City and County of Denver

# Energize Denver Benchmarking and Energy Performance Requirements

Buildings 25,000 Square Feet and Larger

Technical Guidance

Version 2.0
June 30, 2023

Nothing in this Guidance shall supersede any Denver ordinance or regulation.

Denver Revised Municipal Code, Chapter 10, Article XIV.

DENVER
CLIMATE ACTION, SUSTAINABILITY & RESILIENCY

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# ACRONYMS

ACCA – Air Conditioning Contractors of America
ACO – alternate compliance option
AEE – Association of Energy Engineers
AIA – American Institute of Architects
ANSI – American National Standards Institute
ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers
CASR - Office of Climate Action, Sustainability, and Resiliency
CBECS – Commercial Buildings Energy Consumption Survey
CCD – City and County of Denver
CPD – Community Planning and Development
DLC – Design Lights Consortium
DOE – United States Department of Energy
EPA – United States Environmental Protection Agency
EPI – Plant Energy Performance Indicator
ESPM – ENERGY STAR Portfolio Manager
EUI – weather-normalized site energy use intensity
FF – fossil fuel
GWP - global warming potential
IES - Illuminating Engineering Society
kBtu - kilo British thermal unit
kWh – kilowatt hour
LBNL – Lawrence Berkeley National Laboratory
LED – light emitting diode
MAI – Manufacturing/Agricultural/Industrial
NREL – National Renewable Energy Laboratory
O&M – operations and maintenance
PE – Professional Engineer
PPE – Photosynthetic photon efficacy
PUE – power use effectiveness
RA – Registered Architect
RMI – Rocky Mountain Institute
REC - Renewable Energy Credit
WBDG – Whole Building Design Guide
µMol/J – micromoles per joule

DENVER
CLIMATE ACTION, SUSTAINABILITY & RESILIENCY

# 1. INTRODUCTION

The Office of Climate Action, Sustainability and Resiliency (CASR) and the Energize Denver Task Force was tasked with helping the City design a building performance policy for existing buildings that improves health and equity, creates jobs, and drives climate solutions in existing buildings to achieve net zero energy by 2040. Translating this goal into cumulative greenhouse gas emission reductions results in 13.7 million metric tons of CO2 saved between now and 2040. Denver's definition of a net zero energy building is highly energy efficient, all electric, provider of demand flexibility to the grid, and powered by renewable electricity. Existing buildings include all commercial and multifamily buildings, including all commercial uses such as manufacturing, agricultural, and industrial uses.

DENVER HAS COMMITTED TO ELIMINATING GREENHOUSE GAS EMISSIONS BY 2040. FOR BUILDINGS AND HOMES, THIS MEANS THE GOALS ARE:

- ALL NEW BUILDINGS AND HOMES "NET ZERO ENERGY" BY 2030
- ALL EXISTING BUILDINGS AND HOMES "NET ZERO ENERGY" BY 2040

The Task Force was a diverse group representing multiple sectors and stakeholders in Denver. Membership included building owners and managers, our local utility, energy providers, resident/tenant/non-profit representatives, labor and workforce representatives, environment and clean energy representatives, and a member of Denver City Council.

The recommendations from the Energize Denver Task Force were codified into law through the creation of the High-Performance Existing Building Program, which requires building owners of covered buildings to address existing building performance through energy efficiency and renewables. This policy expects to remove 11.8 million tons of cumulative emission reductions from the built environment to help the City and County of Denver achieve its climate action goal of zero greenhouse gas emissions in existing buildings by 2040. Figure 1 outlines the three sections of the Energize Denver Ordinance, implemented by both CASR and Community Planning and Development (CPD). This guidance manual covers policies and procedures for the benchmarking and performance requirements.

| Benchmarking | Performance | Electrification |
|---|---|---|
| ● IMPLELEMNTED BY CASR<br>● BUILDINGS 25K SQ.FT. OR LARGER MUST SUBMIT ENERGY BENCHMARKING DATA THROUGH ENERGY STAR PORTFOLIO MANAGER ON AN ANNUAL BASIS | ● IMPLEMENTED BY CASR<br>● 2030 SITE EUI ENERGY REQUIREMENTS FOR BUILDINGS 25K SQ.FT. OR LARGER<br>● PRESCRIPTIVE LIGHTING OR SOLAR REQUIREMENTS FOR BUILDINGS 5K TO UNDER 25K SQ.FT.<br>● FOCUSED ON IMPROVING ENERGY EFFICIENCY FOR EXISTING BUILDINGS | ● EDUCATION AND INCENTIVES FROM CASR<br>● BUILDING CODE UPDATES AND PERMITTING IMPLEMENTED BY CPD<br>● ALL COMMERCIAL AND MULTIFAMILY BUILDINGS MUST PARTIALLY ELECTRIFY SPACE AND WATER HEAT EQUIPMENT UPON SYSTEM REPLACEMENT, WHEN COST EFFECTIVE |

FIGURE 1 – ENERGIZE DENVER ORDINANCE SECTIONS

## 1.1 Equity: Under-Resourced Buildings

CASR is committed to centering equity in all its work. For the high performance existing buildings program, this means providing technical assistance to building owners of under-resourced buildings to assist them in reaching the goals of the program while realizing climate mitigation benefits, such as lowering the cost of utilities, enhancing safety, and improving indoor/outdoor air quality. Under-resourced buildings may also have additional reasons available to justify a timeline adjustment, such as limited access to capital due to restrictions on the financing of the building, or other similar reasons.

The determination of a building's status as "under-resourced" will be at CASR's discretion and is outlined on the website. CASR's evaluation of a building's status as under-resourced includes, but is not limited to, consideration of the following: presence of affordable housing; presence of non-profits and human service providers; buildings of significance to frontline community members; and buildings in areas with high energy burden, asthma rates, low-income residents, and other social equity indicators.

## 1.2 Electrification

CASR is aligning the performance requirements with the goals of electrifying buildings in Denver. If the whole building is at least 80% electrified, as measured by "percent electricity" (including regulated and unregulated loads-ASHRAE 90.1), CASR is providing a 10% increase in the Site EUI as an incentive to electrify. There are multiple ways this can be applied (see each section referenced for more details):

- Adjusting targets:
  - For buildings that are already 80% or more electrified based on the 2019 baseline data, a 10% increase to the 2030 target will be applied and new target notifications sent to building owners (Section 3.4.7).
  - "Percent electricity" will be assessed during each building's performance evaluation of the 2024, 2027, 2030 targets. During the evaluation, if it is found that a building reached 80% whole building electrification, the 10% increase in the 2030 EUI target will be applied before applying renewable credits and evaluating Site EUI performance (Section 3.7.1).
  - Note: Covered MAI Buildings are not eligible for this Electrification Credit, as they are eligible for the Fossil Fuel Reduction Credit instead.
- Alternate Compliance Options (ACO):
  - For buildings that plan to reach 80% electrification by 2030, there is an alternate compliance option that will adjust the interim and final targets with the 10% increase at the time of ACO approval with the agreement that 80% electrification will be complete by 2030 (Section 3.6.3).
  - For buildings that need to request a timeline adjustment to the interim or final targets, electrification has been added as a valid reason for requesting that alternate compliance option (Section 3.6.2).

## 1.3 Timeline Adjustment for All 2021 Benchmarked Buildings for 2024 Target

CASR has approved a one-year timeline adjustment to the 2024 target for all buildings that have a complete 2021 calendar year Benchmarking Report (2022 Reporting Year) on file with CASR. For those buildings, the first interim target will be due in 2025. For buildings that do not have an approved Benchmarking Report for the 2021 calendar year, the interim target will remain due in 2024. A building owner can check its benchmarking compliance by looking up the 2022 Reporting Year status at www.energizedenver.org.

# 2. BENCHMARKING AND REPORTING REQUIREMENTS

## 2.1 Applicability

For purposes of benchmarking, a covered building means any commercial, multifamily, institutional, or municipal building 25,000 square feet or larger in the City and County of Denver (CCD).

### 2.1.1 Exemptions

A building owner may request an exemption from benchmarking provided they meet one of the following criteria:

- a building that was not occupied and did not have a certificate of occupancy or temporary certificate of occupancy for all twelve (12) months of the calendar year for which Benchmarking is required;
- a building that was not occupied, due to renovation, for all twelve (12) months of the calendar year for which Benchmarking is required;
- a building for which a demolition permit for the entire building has been issued and for which demolition work has commenced on or before the date the Benchmarking report is due; or
- a building that is presently experiencing qualifying financial distress, as defined by any of the following: (1) the building is the subject of a qualified tax lien sale or public auction due to property tax arrearages; (2) the building is controlled by a court appointed receiver; or (3) the building has been acquired by a deed in lieu of foreclosure; or
- a stand-alone parking garage.

To request an exemption, the owner should fill out the exemption request form and provide documentation requested to substantiate the request. Any exemption approved by CASR will be limited to the Benchmarking report for which the request was made and will not extend to past or future submissions.

If the exemption is being requested for building demolition, the owner should fill out the Demolition Exemption for Benchmarking and Performance Requirements form. Once approved, the building will be removed from both the benchmarking and performance requirement programs.

## 2.2 Data Use/Confidentiality

The Energize Denver program information is publicly available on the Benchmarking Map and Open data catalog. No personally identifiable information is included in these data sets. CASR publishes basic building information and energy performance metrics annually for all buildings reporting that year, including but not limited to the following fields:

- Property name
- Address
- Property type
- Gross Floor Area
- Year Built
- ENERGY STAR Portfolio Manager score
- Weather normalized site EUI
- Total greenhouse gas emissions
- ENERGY STAR Portfolio Manager certification years
- Any notes the Owner or property manager has submitted explaining building energy performance information

Other fields may be included that are relevant for a specific building type. A full list of the fields that will be published can be found here. Past scores are shown to illustrate energy performance improvements.

As of November 21, 2021, the previous benchmarking exemption for energy management practices being a confidential business practice that included trade secrets, privileged, or confidential commercial information is no longer a reason for exemption. If the building owner believes its property information should not be published and made publicly accessible because its energy performance is a confidential business practice that includes trade secrets, privileged, or confidential commercial information, the owner can submit a Confidential Data Request form.

CASR will review and determine whether the confidential request can be satisfied. If the confidentiality request is approved, all information collected, including compliance submissions, target adjustments, and alternate compliance documentation, will be utilized and maintained by the CASR, and not publicly accessible through the benchmarking map or open data catalog. Inefficient energy usage alone will not be considered confidential commercial information. CASR's Data Use/Confidentiality Statement is available online.

## 2.3 Compliance Dates

Building owners must benchmark the building's energy usage annually using the U.S. Environmental Protection Agency's (EPA) ENERGY STAR Portfolio Manager (ESPM) tool, and by June 1 each year, must accurately report energy performance information to CASR for the previous calendar year.[1]

## 2.4 Compliance Process

Owners must report each covered building's energy use annually for the previous calendar year, following the instructions in ESPM, no later than June 1 of each year. Owners must report all information expressly denoted as mandatory by either ESPM or CASR, which includes:

- basic descriptive information, including the building address, Gross Floor Area, all use types, and the name of the individual or entity making the submission;
- annual and monthly energy usage information, including, but not limited to, energy usage by individual fuel source, ENERGY STAR score (when available), site EUI, source EUI, normalized site EUI, normalized source EUI, and total annual greenhouse gas emissions; and
- the fields needed for each building type to verify the accuracy of an ENERGY STAR score.

Step-by step instructions on how to submit the annual benchmarking report are available online. Resources include a checklist for "previously benchmarked buildings" and "first time benchmarking." The website also presents instructional videos and the link to the current year's data request link.

### 2.4.1 Benchmarking for Normalized Performance Targets

This section outlines several areas where CASR may differ from typical ESPM guidance or is emphasizing a particular item so that building owners can normalize their 2030 target to their building characteristics. This includes accounting for high-intensity property types, swimming polls, data centers, parking, electric vehicle charging stations, and third-party loads.

#### *2.4.1.1 Accounting for High-intensity Building Types*

ENERGY STAR Portfolio Manager (ESPM) is designed to benchmark similar property types against each other on a national level. This is not always appropriate for buildings that mix high-intensity property types with lower-intensity types an individual building (like strip malls or hotels). When you

[1] D.R.M.C. § 10-403

complete your benchmarking report, you should break out the square footage of each sub-type. This will allow us to apply a more appropriate mixed-use target. Campuses, particularly colleges and universities, should *always* break out their sub-types. Table 1 lists examples of building types that may have high-intensity sub-types that you should break out in ESPM.

TABLE 1 – POSSIBLE HIGH-INTENSITY SUBTYPES

| Building Type | Possible High-Intensity Subtypes |
|---|---|
| College/University | Laboratories, Restaurant, Food Services, Fast Food, etc. |
| Enclosed Mall, Strip Mall, Other - Mall | Retail Store, Restaurant, Fast Food, Food Services |
| Hotel | Restaurant, Fast Food, Swimming Pool |
| Office | Restaurant, Fast Food, Retail Store |
| Residence Hall/Dormitory | Food Service, Fitness Center |
| Stadiums (open or closed) | Restaurant, Fast Food, Food Service |

#### *2.4.1.2 Swimming Pools*

Swimming pools should be listed as a property use type with detailed information on the approximate pool size, location of the pool, and months in use. If you can sub-meter the energy use for the pool, that energy use could be excluded from the benchmarking data. For swimming pool energy use that cannot be excluded, target adjustments are available for indoor and outdoor swimming pools. The intensity of the adjustment is based on the building type (Section 3.4.6). See EPA's Technical Reference on Swimming Pools and the ENERGY STAR Score in the United States and Canada for more information on how to benchmark swimming pools.

#### *2.4.1.3 Data Centers*

The Benchmarking Report should reflect the accurate square footage of the data center. Building types for large data center square footage and target adjustments for smaller data centers will be based on what is entered into ESPM. This is the definition to determine data center square footage:

> "A room or series of rooms that share data center systems, whose primary function is to house equipment for the processing and storage of electronic data and that has a design total Information Technology Equipment (ITE) power density exceeding 20 watts per square foot (20 watts per 0.092 $m^2$) of conditioned area and a total design ITE load greater than 10 kW."

#### *2.4.1.4 Parking*

Parking should be entered with its square footage and configuration: open, partially enclosed, and completely enclosed and whether or not there is supplemental heating. If parking is a part of the building and the energy use is not able to be excluded from the Benchmarking Report following ESPM guidance, there is a target adjustment available (Section 3.4.6). If the parking structure is a stand-alone building and considered to be 100% of the building's property type, the building will receive a 2030 target as an individual building (See Appendix A). See EPA's Technical Reference on Parking and the ENERGY STAR Score in the United States and Canada for more information.

#### *2.4.1.5 Electric Vehicle Charging Stations*

Electric vehicle charging stations or other transportation-related charging devices or power uses should be excluded to the extent possible based on how it is metered:

- If the energy use is on the main meter, but you submeter it, then you will exclude it from your building by entering an additional meter with negative entries. (More information here)
- If the energy use is on its own meter (not sub-metered), then just leave out the charging station altogether and exclude the meter from your benchmarking.

- If the charging stations are provided under a third-party vendor, you could use the total kWh charged that are listed in the monthly reports from the vendor.
- If your EV energy is on the main meter and not sub-metered, then you currently have to include this energy when benchmarking. In 2023, ESPM will be adding an adjustment to estimate your EV energy and subtract it from your building, similar to how parking and swimming pools are handled.

#### *2.4.1.6 Third-party Loads*

If the building is a host for third-party items like antennas or cell towers, the energy use must be sub-metered and excluded from the benchmarking report if the owner does not want it included in the energy use intensity score of the building.

#### *2.4.1.7 Renewables*

Renewable generation entry into ESPM for the Benchmarking Report is important when it comes to percent electricity calculations. Because percent electricity combines grid-purchased electricity with renewable electricity used at the building and divides it by the total energy used, it is important to include renewable generation in the Portfolio Manager account. The ESPM entry of renewable generation will not be used to calculate the Renewable Credit for performance evaluation as outlined in Section 3.5. That is done through a separate online application with additional questions not able to be collected through ESPM.

### 2.4.2 Benchmarking for Manufacturing, Agricultural, and Industrial Buildings

ENERGY STAR Portfolio Manager building types Drinking Water Treatment & Distribution, Energy/Power Station, Other – Utility, and Wastewater Treatment Plant are defined as Covered MAI buildings and must continue to benchmark as such. All other Covered MAI buildings, including cannabis growers and manufacturing plants, must benchmark as the ENERGY STAR Portfolio Manager building type Manufacturing/Industrial Plant.

In addition to the requirements outlined in this section, buildings pursuing the MAI Alternate Compliance Option that are considering pursuing the production efficiency metric must also benchmark a custom metric(s) relevant to the building's operations. To learn how to enter your custom metric data into ESPM, review this guide. Buildings pursuing the MAI Alternate Compliance Option that are considering pursuing the Plant Energy Performance Indicator (EPI) Score metric must submit a completed EPI Score spreadsheet with their benchmarking submission.

For example, for a cannabis grow facility, this custom metric could be pounds of flower produced per year; therefore, the growing efficiency would be calculated as the annual site energy usage divided by the pounds of flower produced. This would allow for growers to fill the canopy area with more plants and/or expand their production, so long as the production on a per-unit basis becomes more efficient. For a manufacturing facility, the custom metric could be the number of widgets produced per year for the manufacturer of a specific product, pounds of a particular food product produced per year for a food manufacturing, pounds of metal processed each year for a metal fabricator, number of glass bottles produced per year for a glass manufacturer, number of vehicles serviced per year at a vehicle repair facility, etc. In this way, the facility would be evaluated on its annual site energy usage divided by the chosen custom metric. This would allow the facility to expand its production, so long as the production on a per-unit basis becomes more efficient. The possibilities for the custom metric are theoretically unlimited, so long as the metric is emblematic of the main production process in the facility.

### 2.4.3 Data Verification

Benchmarking is the foundation for building performance standards. In order to measure performance with an energy efficiency policy, CASR must receive complete and accurate benchmarking reports that include correct square footage, breakdown of space use types, and energy use data. For the benchmarking reports in the calendar years 2024, 2027, and 2030, third party data verification will be required to be submitted within the benchmarking report submission.

The data verifier must be a third party with one of the following licenses, credentials, or certifications, and are in good standing with the authorizing organization:

- Professional Engineer (PE) issued within the United States
- Registered Architect (RA) issued within the United States
- Certified Energy Manager (CEM from AEE)
- Building Energy Assessment Professional (BEAP from ASHRAE)
- Energy Management Professional (EMP from EMA)
- Any other additional data verifier license or training program credentials recognized by CASR and posted to its website

A data verifier can NOT be:

- The building owner or an employee of the building owner; or
- The building owner's designee, or an employee of that designee, who prepares or submits benchmarking information in Portfolio Manager (For example, if a company is hired by the building owner to complete the benchmarking submission, an employee of that company cannot be the third-party data verifier. But that company could subcontract another company to serve as the verifier to make it easier for the building owner to contract this service.)

Data verification will be completed by generating a Data Verification Checklist within ENERGY STAR Portfolio Manager, following the ESPM directions, and having a third party data verifier confirm the information. Data verification does not require an on-site visit, but it is up to the verifier if they feel confident enough to sign the document without an on-site visit. A sample Data Verification Checklist is available here, and can be generated on the Reports tab within Portfolio Manager. For the Indoor Environmental Quality section, verifiers can write in "N/A" if they feel those questions do not apply to the target adjustments requested. If the building is already ENERGY STAR Certified for the calendar year requiring data verification, as long as the time frame overlaps by six months or more, then the submission could be the verified application.

Once the data verification is complete, the building owner should keep the signed checklist on file and enter the information into their Portfolio Manager account by going to the Details tab and clicking on "add verification information." The form will ask for the year (ex. 2024) for which the data was verified, the date of verification, the name of the verifier, and their professional designation. Once the form is saved in the account, the information will be submitted to CASR with the benchmarking submission. This form will need to be updated for 2027 and 2030.

# 3. PERFORMANCE REQUIREMENTS – Buildings ≥ 25,000 SQ. FT.

## 3.1 General

Covered buildings with a gross floor area equal to or greater than 25,000 square feet must meet energy performance targets in calendar years 2024, 2027 and 2030. Final 2030 targets are provided for every building type in Denver such that 30% total normalized site energy savings across

all covered buildings is achieved. Buildings will be assigned a building type and final and interim targets.

## 3.2 Applicability

For purposes of performance requirements, means any commercial, multifamily, institutional, municipal, manufacturing, agricultural, or industrial building in the City and County of Denver except a building for which a demolition permit for the entire building has been issued and for which demolition work has commenced on or before the particular compliance date.

The City and County of Denver does not have jurisdiction over state-owned, federal-owned, or foreign consulate buildings. Applicability is based on the building ownership, not the tenants, so if a state or federal entity is a tenant in a privately-owned building, the performance requirements would apply to the entire building. In ground lease situations, the entity that builds the structure is the owner of the building, so performance requirements would also apply.

### 3.2.1 Demolition

For the performance requirements, the building owner has two options when it comes to the demolition of a building (not an interior space). An exemption should be requested if the demolition will be completed *before* the next performance period evaluation. If a building owner is planning to demolish a building within 1-2 years *after* performance requirements are due, then the owner can apply for a timeline adjustment alternate compliance option. See that section for more details on the submission process.

Scenarios in which a demolition exemption would be approved are:

- A building for which a demolition permit for the entire building has been issued and for which demolition work has commenced on or before the Benchmarking report for the performance period is due.
- A building for which a demolition permit for a portion of the building has been issued in which the remaining building will be less than 25,000 sq. ft., which would shift the building to the small building performance requirements (5,000-24,999 sq. ft.).

Application for a demolition exemption includes the submission of an online form with attachments that prove the pending or completed demolition, with a submission deadline of June 1 in the following year for which performance will be evaluation. Supporting documentation could include:

- Valid, unexpired approved or submitted Total Demolition Application
- Stamped drawings that clearly show extent of demolition that will render building incapable of supporting any occupancy or use

## 3.3 Building Types

Building types are defined by ENERGY STAR Portfolio Manager definitions of property types. CASR identified buildings that may have been incorrectly designated a building type or used the type "other" through methodologies that may include, but are not limited to, a reviewing a web-based street view platform or reviewing the distribution of energy consumption within a building type to find buildings whose energy performance is significantly different relative to other buildings within the building type. If CASR believes a building type is incorrect, CASR will reassign a building type that CASR determines to be more accurate based on available data. The Owner will have the opportunity to dispute the building type before CASR's final decision on building type.

Data Centers have been split into two categories based on the square footage it occupies in the building:

- Class A: 15% or more of the square footage of the building – Buildings with Class A data centers are part of the Manufacturing, Agricultural, or Industrial buildings category (Section 3.3.1).
- Class B: Less than 15% of the square footage of the building - Buildings with Class B data centers are eligible for a target adjustment based on the square footage the data center occupies. More details about this target adjustment are in Section 3.4.6.

When determining the square footage of the data center, building owners should use this definition:

> "A room or series of rooms that share data center systems, whose primary function is to house equipment for the processing and storage of electronic data and that has a design total Information Technology Equipment (ITE) power density exceeding 20 watts per square foot (20 watts per 0.092 $m^2$) of conditioned area and a total design ITE load greater than 10 kW."

Parking that is a stand-alone structure has been split into three building types based on the configuration of the building: open, partially enclosed, and completely enclosed. If parking is a part of building and the energy use is included in the building's benchmarking, there is a target adjustment available (Section 3.4.6).

### 3.3.1 Manufacturing, Agricultural, or Industrial Buildings

Manufacturing, Agricultural, or Industrial (MAI) buildings are on a different timeline for developing performance requirements, with rules for benchmarking and performance targets finalized by December 2023. The definition of an MAI building is a facility where a portion of energy is consumed in process loads for manufacturing, agricultural, or industrial purposes. Process loads are energy consumed for bona fide purposes other than comfort heating and cooling, ventilation, domestic hot water, cooking, lighting, appliances, office equipment, small, or other plug loads. This classification also includes buildings with Class A data centers, food manufacturing, and ENERGY STAR Portfolio Manager building types Drinking Water Treatment & Distribution, Energy/Power Station, Other – Utility, and Wastewater Treatment Plant.

### 3.3.2 Campuses

While 2030 targets are assigned per building type, for multiple-building campus configurations, several program considerations have been made specifically for campuses. For the purposes of this program, a "campus" is a collection of two or more buildings, any building type or size, that act as a single cohesive property with a single shared primary function and are owned and operated by the same party, such as higher education or hospital campuses.

## 3.4 Performance Targets

### 3.4.1 Metrics

Denver is using weather-normalized site energy use intensity (EUI) as the main metric for performance targets and evaluation. Site energy use intensity is the amount of heat and electricity consumed by a building as reflected in utility bills, divided by the gross square footage of the building (Figure 2) . Site energy may be delivered to a facility in one of two forms: as primary energy, that is the raw fuel burned to create heat and electricity, such as natural gas or fuel oil; or secondary energy, that is the energy product created from a raw fuel, such as electricity purchased from the grid or heat received from a district steam system. A Site EUI metric combines units of primary energy and units of secondary energy consumed at the site and therefore does not account for losses in generation and transmission/distribution of the secondary energy.

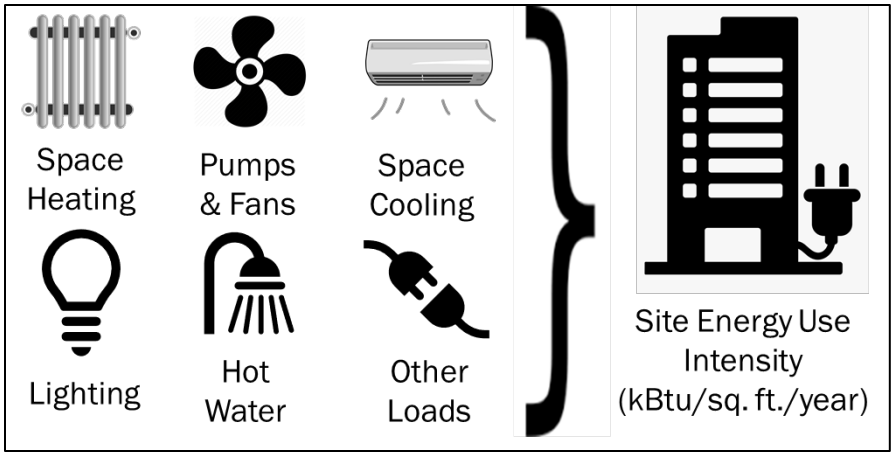


FIGURE 2 – SITE ENERGY USE INTENSITY

### 3.4.2 2030 Targets

2030 EUI targets were established for every building type such that 30% total normalized site energy savings across all covered buildings is achieved. 2030 Targets by building type are listed in Appendix A. These were developed using 2019 Benchmarking and national CBECS data. Building types with insufficient local benchmarking or CBECS data have a 2030 target that is 30% below their baseline EUI. If additional building types are found, or new buildings of types without specific EUI targets in Appendix A are built, then CASR will set targets for such buildings based on best available local and national data.

Mixed-use buildings have a blended target based on the percentage of Gross Floor Area assigned to the largest three (3) building types in the 2019 benchmarking data.

### 3.4.3 Interim Targets

CASR established each building's required interim targets for 2024 and 2027 by establishing a baseline, typically 2019, for each building and drawing a straight line from the baseline EUI to the final 2030 EUI target. Baselines were established as follows:

- For existing buildings that reported benchmarking data in 2019, the baseline is the EUI that was reported for that year.
- For existing buildings where no baseline data was received for 2019 (either by not submitting a report or the building was exempt), CASR used the 2019 local median EUI for that building type for its baseline.
- For new buildings that did not exist in 2019, CASR will establish a reasonable baseline based on the building type. It could be set as the predicted EUI (as part of the 2022 Denver Building and Fire Code, Appendix PT path) for that building if one was submitted as part of energy code compliance and the building owner provides that information to CASR.

If a building has never benchmarked and needs to submit historical energy benchmarking data for a year earlier than the current submission year (submitting 2019 when 2021 is the current year being collected), the owner can submit the data by using the Historical Benchmarking Submission Form.

### 3.4.4 Maintenance Targets

A building must maintain the interim targets each subsequent year and must maintain the final energy performance target indefinitely. If the baseline for a new covered building is already below the target EUI for that building type, then the building must perform at or below the target EUI each year and must maintain the final energy performance target indefinitely.

Figure 2 shows an example graph to illustrate interim and 2030 targets. The targets represent the minimum levels and deadlines that CASR is regulating. Building owners can choose to move faster if they choose.

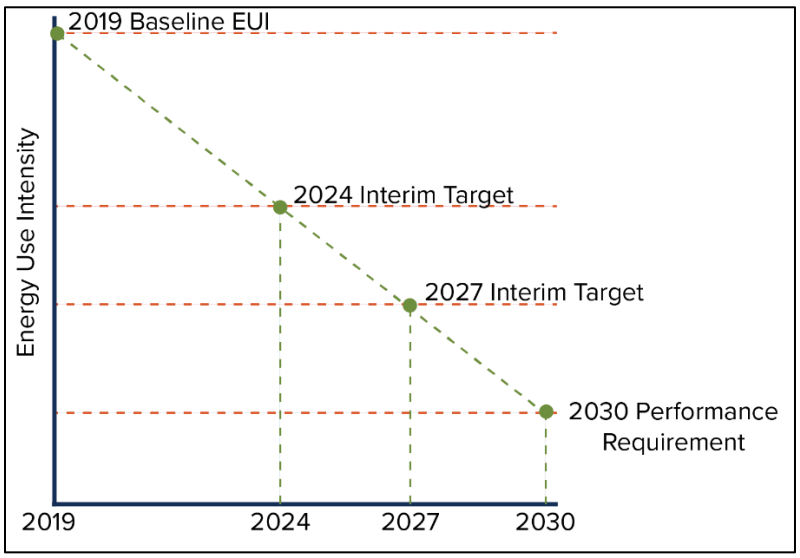


FIGURE 3 – EXAMPLE OF BASELINE AND INTERIM, MAINTENANCE, AND 2030 TARGETS

### 3.4.5 New Construction

All new buildings will enter into the High Performance Existing Buildings Program after they have received their "certificate of occupancy" and are in operation and consuming energy for 12 full calendar months. At that time, they are required to start report annual energy benchmarking data to CASR. CASR will set the 2030 target and interim targets within 6 months of receiving the first benchmarking report for that building. For new construction that falls under the general "30% reduction" property types (Aquariums, Convention Centers, Ice/Curling Rinks, Museums, Zoos, etc.), targets could be set based on the energy modeling used at the time of building permit issuance in accordance with Denver Building Code.

If CASR does not receive a timely benchmarking report in reference to when the building was added to CCD's Assessor's Office database, targets will be established for the building based on information provided by the Assessor's Office and median energy data for Denver building types.

#### 3.4.5.1 *New Construction for MAI Buildings*

For new construction that meet the definition of a Covered MAI building (see Section 3.3.1), the owner must choose one performance pathway and one metric to pursue upon becoming an existing building. New MAI buildings must apply for MAI designation and must choose a performance pathway and metric; if the owner of a new MAI building does not choose a performance pathway and metric, then the 30% EUI reduction performance metric will be assigned to the building for compliance purposes. For example, if a new MAI building receives its certificate of occupancy in November 2024, the first benchmarking report will be due on June 1, 2026 for calendar year 2025 data, and the building owner must apply for MAI designation and choose one performance pathway and metric to pursue by June 1, 2027 (i.e., at the time that the second calendar year of benchmarking data is due).

The owner may choose any of the performance pathway and metric options presented in Section 3.6.5, or one of the following two additional options for new MAI buildings:

1. Performance Pathway, Renewable Energy Metric: Source at least 30% of overall energy demand for the building from renewables. This is a requirement that will be evaluated on an annual basis, beginning in the second full calendar year of benchmarking. For example, if a new MAI building receives its certificate of occupancy in November 2024, the first benchmarking report will be due on June 1, 2026 for calendar year 2025 data, and the second benchmarking report will be due on June 1, 2027 for calendar year 2026 data; the June 1, 2027 benchmarking report would have to demonstrate that at least 30% of overall energy demand for the building is sourced from renewables. See "Renewable Credit" in Section 3.5 of this document for further guidance on permissible renewable energy types and how to report renewable energy generation.
2. Performance Pathway, Efficiency Maintenance: The Owner of a New Covered MAI Building must choose one of the following metrics by the end of the second calendar year of benchmarking to maintain through 2030 and annually thereafter:
    a. EUI
    b. Production Efficiency
    c. ENERGY STAR Energy Performance Indicator Score of 75

    For example, if a new MAI building receives its certificate of occupancy in November 2024, the first benchmarking report will be due on June 1, 2026 for calendar year 2025 data, and the second benchmarking report will be due on June 1, 2027 for calendar year 2026 data; calendar year 2025 or 2026 data, or an average of the two years, for the chosen metric (whichever is more indicative of normal, efficient operations) must then be maintained indefinitely. The building owner or manager should have a conversation with CASR's Industrial Administrator to discuss their options and to determine if this is an appropriate compliance option for the building.

An existing commercial (i.e., non-MAI) building that undergoes significant redevelopment and/or renovation that triggers new building code requirements (e.g., due to a change in occupancy) and which is subsequently reclassified as an MAI building, may petition CASR to be considered a New Construction MAI building for compliance purposes. Similarly, a non-MAI commercial building that has achieved its 2030 EUI target and subsequently is reclassified as an MAI building may petition CASR to be considered a New Construction MAI building for compliance purposes.

### 3.4.6 Target Adjustments

The building owner may apply to adjust the building's 2030 energy performance target for a variety of reasons:

- Significant variations in operations or inherent characteristics of the building itself
    - Operating hours
    - Parking energy use that is not able to be excluded from benchmarking
    - Swimming pools
    - Data centers as defined in Section 3.3

- Previous benchmarking submission were incorrect
    - Building type classification
    - Square footage corrections
    - Inaccurate energy data that affects the baseline
    - A high-intensity space (such as a restaurant) was not accounted for in the largest three building types.

- Building alterations
    - Building type has changed due to a renovation or new tenants
    - Building has added or demolished square footage with a different or high-intensity property type

Target adjustments are based on benchmarking and normalization methods from EPA's ENERGY STAR Score. The adjustments consider variations of operations or characteristics that the site EUI value does not register, such as 24-hour call operations or indoor swimming pools. At the time of publication, there is no industry-wide standardized approach for normalizing site energy for business characteristics. EPA relies on source energy to enable apples-to-apples comparisons of the efficiency of buildings that use different fuel mixes and has not explored this type of normalization for site energy. The EPA plans on releasing additional technical guidance on normalization methods by early 2023 for jurisdictions implementing building performance standards, which would increase the number of target adjustments CASR may allow in the future.

#### 3.4.6.1 *Available Adjustments*

The currently available target adjustments for operations/characteristics and their eligible building types are listed in Table 2. Targets will be adjusted using the values listed in Appendix B. As the building industry establishes additional approaches for normalization for business or buildings characteristics, procedures and target adjustment values may be updated over time.

TABLE 2 – AVAILABLE TARGET ADJUSTMENTS

| Adjustment Type | Eligible Building Types | Appendix |
|---|---|---|
| Operating Hours | Office, Retail Store, Worship Facility, Non-refrigerated Warehouse, Refrigerated Warehouse, Supermarket/Grocery Store | B.1 |
| Indoor Swimming Pool | All building types | B.2 |
| Outdoor Swimming Pool | All building types | B.2 |
| Parking – open | All building types | B.3 |
| Parking – partially enclosed | All building types | B.3 |
| Parking – completely enclosed | All building types | B.3 |
| Data Centers | All building types with Class B data centers and as defined in Section 3.3 | B.4 |
| More than 3 property types | All building types | B.5 |

Operating hour adjustments are currently available for only the building types listed in Table 1 because as Denver benchmarking data was examined using EPA methodology, the building types listed were the only ones where operating hours showed a statistically significant effect on site energy use intensity.

Building owners can apply for more than one of the available adjustments if the situations exist in their buildings, including adjustments for incorrect benchmarking submissions. For example, let's say an office building realized they didn't benchmark their restaurant properly, is open 90 hours a week, has a fitness center on the lower floor with an indoor swimming pool, and has several basement floors of completely enclosed parking. The building owner could submit one application and request multiple adjustments. The incorrect benchmarking data would be corrected first, then adjusted for operating hours, and then kBtu adjustments for pools and parking.

#### 3.4.6.2 *Application Details*

Because the target adjustment is dependent on accurate and complete benchmarking data, the building's 2019 benchmarking data must be third-party verified. If a building has a pre-approval to

use 2018 or 2020 as their baseline, that year is the data that should be third-party verified. Third-party data verification will be completed by generating a Data Verification Checklist within ENERGY STAR Portfolio Manager and having a third party data verifier confirm the information. The verifier will then sign the checklist and return it to the owner to be submitted with the application form. A sample Data Verification Checklist is available online and can be generated on the Reports tab within Portfolio Manager.

For all adjustments requests, the owner will submit the following:

- Online application
- 2019 benchmarking report (or other approved year) re-submitted
- Data Verification Checklist signed by the third-party data verifier
- Other supporting documentation as needed

Deadline for submission:
Target adjustment applications can be made at any time, but the building owner needs to be aware of the impact the adjustment could make, not only on the 2030 targets, but also the interim targets. The earlier the application is submitted, the better for the building owner when it comes to performance evaluation.

- If the building owner would like the target adjustments completed before the beginning of the first performance period in the calendar year of 2024, the deadline for submission is October 1, 2023.
- To have the 2024 Interim target adjusted before performance evaluation in 2025, the deadline for submission is December 31, 2024.

### 3.4.7 Electrification Credit

For buildings that are 80% or more electrified at the time the updated rules are adopted (Winter 2022), a 10% EUI credit to the 2030 target will be applied and new target notifications sent to building owners in early 2023. Electrification percentage of the whole building is measured by percent electricity, which is the percent of total site energy use that is electricity. Calculated in kBtu, it combines grid-purchased electricity with renewable electricity used at the building and divides it by the total energy used.

Percent electricity will be evaluated during each building's performance evaluation of the 2024, 2027, 2030 targets. During the evaluation, if it is found that a building reached 80% whole building electrification as measured by percent electricity, the 10% electrification credit will be applied to the EUI before assessing renewable credits and then evaluating Site EUI performance (Section 3.7). See Section 1.2 for more information on other electrification options.

Covered MAI Buildings are not eligible for this Electrification Credit. See Section 3.6.5.6 for the Fossil-Fuel Reduction Credit for MAI Buildings.

## 3.5 Renewable Credit

CASR encourages the building of renewables where capacity is being added to the electrical grid and contributing to Denver's climate goals. At this time, the renewable credit applies only to solar and wind generation but could be expanded to other renewables in the future. In Denver, a large percentage of renewables are built through Xcel Energy programs where Xcel retains the Renewable Energy Credits (REC) in exchange for incentives. CASR recognizes the significant impact that this locally built solar has on surrounding neighborhoods and the considerable effort that building owners make to install these projects. In Denver, renewable generation will be credited towards the 2030 target whether or not the RECs were retained. At the time of publication, Colorado's Building Performance Standards Task Force is recommending to the Air Quality Control Commission that

renewable generation is only credited if the building owner retains the RECs but would allow legacy systems built without RECs before the standards take effect. Denver could choose to align with the state policy in the future but would have a similar legacy clause.

*Solar or wind power generation, on-site or off-site, will be credited to the building's total energy use before performance targets are evaluated, regardless of Renewable Energy Credit (REC) retainage.*
The Renewable Credit is not an alternative compliance option because it is available to all buildings and does not need pre-approval by CASR before submission. The credit will be calculated on an annual basis based on generation that occurred in the 12-month performance period being evaluated. For campuses that have renewable installations that are not physically connected to a particular building, CASR will work with the building owner to credit the kWh generated amongst the buildings within that campus portfolio.

CASR has designed an online tool for owners to estimate how much credit would be applied per kWh generated. Additional information on submission documentation is included in the Demonstration of Compliance Section 3.7.

### 3.5.1 Long-term Installations or Contracts

- On-site installation: owner must provide proof that the solar or wind installation is installed, most likely in the form of a bill from the developer or other means of proof
- Off-site installation: owner must provide proof of interconnection (interconnection agreement and permission to operate notification)
- Off-site owned by third party: owners must provide evidence of a subscription, lease, or purchase of a share in either a voluntary renewable energy program offered by Xcel Energy or a community project for which a dedicated renewable energy resource located in Public Service Company of Colorado territory is built for that customer program, and which has dedicated customer capacity or energy to fulfill that customer's subscription. The term of purchase must be at least five (5) years and must be renewed a minimum of every five (5) years for the life of the building for purposes of compliance with this rule.

### 3.5.2 Short-term Contracts or Subscriptions

Short-term contracts will be allowed on a declining scale to assist building owners with interim targets. Owners must provide evidence of a subscription, lease, or purchase of a share in either a voluntary renewable energy program offered by Xcel Energy or a community project for which a dedicated renewable energy resource located in Public Service Company of Colorado territory and has dedicated customer capacity or energy to fulfill that customer's subscription.

The term of purchase must be at least 12 months to equal the performance period of the interim target and continue to be purchased annually for maintenance of the target through the next interim target date. If the building owner wishes to use renewable credits for the 2030 target, the short-term contracts should be replaced with long-term contracts over time.

Short-term contracts renewable generation is allowed on the following scale:

- 2024, 2025, 2026: up to 20% of the building's electricity usage
- 2027, 2028, 2029: up to 10% of the building's electricity usage
- 2030 and beyond: short-term contracts not allowed

### 3.5.3 Renewable Contract Confidentiality

If an Owner can demonstrate that the building's renewable energy sources are a confidential business practice that includes trade secrets, privileged, or confidential commercial information, the Owner can submit a request for the renewable generation submission to be kept confidential and not

subject to Colorado Open Records Act requests or included in open data disclosures. The owner can do that by using the Energize Denver Confidentiality Request on the Energize Denver Hub.

### 3.5.4 Reporting Renewable Generation

The Renewable Credit requires one submission that provides two types of information, the kWhs generated for the performance period and proof of ownership. The proof of ownership, outlined in the Renewable Credit Section 3.5, only needs to be submitted once for the lifetime of the installation or contract. If the building received renewable generation from more than one category (example: solar installed on building *and* purchased month-to-month subscription to fill a gap), the owner must fill out a renewable credit submission for each type.

In the submission form, the owner would:

- Enter total kWhs generated or purchased during the 12-month performance period
- Enter which type of installation or contract it is and whether or not the RECs were retained
- Enter in the maximum renewable capacity of the solar panels if an on-site installation
- Upload proof of ownership paperwork or contract
- Upload one month's example of a bill or report that shows the kWhs generated

The building owner should keep copies of the monthly kWh generation reports on file. CASR reserves the right to request that the owner submit the invoices/reports that back-up the kWh entries or re-submit proof of ownership. Table 3 gives examples of Denver-specific renewable installations and programs and their possible documentation for submission.

TABLE 3 – DENVER RENEWABLE SCENARIOS AND DOCUMENTATION

| Scenario | Contract | Possible Program | Documentation |
|---|---|---|---|
| Solar/Wind power generated capacity on-site | Long-term | Net Metering, Solar*Rewards | kWh generation entry, Interconnection agreement, Permission to Operate notification or letter |
| Solar/Wind power generated capacity off-site | Long-term | Off-site solar or wind | kWh generation entry, off-site renewable capacity contract, Interconnection agreement, Permission to Operate notification or letter |
| Multifamily building where tenants purchased solar through Community Solar Garden subscription | Long-term | Solar*Rewards Community | Building owner would have to collect tenants' contracts listing kWhs individually subscribed to provide as proof of ownership, collect monthly invoices to create kWh generation energy |
| Community Solar Garden Host (credit available if a portion of kWhs generated are distributed to building directly) | Long-term | Solar*Rewards Community | kWh generation entry, community solar garden host contract |
| Subscription for solar and/or wind power generation (5 years minimum contract) | Long-term | Renewable*Connect | kWh generation entry, subscription contract |

| | | | |
|---|---|---|---|
| Subscription for solar and/or wind generation (month-to-month or less than 5 years) | Short-term | Windsource | kWh generation entry (see limitations in Section 3.5.2), subscription contract |

## 3.6 Alternate Compliance Options

A building owner may apply for one of the following alternate compliance options (ACO). CASR will review the application, and subject to CASR's discretion, approve the alternate compliance option(s). This section outlines the minimum requirements and process for requesting each type of alternate compliance option:

- Timeline Adjustment
- Electrification Option
- 30% EUI Reduction Property Type Adjustment
- Manufacturing/Agricultural/Industrial Designation and ACO

### 3.6.1 Minimum Requirements for Documentation

Required documentation varies for each type of alternate compliance option. This section details the minimum requirements for creating energy audit, electrification feasibility report , and operations and maintenance program submissions. For information on which documents are required for each type of alternate compliance option, see the submission lists within each alternate compliance option's description.

#### 3.6.1.1 *Energy Audit*

CASR is using the Audit Template Tool provided by the Department of Energy (DOE) as a standardized method to collect the audit information from building owners. The minimum requirements to generate the audit report is to follow Denver's Audit Template directions to collect building data, enter the data into the online tool, and generate the PDF report.

##### 3.6.1.1.1 Individual Buildings

Energy audits for individual buildings must follow ANSI/ASHRAE/ACCA Standard 211-2018 and have the following minimum requirements:

- Energy auditor must have one of the following:
  - Professional Engineer (licensed in the United States)
  - Certified Energy Auditor (Association of Energy Engineers)
  - Certified Energy Manager (Association of Energy Engineers)
  - Building Energy Assessment Professional (ASHRAE)
  - High-Performance Building Design Professional (ASHRAE)
  - Multifamily Building Analyst (Building Performance Institute)
- Energy Auditor must be a third-party individual or company and not be employed by the organization that owns or operates the building.
- Energy audit must be a minimum of an ASHRAE Level 2.
- Energy audit must be submitted through the online Denver Audit Template tool.
  - Existing Equipment - Audit template tool will require inventory of all equipment
  - Solutions – list all energy efficiency measures needed to reach 2030 target
- Baseline identification:
  - Baseline should be calendar year 2019
  - Baseline EUI should be in Weather-normalized Site EUI (or Site EUI if the building cannot receive a weather-normalized version)
- Timeframe of Audit

  - Audits completed since January 1, 2020 will be accepted.
  - If the building owner wishes to use an audit completed 2017-2019, the building energy use information and associated savings calculations must be updated to accurately reflect a 2019 baseline and the building energy use at the time the plan is submitted to CASR.
  - If the building owner wishes to use an audit completed before 2017, CASR will consider the request on a case-by-case basis.
- Investment analysis minimum requirements:
  - Individual measure cost and site EUI savings, including savings to investment ratio (SIR) and return on investment (ROI) calculations
  - Total project cost and site EUI savings, including total SIR and ROI

#### 3.6.1.1.2 Campuses

An Energy audit for a campus must follow ANSI/ASHRAE/ACCA Standard 211-2018 and have the following minimum requirements:

- Energy auditor must have one of the following:
  - Professional Engineer (licensed in the United States)
  - Certified Energy Auditor (Association of Energy Engineers)
  - Certified Energy Manager (Association of Energy Engineers)
  - Building Energy Assessment Professional (ASHRAE)
  - High-Performance Building Design Professional (ASHRAE)
  - Multifamily Building Analyst (Building Performance Institute)
- Energy Auditor must be a third-party individual or company and not be employed by the organization that owns or operates the building.
- Energy audit must be a minimum of an ASHRAE Level 2.
- Building Coverage: the energy audit does not have to contain detailed information on each individual building over 25,000 square feet, but compliance with EUI targets will be evaluated on an individual building basis.
- Baseline identification:
  - Baseline should be calendar year 2019
  - Baseline EUI should be in Weather-normalized Site EUI (or Site EUI if the building cannot receive a weather-normalized version)
- Timeframe of Audit
  - Audits completed since January 1, 2020 will be accepted.
  - If the building owner wishes to use an audit completed 2017-2019, the building energy use information and associated savings calculations must be updated to accurately reflect a 2019 baseline and the building energy use at the time the plan is submitted to CASR.
  - If the building owner wishes to use an audit completed before 2017, CASR will consider the request on a case-by-case basis.
- Investment analysis minimum requirements:
  - Individual measure cost and site EUI savings, including savings to investment ratio (SIR) and return on investment (ROI) calculations
  - Total project cost and site EUI savings, including total SIR and ROI

#### 3.6.1.1.3 MAI Buildings Pursuing the Prescriptive Pathway

MAI Buildings completing an energy audit for a Timeline Adjustment Application *only* may follow the instructions in Section 3.6.1.1.1. For an energy audit that satisfies the requirements of both the Timeline Adjustment and the MAI Prescriptive Pathway, follow the instructions in this section.

For the Prescriptive Pathway in the MAI Alternate Compliance Option: Energy audits for individual MAI

buildings must follow ANSI/ASHRAE/ACCA Standard 211-2018 and have the following minimum requirements:

- Energy auditor must have passed CASR's MAI Energy Auditor Training. If you prefer to use a specific energy auditor, please encourage the individual to receive the training to be included in the list prior to the audit being conducted. You can view a list of auditors who have passed the MAI Energy Auditor Training by viewing the "Directory of Benchmarking and Energize Denver Service Providers" on the Energize Denver Hub.
- Energy auditor must have one of the following:
    - Professional Engineer (licensed in the United States)
    - Certified Energy Auditor (Association of Energy Engineers)
    - Certified Energy Manager (Association of Energy Engineers)
    - Building Energy Assessment Professional (ASHRAE)
    - High-Performance Building Design Professional (ASHRAE)
- Energy Auditor must be a third-party individual or company and not be employed by the organization that owns or operates the building.
- Energy audit must be a minimum of an ASHRAE Level 2.
- MAI Buildings are *not* required to submit their energy audit through the online Denver Audit Template tool.
- Baseline identification:
    - Baseline should be calendar year 2022 by default, but a building owner may request a baseline year as early as calendar year 2018
    - Baseline EUI should be in Weather-normalized Site EUI (or Site EUI if the building cannot receive a weather-normalized version)
- Timeframe of Audit
    - Audits completed since July 1, 2023 will be accepted.
    - If the building owner wishes to use an audit completed between January 1, 2017 and July 1, 2023, CASR will accept the audit, so long as the audit is updated to include the minimum requirements needed for the Prescriptive Pathway.
- Investment analysis minimum requirements:
    - Individual measure cost and estimated site EUI savings and/or production efficiency improvement, including savings to investment ratio (SIR) and return on investment (ROI) calculations.
    - Total project cost and site EUI savings and/or production efficiency improvement, including total SIR and ROI.
    - The energy audit should evaluate both electric and fossil fuel systems in the building. If the chosen energy audit program does not include an evaluation of fossil fuel systems, the building owner is encouraged to pay for an additional evaluation of said equipment.

#### 3.6.1.2 *Electrification Feasibility Report*

If the application for an alternate compliance option involves the upgrade or replacement of natural gas or fossil-fuel powered space or water heating equipment, or a unitary air conditioner or heat distribution equipment that distributes heat from a boiler, that is near the end of its useful life (10 years or less) according to the service life chart in Appendix C , an Electrification Feasibility Report will be required as a submission document to analyze how that system might be replaced partially or fully with a heat pump. The building owner will generate this report following the online instructions available on the Energize Denver Hub.

#### 3.6.1.3 *Operations and Maintenance Program*

Operations and Maintenance (O&M) Program documentation must follow ANSI/ASHRAE/IES Standard 100-2018 (ASHRAE 100), Chapter 6. Standard operating procedures should meet the

specifications in Section 6, which addresses every applicable building system and element as outlined in Annex D and follows the implementation requirements laid out in Annex L. *Addendum a* to ASHRAE 100 updated Annex L, so building owners should refer to and follow this addendum when developing and implementing an O&M program.

The O&M program document submitted should at a minimum include the following information:

- O&M Objectives as described in ASHRAE 100, 6.2
- O&M Implementation in accordance with ASHRAE 100, 6.4 and *Addendum a,* Annex L
- O&M Tasks as described in ASHRAE 100, 6.4 and Annex D

### 3.6.2 Timeline Adjustment ACO

The building owner may apply to adjust the compliance timeline for a variety of reasons that could make achieving the interim or 2030 targets difficult. Owners can apply for a timeline adjustment that addresses just one target (such as 2024 only) or multiple target deadlines within one application. If 80% or more electrification of the whole building is a goal, the building will receive the 10% electrification credit as part of this process.

Possible reasons for submitting a timeline adjustment request include, but are not limited to:

- Planning for end of equipment system life (according to service life chart in Appendix C)
- Planning for major renovation
- Landmark Preservation Commission review process means the work won't be done in time for a target deadline
- Financial distress - A building that is presently experiencing qualifying financial distress, as defined by any of the following: (1) the building is the subject of a qualified tax lien sale or public auction due to property tax arrearages; (2) the building is controlled by a court appointed receiver; or (3) the building has been acquired by a deed in lieu of foreclosure.
- Electrification of space and water heating equipment or the entire building
- Benchmarking exemption (1-year) for the performance period of an interim or final target
- Steam loop district system limitations
- Innovative approach to energy efficiency to buildings pursuing innovative energy efficiency measures or strategies that have not been widely implemented by the local building industry, which result in implementation delays inherent to novel design (such as a longer design development process, extended product lead times, prolonged installation, or troubleshooting and commissioning)
- Change of building ownership or tenant where the new building owner or tenant will have difficulty in complying on time (for example, new owner purchases or new tenant leases the building in 2024 and previous building/tenant owner did not make progress towards 2024 target).
- Under-resourced buildings may qualify for additional reasons not listed, such as financing cycles for qualified affordable housing buildings, that would be considered on a case-by-case basis
- Other reasons that will be considered by CASR on a case-by-case basis

Natural or man-made disasters that affect the building's ability to meet a target deadline (such as fire, tornado, flood, etc.) could qualify for a timeline adjustment, but could have a simpler application process than outlined below. If a building has experienced a situation that may qualify, the building owner should schedule a discussion with a CASR representative before starting the application process.

For buildings that wish to use equipment service life as a reason for a timeline adjustment, the

owner should use the Service Life Chart in Appendix C. This chart presents the maximum service life that CASR would consider for a particular piece of equipment to extend a building's compliance timeline. Building owners may experience longer or shorter service life depending on their maintenance practices, so this should be taken into account when deciding whether to apply for a timeline adjustment or fill in a gap with the Renewable Credit. If the owner chooses to go the timeline adjustment route, the information on the equipment's service life should be detailed in the energy audit and an explanation of the proposed timeline for upgrade outlined in the retrofit plan. To have the timeline adjustment approved, the retrofit plan should outline what else in the building will be improved while waiting for the service life to expire (short- and long-term energy efficiency measures and operations and maintenance measures) and the expected EUI reductions. The retrofit plan will result in a timeline adjustment agreement that outlines exactly what will be done in the building and when it will be done, which becomes the legally binding compliance plan.

#### 3.6.2.1 *Application Details*

To ensure the building owner has a comprehensive plan for reaching the 2030 target, the timeline adjustment application has multiple submissions within the application form. The form itself will ask questions about what reasons are present, more details on justification for the delay, and details on renewable plans. Attachments to the application include the energy audit, a retrofit plan, the O&M program document, and an Electrification Feasibility report (if needed). For each reason requested, supporting documentation should be attached to the application (suggestions listed in Table 4). Details and minimum requirements for each attachment are listed below.

The application for a timeline adjustment for a single building includes:

- Online application form (example shown in Appendix D)
- Energy Audit that meets the minimum requirements (Section 3.6.1.1.1)
- Retrofit Plan Word or PDF document (template provided in Appendix E)
- Electrification Feasibility Report, if required (Section 3.6.1.2)
- O&M Program document (Section 3.6.1.3)
- Other documentation that would support the target request as suggested in Table 4

TABLE 4 – SUPPORTING DOCUMENTATION SUGGESTIONS

| Circumstance | Documentation |
|---|---|
| Planning for end of system life | If end of system life is used as the reasoning for the delay, Energy Audit must detail the equipment and age of the systems, using information from the service life chart in Appendix C |
| Planning for major renovation | Details from architect/engineer on how the major renovation will improve energy efficiency and reach the EUI target. Energy audit, energy modeling, construction or design documents, scopes of work could also be submitted. |
| Change of building ownership or tenant | Proof of sale of building or new tenant lease and narrative explaining the new building owner's/tenant's inability to comply on time. |
| | |

| | |
|---|---|
| Landmark Preservation Commission review process means the work won't be done in time for deadline | A detailed description of the unique limitations placed on the building and a letter from the Landmark Preservation Commission endorsing the delay and restrictions placed on the building. |
| Financial distress | Paperwork that proves the status of any of the 3 reasons stated. |
| Financing timelines for affordable housing | Proof of affordable housing status: copy of covenant or other formal restriction, financial ledger or rent roll with unit-by unit summary table, cooperative agreement or other documentation demonstrating membership sale prices are limited to low/moderate income residents.<br>Description of the funding strategy that will be pursued to implement interim and final EEMs and/or retrofits to meet the savings target. Description should provide an estimate of the projected funding sources (property operating income, reserves, private financing, public financing, etc.) needed and the estimated costs to be incurred to meet the requirements. |
| Electrification | Electrification Feasibility Report. |
| Benchmarking exemption | Approved benchmarking exemption. |
| Innovative approach to energy efficiency | Narrative from architect/engineer detailing the benefits of the innovation, the novelty of the project, demonstrated that the EEM has not been widely implemented by the local building industry, and why delays are anticipated and/or cannot be avoided. |

For buildings that are part of a "campus" (see definition in Appendix H), the process is similar but the energy audit, retrofit plan, electrification feasibility, and O&M documents can be created at a campus level. The campus application for a timeline adjustment includes:

- Online application form (Appendix D)
- Campus Energy Audit that meets the minimum requirements (Section 3.6.1.1.2)
- Strategic Energy Management Plan that addresses the questions asked in the retrofit plan template and includes electrification feasibility information (template provided in Appendix E)
- Campus O&M Program document (Section 3.6.1.3)
- Other documentation that would support the request, suggested in Table 4

#### 3.6.2.2 *Deadline for Submission*

Deadlines for submitting an application are dependent on the target date that needs adjustment and early action by the building owner, as outlined in Tables 5A, 5B, and 5C. If your building's first interim target date was shifted back to 2025, use Table 5B. The earlier the application is submitted and

approved; the lower possible penalty amount the building could be assessed in the future (see Penalties Section 5.1.3). Timeline adjustment reviews may take some time and multiple conversations to come to an agreement, so CASR encourages building owners to not wait until the deadline to submit their application. Target adjustments for 2027 and 2030 will be considered on a case-by-case basis after the deadlines listed in Table 5B.

TABLE 5A – 2024 TARGET TIMELINE ADJUSTMENT APPLICATION DEADLINES

| Target | Application Deadline | Alternate Compliance Penalty |
|---|---|---|
| 2024 | June 30, 2023 | $0.30/kBtu not achieved |
| 2024 | December 31, 2023 | $0.35/kBtu not achieved |
| 2024 | December 31, 2024 | $0.40/kBtu not achieved |
| 2024 | Received After December 31, 2024 | $0.50/kBtu not achieved |

TABLE 5B – 2025 TARGET TIMELINE ADJUSTMENT APPLICATION DEADLINES

| Target | Application Deadline | Alternate Compliance Penalty |
|---|---|---|
| 2025 | June 30, 2024 | $0.30/kBtu not achieved |
| 2025 | December 31, 2024 | $0.35/kBtu not achieved |
| 2025 | December 31, 2025 | $0.40/kBtu not achieved |
| 2025 | Received After December 31, 2025 | $0.50/kBtu not achieved |

TABLE 5C – MAI BUILDINGS: 2026 TIMELINE ADJUSTMENT APPLICATION DEADLINES

| Target | Application Deadline | Alternate Compliance Penalty |
|---|---|---|
| 2026 | December 31, 2024 | $0.42/kBtu not achieved or equivalent metric |
| 2026 | December 31, 2026 | $0.52/kBtu not achieved or equivalent metric |
| 2026 | Received After December 31, 2026 | $0.62/kBtu not achieved or equivalent metric |

#### 3.6.2.3 *Timeline Adjustment Agreement*

After CASR has completed its review of the submission, it will use the agreed-upon retrofit plan to create a Timeline Adjustment Agreement that is binding as the new performance requirements for the building. The Agreement will include:

- details of the retrofit plan
- agreed-upon timeline
- reporting requirements
- penalties that would be assessed if the plan is not completed as agreed (usually a higher level than regular compliance because extra time has been approved – see Penalties Section 5.1.3)

#### 3.6.2.4 *Pending Demolition*

If a building owner is planning to demolish a building within 2 years from the performance requirements are due, then the owner can submit an application for a timeline adjustment with a simpler process than outlined above. The demolition timeline adjustment application includes:

- Online application
- Any documentation that shows the plans for demolition (future plans for the site could suffice)
- Demolition permits as listed in the Demolition Section 3.2.1

If the timeline adjustment is approved for the pending demolition, a timeline adjustment agreement will be created for signature. The building owner should be aware that if the demolition is canceled

and the building does not meet its performance requirements as originally assigned, or the owner does not apply to update the timeline adjustment, that retroactive penalties at a higher level could be assessed.

#### 3.6.2.5 *Timeline Adjustment for All 2021 Benchmarked Buildings for 2024 Target*

CASR has approved a one-year timeline adjustment to the 2024 target for all buildings that have a complete 2021 calendar year Benchmarking Report (2022 Reporting Year) on file with CASR. For those buildings, the first interim target will be due in 2025. For buildings that do not have an approved Benchmarking Report for the 2021 calendar year, the interim target will remain due in 2024. A building owner can check its benchmarking compliance by looking up the 2022 Reporting Year status at www.energizedenver.org.

### 3.6.3 Electrification ACO

Previous discussion in this guidance for the electrification credit has been in the form of a retroactive credit, i.e., the building receives the credit either because they have already reached whole building percent electricity of 80% at the beginning of the program, or the target is adjusted at the time of performance evaluation. This alternate compliance option is for building owners that would like more certainty in applying the electrification credit at the time of ACO approval and working towards established interim and final targets. Working through this ACO means that 80% minimum electrification of the building becomes a requirement of the compliance plan. If the building owner needs timeline adjustments as part of the electrification process, they should use the process outlined in Section 3.6.2. MAI Buildings are not eligible for this Electrification ACO.

#### 3.6.3.1 *Application Details*

The application for the Electrification Option includes:

- Online application
- An electrification feasibility report that meets CASR-defined minimum requirements
- A retrofit plan (Appendix E) articulating which improvements will be made in the building, when such improvements will be made, and how those improvements will result in the building reaching the goal of 80% whole building electrification and the adjusted 2030 EUI target. The plan should also include how the installation of renewables, on- or off-site could help the building achieve its EUI target.

Deadlines for submission are the same as the timeline adjustment ACO listed in Section 3.6.2.2 and Table 5.

#### 3.6.3.2 *Electrification Option Agreement*

After CASR has completed its review of the submission, it will use the agreed-upon retrofit plan to create an Electrification Option Agreement that is binding as the new performance requirements for the building. The Agreement will include:

- status of the proposal: agreed, agreed to with modifications, or not agreed
- adjusted interim and final targets
- details of the retrofit plan

### 3.6.4 30% EUI Reduction Property Type Adjustment ACO

Due to their unique building types and lack of national/local datasets to be able to set site EUI targets, certain building types received a 30% energy use reduction goal. This ACO outlines a process for CASR to work with the building to determine the appropriate energy reduction goal. CASR recognizes that the building may have already made significant advancements in energy efficiency and may not be able to meet the 30% reduction goal. CASR will also use this process to adjust

targets for historical buildings that are limited by the Landmark Preservation Board in what energy efficiency measures they can perform. Requests to adjust the target for these building types will be considered on a case-by-case basis.

Eligible building types:

- Aquarium
- Convention Center
- Ice/Curling Rink
- Indoor Arena
- Museum
- Other – Entertainment/Public Assembly
- Other – Technology/Science
- Transportation Terminal/Station
- Zoo
- Historical buildings where the Landmark Preservation Board has limited the energy efficiency measures the building could implement

#### 3.6.4.1 *Application Details*

The submission for the 30% EUI Reduction Property Type Adjustment includes:

- Online application form
- A completed Form D in Normative Annex C of ASHRAE 100 (or equiv. ASHRAE Level 1 audit)
- Other supporting documentation that would help CASR make a determination

CASR will review the application and the supporting documentation and compare the building's benchmarking information on national medians and local site EUI data on buildings of the same property type. CASR will schedule a meeting with the building owner to discuss opportunities presented on the ASHRAE Level 1 spreadsheet in reference to the 30% reduction goal and a possible target adjustment. If the building owner disagrees with the first target adjustment presented, CASR will need additional informational to make a more thorough assessment, so the building owner will need to follow the procedures for a timeline adjustment and turn in additional information.

### 3.6.5 Manufacturing/Agricultural/Industrial Designation and Alternate Compliance Option (MAI ACO)

#### 3.6.5.1 *Eligibility for the MAI ACO*

To be eligible for this ACO, the building must meet the definition of a Covered Manufacturing/Agricultural/Industrial (MAI) Building: a facility where energy is consumed in process loads for manufacturing, agricultural, or industrial purposes. Process loads are energy consumed for bona fide purposes other than comfort heating and cooling, ventilation, domestic hot water, cooking, lighting, appliances, office equipment, small, or other plug loads. This classification includes buildings with Class A data centers, food manufacturing, and the ENERGY STAR Portfolio Manager building types Drinking Water Treatment & Distribution, Energy/Power Station, Other – Utility, and Wastewater Treatment Plant. Multi-use buildings with at least one tenant that meets this definition may be classified as a Covered MAI Building.

Buildings where a portion of the building meets the MAI definition, and multi-tenant buildings which contain MAI and non-MAI tenants, may pursue this MAI ACO, but must choose one of the following for the non-MAI tenants:

1. Sub-meter the energy usage of the MAI and non-MAI tenants and treat them as separate

buildings for compliance purposes; the MAI building would pursue the MAI ACO, and the non-MAI building would be assigned EUI targets based on the property type(s).

2. Consider the entire building an MAI building and pursue the MAI ACO for the whole building. This option might be applicable to a building where sub-metering the energy usage of the MAI and non-MAI tenants is not possible. If the building owner in this instance chooses to pursue the Prescriptive Pathway (described below), then separate energy audits and Action Plans for the MAI and non-MAI portions of the building may be required.

#### 3.6.5.2 *Applying for MAI Designation*

If you believe your building satisfies the above eligibility criteria for MAI buildings, then the first step in applying for the MAI ACO is to apply for an MAI designation. Distribution centers and warehouses do not qualify as MAI buildings unless a portion of the energy used in the building is consumed for MAI process loads. To apply for this designation, the owner or representative must fill out a MAI intake form on the Energize Denver website. Only buildings with an approved MAI designation via the intake form are eligible for this Alternate Compliance Option.

#### 3.6.5.3 *Applying for the MAI ACO*

The deadline to apply for this MAI ACO with your chosen pathway and metric (described below) to CASR is December 1, 2024. For any building that is designated as a covered MAI building but does not apply for the MAI ACO, the 2030 target for the covered building will be a 30% reduction in Site EUI. For a covered building that benchmarks as a "Manufacturing/Industrial Plant" building type but does not apply for MAI building designation or the MAI ACO, the building will be reclassified as the "Other" building type.

#### 3.6.5.4 *MAI ACO Pathways and Metrics*

Covered Buildings with an MAI designation must choose one pathway and a corresponding metric option for compliance purposes, with optional supplemental credits, as demonstrated in Figure 4.

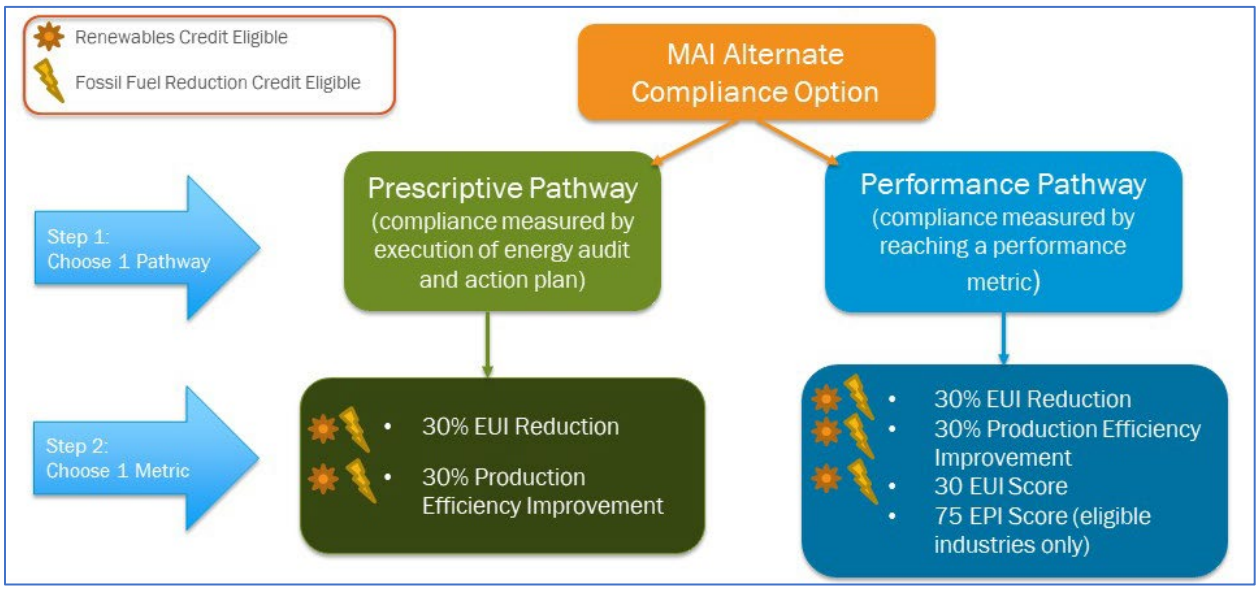


FIGURE 4 – VISUAL REPRESENTATION OF MAI ACO PATHWAYS AND METRICS

In the Prescriptive Pathway, there are two metric options: a 30% EUI reduction or a 30% production

efficiency improvement. In the Performance Pathway, there are four metric options: a 30% EUI reduction, a 30% production efficiency improvement, achieving a 30 Site EUI, or achieving a 75 EPI Score.

A 30% EUI Reduction is for the building to achieve a 30% reduction in their Site EUI metric in 2030 relative to the building's baseline year.

A 30% Production Efficiency Improvement is similar to a 30% EUI Reduction, but instead of the annual site energy usage being normalized to the square footage of the building, it is normalized to a custom metric that the building owner proposes to CASR. The intent of the production efficiency metric is to normalize an energy use metric specifically to the operations conducted in the building, which will allow for changes in production volume over time. Examples of a production efficiency metric could be:

- annual site energy usage per weight of flower produced (cannabis)
- annual site energy usage divided by PUE (data centers)
- annual site energy usage divided by pounds of a particular food product produced (food manufacturing)
- annual site energy usage divided by pounds of metal processed (metal fabricator)
- annual site energy usage divided by number of glass bottles produced (glass manufacturer)
- annual site energy usage divided by number of vehicles serviced per year (vehicle repair facility)
- annual site energy usage per widgets produced (manufacturing)
- or annual site energy usage divided by any other metric(s) proposed by the building owner.

The proposed production efficiency metric will be reviewed and approved by CASR on a case-by-case basis. When proposing a production efficiency metric, the building owner must provide proof, such as annual sales or production reports, that the chosen metric is the right metric for your operations. This option may not be viable for manufacturers that produce non-standard custom products, but all building owners wishing to pursue this metric are encouraged to work with CASR to find an agreeable production metric, if possible.

The 30 EUI Score is similar to the 2030 EUI Target for each building type listed in the table in Appendix A in that the final target is set regardless of the baseline EUI. This metric was established to account for certain MAI buildings that are already highly efficient and currently have low EUI scores.

The EPI Score is an EPA ENERGY STAR score designed for certain manufacturing industries. Similar to commercial ENERGY STAR scores, the higher the score, the more efficient the building, and the scores have been normalized across similar plants in the United States. These EPI Scores are currently the only federal standards for analyzing and comparing the energy efficiency of certain manufacturing plant types. Eligible industries are encouraged to fill out their relevant EPI spreadsheet to determine their baseline EPI Score and the 2030 goal would be to achieve a 75 for the EPI Score.

#### 3.6.5.5 *Performance Pathway*

A building owner choosing the performance pathway must choose one of the following four metric options and follow the instructions for demonstration within the section:

1. 30% EUI Reduction
    a. Eligibility: Available to all MAI buildings; if a building owner does not choose a performance pathway and metric, then this pathway and metric will be assigned to the building by default for compliance purposes.

b. Baseline Year: 2022, but the building owner may request a baseline year as early as 2018. An earlier baseline year is especially pertinent if the building owner has already made investments into energy efficiency in their building (e.g., high-efficiency HVAC equipment, LED lighting, compressed air leak detection programs, etc.). The building owner must ensure that benchmarking data for the building is available prior to when the energy efficiency investments were made in the building. For example, if the building installed a new high-efficiency boiler in 2021, then the building owner should ensure that benchmarking data is on-file with the City every year beginning in at least 2020. To use an earlier baseline year, benchmarking data for that year and all subsequent years must either be on-file with the City already, or back-reported through CASR's Historical Benchmarking Submission form.
c. Additional Benchmarking Submission Requirements: None
d. Target: Reduce the building's EUI by 30% by the end of the final performance year, as compared to the baseline year. The building must realize a 15% EUI reduction by the interim performance year and a 30% EUI reduction by the final performance year, as verified through annual benchmarking data.
e. Credits Available: Renewables Credit, Fossil Fuel Reduction Credit

2. 30% Production Efficiency Improvement
   a. Eligibility: Available to all MAI buildings which produce a standard product.
   b. Baseline Year: 2022, but the building owner may request a baseline year as early as 2018. See 3.6.5.5.1.b above for further detail.
   c. Additional Benchmarking Submission Requirements: Annual submission of chosen custom metric(s) with benchmarking submission.
   d. Target: Improve the building's production efficiency (see definition in Appendix H) by 30% by 2030, as compared to the baseline year. The building must realize a 15% efficiency improvement by the interim performance year and a 30% efficiency improvement by the final performance year, as verified through annual benchmarking data.
   e. Credits Available: Renewables Credit, Fossil Fuel Reduction Credit
3. 30 EUI Target
   a. Eligibility: Available to all MAI buildings; a good option for buildings with a baseline EUI below a 43
   b. Baseline Year: 2022, but the building owner may request a baseline year as early as 2018.
   c. Additional Benchmarking Submission Requirements: None
   d. Target: Reduce the building's EUI to a 30 by 2030, with the interim target established for 2026 as the halfway point between the baseline EUI and the final 2030 EUI target. If the EUI for the building is maintained at 30 or below, the building is automatically in compliance once the building owner chooses this pathway.
   e. Credits Available: Renewables Credit, Fossil Fuel Reduction Credit
4. 75 EPI Score Target
   a. Eligibility: Available to MAI buildings that qualify as an eligible plant type. Building owners are encouraged to visit the EPA Plant EPI Score website to determine whether the building is an eligible plant type. Eligible plant types include (plant type, corresponding North American Industry Classification System [NAICS] code):
      i. aluminum casting, 331521, 331524
      ii. automobile assembly, automobile engine plant, and automobile transmission, 336111, 336112, 336310, 336350
      iii. cement manufacturing, 327310
      iv. commercial bread & roll bakery, 311812
      v. container glass manufacturing, 327213
      vi. cookie and cracker bakery, 311821

vii. flat glass manufacturing, 327211
viii. fluid milk and yogurt processing, 311511
ix. frozen fried potato processing, 311411
x. integrated paper and paperboard manufacturing, 322121, 322130
xi. integrated steel plant, 331111
xii. iron casting plant, 331511
xiii. juice processing, 311421, 312111
xiv. nitrogenous fertilizer plant, 325311, 325312
xv. pharmaceutical manufacturing, 325400
xvi. pulp mill, 332110
xvii. wet corn milling, 311221

b. Baseline Year: 2022, but the building owner may request a baseline year as early as 2018.
c. Additional Benchmarking Submission Requirements: Annual submission of completed EPI Score spreadsheet, due to CASR at the time of the annual benchmarking submission.
d. Target: Achieve an EPI score of 75 (out of 100) by 2030, with the interim target established for 2026 as the halfway point between the baseline EUI and the final 2030 target.
e. Credits Available: None

Buildings pursuing the MAI ACO Performance Pathway must follow the following timeline in Table 6A for compliance, unless said timeline is adjusted through a timeline adjustment alternate compliance option (see Section 3.6.2).

TABLE 6A – MAI ACO PERFORMANCE PATHWAY TIMELINE

| Deadline | Performance Pathway Requirements | Benchmarking & Renewable Credit Submission Deadline |
|---|---|---|
| December 1, 2023 | | December 1, 2023 |
| December 1, 2024 | Submit chosen pathway and metric | June 1, 2024 |
| | | June 1, 2025 |
| 2026 | Interim year – make at least 50% progress to 2030 goal (reported June 1, 2027) | June 1, 2026 |
| | | June 1, 2027 |
| | | June 1, 2028 |
| | | June 1, 2029 |
| 2030 | Final target year – achieve final performance target (reported June 1, 2031) | June 1, 2030 |
| June 1, 2031 | City communicates compliance status, issues penalties (as necessary), and informs the building on next steps | June 1, 2031 |

3.6.5.6 *Prescriptive Pathway*
A building owner choosing the prescriptive pathway must choose one of the following two metric options:

1. Estimated 30% EUI Reduction

a. Eligibility: Available to all MAI buildings.
b. Baseline Year: 2022, but the building owner may request a baseline year as early as 2018. See 3.6.5.5.1.b above for further detail.
c. Additional Benchmarking Submission Requirements: None
d. Target: Reduce the building's EUI by an estimated 15% by the interim performance year and by an estimated 30% by the end of the final performance year, as compared to the baseline year.
e. Credits Available: Renewables Credit, Fossil Fuel Reduction Credit

2. Estimated 30% Production Efficiency Improvement
    a. Eligibility: Available to all MAI buildings which produce a standard product.
    b. Baseline Year: 2022, but the building owner may request a baseline year as early as 2018. See 3.6.5.5.1.b above for further detail.
    c. Additional Benchmarking Submission Requirements: Annual submission of chosen custom metric(s) with benchmarking submission.
    d. Target: Improve the building's production efficiency (see definition in Appendix H) by an estimated 15% by the interim performance year and by an estimated 30% by the end of the final performance year, as compared to the baseline year.
    e. Credits Available: Renewables Credit, Fossil Fuel Reduction Credit

Demonstration of Compliance for the Prescriptive Pathway:

Step 1: MAI Buildings with an approved MAI Designation must apply to the MAI ACO by December 1, 2024. The application for the Prescriptive Pathway requires the following:

- Receive an energy audit from an auditor listed on the trained MAI vendor list, available on CASR's website. To be listed, energy auditors must have attended an MAI vendor training and passed a quiz on the compliance structure for MAI buildings. The energy audit must satisfy the CASR-defined minimum requirements outlined in Section 3.6.1.1.3. Please refer to the MAI Energy Audit Educational Guide for further detail.
- The building owner must create an Action Plan upon completion of the energy assessment. The Action Plan will document what recommendations will be implemented by the interim year (2026; achieve 50% of the 2030 goal required by the chosen metric) and the final year (2030; 100% of the chosen metric goal). The Action Plan should be a maximum of 10 pages.
    - The Action Plan may reflect the investments already made in the building if said investments were made after the chosen baseline year. The associated savings and supporting documentation must be provided as an attachment to the Action Plan, proving that the investments were made and the savings were realized. These investments will count toward the interim performance target if the savings can be proven via benchmarking data.
        1. For example, if the building owner chooses a baseline year of 2018 and had made investments in the building in 2019 which resulted in an actual 10% EUI reduction (based on benchmarking data, the building's actual energy performance), and the building owner chose the 30% EUI reduction metric, then goal could be an estimated 20% EUI reduction. If a building has this situation, the building owner or manager should have a conversation with CASR's Industrial Administrator.
    - The Renewables Credit and the Fossil Fuel Reduction Credit may be, but are not required to be, included as part of the building's Action Plan. However, if, upon completion of the energy audit, the identified opportunities for a

building do not result in an estimated 30% savings in the chosen metric, the building must include one or both supplemental credits in the Action Plan to reach the target. See Section 3.6.5.7 for more information on supplemental credits.

- Agricultural Building Minimum Requirements: If, as part of the Action Plan, the owner of an agricultural building installs new grow lights, they must ensure that all grow lights are DLC-listed horticultural grow lights, to ensure a minimum PPE of 1.9 µMol/J. PPE is an industry-accepted metric for horticultural lighting efficacy.

- The energy audit report and completed Action Plan are due to CASR by December 1, 2024.

Step 2: CASR will review and approve, amend, or reject the Action Plan. The review process is as follows:

- After all deliverables (i.e., energy audit report and completed Action Plan) have been submitted, CASR will review the complete package to ensure that it aligns with all requirements. CASR may request additional documentation or clarification on any of the submitted documents. After CASR has completed its review, it will use the proposed information to create and issue an Action Plan Approval Letter. After CASR has issued the Action Plan Approval Letter, the building owner will have thirty (30) days to appeal the approval by submitting a revised Action Plan. CASR will review the revised Action Plan and either issue a new Action Plan Approval Letter, ask for additional clarification or documentation, or reject the appeal. If the appeal is rejected, the building owner may proceed using the previously approved Action Plan or choose a Performance Pathway.
- All items included in the Action Plan Approval Letter become requirements of the Prescriptive Pathway for that building and a building owner must successfully complete all of the requirements to be in compliance. If a building cannot complete a given item in the signed Action Plan by the deadline, the building owner must contact CASR and indicate which measure(s) cannot be completed, a reason for the inability to complete the measure(s), and an explanation of why the building owner cannot apply for a timeline adjustment in order to complete the measure at a date beyond the performance period. CASR will work with the building owner to adjust the Action Plan accordingly, if applicable.

Step 3: The building must complete the first half of the Action Plan (i.e., 50% of the estimated savings goal) by the end of the interim performance year (2026). This will be confirmed in the Interim Implementation Report, due by March 1, 2027. The building owner must submit to CASR an interim implementation report confirming the successful implementation of the first half of the Action Plan.

- Note: During the year of the required submission of the Interim Implementation Report (i.e., March-December 2027), CASR will visit a minimum 10% of MAI buildings pursuing this Prescriptive Pathway to verify the successful implementation of the measures outlined in the first half of the Action Plan.

Step 4: The building must complete the Action Plan by the end of the final performance year (2029). This will be confirmed in the Final Implementation Report, due by March 1, 2030. The building owner must submit to CASR a final implementation report confirming the successful implementation of the entire Action Plan.

- Note: During the year of the required submission of the Final Implementation Report (i.e., March-December 2030), CASR will visit a minimum 10% of MAI buildings

pursuing this Prescriptive Pathway to verify the successful implementation of the measures outlined in the Action Plan.

Step 5: The building must complete and submit to CASR an Evaluation, Monitoring, and Verification Report by June 1, 2031, along with the annual benchmarking submission. This step allows CASR and the building owner to measure and verify the performance of the energy efficiency investments made in the building against the predicted savings, based on 2030 data.

- Based on the completed Action Plan, buildings are estimated to see a 30% savings. If the Evaluation, Monitoring, and Verification Report and the 2030 benchmarking data shows less than a 20% actual savings, after the evaluation of the fossil fuel reduction and renewables credits, the building owner must complete Step 6.

Step 6: If the Evaluation, Monitoring, and Verification Report and the 2030 benchmarking data shows less than a 20% actual savings, the building must take one additional step, and implement a Corrective Action Plan to ensure that the new equipment was commissioned correctly and is operating as intended. The completed Correction Action Plan would then be due on June 1, 2032, along with the annual benchmarking submission.

- If at least a 20% actual savings is realized, then Step 6 will not be required.

Buildings pursuing the MAI ACO Prescriptive Pathway must follow the following timeline in Table 6B for compliance, unless said timeline is adjusted through a timeline adjustment alternate compliance option (see Section 3.6.2).

TABLE 6B – MAI ACO PRESCRIPTIVE PATHWAY TIMELINE

| Deadline | Prescriptive Pathway Requirements | Benchmarking & Renewable Credit Submission Deadline |
|---|---|---|
| | | December 1, 2023 |
| December 1, 2024 | Submit chosen pathway and metric, energy audit, and Action Plan | June 1, 2024 |
| | | June 1, 2025 |
| December 31, 2026 | Interim year – Building completes half of Action Plan (i.e., 50% of the estimated savings goal) | June 1, 2026 |
| March 1, 2027 | Building submits interim Implementation Report | June 1, 2027 |
| | | June 1, 2028 |
| December 31, 2029 | Building completes Action Plan | June 1, 2029 |
| March 1, 2030 | Building submits final Implementation Report | June 1, 2030 |
| June 1, 2031 | Building submits Evaluation, Monitoring, and Verification Report; City communicates compliance status, issues penalties (if needed), and informs the building on next steps and whether a Corrective Action Plan is required | June 1, 2031 |
| June 1, 2032 | Building submits Corrective Action Plan (if required) | June 1, 2032 |

If a building pursuing the Prescriptive Pathway does not comply with the Action Plan or any other requirement of the Prescriptive Pathway, then the Performance Pathway, 30% EUI Reduction will be assigned for compliance and penalty evaluation purposes.

### 3.6.5.7 *Supplemental Credits*

A building owner may supplement any of the metrics listed above, *except* for the EPA Plant EPI Score metric, with one or both of the following supplemental credits:

1. Renewable Credit: See "Renewable Credit" in Section 3.5 of this document.
2. Fossil Fuel Reduction Credit: If, between the baseline year and the performance evaluation year, an MAI building reduces its direct FF consumption (e.g., through efficiency improvements, the electrification of fossil fuel equipment, the removal of extraneous fossil fuel equipment, etc.), then the percentage of fossil fuel reduction, relative to the baseline year, will be directly credited towards the chosen metric, using the following formula:

$$\text{Credit} = \frac{\text{Baseline FF Usage} - \text{Final FF Usage}}{\text{Baseline Total Energy Usage}} \times 100\%$$

   Where "Baseline FF Usage" is the annual site energy usage from fossil fuels in the baseline year, "Final FF Usage" is the annual site energy usage from fossil fuels in the performance year, and "Baseline Total Energy Usage" is the annual site energy usage from all energy sources in the baseline year. The maximum possible credit is 10%.
   For example, a building that is 90% electrified at the baseline year and 100% electrified at the performance year will receive a 10% credit. If the goal is a 30% savings and a building receives a 10% credit, then the building only must realize a 20% savings. If the goal is a 30 EUI and the building receives a 10% credit, the building only must realize a 33 EUI.

The Fossil Fuel Reduction Credit will be evaluated during each building's performance evaluation of the 2026 and 2030 targets. During the evaluation, if it is found that a building has reduced its absolute fossil fuel consumption as compared to the baseline year, the credit will be applied to the chosen pathway and metric before assessing renewable credits and then evaluating the performance of the chosen pathway and metric.

### 3.6.5.8 *MAI Pathway Agreement*

After CASR has completed its review of the submission, it will create a Performance Pathway Agreement or Prescriptive Pathway Agreement that is binding as the new performance requirements for the building. The Agreement will include:

- details of the Action Plan (for the Prescriptive Pathway)
- agreed-upon timeline
- reporting requirements
- penalties that would be assessed if the plan is not completed as agreed
    - For the Performance Pathway – follow the agreed-upon schedule in the Performance Pathway Agreement
    - For the Prescriptive Pathway -- If the owner chooses a prescriptive pathway but does not comply with the Prescriptive Pathway Agreement, then the Performance Pathway, 30% EUI Reduction will be assigned for compliance purposes.

### 3.6.5.9 *Changing MAI ACO Pathways and Metrics*

A building owner may apply to CASR to change their chosen performance pathway after the December 1, 2024 deadline, but the building must comply with the timeline of the new chosen pathway. The signed ACO agreement will be adjusted accordingly.

## 3.7 Demonstration of Compliance

Compliance with targets is demonstrated through the submission of the annual Benchmarking report and the additional submission of renewable credit information (if applicable). CASR will use the weather-normalized Site EUI and other information from the submissions to determine compliance. The schedule of performance targets and their submission deadlines is presented in Table 7.

TABLE 7 - TARGET AND PERFORMANCE PERIOD SCHEDULE

| Target | Performance Period | Benchmarking & Renewable Credit Submission Deadline |
|---|---|---|
| 2024 Interim | January 1, 2024 to December 31, 2024 | June 1, 2025 |
| 2025 Maintenance | January 1, 2025 to December 31, 2025 | June 1, 2026 |
| 2026 Maintenance | January 1, 2026 to December 31, 2026 | June 1, 2027 |
| 2027 Interim | January 1, 2027 to December 31, 2027 | June 1, 2028 |
| 2028 Maintenance | January 1, 2028 to December 31, 2028 | June 1, 2029 |
| 2029 Maintenance | January 1, 2029 to December 31, 2029 | June 1, 2030 |
| 2030 Target | January 1, 2030 to December 31, 2030 | June 1, 2031 |
| 2031 Maintenance | January 1, 2031 to December 31, 2031 | June 1, 2032 |
| 20XX Maintenance | January 1, 20xx to December 31, 20xx | June 1 following year |

If a building is exempt from Benchmarking in a given compliance year, then the building must comply through an alternate compliance option.

### 3.7.1 Electrification Credit

Percent electricity will be evaluated during each building's performance evaluation of the 2024, 2027, 2030 targets. During the evaluation, if it is found that a building reached 80% whole building electrification as measured by percent electricity, the 10% electrification credit will be applied to the EUI before assessing renewable credits and then evaluating Site EUI performance.

### 3.7.2 Performance Evaluation

CASR will begin the performance evaluation process on June 1 each year. The process, shown in Figure 5, includes:

- Confirming the benchmarking submission is complete
- Checking if the owner has an approved alternative compliance option
- Assessing the building's percent electricity metric
- Checking if the owner submitted a renewable credit submission

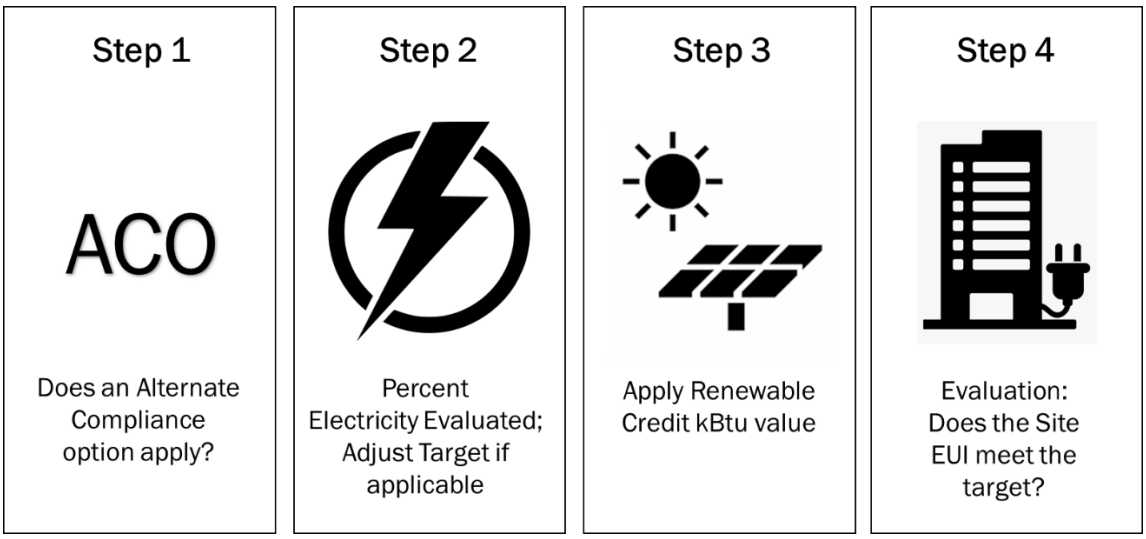


FIGURE 5 – PERFORMANCE EVALUATION PROCESS

When evaluating performance, CASR is examining the difference between the EUI achieved during the performance period (minus the renewable and electrification credits if applicable) with the EUI Target required. Performance Evaluation:

- If the kBtu difference is a positive number, the building used more kBtu than the target allowed, resulting in a "kBtu not achieved" value. This means the building did not meet their target EUI for the performance period.
- If the kBtu difference is a negative number, the building used less kBtu than the target allowed, meaning the building met their target EUI and is in compliance for the performance period.

Building owners will be notified of the building's compliance status by an email to the contacts on file. If CASR does not have a building contact email, a letter will be mailed to the building's main address.

## 4. DISCLOSURE BEFORE AND UPON SALE

When the building is listed for sale, including any listings, notices, advertisements of sale, term sheets, and contracts of sale, the current owner is required to disclose the building's compliance status with the performance requirements, including all performance targets, any approved alternate compliance pathways, and any penalties assessed, to a prospective buyer prior to the sale of the building.

When a building changes ownership, it is required that the previous Owner transfer any information pertaining to the building's energy benchmarking submissions or details on its performance requirements and progress made.

Information to transfer to the new building owner should include:

- Building 25,000 square feet and larger:
  - the most recent benchmarking submission
  - existing ENERGY STAR Portfolio Manager property profile
  - any energy and space use data that has been collected
  - any information, plans, or reports submitted to CASR for alternate compliance options

    - information describing progress toward meeting the Energize Denver performance requirements (including technical assistance received as an under-resourced building)
- Buildings 5,000 – 24,999 square feet:
    - information describing progress toward meeting the Energize Denver performance requirements for smaller buildings (including technical assistance received as an under-resourced building)

# 5. PENALTIES AND ENFORCEMENT

## 5.1 Penalties

CASR prefers that building owners invest in their buildings to reach the 2030 targets instead of paying penalties to the city and is committed to supporting building owners with their efforts and exploring the flexibility that alternate compliance options can afford. As recommended by the Task Force, CASR will "focus its efforts on doing everything it can to support those out of compliance in quickly putting a plan in place and implementing upgrades as soon as possible, rather than simply fining those who missed their first compliance target." CASR is structuring the penalties to be slightly higher than the average cost of compliance to assist project and facility managers with getting approvals on projects with good returns from energy savings. The team is also committed to assisting under-resourced buildings with designing and implementing compliance plans so that penalties are not imposed.

### 5.1.1 Types of Penalties

For the performance requirements, there are two main types of penalties: a *target penalty* and a *maintenance penalty*.

- Target Penalty – A *target penalty* is assessed if the building did not reach the 2024 Interim Target, 2027 Interim Target, or 2030 Target. If the building has not met the 2030 target, it will stay at the target penalty level annually assessed until the target is met.
- Maintenance Penalty - Once the building reaches its 2030 target, it would be switched over to a *maintenance penalty* on an annual basis for not maintaining the 2030 target indefinitely. If the building's annual site EUI is 5% worse than the target it is supposed to be maintaining, the building would switch back to the target penalty level until the target has been achieved again.

There are other reasons why a penalty may be assessed:

- A complete and accurate Benchmarking report was not submitted by the annual deadline
- Errors in data the Owner has submitted to CASR, that could include energy use data, solar generation, and capacity, use attributes, building information, calculations, or results. The Owner must correct such errors, submit the updated benchmarking report to CASR, and notify CASR of the updated submission. Failure to correct the errors would be considered a failure to submit a complete and accurate report for that year.
- Knowingly withholding information or submitting inaccurate information that affects performance evaluation
- Building owner does not satisfy the requirements of an Alternate Compliance Timeline Adjustment agreement

### 5.1.2 Penalty Assessment

For the performance requirements, penalties are assessed by taking the "kBtu not achieved" as calculated in the Performance Evaluation Section 3.7.2, then multiplying it by the cost per kBtu to calculate the penalty amount.

"kBtu not achieved" * Cost/kBtu = $ penalty amount

For buildings that have received an approved benchmarking exemption and alternate compliance option for the performance evaluation year, penalties would be assessed according to the ACO agreement. For buildings without a benchmarking report for an evaluation year, penalties are assessed using either the previous year's benchmarking report or the local median EUI data by building type for 2019 if the building has never benchmarked. If a previous benchmarking report is used, the assumption will be that no improvements have been made and performance is at the same level. If CASR has never received a benchmarking report and uses 2019 local median EUI data, the assumption will also be that the building continues to perform at the median and penalties will be assessed accordingly.

### 5.1.3 Penalty Schedule

Energize Denver's Task Force recommended that "fines should be somewhat more than the cost of compliance and should be heftier for buildings with an alternate compliance timeline. The compliance obligation and status of the building must be tied to the building with disclosure requirements, an attachment to the deed or a development agreement that attaches to the parcel." The Energize Denver Ordinance enables CASR to assess a civil penalty of "up to $0.70 for each required kBtu reduction per year that the owner's covered building fails to achieve in that year." *CASR reserves the right to enforce penalties at the maximum level but will assess penalties at the minimum level provided in Table 8,* so building owners can focus on achieving the 2030 targets without maintenance penalties along the way. The full penalty schedule with minimum and maximum levels is in Appendix F.

The Target Penalties for commercial and multifamily buildings were calculated across three compliance periods (two interim targets and one final target). The Target Penalties for existing MAI buildings were calculated across two compliance periods (one interim target and one final target) and the Target Penalty for new MAI buildings was calculated for one compliance period (one final target), which accounts for the differences in penalty levels in Table 8.

TABLE 8 – MINIMUM PENALTY SCHEDULE

| Type | Penalty Level | Assessment Period |
|---|---|---|
| Benchmarking, failure to correct errors, knowingly withholding or inaccurate information | $2,000 | annually |
| Target Penalty | $0.30/kBtu | 2024, 2027, 2030 |
| Target Penalty – Alternate Compliance Option for Existing MAI Buildings | $0.42/kBtu | 2026, 2030 |
| Target Penalty – Alternate Compliance Option for New MAI Buildings | $0.63/kBtu | 2030 |
| Maintenance Penalty | $0.05/kBtu | Starting 2031 then annually |
| Failure to reach target as agreed in Timeline Adjustment Agreement | According to date of submission in Tables 5A, 5B, or 5C | As outlined in agreement |

A visual representation of the enforcement timeline is shown in Figure 6. As a reminder, timeline adjustments are available to owners who are making efforts at compliance and need assistance with the target timelines.

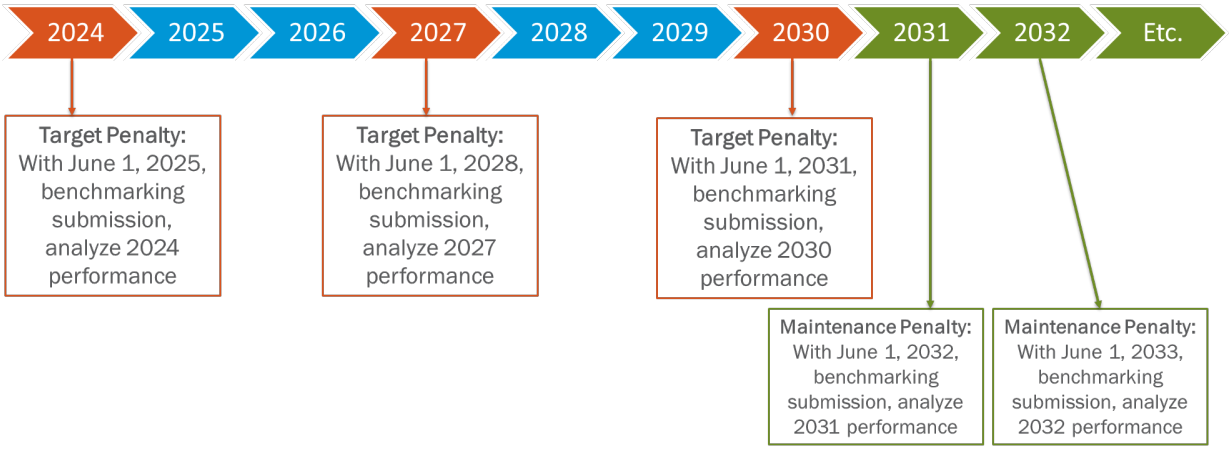


FIGURE 6 – VISUAL REPRESENTATION OF MINIMUM PENALTY SCHEDULE

### 5.1.4 Example Compliance Scenarios with Penalties for Commercial and Multifamily Buildings

This section contains several examples of combining different compliance strategies and resulting penalties assessed for commercial and multifamily buildings. Penalties are cumulative because the interim targets are designed to help the building be on track to meet the 2030 target, so early action is encouraged. In all of these examples, the minimum level for target penalties were assessed in an Office building that is 150,000 sq. ft.

#### *5.1.4.1 Example # 1*

This example shows a building that did nothing to improve their EUI (Table 9).

Scenario:

- Did not receive the electrification credit
- Did not purchase or install renewables
- Did not apply for a timeline adjustment ACO
- Building achieved *no reduction* from a 2019 baseline of 80 EUI

TABLE 9 – EXAMPLE 1: NO REDUCTIONS

| Year | EUI Targets | EUI Actual | kBtu Performance | kBtu Target | kBtu not achieved | Penalty Level | Penalty |
|---|---|---|---|---|---|---|---|
| 2024 | 69 | 80 | 12,000,000 | 10,350,000 | 1,650,000 | $0.30/kBtu | $495,000 |
| 2027 | 59 | 80 | 12,000,000 | 8,850,000 | 3,150,000 | $0.30/kBtu | $945,000 |
| 2030 | 48.3 | 80 | 12,000,000 | 7,245,000 | 4,755,000 | $0.30/kBtu | $1,426,500 |
| | | | | | | Cumulative Penalties | $2,866,500 |

#### *5.1.4.2 Example # 2*

This example shows a building that did make some progress on their 2030 target but did not take advantage of the renewables credit to fill in the gap (Table 10).

Scenario:

- Did not receive the electrification credit
- Did not purchase or install renewables
- Did not apply for a timeline adjustment ACO
- Building achieved *some reduction in EUI*

TABLE 10 – EXAMPLE 2: SOME EUI REDUCTIONS

| Year | EUI Targets | EUI Actual | kBtu Performance | kBtu Target | kBtu not achieved | Penalty Level | Penalty |
|---|---|---|---|---|---|---|---|
| 2024 | 69 | 67 | 10,050,000 | 10,350,000 | - | $0.30/kBtu | $0 |
| 2027 | 59 | 58 | 8,700,000 | 8,850,000 | - | $0.30/kBtu | $0 |
| 2030 | 48.3 | 52 | 7,800,000 | 7,245,000 | 555,000 | $0.30/kBtu | $166,500 |
| | | | | | | Cumulative Penalties | $166,500 |

### *5.1.4.3 Example # 3*

This example shows a building that knew they were going to miss the 2024 target but purchased renewables instead of submitting a timeline adjustment application. It did make some progress on their 2030 target and used renewables again in 2030 to fill in the gap (Table 11).

Scenario:

- Did not receive the electrification credit
- Purchased long-term off-site renewables contract
- Did not apply for a timeline adjustment ACO
- Building achieved *their 2030 target with EUI reductions and Renewables Credit (RC)*

TABLE 11 – EXAMPLE 3: EUI REDUCTION AND RENEWABLE CREDIT

| Year | EUI Targets | EUI Actual | kBtu Performance | kBtu Target | kBtu not achieved | Penalty Level | Penalty |
|---|---|---|---|---|---|---|---|
| 2024 | 69 | 72+RC | 10,300,000 | 10,350,000 | - | $0.30/kBtu | $0 |
| 2027 | 59 | 62+RC | 8,700,000 | 8,850,000 | - | $0.30/kBtu | $0 |
| 2030 | 48.3 | 52+RC | 7,100,000 | 7,245,000 | - | $0.30/kBtu | $0 |
| | | | | | | Cumulative Penalties | $0 |

### *5.1.4.4 Example # 4*

This example shows a building that was planning a renovation with energy efficiency measures for 2024 with some operational adjustments occurring in 2025 and a solar installation, so they submitted a timeline adjustment application (Table 12). Through the timeline agreement, the new target dates for the building were 2026 and 2030.

Scenario:

- Did not receive the electrification credit
- Installed renewables
- Timeline adjustment shifted the targets to 2026 and 2030
- Building achieved *their 2030 target with EUI reductions and Renewables Credit (RC)*

TABLE 12 – EXAMPLE 4: TIMELINE ADJUSTMENT AND RENEWABLE CREDIT

| Year | EUI Targets | EUI Actual | kBtu Performance | kBtu Target | kBtu not achieved | Penalty Level | Penalty |
|---|---|---|---|---|---|---|---|

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2026 | 60 | 42+RC | 5,800,000 | 9,000,000 | - | $0.40/kBtu | $0 |
| 2030 | 48.3 | 42+RC | 5,800,000 | 7,245,000 | - | $0.40/kBtu | $0 |
| | | | | | | Cumulative Penalties | $0 |

#### *5.1.4.5 Example # 5*

This example shows a building that reached their 2030 target and was shifted to maintenance penalty levels (Table 13). This example would also be applicable to MAI buildings in addition to commercial and multifamily buildings. For 2031, the building maintained their EUI target and even performed a little better in 2032. In 2033, the building's energy performance worsened, resulting in a small penalty at the $0.05/kBtu level. In 2034, the building's performance continued to worsen, more than 5% away from their EUI target, so the penalty was switched back to the target penalty of $0.30/kBtu. In 2035, the building corrected their energy performance within 5% of the EUI target, they would be switched back to the smaller maintenance penalty level, or even better, no penalties if performance is better than the target.

Scenario:

- Building met their 2030 target and switched to maintenance penalties
- Maintained target for two years but went above 5% threshold in 2034, so target penalty level assessed (5% threshold = 50.7 EUI or 7,605,000 kBtu)

TABLE 13 – EXAMPLE 5: MAINTENANCE PENALTIES

| Year | kBtu Performance | kBtu Target | kBtu not achieved | Penalty Level | Penalty |
|---|---|---|---|---|---|
| 2031 | 7,245,000 | 7,245,000 | 0 | $0.05/kBtu | $0 |
| 2032 | 7,200,000 | 7,245,000 | 0 | $0.05/kBtu | $0 |
| 2033 | 7,295,000 | 7,245,000 | 50,000 | $0.05/kBtu | $2,500 |
| 2034 | 8,000,000 | 7,245,000 | 755,000 | $0.30/kBtu | $226,500 |
| 2035 | 7,200,000 | 7,245,000 | 0 | $0.05/kBtu | $0 |

### 5.1.5 Example Compliance Scenarios with Penalties for MAI Buildings

This section contains several examples of combining different compliance strategies and resulting penalties assessed for MAI buildings pursuing the MAI alternate compliance option. Penalties are cumulative because the interim target (if applicable) is designed to help the building be on track to meet the 2030 target, so early action is encouraged. In all of these examples, the minimum level for target penalties were assessed in an MAI building that is 150,000 sq. ft.

The chosen metric in these examples was assumed to be the 30% EUI Reduction metric, but the same concepts and calculations apply to other metric options. For example, EUI can be substituted for production efficiency in the below examples using the following formula:

$$Production\ Efficiency\ \left(\frac{kBtu}{Widget}\right) = \frac{Total\ Building\ Energy\ \left(\frac{kBtu}{year}\right)}{Total\ Widgets\ Produced\ per\ Year}$$

If an MAI building chooses a metric in the Performance Pathway and for some reason their penalties are higher than they would have been in the 30% EUI Reduction metric, the maximum penalty the building will be assessed will be the penalty for the 30% EUI Reduction metric.

For the interim calculation for the 75 EPI Score Target, the EPI tool "Reference Plant" will be adjusted by the CASR team to determine the level of site energy (kBtu/year) needed to achieve the required interim score with an equivalent level of production. The actual plant energy may increase or decrease by a different percentage if the level of production has changed.

#### *5.1.5.1 Example # 1*

This example shows an existing MAI building that did nothing to improve their EUI (Table 14).

Scenario:

- Did not receive the fossil fuel reduction credit
- Did not purchase or install renewables
- Did not apply for a timeline adjustment ACO
- Building achieved *no reduction* from a 2022 baseline of 80 EUI

TABLE 14 – EXAMPLE 1: NO REDUCTIONS

| Year | EUI Targets | EUI Actual | kBtu Performance | kBtu Target | kBtu not achieved | Penalty Level | Penalty |
|---|---|---|---|---|---|---|---|
| 2026 | 68 | 80 | 12,000,000 | 10,200,000 | 1,800,000 | $0.42/kBtu | $756,000 |
| 2030 | 56 | 80 | 12,000,000 | 8,400,000 | 3,600,000 | $0.42/kBtu | $1,512,500 |
| | | | | | | Cumulative Penalties | $2,268,000 |

#### *5.1.5.2 Example # 2*

This example shows an existing MAI building that did make some progress on their 2030 target but did not take advantage of the renewables or fossil fuel reduction credits to fill in the gap (Table 15).

Scenario:

- Did not receive the fossil fuel reduction credit
- Did not purchase or install renewables
- Did not apply for a timeline adjustment ACO
- Building achieved *some reduction in EUI* from a 2022 baseline of 80 EUI

TABLE 15 – EXAMPLE 2: SOME EUI REDUCTIONS

| Year | EUI Targets | EUI Actual | kBtu Performance | kBtu Target | kBtu not achieved | Penalty Level | Penalty |
|---|---|---|---|---|---|---|---|
| 2026 | 68 | 68 | 10,200,000 | 10,200,000 | N/A | $0.42/kBtu | $0 |
| 2030 | 56 | 60 | 9,000,000 | 8,400,000 | 600,000 | $0.42/kBtu | $252,000 |
| | | | | | | Cumulative Penalties | $252,000 |

#### *5.1.5.3 Example # 3*

This example shows an existing MAI building that knew they were going to miss the 2026 target but purchased renewables instead of submitting a timeline adjustment application. It did make some progress on its 2030 target and used renewables again as well as the fossil fuel reduction credit in 2030 to fill in the gap (Table 16).

Scenario:

- Received the fossil fuel reduction credit in the final performance year
- Purchased long-term off-site renewables contract
- Did not apply for a timeline adjustment ACO
- Building achieved *some reduction in EUI* from a 2022 baseline of 80 EUI

TABLE 16 – EXAMPLE 3: SOME EUI REDUCTIONS AND RECEIVED ADDITIONAL CREDITS

| Year | EUI Targets | EUI Actual | kBtu Performance | kBtu Target | kBtu not achieved | Penalty Level | Penalty |
|---|---|---|---|---|---|---|---|
| 2026 | 68 | 75+RC | 10,200,000 | 10,200,000 | N/A | $0.42/kBtu | $0 |
| 2030 | 56 | 70+RC+Fossil Fuel Reduction Credit | 8,000,000 | 8,400,000 | N/A | $0.42/kBtu | $0 |
| | | | | | | Cumulative Penalties | $0 |

### *5.1.5.4 Example # 4*

This example shows a new MAI building that was pursuing the renewable power generation metric and made some progress on their 2030 target, but fell short of the goal (Table 17).

Scenario:

- Purchased long-term off-site renewables contract and/or installed on-site renewables
- Did not apply for a timeline adjustment ACO
- Building installed or purchased *some but not all* of the renewables necessary to hit the 30% goal, given a performance year EUI of 80

TABLE 17 – EXAMPLE 4: NEW MAI BUILDING WITH SOME RENEWABLES

| Year | EUI in 2030 | kBtu renewables required | kBtu renewables generated | kBtu not achieved | Penalty Level | Penalty |
|---|---|---|---|---|---|---|
| 2030 | 80 | 3,600,000 | 3,000,000 | 600,000 | $0.63/kBtu | $378,000 |
| | | | | | Cumulative Penalties | $378,000 |

### *5.1.5.5 Example # 5*

This example shows a new MAI building that was constructed in November 2024 and was pursuing the efficiency maintenance metric with a 2026 baseline year. The building's energy efficiency worsened in between the baseline year and when compliance was due in 2030 (Table 18).

Scenario:

- Did not purchase or install renewables
- Did not apply for a timeline adjustment ACO
- Building *increased its EUI* from a 2026 baseline of 80 EUI

TABLE 18 – EXAMPLE 5: NEW MAI BUILDING WITH AN INCREASE IN EUI

| Year | EUI in 2030 | EUI Target | kBtu Performance | kBtu Target | kBtu not achieved | Penalty Level | Penalty |
|---|---|---|---|---|---|---|---|
| 2030 | 85 | 80 | 12,750,000 | 12,000,000 | 750,000 | $0.63/kBtu | $472,500 |
| | | | | | | Cumulative Penalties | $472,500 |

## 5.2 Enforcement

### 5.2.1 Benchmarking

Owners of covered buildings will be subject to a civil penalty, according to Table 6, if the building's benchmarking report is not submitted by the annual deadline. The following is an outline of the steps for benchmarking penalty assessments, shown as a timeline in Figure 7:

1. Warning Notice: Once the deadline has passed, CASR will send a warning notice by email. The building owner will have a 30–60-day grace period from the benchmarking deadline to submit the benchmarking report or correct data issues in a "pending" submission. The length of the grace period will be determined by CASR on an annual basis.
2. Civil Penalty - Administrative Citation: If the building owner is not in compliance by the end of the grace period, an administrative citation is issued. The building owner has 30 days to either submit the benchmarking report (which nullifies the citation) or file an appeal.
3. Payment: If the building owner does not file an appeal or submit the benchmarking report, the owner has one hundred eighty (180) days from the date of the citation to pay the penalty amount with the manager of finance.
4. Property Lien: If a building owner fails to pay the required amount within one hundred eighty (180) days, the civil penalty will be considered a debt to the city until paid in full. The debt is a perpetual lien on the property, and is superior and prior to all other liens, regardless of their dates of recordation, except for liens for general taxes and prior special assessments, until the civil penalty owed, delinquent interest, and recording fees have been paid in full.

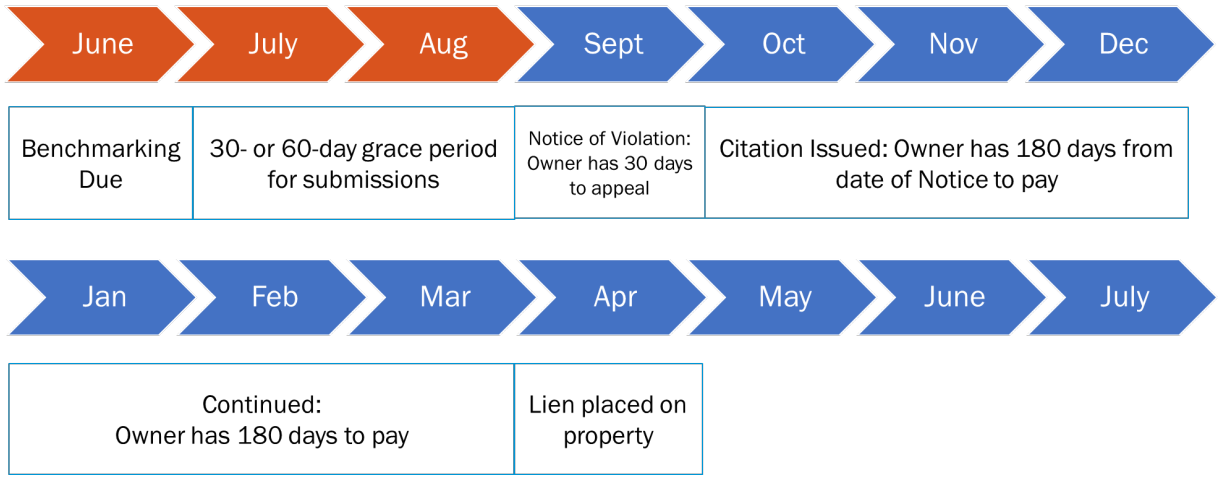


FIGURE 7: BENCHMARKING REQUIREMENTS ENFORCEMENT TIMELINE

### 5.2.2 Performance Requirements

Building owners will be subject to a civil penalty, in accordance with Table 6, if targets have not been achieved or maintained or another reason previously listed. The following is an outline of the steps for penalty assessments, shown as a timeline in Figure 8:

1. Warning Notice: Once the performance evaluation has been completed for a covered building, CASR will send a warning notice. The building owner will have ninety (90) days from

the date of the warning notice to submit an application for an alternate compliance option, if applicable.

2. Notice of Violation: If the building owner has not applied for an alternate compliance option by the end of the 90 days, CASR will issue a notice of violation. The building owner will have thirty (30) days to file an appeal of the notice of violation (see Section 5.2.3).
3. Civil Penalty – Administrative Citation: If the building owner has not filed an appeal, an administrative citation is issued. The building owner has one hundred eighty (180) days to pay the penalty with the manager of finance.
4. Property Lien: If a building owner fails to pay the required amount within one hundred eighty (180) days, the civil penalty will be considered a debt to the city until paid in full. The debt is a perpetual lien on the property, and is superior and prior to all other liens, regardless of their dates of recordation, except for liens for general taxes and prior special assessments, until the civil penalty owed, delinquent interest, and recording fees have been paid in full.

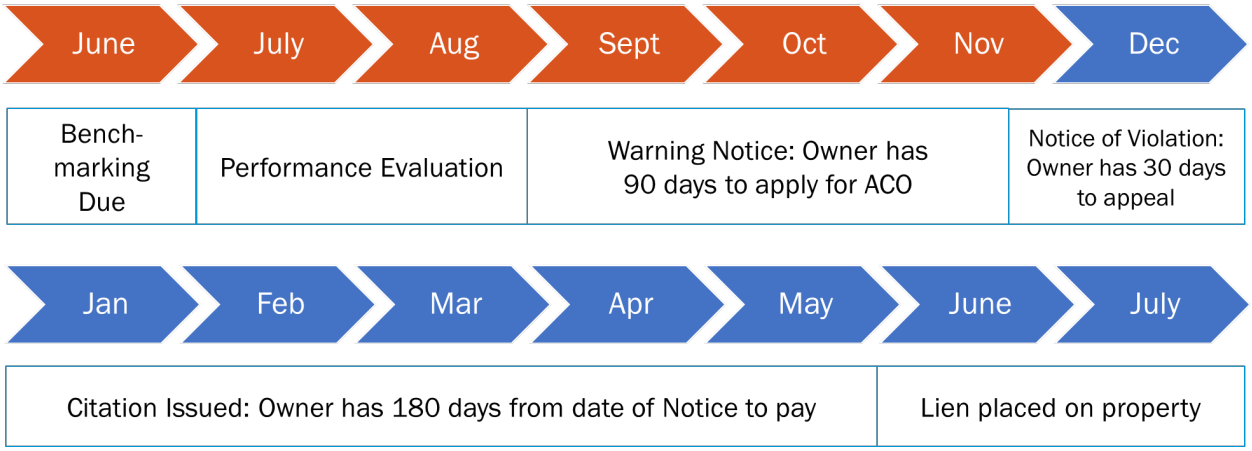


FIGURE 8: PERFORMANCE REQUIREMENTS ENFORCEMENT TIMELINE

### 5.2.3 Appeals

A building owner has the right to appeal the administrative citation by filing a "petition for appeal." All documents to be filed with the Director must be submitted through the online form or delivered to CASR at 201 W. Colfax Avenue, 7th floor, Denver, CO 80201, or other address as directed on its website.

#### 5.2.3.1 *Initiating an Appeal*

An appeal is initiated by filing a Petition for Review of a Notice of Violation. The Petition, together with a nonrefundable filing fee, must be filed within thirty (30) days from the date of service of the Notice or Order being appealed, or within a time period outlined in the Notice or Order. The filing fee for an appeal of a Notice of Violation is $25.00. Payments by check must be payable to the Manager of Finance. Timely filing of the Petition and payment of the filing fee are jurisdictional prerequisites to an appeal.

##### 5.2.3.1.1 Petition for Review

All petitions, briefs, and other papers must be written or typed, and if any of these papers are illegible, the Manager may refuse to accept the filing. No particular form of petition is required, provided the petition includes:

- Petitioner's name, mailing address, and telephone number.
- If Petitioner has legal representation, the name, mailing address, and telephone number of that representative.

- The Code provision(s) and, if any, the rule and regulation at issue; the dollar amount in controversy; and the time during which the matter at issue accrued or occurred.
- A copy of the Notice or Order under appeal.
- The reason(s) Petitioner believes the Notice or Order is factually or legally contrary to the ordinances of the city, or the policies and regulations of the department.
- A statement of the relief requested (i.e., outcome desired).
- If appropriate, any exhibits (including any drawings, floor plans, or pictures) supporting Petitioner's position.
- The signature of the Petitioner or Petitioner's legal representative.

If a legible petition is timely filed with the filing fee and substantially includes the information listed in this section, the hearing clerk must accept the petition. If the petition is illegible or does not substantially comply, the hearing clerk may refuse to accept the filing, but must provide written notice to the petitioner describing the deficiency.

#### 5.2.3.2 *Representation*

A natural person may represent himself or herself or be represented by an attorney admitted to practice in any of the United States. If the Petitioner is not a natural person or sole proprietor, it must be represented by an attorney admitted to practice in any of the United States unless the Director allows a shareholder, member, partner, board member, or officer to represent the business entity. In this case, the representative of the business entity must submit a properly executed power of attorney at or before the hearing.

#### 5.2.3.3 *Responsibilities of the Director and/or Hearing Officer*

- Determination of Each Appeal - The Director and/or Hearing Officer will conduct a hearing on each accepted Petition, including those submitted for determination based on written argument and written statement of facts.
- Assignment of Hearing Officer - the Director, at their sole discretion, may delegate the conduct of the hearing or the review of a matter submitted for determination based on written argument and written statement of facts to a Hearing Officer.
- Duties and functions - the Hearing Office and/or Manager will perform the duties and functions necessary and incidental to determining the matter, hearing all evidence, examining all documents, ruling on evidentiary questions, and generally conducting a quasi-judicial proceeding in conformance with the Code, these Rules, and other applicable rules and regulations.
- Subpoenas. Upon request by any party, the Director and/or Hearing Officer may issue a subpoena. The party requesting the subpoena must serve it upon the person whose attendance is required and provide notice to all other parties and interested persons in accordance with Rule 45 of the Colorado Rules of Civil Procedure. All costs related to the subpoena, including witness and mileage fees, must be paid by the requesting party in accordance with Rule 45.

#### 5.2.3.4 *The Hearing*

##### 5.2.3.4.1 Scheduling the Hearing Date

- Generally, hearings will be scheduled in the order petitions are filed but may be scheduled out of order as the hearing clerk finds appropriate. If requested, the hearing clerk may grant each party one rescheduling request. At the request of either party, the Director may grant continuances for good cause shown.
- No later than ten (10) days before the hearing, the hearing clerk must provide written notice of the date, time, and place of all hearings to the parties. Written notice must be sent to the

Petitioner via first class mail at the address specified in the Petition and to the Manager of the appropriate division.

#### 5.2.3.4.2 Prehearing Activities

- Ex Parte Communications. All oral and written communications between any party with the Director or the Hearing Officer that are not on the record, concern the subject matter of the appeal, and are made without the other party present or copied on written correspondence are prohibited.
- CASR Response. CASR may file a response to the Petition and provide other information to the Hearing Officer that it believes will assist in deciding the matter. The response is due within 14 days of the Office's receipt of the Petition.
- Petitioner's Appearance/Failure to Appear. Any Petitioner who fails to appear at a scheduled hearing waives the right to a hearing and adjudication of issues related to the hearing, provided that notice of the hearing was mailed in the time and manner set forth in Rule 7.5(E)(v). Failure to appear at a hearing that is noticed in accordance with those requirements, may result in dismissal of the Petition and affirmation of the Notice or Order.
- Prehearing Statement. At the request of any member or upon a motion from a party, the Director may require the parties to file a prehearing statement. The purpose of a prehearing statement is to define the issues to be presented; identify the witnesses and exhibits to be presented, the time required for the hearing; and disclose generally the nature of the testimony to be presented to allow a fair hearing of the issues. The prehearing statement must be filed at least five (5) business days before the hearing date, or as otherwise ordered by the Hearing Officer. The prehearing statement must present the issues raised by the Petition, agreed and disputed facts, copies of exhibits not included with the Petition, names of witnesses with a brief statement summarizing their testimony, and if either party expects that more than 15 minutes will be needed to present their case, a request for a specific amount of time. Petitioner's exhibits must be numbered and the Office's exhibits must be lettered. If a prehearing statement is required and a party fails to list witnesses or to provide copies of exhibits to the prejudice of the other party or the Hearing Officer's consideration of the issues, the Hearing Officer may disallow testimony by unlisted witnesses and may refuse to admit unlisted exhibits into evidence, except for purposes of rebuttal.

#### 5.2.3.4.3 Burden of Proof

- Notices of Violation by the Manager are presumed to be correct. The Notice serves as prima facie evidence of the existence of the violation.
- The Petitioner has the burden of persuasion and must prove by a preponderance of the evidence (presented at the hearing or submitted by written brief and supporting material) that the Notice or Order is legally contrary to the applicable ordinances, rules, and regulations or that the facts presented do not show a violation of the applicable ordinance or rules and regulations.
- For procedural efficiency, the order of proceedings may be altered to require the Office to present its case in support of the Notice or Order first. The burden of persuasion, however, remains with the Petitioner to show the correctness of its position by a preponderance of the evidence.
- Expert Witnesses. A witness intending to give opinion testimony must first be qualified as an expert.
- Recordings and Transcripts. All hearings must be recorded or transcribed. A copy of the recording or transcript of a recording will be provided at the expense of the party who requests it.

#### 5.2.3.4.4 Hearing Order of Proceedings

- Docket call by the Hearing Officer.

- Administration of Oath: All oral testimony must be given under oath administered by the Hearing Officer in substantially the following form: "Do you solemnly swear or affirm that the testimony you are about to give is the truth, the whole truth, and nothing but the truth?" with a required affirmative response.
- Opening statement by a representative of the Office, unless waived or reserved until the opening of CASR's case
- Opening statement by Petitioner, unless waived
- Presentation of testimony and other evidence by Petitioner, allowing cross-examination by CASR (exhibits must be lettered for identification)
- Presentation of testimony and other evidence by CASR with cross-examination by Petitioner (exhibits must be numbered for identification)
- Rebuttal testimony and evidence, if any
- Sur-rebuttal testimony and evidence, if the Hearing Officer chooses
- Argument, if is desired by the Hearing Officer
- Closing argument by Petitioner summarizing the evidence, legal basis, and argument in support of its position. If the Petitioner chooses not to present a closing argument, none will be allowed by CASR.
- Closing argument by CASR summarizing the evidence, legal basis, and argument in support of its position.
- Instead of or in addition to argument, the Hearing Officer may request the submission of written briefs.

#### 5.2.3.4.5 Presentation of Case at Hearing

- Time Allowed. The Petitioner and the Department will each have fifteen minutes to present their respective cases (opening statement, presentation of evidence, rebuttal evidence, and closing statement) to the Hearing Officer unless one of the parties has requested more time to present its case. Cross-examination time is not included in the fifteen-minute time limit. A request for additional time must be made in the prehearing statement if one is required. Otherwise, the request must be made in writing at least seven days before the hearing. In determining whether and how much additional time to allow, the Hearing Officer will consider the complexity of the case, the needs of due process, and fairness to the Parties. This Rule is intended to afford a full and fair hearing of each Petition in an orderly and expeditious manner that will allow for prompt hearing of Petitions.
- Copies. Copies made by printers and by duplicating and facsimile machines may be admitted into evidence or substituted in evidence in place of original documents.
- Electronic Documents. An electronic document, a paper copy of an electronic document, or a paper copy of a document bearing an electronic signature may be admitted into evidence or substituted in evidence in place of original documents.

#### 5.2.3.4.6 Submission on Written Briefs

A petitioner may choose to submit the case on written briefs, supporting data, affidavits, or stipulated facts rather than through oral testimony at a hearing. If the Petitioner chooses to submit a case on written briefs:

- He or she must provide written notice of this election to the Manager at least seven (7) days before the hearing;
- CASR is limited to submitting its position in writing.
- The Hearing Officer will establish a briefing schedule and provide written notice of it to the parties.

#### 5.2.3.5 *Recommended Decision*

The Hearing Officer will make a written Recommended Decision, which must be sent to Petitioner by first class mail, postage prepaid and provided to CASR within 30 days of the date of the hearing.

Possible outcomes:

- If Petitioner did not carry its burden of persuasion, the Hearing Officer may: uphold the Notice or Order; uphold, suspend, or reduce the civil penalty; and require payment of any outstanding assessed civil penalties and costs by a specified date.
- If Petitioner carried its burden of persuasion, the Hearing Officer may dismiss the Notice or Order and overturn the assessment of civil penalties.

Unless a party timely requests the Director to review a Hearing Officer's Recommended Decision, the Recommended Decision becomes the Decision of the Director on the date it is served upon Petitioner by personal service, or if served via U.S. Postal Service, ten days after it is sent first class mail, postage prepaid.

#### 5.2.3.6 *Petition for Director Review of Recommended Decision*

Any party may file a Petition for Director Review of the Hearing Officer's Recommended Decision. The Petition must be filed with the Director within ten (10) days of mailing of the decision. For the purpose of this filing requirement, for a Petition sent via first class mail, postage prepaid, or via overnight delivery service, the date of filing will be the date postmarked or delivered to the City, respectively.

No particular form of Petition for Director Review of the Hearing Officer's Recommended Decision is required, provided that the following information is set forth in writing:

- The case number;
- A summary of the party's objections to the Hearing Officer's findings of fact, conclusions of law, and Recommended Decision;
- A statement of the relief requested;
- The name, address and telephone number of the party seeking Director review of the Recommended Decision, and the name, address, and telephone number of that party's legal representative, if any, authorized to present them in the matter; and,
- The signature of the party seeking Director review of the Recommended Decision or of that party's legal representative.

The Director is not bound by a Hearing Officer's Recommended Decision; the Director's review of Recommended Decisions, however, is limited to the administrative record established at the underlying hearing before the Hearing Officer.

The administrative record includes all filings and documents provided to the Hearing Officer before and during the hearing. If the matter was submitted for determination on written briefs, the administrative record includes the Recommended Decision, filings and documents submitted. An index of the administrative record will be provided to the parties at the time the record is provided to the Director. The administrative record should be provided to the Director at least seven days before the meeting at which it is scheduled for Director review.

#### 5.2.3.7 *Final Decision; Compliance*

When the Director issues a decision either after hearing or determining an appeal in the first instance or after the Director reviews a Recommended Decision, its decision becomes the Final Decision that is subject to review under Rule 106(a)(4), C.R.C.P. If a Petition for Director review of a Recommended Decision is not filed within ten (10) days, the Recommended Decision becomes the Final Decision. All Final Decisions must be complied with. If a Final Decision includes a conditional

waiver of any civil penalty, in whole or in part, and Petitioner does not fully comply with the conditions, the civil penalty is automatically reinstated in its entirety without further Director action.

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# Appendix A – 2030 Targets

TABLE 20 – 2030 EUI TARGETS BY BUILDING TYPE

| EPA Portfolio Manager Building Type | 2030 Target site EUI (kBtu/sf/yr) |
|---|---|
| Adult Education | 37.2 |
| Ambulatory Surgical Center | 60.7 |
| Aquarium | 30% EUI Reduction |
| Automobile Dealership | 42.8 |
| Bank Branch | 63.6 |
| Bar/Nightclub | 86.6 |
| Barracks | 46.3 |
| Bowling Alley | 50.5 |
| College/University | 60.6 |
| Convention Center | 30% EUI Reduction |
| Courthouse | 51.2 |
| Distribution Center | 25.4 |
| Enclosed Mall | 45.6 |
| Fast Food Restaurant | 311.3 |
| Financial Office | 48.3 |
| Fire Station | 45.6 |
| Fitness Center/Health Club/Gym | 50.5 |
| Food Sales | 144.3 |
| Food Service | 76.9 |
| Hospital (General Medical & Surgical) | 165.2 |
| Hotel | 61.1 |
| Ice/Curling Rink | 30% EUI Reduction |
| Indoor Arena | 30% EUI Reduction |
| K-12 School | 48.0 |
| Laboratory | 153.9 |
| Library | 52.9 |
| Lifestyle Center | 66.6 |
| Mailing Center/Post Office | 46.5 |
| Medical Office | 69.0 |
| Movie Theater | 53.2 |
| Multifamily Housing | 44.2 |
| Museum | 30% EUI Reduction |
| Non-Refrigerated Warehouse | 27.2 |
| Office | 48.3 |
| Other | 49.2 |
| Other - Education | 37.2 |
| Other - Entertainment/Public Assembly | 30% EUI Reduction |
| Other - Lodging/Residential | 51.3 |
| Other - Mall | 60.3 |
| Other - Public Services | 49.2 |
| Other - Recreation | 50.5 |
| Other - Restaurant/Bar | 194.1 |
| Other - Services | 34.6 |
| Other - Specialty Hospital | 165.2 |

| | |
|---|---|
| Other - Technology/Science | 30% EUI Reduction |
| Outpatient Rehabilitation/Physical Therapy | 60.7 |
| Performing Arts | 53.2 |
| Personal Services (Health/Beauty, Dry Cleaning, etc.) | 34.6 |
| Police Station | 45.6 |
| Pre-school/Daycare | 38.9 |
| Prison/Incarceration | 83.0 |
| Refrigerated Warehouse | 63.9 |
| Repair Services (Vehicle, Shoe, Locksmith, etc.) | 32.3 |
| Residence Hall/Dormitory | 46.3 |
| Residential Care Facility | 63.3 |
| Restaurant | 194.1 |
| Retail Store | 43.5 |
| Roller Rink | 50.5 |
| Self-Storage Facility | 7.7 |
| Senior Care Community | 63.3 |
| Senior Living Community | 63.3 |
| Social/Meeting Hall | 33.0 |
| Stadium (Closed) | 75.3 |
| Stadium (Open) | 75.3 |
| Strip Mall | 66.6 |
| Supermarket/Grocery Store | 164.4 |
| Transportation Terminal/Station | 30% EUI Reduction |
| Urgent Care/Clinic/Other Outpatient | 60.7 |
| Veterinary Office | 60.7 |
| Vocational School | 37.2 |
| Wholesale Club/Supercenter | 43.5 |
| Worship Facility | 42.1 |
| Zoo | 30% EUI Reduction |

# Appendix B – Target Adjustment Charts

Utilizing EPA's Technical reference for swimming pools, parking, and guidance on operating hour binning, targets will be adjusted according to the charts below. The Electrification Adjustment does not follow EPA guidance, but instead is a credit to reward a building for electrifying their building.

If an operating hours adjustment is requested, the Site EUI listed in Tables 21-26 will become the 2030 target, and then adjusted for other adjustments as a second step.

## B.1 Operating Hours

Table 21: Office

| Operating Hours | 2030 EUI Target |
|---|---|
| 0-60 | 48.3 (normal target) |
| 61-80 | 51.4 |
| 81-100 | 57.3 |
| 101+ | 60.4 |

Table 22: Retail Store

| Operating Hours | 2030 EUI Target |
|---|---|
| 0-80 | 43.5 (normal target) |
| 81-95 | 48.0 |
| 96-105 | 55.9 |
| 105+ | 58.6 |

Table 23: Worship Facility

| Operating Hours | 2030 EUI Target |
|---|---|
| 0-50 | 42.1 (normal target) |
| 51-60 | 44.1 |
| 61-90 | 51.2 |
| 91+ | 56.7 |

Table 24: Non-Refrigerated Warehouse

| Operating Hours | 2030 EUI Target |
|---|---|
| 0-65 | 27.2 (normal target) |
| 66-75 | 27.9 |
| 76-95 | 29.7 |
| 95+ | 30.9 |

Table 25: Refrigerated Warehouse

| Operating Hours | 2030 EUI Target |
|---|---|
| 0-65 | 63.9 (normal target) |
| 66-75 | 64.4 |
| 76-95 | 65.6 |
| 95+ | 66.4 |

Table 26: Supermarket/Grocery Store

| Operating Hours | 2030 EUI Target |
|---|---|
| 0-100 | 164.4 (normal target) |
| 101-120 | 170.4 |
| 121-145 | 183.3 |
| 145+ | 190.2 |

## B.2 Swimming Pools

The adjustments in Tables 27-28 are taken from the ENERGY STAR Score technical reference for swimming pools and adjusted to Site EUI metrics. The School property type in this chart includes K-12 School, College/University, and Fitness Center/Health Club/Gym property types.

Calculation:

- Step 1: (2030 EUI Target x Gross Sq. Ft.) + (Pool kBtu) = Adjusted Target kBtu
- Step 2: Adjusted Target kBtu/Gross Sq. Ft. = Adjusted 2030 Target EUI

Table 27: Indoor Swimming Pool Adjustments

| Property Type | Recreational (20 yds x 15 yds) | Short Course (25 yds x 20 yds) | Olympic (50 m x 25 m) |
|---|---|---|---|
| School | 1,160,077 kBtu/yr | 1,933,462 kBtu/yr | 5,781,480 kBtu/yr |
| Hotel | 925,231 kBtu/yr | 1,542,051 kBtu/yr | 4,611,075 kBtu/yr |
| Other | 775,964 kBtu/yr | 1,293,273 kBtu/yr | 3,867,174 kBtu/yr |

Table 28: Outdoor Swimming Pool Adjustments

| Property Type | Recreational (20 yds x 15 yds) | Short Course (25 yds x 20 yds) | Olympic (50 m x 25 m) |
|---|---|---|---|
| All | 68,124 kBtu/yr | 113,540 kBtu/yr | 339,513 kBtu/yr |

## B.3 Parking

Calculation:

- Step 1: Gross Sq. Ft. of Parking Area x Parking Area Site Energy = Parking kBtu Adjustment
- Step 2: (2030 EUI Target x Gross Sq. Ft.) + (Parking kBtu Adjustment) = Adjusted Target kBtu
- Step 3: Adjusted Target kBtu/Gross Sq. Ft. = Adjusted 2030 Target EUI

Table 29: Parking Adjustments

| Parking Type | End Use | Parking Area Site Energy |
|---|---|---|
| Open Parking | Lighting | 2.989 kBtu/ft²/yr |
| Partially Enclosed (No Walls) | Lighting | 8.967 kBtu/ft²/yr |
| Completely Enclosed Parking (Walls) | Lighting | 8.967 kBtu/ft²/yr |
| | Ventilation | 2.39 kBtu/ft²/yr |
| | Heating (if present) | 0.009354 kBtu/ft²/yr |

*Technical Reference: Parking and the ENERGY STAR Score in the U.S. and Canada

## B.4 Class B Data Centers

Building with Class B data centers, meaning data center square footage is less than 15% of the gross floor area of the building, are eligible for a kBtu adjustment to their 2030 target based on the square footage of the data center. When determining the square footage of the data center, building owners should use the definition in the glossary. The value of the adjustment is 2,000 kBtu/ft²/yr.

## B.5 Buildings with more than 3 Property Types

ESPM is designed so that only the largest three property type's square footage information is transmitted to the city in the Benchmarking Report. To calculate the appropriate mixed-use target for buildings with more than three property types, additional information must be submitted. The target adjustment does not have a specific value, but uses weighted calculations based on each building type square footage.

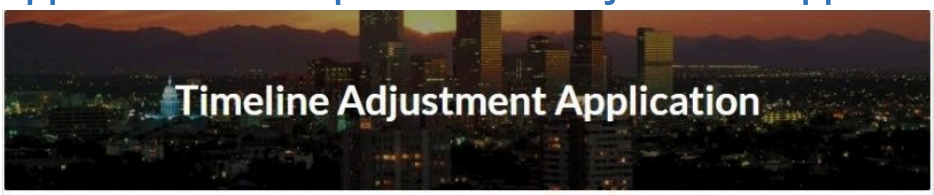
# Appendix C – Service Life Chart for Timeline Adjustments

This chart presents the maximum service life that CASR would consider for a particular piece of equipment to extend a building's compliance timeline. Building owners may experience longer or shorter service life depending on their maintenance practices.

TABLE 30 – SERVICE LIFE CHART FOR TIMELINE ADJUSTMENTS

| Equipment Item | Years | Equipment Item | Years |
|---|---|---|---|
| Air Conditioners | | Fans | |
| Window unit | 9 | Centrifugal | 23 |
| Residential single or Split package | 14 | Axial | 18 |
| Commercial through the wall | 14 | Propeller | 14 |
| Water-cooled package | 16 | Ventilating roof-mounted | 18 |
| Heat Pumps | | Coils | |
| Residential or Commercial air-to-air | 14 | DX, water, or steam | 20 |
| Commercial water-to-air | 14 | Electric | 15 |
| Close-coupled, end-suction | 17 | Heat Exchangers | 22 |
| Frame-mounted, end-suction | 21 | Reciprocating Compressors | 18 |
| Split-case, multistage pump | 21 | Packaged Chillers | |
| Split-case, single stage | 32 | Reciprocating or centrifugal | 18 |
| Vertical in-line | 21 | Absorption | 25 |
| Rooftop Air Conditioners | | Cooling Towers | |
| Single-zone | 12 | Galvanized metal | 17 |
| Multi-zone | 14 | Wood | 20 |
| Boilers, Hot Water | | Ceramic | 27 |
| Gas fired | 20 | Air-cooled Condensers | 15 |
| Oil fired | 18 | Evaporative Condensers | 18 |
| Electric | 25 | Insulation | |
| Burners | 18 | Molded | 20 |
| Furnaces gas or oil fired | 17 | Blanket | 24 |
| Unit Heaters | | Pumps | |
| Gas or electric | 13 | Base-mounted | 20 |
| Hot water or steam | 20 | Pipe-mounted | 10 |
| Radiant Heaters | | Sump and well | 10 |
| Electric | 20 | Condensate | 15 |
| Hot water or steam | 25 | Reciprocating Engines | 20 |
| Air Terminals | | Steam Turbines | 30 |
| Diffusers, Grilles, and Registers | 25 | Electric Motors | 16 |
| Induction and fan coil units | 24 | Motor Starters | 15 |
| VAV and double-duct boxes | 18 | Electric Transformers | 28 |
| Air Washers | 15 | Air Handling Units | |
| Ductwork | 30 | Constant volume | 25 |
| Dampers | 18 | Dual duct | 32 |
| Packaged DX | | Multi-zone | 22 |
| Air-cooled | 13 | Single-zone | 16 |
| Rooftop | 14 | Variable air volume | 18 |
| Water-cooled | 15 | Variable volume, variable temp | 19 |
| Packaged Terminal | | | |
| Air conditioner or heat pump | 24 | | |

# Appendix D – Sample Timeline Adjustment Application




This application is for buildings requesting a timeline adjustment.

Your application will be reviewed by city staff to determine if the building is eligible for additional assistance. You will be notified by email of your application status following its review. If you have questions regarding your application status reach out to the Energize Denver Resource Hub by phone (844)-536-4528 or by email energizedenver@denvergov.org.

To learn more about Energize Denver Performance Requirements visit: https://www.denver.gov/energizedenver

## I. Personal Information

First Name *

Last Name *

Phone Number *

Email Address *

Relationship to Building *

Company Name *

## II. Building Information

Denver Building ID * ⓘ

Building Address *

Building Address 2

Building City *

Denver

Building Zip *

Building State *

Colorado

- The Denver Building ID is a unique 4-digit number assigned to each individual building required to comply with the Energize Denver Benchmarking requirements. All Denver Building IDs and their corresponding addresses can be found on the Benchmarking Compliance Status Report.

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## III. Timeline Adjustment Application

Timeline adjustment requested *

Reason(s) for Alternative Timeline (check all that apply) *

- [ ] Planning for end of system life
- [ ] Planning for major renovation
- [ ] Landmark Preservation Commission delay
- [ ] Financial Distress (as described in Guidance Manual)
- [ ] Electrification of space and water heating equipment
- [ ] Benchmarking exemption for the performance period of a target
- [ ] Steam loop district system limitations
- [ ] Innovative approach to energy efficiency
- [ ] Change of building ownership
- [ ] Other reasons to be considered by CASR on a case-by-case basis

For each reason checked, please provide additional details on why the adjustment is needed: *

Justification for not installing solar/wind on-site or purchasing a off-site contract or subscription to fill the gap *

Data Verification Form * — Choose Files No file chosen

Energy Audit * — Choose Files No file chosen

Retrofit Plan * — Choose Files No file chosen

Operations and Maintenance Program * — Choose Files No file chosen

Electrification Feasibility Report — Choose Files No file chosen

Other Supporting Documentation — Choose Files No file chosen

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# Appendix E – Retrofit Plan Template

This retrofit plan is intended to give CASR a summary look into what it going to be retrofitted and the implementation timeline. The plan should be a maximum of 5 pages.

The Retrofit Plan (Word or PDF document for submission) must cover four things:

- What improvements and upgrades are you going to perform to achieve the 2030 target?
- When are you going to perform the improvements or upgrades?
- How do those actions enable the building to meet the 2030 target?
- A proposal for performance evaluation timeline targets and reporting progress

I. What improvements and upgrades are you going to perform?
    a. Operations and Maintenance
        i. Explanation of what actions you will take in operations and maintenance to maximize building performance
        ii. Explain prior work/monitoring and how you plan to adjust O&M in the future once upgrades are performed
        iii. Examples: retro-commissioning, addressing reactive/proactive/predictive maintenance, continuous improvement models, staff training, green leasing practices, improving building automation systems
    b. Short Term Payback Actions
    c. Long term Payback Actions
    d. Energy Efficiency Measures listed in Energy Audit but not included in upgrade list
        i. Include an explanation of why these items are not being included in the proposed upgrades

II. When are you going to perform the improvements or upgrades?
    a. Create a timeline and list each item and its proposed time
    b. Explanation of why items cannot be upgraded prior to target periods
        i. If you're delaying long-term payback upgrades due to end of system life, what other O&M and short-term payback actions will you take now? A proposal with no O&M and short-term actions will be sent back to the owner for adjustment.

III. How do those actions enable the building to meet the 2030 target?
    a. List each action and estimated Site EUI reduction

IV. Proposed Milestone Reporting Plan
    a. Based on the proposed timeline, provide interim target points for evaluation and updates on progress with supporting documentation requirements. These progress reports are an opportunity for a building owner to communicate challenges and work with CASR to adjust the plan accordingly to achieve the savings target.

# Appendix F – Penalty Schedule

The Energize Denver Ordinance enables CASR to assess a civil penalty of "up to $0.70 for each required kBtu reduction per year that the owner's covered building fails to achieve in that year." CASR reserves the right to enforce penalties at the maximum level but intends to assess penalties at the minimum level provided in Table 6. Table 31 below states both the minimum and maximum levels allowed in the ordinance.

TABLE 31 – PENALTY SCHEDULE

| | Minimum | | Maximum | |
|---|---|---|---|---|
| Type | Penalty Level | Assessment Period | Penalty Level | Assessment Period |
| Benchmarking, Failure to correct errors, knowingly withholding or inaccurate information | $2,000 | annually | $2,000 * number of years not benchmarked | annually |
| Target Penalty | $0.30/kBtu | 2024, 2027, 2030 | $0.70/kBtu | 2024, 2027, 2030 |
| Target Penalty – Alternate Compliance Option for Existing MAI Buildings | $0.42/kBtu | 2026, 2030 | $0.70/kBtu | 2026, 2030 |
| Target Penalty – Alternate Compliance Option for New MAI Buildings | $0.63/kBtu | 2030 | $0.70/kBtu | 2030 |
| Maintenance Penalty | $0.05/kBtu | Starting 2031 then annually | $0.10/kBtu | 2025, 2026, 2028, 2029, 2031+ |
| Failure to reach target as agreed in Alternate Compliance Agreement | According to date of submission in Table 5 | As outlined in agreement | $0.70/kBtu | As outlined in agreement |

If CASR chooses to assess penalties at the maximum level, Table 32 shows an example of an Office building that is 150,000 square feet that did not make any attempts to reach the 2030 targets and maintained the same level of performance as 2019. In this scenario, the building would be assessed target penalties for the interim and final targets, and maintenance penalties in the between years for not maintaining the targets.

TABLE 32 – EXAMPLE 3: MAXIMUM LEVEL TARGET AND MAINTENANCE PENALTIES

| EUI Target | Year | kBtu Performance | kBtu Target | kBtu not achieved | Penalty Level | Penalty |
|---|---|---|---|---|---|---|
| 69 | 2024 | 12,000,000 | 10,350,000 | 1,650,000 | $0.70/kBtu | $1,155,000 |
| | 2025 | 12,000,000 | 10,350,000 | 1,650,000 | $0.70/kBtu | $1,155,000 |
| | 2026 | 12,000,000 | 10,350,000 | 1,650,000 | $0.70/kBtu | $1,155,000 |
| 59 | 2027 | 12,000,000 | 8,850,000 | 3,150,000 | $0.70/kBtu | $2,205,000 |
| | 2028 | 12,000,000 | 8,850,000 | 3,150,000 | $0.70/kBtu | $2,205,000 |
| | 2029 | 12,000,000 | 8,850,000 | 3,150,000 | $0.70/kBtu | $2,205,000 |
| 48.3 | 2030 | 12,000,000 | 7,245,000 | 4,755,000 | $0.70/kBtu | $3,328,500 |
| | Cumulative Penalties | | | | | $13,408,500 |

# Appendix G – Useful Links

## Best Practices

ASHRAE Standard 100-2018 with addendum a
ASHRAE Standard 211-2018
EPA ENERGY STAR® Portfolio Manager®
Enterprise Green Communities Program
US DOE Engaging Tenants in Energy Efficiency Resources
California Commissioning Collaborative Commissioning Guide: Existing Buildings
US DOE Federal Energy Management Program Tools
IMT Green Lease Leaders Library
AIA Guide to Building Lifecycle Assessment in Practice
LBNL Integrated System Packages and Energy Analytics
New Buildings Institute Zero Energy Performance Targets for New Construction
NREL Handbook for Planning and Conducting Charrettes for High-Performance Projects
NREL Strategies for 50% Energy Savings in Large Office Buildings
RMI Deep Energy Retrofits Using Energy Savings Performance Contracts: Success Stories
RMI The Retrofit Depot
WBDG Comprehensive Facility Operations & Maintenance Manual
WBDG Planning and Conducting Integrated Design Charettes
WBDG Project Delivery Teams

# Appendix H - Definitions

Administrative Citation: a citation for a violation of the Code, the rules and regulations adopted by the Director and promulgated by the Manager, or noncompliance with an Order issued by the Manager by which a civil penalty for the violation or noncompliance is assessed.

Annual Site Energy Usage: the total energy consumed by the building in one year measured in kBtu, including all equipment and fixtures attached to the building energy meters

Benchmarking: measuring a covered building's energy performance using the ENERGY STAR Portfolio Manager tool or other similar platforms as CASR may designate.

Benchmarking Submission: the data submitted each year via the ENERGY STAR Portfolio Manager tool, or other similar platforms as CASR may designate, using a template and submission link to be distributed and publicized by CASR. All information expressly denoted as mandatory by either ENERGY STAR Portfolio Manager or CASR shall be included in the submission.

Campus: a collection of two or more buildings, of any building type or size, that act as a single cohesive property with a single shared primary function and are owned and operated by the same party, such as higher education or hospital campuses.

Data Center: a room or series of rooms that share data center systems, whose primary function is to house equipment for the processing and storage of electronic data and that has a design total Information Technology Equipment (ITE) power density exceeding 20 watts per square foot (20 watts per 0.092 $m^2$) of conditioned area and a total design ITE load greater than 10 kW. Class A is where 15% or more of the square footage of the building is a data center. Class B is where less than 15% of the square footage of the building is a data center.

Deep-energy retrofit: a deep energy retrofit is a building-specific, whole-building analysis designed to identify points in the building lifecycle where investments in energy efficiency can achieve the highest return. A deep energy retrofit may occur over a few years and will require a more significant financial commitment than conventional energy retrofits. The energy savings created with a deep energy retrofit are generally greater than 40%.

Energy audit: an evaluation of a building that identifies potential energy efficiency measures for building systems and operations in accordance with the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standard 211-2018 Level 2

ENERGY STAR Portfolio Manager: the online tool created by the US Environmental Protection Agency used to measure and track a building's energy use, water consumption, and greenhouse gas emissions

Existing Building Performance: the energy efficiency and renewable energy of a covered building measured by site Energy Use Intensity (EUI), or EUI adjusted for renewable energy using data reported via the ENERGY STAR Portfolio Manager tool or other platforms as CASR may designate

Final Decision: for an appeal of a Notice or Order means the Director's decision arrived at after review of the Recommended Decision or its decision after hearing the matter or review of written briefs in the first instance or a Recommended Decision for which Director review is not timely filed.

Fossil Fuel: a hydrocarbon-containing form of energy consumed in a building, such as natural gas, fuel oil, propane, or coal/coke.

Frontline communities: those communities that experience “first and worst” the consequences of climate change and have been underrepresented and underserved throughout the years. These include low- to medium-income communities, communities of color and indigenous people, those who speak languages other than English, people with disabilities and chronic conditions, older adults, young children, people with criminal records, LGBTQ+, and refugees and immigrants.

Green Power: Green Power is a generic term for renewable energy sources and specific clean energy technologies that emit fewer GHG emissions compared to other energy sources that supply the electric grid. You may use green power directly from an on-site renewable system or purchase green power from your utility or independent green power supplier.

Gross Floor Area (GFA): the total building square footage, measured between the outside surface of the principal exterior fixed walls of a building. GFA should include lobbies, tenant areas, common areas, meeting rooms, break rooms, atriums (base level only), restrooms, elevator shafts, stairwells, mechanical equipment areas, basements, storage rooms. GFA should not include exterior spaces, balconies, patios, exterior loading docks, driveways, covered walkways, outdoor play courts, parking, or crawl spaces.

Hearing Officer: the person the Director delegates pursuant to the Code to conduct a hearing or review a case that has been submitted for determination based on written argument and written statement of facts.

High Performance Existing Buildings Program: the administrative program implemented by CASR requiring the Benchmarking, reporting, and Existing Building Performance in commercial and multifamily buildings that are located within the City and County of Denver.

Lighting Power Density: the lighting power load per unit area of a building or a space in a building as measured in watts per square foot.

Manufacturing/Agricultural/Industrial Building is a subset of the Covered Building definition, and means a facility where energy is consumed in process loads for manufacturing, agricultural, or industrial purposes, or for other process loads. Process loads are energy consumed for bona fide purposes other than heating, cooling, ventilation, domestic hot water, cooking, lighting, appliances, office equipment, small, or other plug loads. This classification includes buildings with Class A data centers, food manufacturing, and ENERGY STAR Portfolio Manager building types Drinking Water Treatment & Distribution, Energy/Power Station, Other – Utility, and Wastewater Treatment Plant. Multi-use buildings with at least one tenant that meets this definition may be classified as a Covered MAI Building.

Maintenance Penalty: a penalty assessed if the building met its interim or 2030 targets and switches to a lower level of cost per kBtu not achieved.

New Covered Building: a building that received its certificate of occupancy after November 22, 2021 and meets the definition of a covered building.

New Covered MAI Building: a building that received its certificate of occupancy after November 22, 2021 and meets the definition of a covered MAI building.

Notice or Order: any notice or order, civil penalty assessment, or administrative citation issued pursuant to the Director's authority under the Code.

Off-site green power or renewables: green power purchases from your utility or independent suppliers.

On-site green power or renewables: electric generation systems located at your property that produce Green Power.

Operations and maintenance (O&M): the functions, duties and labor associated with the daily operations and normal repairs, replacement of parts and structural components, and other activities needed to preserve an asset so that it continues to provide acceptable services and achieves its expected life

Operation and maintenance program: A plan meeting the specifications found in American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standard 100-2018, Section 6, that addresses every applicable building system and element as outlined in Annex D and follows the implementation requirements laid out in Annex L that address the functions, duties and labor associated with the daily operations and normal repairs, replacement of parts and structural components, and other activities needed to preserve an asset so that it continues to provide acceptable services and achieves its expected life

Owner: the person or entity having a legal or equitable interest in real property and its fixtures and appurtenances, which shall explicitly include but not be limited to a homeowner's association.

Percent Electricity: the percent of total site energy use that is electricity. Calculated in kBtu, it combines grid-purchased electricity with renewable electricity used at the building and divides it by the total energy used.

Performance period: the defined timeframe of benchmarking data that is used for evaluation of energy performance requirements for compliance

Process load: a process load is energy consumed for bona fide purposes other than heating, cooling, ventilation, domestic hot water, cooking, lighting, appliances, office equipment, or other plug loads.

Production Efficiency: the annual site energy usage in a Covered MAI building divided by a standard manufacturing or agricultural production unit(s), such as kBtu per widgets produced or kBtu per pounds of flower produced. Additional examples of production efficiency may include power use effectiveness (PUE; data centers), or some other metric for other industrial uses.

Production Efficiency Improvement: a reduction in energy use intensity from baseline where energy use intensity is calculated as the annual site energy usage divided by a standard manufacturing or agricultural production unit(s).

Power use effectiveness (PUE): a measure of Data Center infrastructure efficiency, representing the amount of energy that is needed per unit delivered to IT equipment. It is computed as the total annual source energy divided by the annual IT source energy.

Recommended Decision: a Hearing Officer's findings of fact, conclusions of law, and the decision he or she recommends to the Director following a hearing or review of written briefs.

Renewable Energy Certificate (REC): Renewable Energy Certificates (RECs) are the tradable, legal rights to the environmental benefits of green power. These rights can be sold separately from the actual electricity (kWh).

Retro-commissioning: a process to improve the efficiency of an existing building's equipment and systems. It can often resolve problems that occurred during design or construction, or address problems that have developed throughout the building's life as equipment has aged, or as building usage has changed.

Return on investment (ROI): the total annual cost savings of an EEM divided by the initial cost to implement the EEM

Savings to investment ratio (SIR): the total lifetime cost savings of an EEM divided by the initial cost to implement the EEM

Site Energy Use Intensity (EUI): a building's weather normalized energy use expressed as energy per square foot per year as a function of its size, normalized for weather and other characteristics that are significant drivers of energy performance as feasible with the reporting platform used. A building's EUI is calculated by dividing the total energy consumed by the building in one year (measured in kBtu) by the total Gross Floor Area of the building.

Target Penalty: a penalty level assessed if the building did not reach the 2024 Interim Target, 2027 Interim Target, or 2030 Target during the applicable performance period.

Tenant: a person or entity entitled to the possession, occupancy, or the benefits of any rental unit owned by another person or entity.

Under-resourced building: CASR's evaluation of a building's status as "under-resourced" includes, but is not limited to, consideration of the following: presence of affordable housing; presence of non-profits and human service providers; buildings of significance to frontline community members; and buildings in areas with high energy burden, asthma rates, low-income residents, and other social equity indicators.