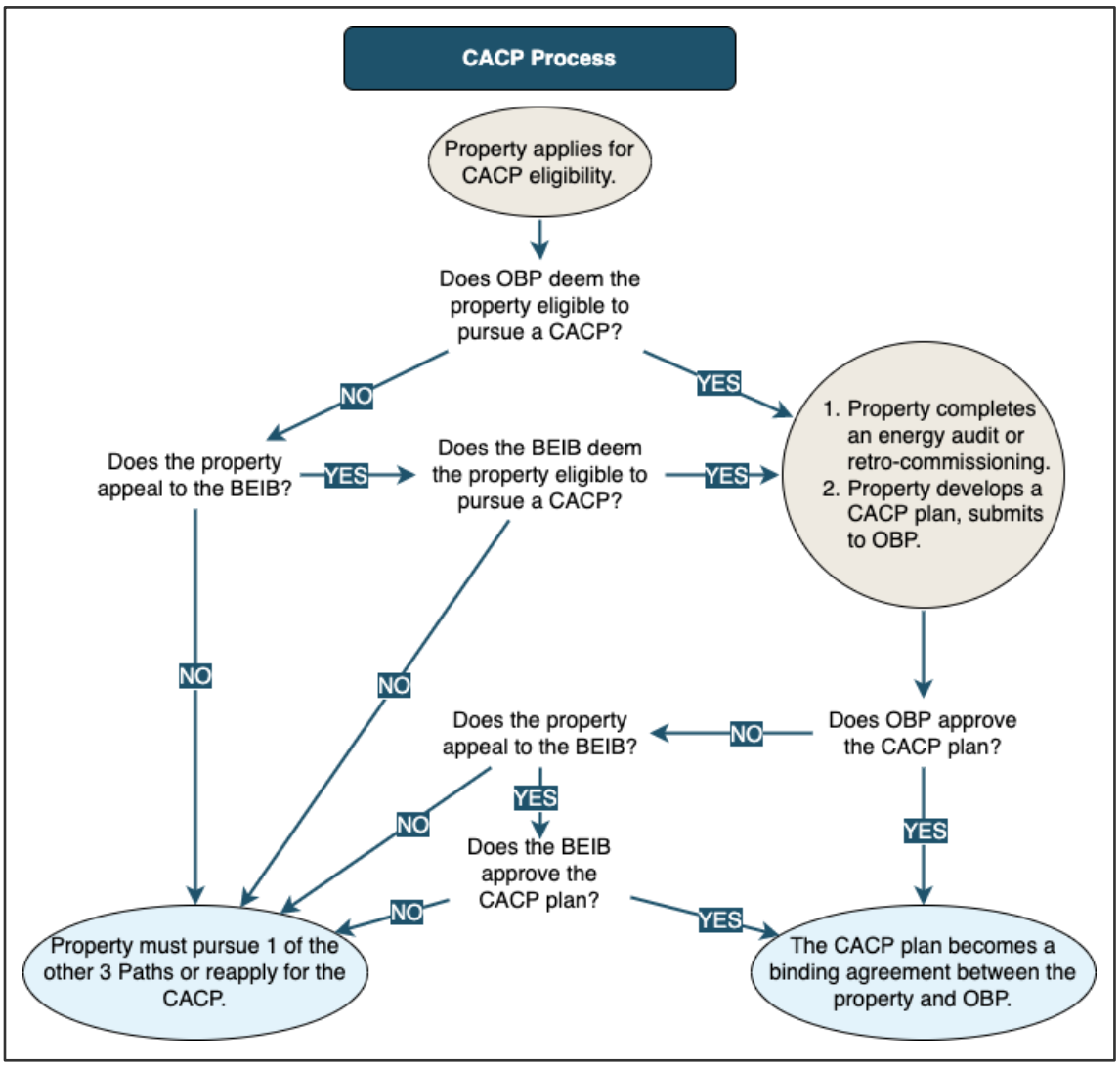

Figure 14 - The process for a property to pursue a CACP (see CACP-Required Energy Audit or Retro-Commissioning).

4.3.4.1 Applying for a CACP

4.3.4.1.1 Eligibility Application

Properties that believe they need to pursue a CACP must first establish their eligibility. In an application to OBP, properties will select any of several qualifying scenarios (see Five Scenarios for CACP Eligibility) and indicate how extenuating circumstances beyond the property's control prevent it from complying with BEPS. Supporting documentation will be required. Not all properties will be deemed eligible, as for some it may be more appropriate to pursue Path 3: Narrow the Gap to compliance.

All properties have the right to a one-time appeal of an OBP determination of ineligibility (see

APPEALS). Appeals will be heard by the BEIB, and their determination cannot be further appealed except by filing a lawsuit for judicial review.

4.3.4.1.2 Five Scenarios for CACP Eligibility

1. Mortgage refinancing cycles

For certain properties, the ability to hit Targets may depend on the alignment of their refinancing/capital cycles with BEPS compliance Cycles. This situation is most common for regulated and subsidized affordable housing buildings, condominiums, and co-ops, which often follow 15-year capital and mortgage refinancing cycles that span several BEPS compliance cycles.

In making this case, supporting documentation should include but is not limited to:

- Proof of refinancing schedule (e.g., maturity date of current mortgage)
- Documentation of a prepayment penalty greater than 1% of the property's assessed value

2. Alignment with life cycles of major equipment

A property that installed critical, energy-consuming equipment prior to the passage and implementation of BEPS may be too financially burdened to replace the equipment before the end of its life cycle. For example, equipment such as boilers and furnaces can have designed life cycles of 20 years or more. While it is beneficial to replace low-performing equipment to meet BEPS requirements, OBP will make some allowances for major capital equipment that is early in its life cycle.

In making this case, properties should provide a detailed inventory of the relevant equipment, including its age, factory-designated working life, cost of replacement, and a description of potential performance improvements that could be gained by replacing it. Supporting documentation should include but is not limited to:

- Professional Engineer's attestation that the property's BEPS compliance depends on replacement of major equipment not yet at the end of its useful life
- Financial model to show that the most cost-effective means of compliance is still not economically feasible

3. Long-term lease expiration

In some cases, a tenant, not the owner of record, may hold contractual control over a portion or the whole of a building. Such lease contracts can extend far longer

than a Cycle, limiting the building owner's ability to implement improvements in spaces controlled by the lessee.

In making this case, properties should provide the length of the lease agreement at issue, the contractual language limiting the owner's ability to upgrade within the leased space, and a list of all the building improvements that are precluded by the contractual limitations.

Supporting documentation should include but is not limited to:

- Copy of the lease
- Professional Engineer's attestation and explanation of reason that retrofits would be unreasonably disruptive to tenants.

4. Historic preservation

Properties that are designated as historic (nationally or locally) or that are located within landmark districts are subject to specific restrictions on retrofits and renovations. For instance, many historically designated properties cannot alter the appearance or even material of their exterior facade or windows. This may limit some types of ECMs, but it likely will not preclude all measures. Most historic properties can still benefit from upgrades to their HVAC systems, lighting, equipment efficiencies, and certain window upgrades as long as they meet the requirements of their historic designation.

In making this case, properties should provide documentation highlighting the ECMs that do and do not affect their historic designation.

Supporting documentation includes but is not limited to:

- Records of communications between a representative of the historic review board and the property.
- A letter from any local, state, or national historic property authority or review board endorsing the delay and restrictions placed on the property.

5. Severe financial hardship

At times, Properties may face severe financial hardship that makes meeting the requirements of BEPS extremely difficult or impossible. However, assertions that meeting BEPS requirements is "too expensive" are not grounds for a CACP. An effective ECM will pay for itself in saved utility expenses and financing is readily available (see HELP AND SUPPORT
HELP AND SUPPORT).

Permissible circumstances of financial hardship include those where a property:

- Can demonstrate that they have already invested substantially in energy efficiency and additional investments do not have reasonable financial returns
- The property was placed on the city's annual tax lien sale list within the last two years because of arrears of property taxes or water or refuse charges.
- A court appointed receiver is in control of the asset due to financial distress
- A financial institution owns the property due to a loan default

- The property has been acquired by a deed in lieu of foreclosure
- The property has a senior mortgage subject to a notice of default.
- The property has other significant cash flow limitations or is bankrupt.

Properties must be able to demonstrate definitively that they do not have the financial ability to implement the improvements needed to comply with BEPS by a deadline even after considering all possible incentives, financing, and cash flow resources available.

In making this case, properties should disclose pertinent financial information about their cash flow, information provided in energy audit reports, and the capital resources across their organization as well as access to long-term financing.

Supporting documentation includes but is not limited to:

- Audited financial statements for the most recent 3 years
- Evidence of a current tax lien on the building or a lien removed within the 2 years prior to the delay request
- Evidence of a court-appointed receiver in control of the property
- Evidence of a financial institution owning the property due to default by the owner
- Copy of a deed that has been acquired in lieu of foreclosure within the 2 years prior to the delay request
- A notice of default on the mortgage
- Evidence of pursuing financial support and finding all options insufficient to offset the property's conditions of financial distress. Such options could include government or utility-provided incentives and also privately or publicly offered financing (e.g., bank loans, PACE financing programs)

4.3.4.2 CACP-Required Energy Audit or Retro-Commissioning

Properties deemed eligible to pursue a CACP must then take one of the following actions:

1. Complete an Energy Audit that complies with the requirements of an ASHRAE Standard 211 Level 2 Energy Audit, unless one had been completed within the prior 5 years. See Energy Audit for details.
2. Complete a retro-commissioning of the property according to OBP guidelines in Retro-Commissioning Process. See also Retro-Commissioning for details.

Both of the above will serve as a basis to develop a CACP plan (see Developing a CACP Plan).

4.3.4.2.1 Energy Audit

Full energy audit guidelines can be found in ASHRAE Standard 211 Level 2 Energy Audit documentation. In essence, these energy audits consist of:

- Facilities description
- Description of building systems and major equipment
- Benchmarking and comprehensive energy end-use analysis
- Description of no-cost and low-cost ECMs recommended
- Summary table with ECM name, installed cost, energy savings by utility, and operations and maintenance savings

- Capital intensive measures requiring a Level 3 audit
- Description of ECMs considered but not recommended or not financially viable
- Measurement and verification plan for verifying energy savings

A qualified energy auditor is an energy solutions professional who assesses building systems and site conditions; analyzes and evaluates equipment and energy use; and recommends strategies to optimize building resource use. Experience must include completion of five commercial (nonresidential) building energy audits within the past three years or a cumulative completion of ten or more commercial building energy audits.

The auditor must be one of the following:

1. A person who holds a certification from a credentialing program approved by the U.S. Department of Energy Better Buildings Workforce Guidelines for Building Energy Auditors or Energy Managers
2. A licensed professional engineer or a licensed contractor specifically approved by the authority having jurisdiction to conduct energy audits
3. A person approved as qualified by the authority having jurisdiction

Properties shall submit the ensuing Energy Audit technical report to OBP through the BEPS Owner Portal, expected to launch late 2022.

4.3.4.2.2 Retro-Commissioning

Retro-commissioning (RCx) is a process of verifying that installed equipment is operating efficiently and is capable of providing the services necessary to meet the needs of the building's occupants while reducing energy consumption. RCx involves a systematic investigation that optimizes building performance by identifying and implementing relatively low-cost operational and maintenance improvements, not only optimizing how individual pieces of equipment and systems operate but also how the systems function together. For a wholistic understanding of this process see EPA Building Commissioning Guidelines (2009), page 33.

For BEPS, OBP has established its own minimum requirements for an RCx in Retro-Commissioning Process. Substituting the RCx for the energy audit may only be done once per property in the first two Cycles. However, OBP may make exceptions for properties that change ownership or Property Type during this time.

4.3.4.3 Developing a CACP Plan

Eligible properties having completed an Energy Audit or phases 1 and 2 of a retro-commissioning (see Retro-Commissioning Process) shall then develop and submit their CACP plan, following a guide provided by OBP (see Forms). A property's CACP may cover multiple compliance Cycles and would ideally

Think Outside the Box

The most impactful CACP plans will benefit both individual buildings and the surrounding community. OBP encourages properties to engage in community dialog to identify ECMS such as planting canopy trees that shade both the building and the street.

propose projects that meet the intent of the Early Adopter Path by pursuing deep retrofits. Since there is no universal plan that is appropriate in all cases, OBP will weigh the unique needs and limitations of the property when considering CACPs.

CACP proposals must contain at least the following:

1. Property address(es) and St. Louis Building ID(s).
2. Contact information for the individual responsible for the CACP plan (email, phone, and mailing address).
3. Energy Audit report including the name of the contractor that performed the Energy Audit, their professional accreditations, and sign-off, or the retro-commissioning phase 2 plan instead of the energy audit (see CACP-Required Energy Audit or Retro-Commissioning).
4. Detailed narrative describing how the property's submission meets the spirit of BEPS through performance improvements.
5. Timeline detailing implementation of all proposed CACP ECMs or retro-commissioning projects. This includes intermediate milestones that will be used by both the property and OBP to gauge progress towards CACP completion.

The timeline should demonstrate that the property will implement all improvement measures and investments without unnecessary delay. For example, a property requesting more time to accommodate the planned replacement of a major piece of equipment can still promptly invest in low-cost, high-payback efficiency measures such as a building tune-up.

4.3.4.4 Implementing the CACP

If the OBP approves the CACP, it becomes a binding agreement between the City and the property, including its owner(s), manager(s), and/or representative(s). If the property fulfills the terms, including installing agreed-upon ECMs or completing its retro-commissioning within the approved timeline, then the property shall be in compliance with BEPS as outlined in the CACP. Not all CACPs will be approved by OBP, however BEPS affords each property the right to appeal (See APPEALS).

Tune-Ups

Tune-ups aim to optimize energy and water performance by identifying low- or no-cost actions related to building operations and maintenance, that generate 10-15% in energy savings, on average.

Tune-up examples include operational fixes such as changes to thermostat set points or adjusting lighting or irrigation schedules. Tune-ups also review HVAC, lighting, and water systems to identify needed maintenance, cleaning or repairs - for example replacing faulty sensors or fixing problems with an economizer.

5 EXEMPTIONS AND EXTENSIONS

In this section you will find:

- Reasons a property may request an extension or exemption
- Policy regarding automatic exemptions

5.1 Exemptions for Existing Properties

Deadline extensions or exemptions from BEPS requirements will typically only be granted within the terms of a CACP. However, appropriate situations outside the scope of a CACP may arise. Properties can apply for and may be granted an extension to or exemption from meeting BEPS requirements so long as a request is received at least 90 days prior to the May 1 reporting deadlines in compliance years (for most properties, 2025, 2030, 2035, etc. and for Qualified Affordable Housing and Houses of Worship, 2027, 2034, 2041, etc.).

5.2 Extensions

30-day extensions of BEPS deadlines may be granted for simple logistical issues, including but not limited to:

- Property is unable to submit data due to the failure of either a utility and/or a tenant to report necessary information
- Challenges learning submission interfaces
- Difficulty finding or scheduling data Verifiers and Energy Audit professionals

All granted extensions shall be limited to a single compliance deadline and not extend to past or future compliance Cycles.

5.3 Exemptions

Existing properties may request an exemption from BEPS requirements at STLbenchmarking.com for the following reasons:

- The property doesn't have a certificate of occupancy or temporary certificate of occupancy for all months of the prior calendar year
- A demolition permit was issued during the prior calendar year, provided that demolition work has commenced and energy-related systems have been significantly compromised
- The property is primarily used for manufacturing or other industrial purposes, water treatment, communications infrastructure, or as a data center
- The property is unable to submit data due to the failure of the utility and/or a tenant to report the information necessary
- Other unusual circumstances unique to the property as approved by the City of St Louis.

All granted exemptions shall be limited to a single year or Cycle. Exemption from BEPS does not guarantee an exemption from annual reporting. A change of ownership, except where such

change brings about one of the acceptable reasons above, is not grounds for exemptions from BEPS requirements.

5.4 Exemptions for New Construction, Expansions and Additions

Properties that meet any of the following criteria shall be granted a one-time exemption from being required to hit their Target for the Cycle:

1. Newly constructed properties 50,000 square feet or larger with an occupancy permit
2. Properties that changed their Property Type, typically following a “Level 3” renovation, meaning a building alteration affecting more than 50% of GFA.
3. Properties found to be covered by BEPS that were not previously known to OBP

Properties that underwent expansions or addition that increased their floor area to 50,000 square feet or larger may be eligible for one-time exemption from being required to hit their Target for the Cycle. Contact OBP to see if your expanded building is eligible.

Exempt properties will be required to comply with BEPS in subsequent Cycles and are still required to report each year unless separately exempt.

6 APPEALS

In this section you will find:

- Appeal rights afforded by St. Louis ordinances
- How to file an appeal of any adverse action taken by the City of St. Louis
- Appeal time frames

6.1 Rights

Properties have the right to appeal the following actions to the BEIB:

1. Determination by OBP that the property is ineligible to pursue a CACP (see Eligibility Application)
2. Rejection of the property's CACP by OBP
3. A decision by OBP, City of St. Louis Building Division, or the Building Division Commissioner, regarding a property's failure to meet BEPS requirements as outlined in this document, the Building Energy Awareness (Benchmarking) ordinance, or the Building Energy Performance Standards ordinance

The BEIB shall issue via OBP a decision within 90 days receiving the appeal request. Decisions are final and cannot be further appealed except by filing a lawsuit for judicial review.

6.2 Appeal Requirements

All requests for an appeal shall:

1. Be submitted in writing to Benchmarking@stlouis-mo.gov within 30 days of the date on the action notice and not within 90 days of the second to last reporting deadline of a compliance Cycle.
2. Be accompanied by a $100 check or money order payable to the St. Louis Building Division, mailed to: 1200 Market Street, City Hall, Room 426, St. Louis, Missouri 63103-2826, with a note reading "OBP BEPS Appeal."
3. Include the following:
    1. Property Addresses
    2. St. Louis Building IDs
    3. Property owner's name and contact information
    4. Authorized property representative's name and contact information (if applicable)
    5. Brief narrative of reason for appeal
    6. Any and all supporting documentation

OBP shall immediately transmit requests for appeal and all records upon which the appealed action was based to the BEIB. The appeal will be added to the next meeting agenda. The property will be notified by certified mail of the time, date, and location of the appeal hearing not less than 7 days prior to the hearing.

6.3 Enforcement and Compliance Penalties

Noncompliance with any portion of BEPS may result in penalties. Before OBP pursues penalties, the City will issue written and emailed warning letters to, at minimum, the owner of non-compliant properties at their last known addresses.

Failure by an owner to meet the requirements of BEPS, specifically reporting the final year of Benchmarking data or reaching agreement with OBP on a different year's performance to use as a Baseline, within 60 days of the warning letters shall be punishable upon conviction by a fine of up to $500 per day and/or by barring the property from obtaining an occupancy permit.

7 HELP AND SUPPORT

In this section you will find:

- Contact information for the City of St. Louis office administering BEPS.
- The Building Energy Exchange St. Louis, OBP's official support partner.
- Partners and resources for properties.

Early action is key to compliance! Start now by Benchmarking your property (see BENCHMARK REPORTING) and comparing its EUI to the Target for your Property Type. It can also be valuable to compare your performance to that of other similar properties in the city.

7.1 The Office of Building Performance (OBP)

OBP is responsible for defining, tracking, and enforcing compliance with BEPS. For guidance on property-specific questions:

- Contact OBP at benchmarking@stlouis-mo.gov or 573-416-0296
- Schedule a consultation with OBP, either virtual or in-person, to discuss any issue with BEPS
- Check out all of the City's BEPS resources at STLbenchmarking.com/Resources where the City has collected resources for properties interested in making improvements
- Attend an OBP info session, Q&A, or training

7.2 The Building Energy Exchange St. Louis (BE-EX STL)

Properties looking for general help and support for improving their buildings should contact the Building Energy Exchange St. Louis (BE-Ex STL). BE-Ex STL was established by the USGBC-Missouri Gateway Chapter, the City of St. Louis, and other partners, and officially launched in March 2022. BE-Ex STL was formed out of a desire to help properties comply with BEPS and to serve as a regional resource to reduce energy consumption and greenhouse gas emissions from our buildings. Visit be-exstl.org for guidance and resources.

7.3 Other Partners and Resources

- USGBC-Missouri Gateway Chapter — offers Benchmarking assistance and connects properties with energy solutions through its Energy Efficiency Checklist, GPRO Operations & Maintenance training and other educational programming.
- Ameren Missouri and Spire — offer incentives/rebates for energy efficiency improvements
- Set the PACE St. Louis — offers Property Assessed Clean Energy financing for energy efficiency improvements

8 APPENDIX

In this section:

- Acronyms
- Terms
- Forms
- Retro-commissioning process

8.1 Acronyms

BE-Ex STL
Building Energy Exchange St. Louis

BEIB
Building Energy Improvement Board

BEPS
Building Energy Performance Standards program

CACP
Custom Alternative Compliance Path

ECM
Energy conservation measure

EUI
Weather Normalized Site Energy Use Intensity (kBtu/sq. ft./yr.)

GFA
Gross floor area (sq. ft)

kBtu
Thousand British thermal unit (unit of energy)

OBP
Office of Building Performance

PM
The Energy Star Portfolio Manager online tool properties use to report building data each year.

USGBC
United States Green Building Council

8.2 Terms

Baseline
The EUI for a chosen year that serves as a reference for measuring a property's improvement.

Benchmarking
Also known as Reporting, this is the annual process of properties logging and reporting whole-building energy and water use via Energy Star Portfolio Manager (a free, online tool). This not only drives behavioral, operational, and capital improvements to building energy performance, but also establishes an objective Baseline performance against which improvement can be gauged to determine compliance (see BENCHMARK REPORTING).

Building Energy Improvement Board (BEIB)
The mayoral-appointed, 9-member board that provides technical expertise and represents the interests of properties and tenants, utilities, labor, building professionals, environmental non-profits, and others in the St. Louis region.

Building Energy Performance Standards (BEPS)
A City of St. Louis program and associated local laws born out of a desire to combat climate change and increase St. Louis' competitiveness. The program establishes minimum energy efficiency Targets to regulate the energy that buildings covered by BEPS consume or generate for use on-site.

Building ID
A unique identification number assigned to each property by OBP for annual reporting purposes, which can be looked up at STLbenchmarking.com.

Building Performance
The energy efficiency of a building.

Compliance Cycle
Repeating time period within which properties must improve energy efficiency to achieve a given Target. Most properties are on a 5-year Cycle. Houses of Worship and Qualified Affordable Housing follow a 7-year Cycle.

Compliance Paths
Four allowable paths to BEPS compliance, also known as Performance, Early Adopters, Narrow the Gap, and Custom Alternative Compliance Plan (CACP).

Office of Building Performance (OBP)

Within the Building Division, OBP oversees BEPS implementation, compliance, and enforcement.

Properties
The term properties in this document and BEPS compliance refers to the collection of building owners/managers/representatives, and sometimes to buildings themselves.

Property Type
The classification for a property (or building) that will determine its Target, chosen from over 80 possible types recognized in PM.

Qualified Affordable Housing
A building in which the majority of households make less than 80% of area median income for the City of St. Louis. Properties in this category as well as Houses of Worship are on a 7-year compliance Cycle rather than the standard 5-year Cycle.

Retro-commissioning
Retro-commissioning is a process of verifying that installed equipment is operating efficiently and is capable of providing the services necessary to meet the needs of the building's occupants while reducing energy consumption. Retro-commissioning involves a systematic investigation that optimizes building performance by identifying and implementing relatively low-cost operational and maintenance improvements, not only optimizing how individual pieces of equipment and systems operate but also how the systems function together. For BEPS, OBP has established its own minimum requirements for a retro-commissioning in Retro-Commissioning Process.

STLBenchmarking.com
The internet home of BEPS. This is the website where properties report data each year and find other useful program information.

Targets
A minimum building performance, or energy efficiency, that properties must aim to achieve. Targets are determined by assessing similar properties over a selected period of time using mostly local and some national building energy use data. Each property will be assigned a specific Target each Cycle.

Verification
The requirement to have an accredited third party verify the accuracy of reported property data once every 5 years (or 7 years for Qualified Affordable Housing and Houses of Worship).

Verification Year
Verification is required only for the second to last year of each compliance Cycle because this is the year OBP will use to verify compliance with BEPS Targets. It is known as the "Verification Year." So, most properties will need verification of data for calendar years 2024, 2029, 2034,

and so on, while Qualified Affordable Housing and Houses of Worship will need verification of data for calendar years 2026, 2033, 2040, and so on.

Weather Normalized Site Energy Use Intensity (EUI)

The chief energy performance metric that both forms the basis for a property's Target and will determine compliance, measured as total energy used per square foot per year and adjusted to account for local weather anomalies.

8.3 Forms

Form Name (Link)	Description
Utility Release Form (Ameren electricity, Spire natural gas)	Obtain whole-building annual energy use, including all tenants, by emailing this form to Ameren or Spire. If needing more space to list meter addresses, attach a spreadsheet to the email with the form.
Steam Consumption History Request (Ashley Energy)	Obtain your past use of steam by emailing this form to Ashley Energy.
Steam Usage Request for Prior Owner (Ashley Energy)	Obtain the steam use of a prior owner of your property by getting their signed consent and emailing this form to Ashley Energy.
CACP Eligibility Application (Form in Development)	Submit the information necessary for OBP to determine your eligibility to pursue compliance Path 4: Custom Alternative Compliance Plan (CACP) (see Applying for a CACP)
CACP Plan Development Template (Form in Development)	Once deemed eligible to pursue a CACP and after completing an energy audit, use this template to build and submit a plan of action for Path 4: Custom Alternative Compliance Plan (CACP) (see Developing a CACP)
Appeal Form (Form in Development)	Use this form to request an appeal within 30 days of any adverse action described in Appeals (see APPEALS)

8.4 Retro-Commissioning Process

For the development of a CACP, the RCx process that follows may be substituted for an ASHRAE Standard Level 2 energy audit only once per property in the first two Cycles. However, OBP may make exceptions for properties that change ownership or Property Type during this time.

RCx projects will occur in 4 distinct phases:

1. Planning
2. Investigation
3. Implementation
4. Reporting.

Variables that affect the RCx process include the condition of the facility, scope of the project, budget, and availability of in-house expertise. Sometimes the planning phase can be completed partially or fully by the EPA or building staff before the RCx service provider is brought on board.

8.4.1 Planning Phase

The primary tasks for the planning phase are developing internal goals and support for the project; selecting and hiring a RCx service provider; and assembling the team that will see the project through to completion. All of these steps are critical to ensuring a successful RCx project. Major planning phase activities include developing project objectives and developing an RCx plan with the input of stakeholders.

The scope of an RCx shall include at least the following systems in or elements of a property, as applicable:

1. Lighting
2. Supplemental loads, meaning secondary load contributors to energy consumption on the property (e.g., people, computers, lights, etc.)
3. Building automation (including controlled devices, sensors, control loops, and logic)
4. Heating, ventilation, and air conditioning (HVAC) distribution
5. Heating
6. Central boiler plant
7. Primary heating systems
8. Cooling
9. Central cooling plant
10. Primary air-handling units
11. Terminal units
12. Direct expansion (DX) systems
13. Fire safety/smoke purge aspects of an HVAC system
14. Domestic hot water equipment
15. Humidity control equipment
16. Building pressurization controls

8.4.2 Investigation Phase

The primary goals of the investigation phase are to understand how and why building systems are currently operated and maintained; identify issues and potential improvements; and select the most cost-effective "fixes" for implementation. Depending on the scope of the project, this phase may look at all aspects of the current operations and management (O&M) program as well as the management structure, policies, and user requirements that influence it. Tasks during investigation may include interviewing management and building personnel; reviewing current O&M practices and service contracts; spot testing equipment and controls; and trending or electronic data logging of pressures, temperatures, power, air and water flows, and lighting levels and use. A discussion of the major investigation phase activities follows.

Documentation of a building and its existing systems shall include at least the following:

1. General building description
2. Drawings relevant to the systems, especially control drawings
3. Cycles of operation for all equipment
4. Energy-efficient operating strategies for all equipment
5. Equipment list with nameplate information for all equipment
6. O&M manuals for all equipment
7. Testing, adjusting and balancing reports
8. Preventative maintenance logs for all equipment
9. Energy usage (electric and gas) and rate schedule for at least 12 months

To conclude the investigation phase, properties shall develop an RCx plan of action that includes at least the following elements:

1. Equipment, systems, and specific measurements to be included, and selection criteria for inclusion
2. Methodology for reviewing existing building systems and related documentation
3. Definition of current operational requirements from original design documents and staff interviews
4. Detailed plan for equipment calibrations, including calibration forms
5. Maintenance checks to be performed
6. Detailed plan for diagnostic monitoring/trending, including data archival
7. Functional tests to be performed
8. Methods of data analysis to be employed
9. Plans to assess and document current operating strategies and sequences of operation for all systems and equipment
10. Summary table of findings for use as a decision-making tool.
11. Calculation of energy savings by utility, as well as O&M savings
12. Implementation schedule, including start and end dates as well as intermediate process dates.
13. Measurement and verification plan for verifying energy savings

8.4.3 Implementation Phase

Implement recommendations, document all improvements and dates of completion.

During the implementation phase, the more complicated and expensive findings that were not rectified during the investigation phase are completed. The following are implementation phase activities:

1. Implement repairs and improvements
2. Verify results (re-monitor and re-test)
3. Update building documentation, including O&M manuals
4. Re-train relevant property staff

8.4.4 Reporting Phase

The final report shall include the following information:

1. Executive summary
2. Project background and scope of the commissioning project
3. Overview of activities conducted
4. Details of all potential improvements identified and other findings, including:
    a. Documentation of equipment conditions
    b. Any needed property staff training
    c. Missing critical documentation
5. Approximate implementation costs and the energy impacts for each improvement
6. Current system operation sequences for all impacted equipment and systems
7. The retro-commissioning plan
8. Energy Management Control System or data logger trended data, analysis, and annotated results, as well as electronic copies of data.
9. Completed calibration worksheets