

# Energize Denver & Colorado State Building Performance Standards

# Speakers



**Daniel Raynor**

*Industrial Administrator*

Office of Climate Action, Sustainability, and Resiliency  
City and County of Denver



**Crystal Egelkamp**

*Building Performance Program Manager*  
Colorado Energy Office



# Better Buildings, Better Lives

In Colorado, buildings are among the top five highest sources of emissions. In Denver, building and homes are responsible for 64% of climate pollution.

BUT Denver's electric grid will be 85% renewable by 2030 & carbon-free by 2050; BECAUSE Colorado has a renewable portfolio standard requiring utilities in the state to become carbon-free by 2050. Reducing energy use and electrification of end uses in buildings and transportation will play an important role in achieving these targets, with action needed in the near term to accelerate the transition.

Colorado's equitable path to zero-carbon will:

- Create good local jobs
- Make Colorado more competitive
- Reduce energy burden
- Reduce energy bills
- Reduce pollution related illnesses and healthcare costs

	Denver	Colorado
<b>Applicability</b>	<ul style="list-style-type: none"> <li>• 25,000 sq. ft. and larger</li> <li>• Manufacturing, Agricultural, and Industrial (MAI) buildings included</li> </ul>	<ul style="list-style-type: none"> <li>• 50,000 sq. ft. and larger</li> <li>• MAI buildings where MAI process load sq ft is 50%+ of the total building square footage</li> </ul>
<b>Targets</b>	Site EUI Targets– 2030 EUI Targets by building type with interim targets based on building’s 2019 baseline	<ul style="list-style-type: none"> <li>• Energy Efficiency Pathway - Site EUI Target by property type</li> <li>• GHG Reduction Pathway - GHGI Target property type</li> <li>• Standard Percent Reduction (13% by 2026; 29% by 2030)</li> </ul>
<b>Compliance Deadlines</b>	<ul style="list-style-type: none"> <li>• 2024/2025 interim, 2027 interim, 2030 final</li> <li>• MAI: 2026 interim, 2030</li> </ul>	<ul style="list-style-type: none"> <li>• 2026 and 2030 targets</li> </ul>
<b>Renewables</b>	Renewables can contribute with or without RECS	Renewables must retain RECs; must use after exhausting energy efficiency and electrification measures; If using renewables, must use GHGI Reduction Pathway
<b>Adjustment Options</b>	Target Adjustment (standard options), Timeline Adjustment; Electrification credit; 30% reduction property type option	Target Adjustment (standard options); Timeline Adjustment
<b>Penalties</b>	\$0.30/kBtu not achieved *ACOs could have different penalty dollar amounts	\$2,000 for the first violation of not meeting BPS target; and up to \$5,000 for each subsequent violation (monthly)

# Legislative Goals & Background

	Denver	Colorado
<b>Legislation</b>	Energize Denver ordinance went into effect November 22, 2021; first rules adopted January 2022; most recent rules update June 2023	HB21-1286 went into effect September 2021; BPS rules adopted and became effective October 2023
<b>Legislative Goals</b>	A 30% reduction in energy use across all covered buildings by 2030	Reduce GHG emissions from covered buildings 7% by 2026, and 20% by 2030
<b>Benchmarking Baseline</b>	2019	2021

# Applicability

## Covered Buildings

**Denver:** requirements apply to all buildings 25,000 SF and larger (includes existing and new construction). Also includes manufacturing, agricultural, and industrial (MAI) buildings

**Colorado:** requirements apply individual buildings 50,000 SF and larger (includes existing and new construction)

## Non-Covered Buildings

**Denver** excludes:

- stand-alone parking garages

**Colorado** excludes:

- Single-family home, duplex, or triplex
- A condo or townhouse without a centralized heating or cooling systems for water or air conditioning.
- Stand-alone parking garages, airplane hangers, and storage facilities that lack heating/cooling
- MAI buildings where MAI process load sq ft is 50%+ of the total building square footage (Cannabis does not fall into this category)

# Benchmarking

## Denver:

- Due June 1 annually
- [Submitted through the 2024 data request](#)

## Colorado:

- Annually due June 1; *extended to July 1 for 2024 season only*
- Submitted through ESPM Web services property sharing
- \$100 annual fee due per covered building
- For 2024 season owners allowed to re-submit 2021-2022 data, waiver requests, and \$100 fee

# Targets & Compliance Pathways

## Denver:

- Site EUI Targets
- Multiple Alternate Compliance Pathways

2030 Building Type Site EUI Targets can be found in Appendix A in [Denver's Technical Guidance](#)

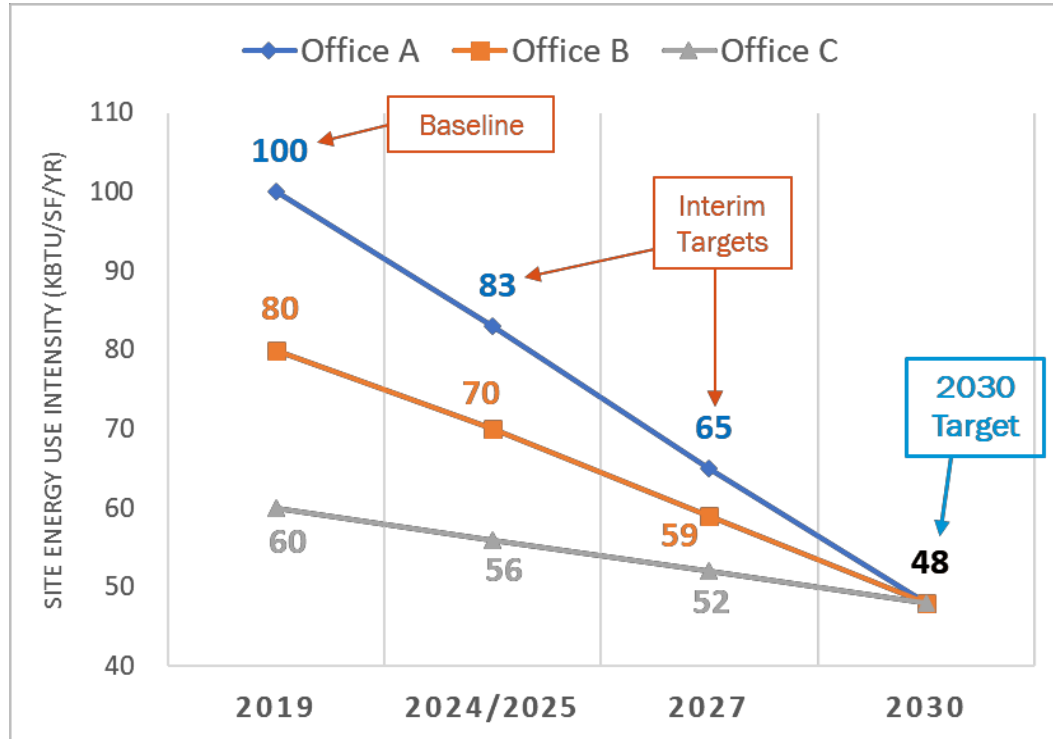
**Colorado:** multiple target metrics and possible compliance pathways:

- *Site EUI Property type target - Energy Efficiency Pathway*
- *Greenhouse Gas Emission Intensity (GHGI) Property type target - Greenhouse Gas Reduction Pathway*
- *Standard percent reduction target from individual building's baseline (13% by 2026; 29% by 2030; either metric)*

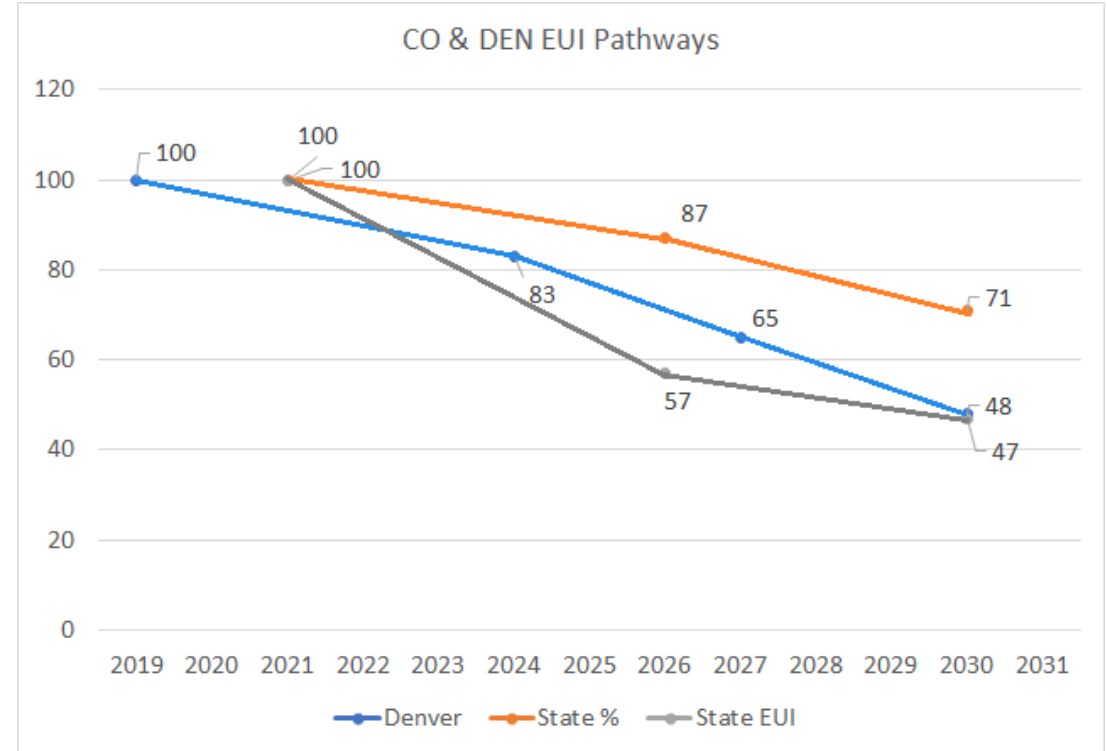
2026 and 2030 Property Type Site EUI and GHGI Targets can be found in Appendix A in [Colorado's Technical Guidance](#)



# Denver



# Colorado



# Compliance Deadlines

## Denver:

- 1st Interim Target: 2024/2025
- 2nd Interim Target: 2027
- Final Target: 2030
- Maintenance of targets in between deadlines and each subsequent year in the future
- Compliance proven with annual benchmarking report
- If benchmarking report not submitted, Denver will use a median value for the buildings property type to assess performance

## Colorado:

### 2026 Target:

- The benchmarking or emissions report for CY 2026 (submitted by June 1, 2027) must demonstrate the BPS target was met.
- Must reach 2026 BPS target and maintain it through 2029.
- Maintenance of the 2026-2029 target will be proven with each subsequent year's benchmarking or emissions report.

### 2030 Target:

- The benchmarking or emissions report for CY 2030 (submitted by June 1, 2031) must demonstrate the BPS target was met.
- Must reach 2030 BPS target and maintain it through 2050.
- Maintenance of the 2030 target will be proven with each subsequent year's benchmarking or emissions report.

# Other Building Types

## Denver:

- Mixed-use bldgs. received mixed-use targets from 2019 benchmarking report ([target adjustments](#) available)
- Several unique property types received a general 30% site EUI reduction goal instead of a site EUI target.
- MAI buildings have Alternate Compliance Option with 2 pathway and 4 metric options
- EV Charging: Buildings exclude sub-metered EV charging station use. If not sub-metered, use new ESPM tool to estimate.

## Colorado:

The following property types **will default to the standard percent reduction compliance pathway:**

- Mixed-use buildings
- MAI buildings
- Indoor Marijuana cultivation facilities
- Buildings with EV charging stations that are not sub-metered
- Data Centers (will receive PUE target)
- Other property types not listed in Appendix A

If these buildings did not comply with the previous deadlines, or would like to request an individualized target, they will need to submit additional information using the [Individualized Target Form](#).

# MAI Definitions

## Denver:

**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.

## Colorado:

**Agricultural purpose:** a building or space used to house farm implements, hay, unprocessed grain, poultry, livestock, or other agricultural products. For the purpose of this definition, this building or space must not contain habitable space, or a place of employment where agricultural products are processed or treated or packaged; nor is it a place used by the public.

- **Agricultural product:** any agricultural, horticultural, viticultural, or vegetable products or poultry or poultry products grown or produced in Colorado. Agricultural products do not include “regulated marijuana” as defined by Colorado’s Marijuana Enforcement Division in 1 CCR 212-3 (2022).

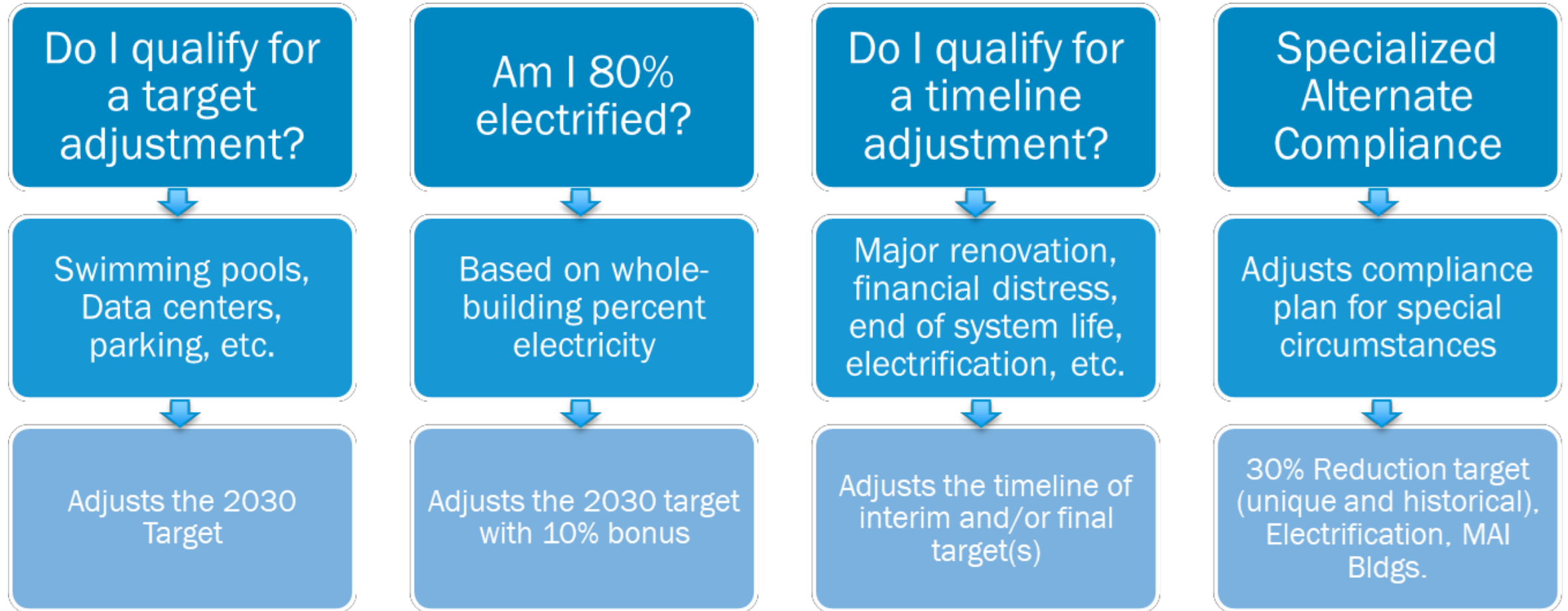
**Industrial purpose:** a building or space used for industrial operations including, but not limited to, factories, mills, shops, processing plants, assembly plants, fabricating plants, research or development facilities, operations by energy producers, electric generation unit, refineries, meat packing plants, dairies, steel mills, cement plants, mining operations, airline operations, wastewater treatment plants, landfills, and abandoned coal mines.

**Manufacturing purpose:** a building or space that includes a main production area containing machinery and equipment used for producing products.

# Data Centers - Denver

- Class B data centers: 15% or less of total building SF = data center target adjustment
- Class A data centers: more than 15% SF – Building is classified as MAI with 2 pathway and 4 metric options

# Flexibility - Denver



# Flexibility - Colorado

## Standard Target Adjustment

Eligibility: Available for buildings that select the Energy Efficiency or Greenhouse Gas Reduction pathways with a property type target. **Buildings that have elected the Standard Percent Reduction Pathway are not eligible for Standard Target Adjustments.** Buildings must meet one of the criteria below.

- Affordable housing and under-resourced buildings; or
- Buildings with inherent and unique characteristics of the physical building that make the target unachievable or cost prohibitive; or
- Buildings with significant variations in occupancy, operations, or operating hours from a standard building of the same property type located in the same utility service territory; or
- Buildings with installed integrated grid technologies that connect space and/or water heating equipment to the electric or natural gas grids; or
- Parking area energy use that was not able to be excluded from benchmarking; or
- Swimming pools that were not able to be excluded from benchmarking; or
- A high-intensity space (such as a restaurant) was not accounted for in the largest three building types in a multi-use building; or
- A building's property type has changed due to a renovation; or
- A building has added or demolished square footage with a different or high-intensity property type.

## Timeline Adjustment

Eligibility: All buildings are able to request a timeline adjustment, irrespective of the compliance pathway that was chosen provided they meet one of the criteria below.

- Affordable housing and under-resourced buildings; or
- Buildings undergoing a major renovation; or
- Building owners experiencing significant supply chain or workforce delays; or
- Building owners who can demonstrate a plan to replace heating and cooling systems at end of life where system end of life occurs after the compliance period; or
- Building owners experiencing financial hardship as defined in Appendix B; or
- Inherent and unique building characteristics of the physical building that prohibit reaching the timeline; or
- Buildings that require updates to the electrical infrastructure that cannot be completed in time to meet the performance standard deadline due to delays outside of the control of the building owner; or
- Building owners who purchase a covered building in the 12 months prior to a performance standard deadline.

# Flexibility - Colorado

## Compliance Adjustment Deadlines:

- 2026 target or timeline application deadline: **December 31, 2025**
- 2030 target or timeline application deadline: **December 31, 2029**

## Application Requirements

- ASHRAE Level 2 energy audit for the building along with a report describing the results and recommendations of the audit; the energy audit may be in the form of a strategic energy management plan for covered buildings that are part of a campus.
  - Must include the achievable weather-normalized site EUI or GHGI target for the building
  - Must be completed by an approved energy auditor (Association of Energy Engineers (AEE), ASHRAE, the Energy Management Association, the Building Performance Institute, or a similar certifying entity)
- Dates and documentation of planned or completed energy efficiency or emission reduction upgrades that will enable the building owner to achieve the performance targets; and
- Any additional information that CEO requests.

**CEO will release more detailed guidance on adjustment process and will start accepting applications in Summer 2024.**



# Renewable Energy - Denver

- No prerequisites for using renewables
- On- or off-site; community solar gardens 5+ years; utility subscriptions allowed (5+ year contracts unlimited – short-term allowed in small limited # for interim targets)
- Does not require retainage or retirement of RECs
- Renewable generation has no cap
- Credit given through kBtu value of generation subtracted from Site EUI; report generation through online form

# Renewable Energy - Colorado

## Prerequisites

- Renewable energy can only be used by building owners when **selecting a GHGI target**, whether complying with the GHG Reduction or the Standard Percent Reduction pathway.
- Renewable energy can only count towards compliance if the renewable energy credits (hereinafter referred to as RECs) associated with that renewable energy are retained or retired.

## Requirements

- The renewable energy resource and RECs must be located in Colorado; and
- The covered building owner owns and retires the RECs the same year the electricity was generated; and
- The amount of RECs used for compliance cannot exceed the amount of energy the building annually consumes and cannot exceed the amount generated by the retail distributed generation system

## Legacy systems

- Legacy systems = any retail distributed generation that was purchased, or the utility interconnection request was filed with the utility, before December 31, 2023.
- If a building owner owns a legacy system according to this definition, then they are able to purchase unbundled RECs and associate this distributed generation for compliance.
- When purchasing these unbundled RECs, they need to be retired from a renewable energy resource located within Colorado and must be equal to the generation of their existing renewable energy system.

# Renewable Energy - Colorado

## Types of Renewable Systems Allowed

The following renewable energy contracts may be allowed if they match the previous requirements stated:

- Retail distributed generation systems, including on-site rooftop solar and off-site renewable energy systems using virtual net (energy) metering
- Power Purchase Agreements (also known as Physical PPAs)
- Community Solar Garden subscription, as long as they meet the following criteria:
  - The solar electric generation facility must have a nameplate rating of no more than 10 megawatts, and there must be at least ten subscribers; and
  - The covered building owner has a subscription term of at least five years, and the covered building owner must maintain the subscription in order to maintain compliance; and
  - The community solar garden is located in or near a community served by a utility where the electricity generated by the community solar garden belongs to the subscribers of the community solar garden; and
  - The subscribers retain RECs associated with generation or the community solar garden owner retires the REC on behalf of the customer.
- Alternative Types of Renewable Energy (such as Wastewater thermal energy recovery systems, Geothermal energy, Demand response or demand flexibility program, or another form of renewable energy with approval from CEO)

The types of renewable energy programs that are eligible for compliance vary considerably between utilities, so building owners should [check with their local utility to find out if the building owner currently retains or is able to retain RECs \(as an example, please see Xcel Energy's renewable energy programs\).](#)

# Renewable Energy - Colorado

In order to use and count renewable energy towards compliance with a GHGI target, a building owner will have to perform the following steps:

1. Perform and demonstrate that all cost-effective energy efficiency and electrification measures have been performed at the building
  - a. **Cost-effective:** Any measures related to energy efficiency, electrification, and renewable energy that have been performed at a building and that have or demonstrate a benefit-cost ratio *greater than one*.
  - b. **Cost prohibitive:** Any measures related to energy efficiency, electrification, and renewable energy that have been performed at a building and that have or demonstrate a benefit-cost ratio *less than one*, and also demonstrates the cost of compliance is higher than the benefit.
  - c. **CEO will release a template in Summer 2024 for building owners to use when demonstrating the cost-effectiveness of their building projects.**
1. Conduct an ASHRAE Level II Energy Audit that demonstrates all cost-effective energy efficiency and electrification measures have been implemented at the building, as well as demonstrates how renewable energy will help the building owner reach compliance with a GHGI target; and
2. Identify the renewable energy systems the building owner would like to enlist for their compliance. Building owners will need to ensure the types of systems and contracts meet the State's requirements.
3. Submit the energy audit report to CEO demonstrating that the first two steps have been completed, supporting documentation showing the types of renewable energy systems to be used for compliance, and that renewable energy is necessary to meet your GHGI target.
4. After receiving approval from CEO, the building owner will need to report their annual RECs to CEO on June 1, alongside their benchmarking report.

**CEO will release more guidance on this renewable reporting process and corresponding forms in Summer 2024.**

# Penalties - Denver

- Denver prefers that building owners invest in their buildings to reach the 2030 targets instead of paying penalties. We're committed to supporting building owners with their efforts and exploring the flexibility that **renewable credits** and **alternate compliance options** can afford.
- Two types of penalties: target (30¢/kBtu not achieved) and maintenance (5¢/kBtu not achieved after 2030) \*ACOs could have different penalty dollar amounts.
- Penalty assessed by examining 12-month performance period for the target year after benchmarking is received by June 1 the following year (Ex: 2025 target - Jan. 1, 2025 - Dec. 31, 2025 evaluated June 1, 2026)
- Warning will be issued first with a 90-day period where building owner can submit a timeline adjustment request with their plan to come into compliance on a delayed schedule.

# Penalties - Colorado

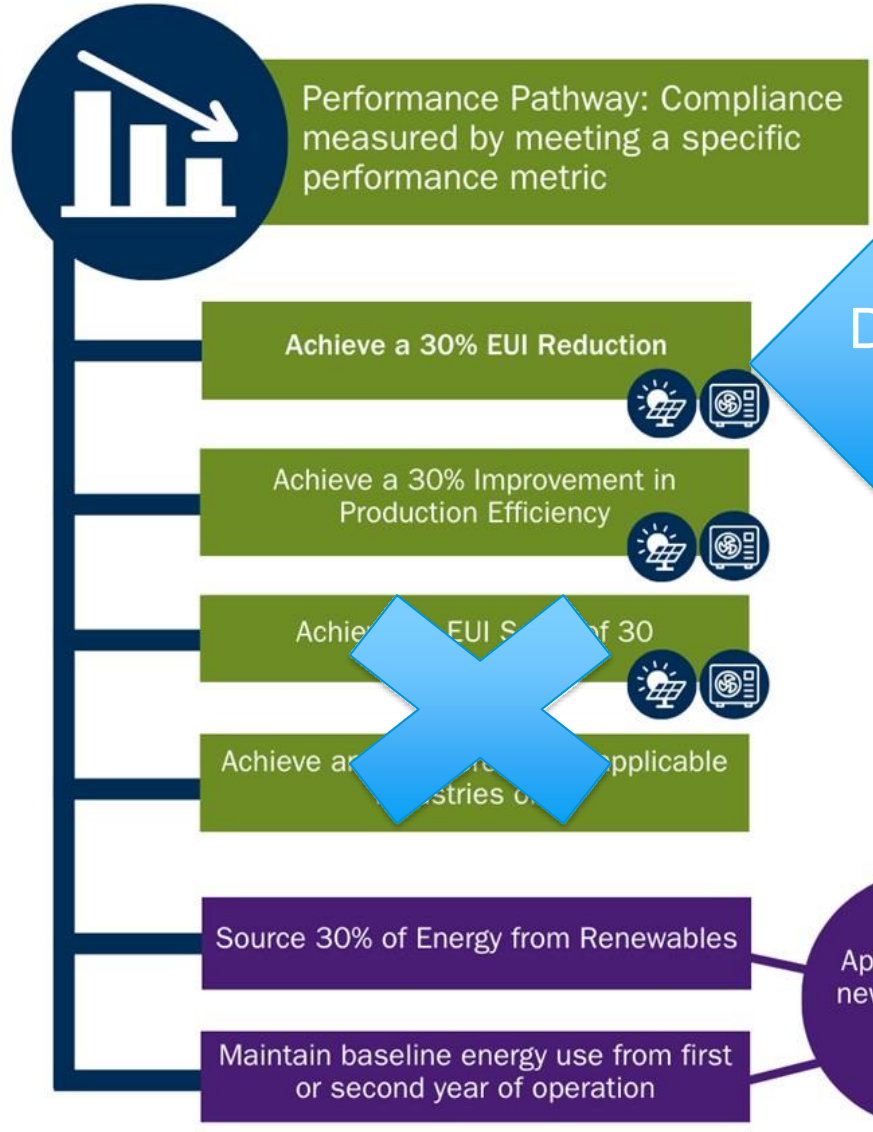
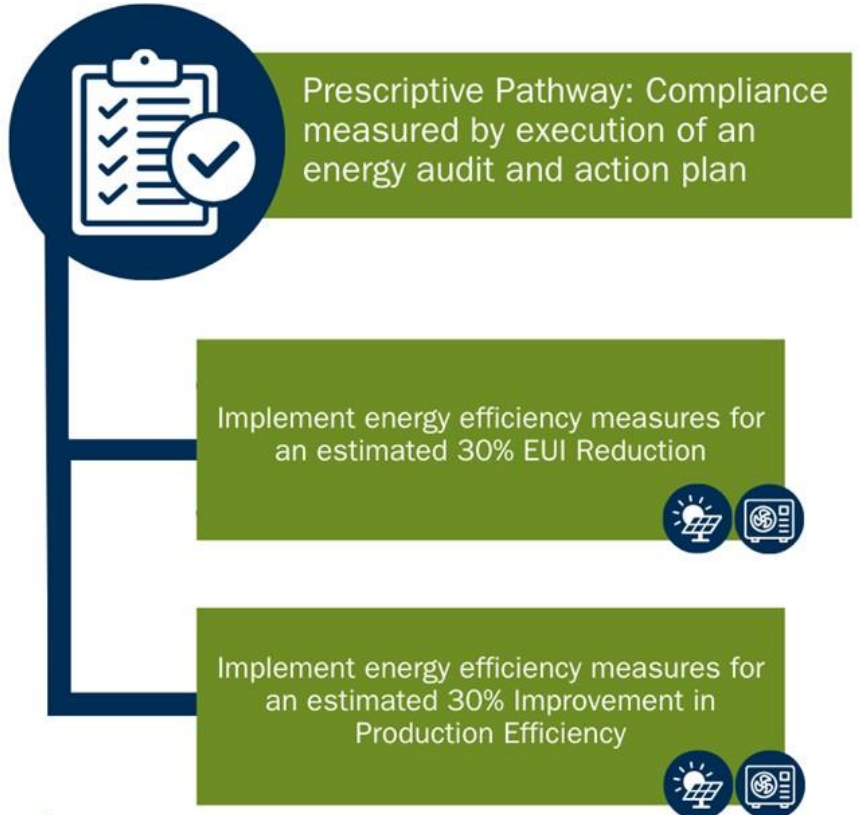
Colorado prefers that building owners invest in their buildings to reach their BPS Targets instead of paying penalties. We're committed to providing building owners with flexibility.

- Benchmarking:
  - First violation = \$500; Subsequent violation = \$2,000 (annual)
- BPS:
  - First violation = \$2,000 when BPS target is not met; building owner needs to submit monthly progress reports
  - Subsequent violation = \$5,000 (monthly)

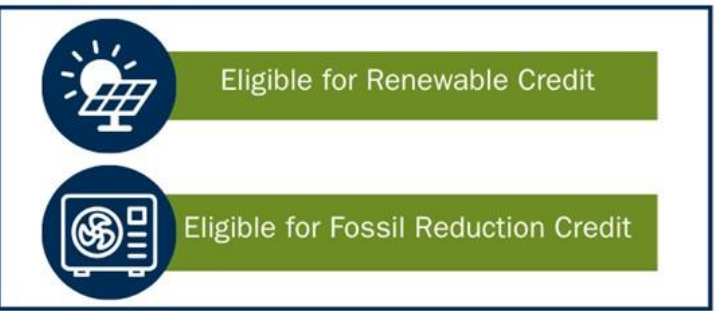
The Colorado Energy Office (CEO) collaborates with the Colorado Department of Public Health and Environment's (CDPHE) Air Pollution Control Division (APCD), who is responsible for the enforcement process in this program.

# Denver MAI Alternate Compliance Option

# Performance Requirements for the MAI Alternate Compliance Option (ACO)



**Legend**





# MAI ACO Pathway Options

MAI Buildings must choose to pursue one of two compliance pathways:



**Prescriptive Pathway:** Compliance measured by execution of an energy audit and action plan

- Good for buildings who don't know where to start
- Step-by-step process
- More reporting requirements
- Compliance based on execution of Action Plan



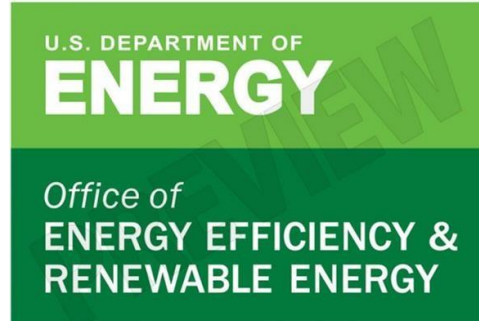
**Performance Pathway:** Compliance measured by meeting a specific performance metric

- Good for buildings that have already made upgrades or already have a plan
- ACO application & annual benchmarking are the only reporting requirements
- Compliance based on achieving your performance target

# Data Center Considerations

- Have you already made efficiency upgrades to your building since 2019?
- Have you received an energy audit?
- Are there gas systems in your building?
- Can you install or purchase renewables?
- If you were to pursue a Production Efficiency metric, could your metric align with the State of Colorado's performance requirements?
- Have you installed or have you considered installing an [air-side economizer](#) to take advantage of outdoor air and reduce the load on your HVAC?

# Want specialized assistance and training?



ISO 50001 Ready can help covered buildings plan for their performance requirements. If you want to set your building up for success, this program could be the right fit for you!

# **Data Center Compliance Options for Colorado**

# Data Centers - Colorado

## Definitions

**Data center:** buildings specifically designed and equipped to meet the needs of high-density computing equipment, such as server racks, used for data storage and processing. Gross floor area of data centers should include all space within the building(s) including raised floor computing space, server rack aisles, storage silos, control console areas, battery rooms, mechanical rooms for cooling equipment, administrative office areas, elevator shafts, stairways, break rooms and restrooms.

When a data center is located within a larger building, the gross floor area of the data center should include only the spaces that are uniquely associated with the data center (e.g., not include spaces shared by the data center and other tenants, such as break rooms or hallways) in the building.

- In this instance, these Data Centers should be submetered. If submetering is not possible, Portfolio Manager will calculate an estimate for this energy use and CEO will use that to calculate a PUE target for Data Centers.

**Power usage effectiveness (PUE):** a measure of how much energy is consumed by the power supply and cooling systems in a Data Center relative to the amount of energy delivered directly to the IT equipment. PUE is equal to the total energy consumption of a Data Center (for all fuels) divided by the energy consumption used for the IT equipment.

# Data Centers - Colorado

## Data Centers will comply with a PUE target and default to the Standard Percent Reduction compliance pathway

- Standard percent reduction PUE target from individual building's baseline: 13% by 2026; **29% by 2030**

If a Data Center building owner does not wish to comply with the Standard Percent Reduction Pathway, they may request an individualized PUE Target. **In order to receive a PUE target**, a building owner of a data center will have to submit the following information to CEO:

- Total facility energy usage, including all data center hardware, power delivery components, cooling systems and lighting systems, separated by quarter;
- IT equipment energy usage for the data center separated by quarter, including energy used to power the storage and networking equipment and control equipment (such as monitors and workstations); and
- ASHRAE Level 2 demonstrating feasible options to reduce the data center's PUE, including, but not limited to: improving cooling systems, replacing inefficient hardware, using energy efficient lighting, optimizing redundant power supplies, using virtualization techniques (e.g., virtual servers), and installing battery storage instead of emergency generators for short term power outages.
  - Data centers applying for a building specific target adjustment need not perform a second energy audit.

# Important Upcoming Deadlines - Colorado

- **June 1:** Waiver and exemption application deadline
- **July 1:** 2024 Benchmarking season deadline (*June 1 subsequent years*); deadline for previous compliance
- **July 1:** Preliminary Pathway Selection Form must be completed; Final Pathway selection July 1, 2025 (in order to switch pathways, will need to submit Pathway Change Form.
- **Summer 2024:** Adjustment Guidance and Applications go Live
- **Fall 2024:** Under-resourced buildings Guidance and Applications go Live

# Denver Stakeholder Engagement on Alignment

A few stakeholders have expressed that adding some of the flexibility options from the Colorado Building Performance Standards to the Energize Denver performance requirements would help larger buildings owners comply with both policies. Denver's Building Performance team is hosting several public sessions to discuss what could be allowed under Energize Denver's ordinance to align with Colorado and ask for stakeholder feedback.

- Monday, April 8, 4:00-5:00pm
- Wednesday, April 10, 12:00-1:00pm - During the monthly service provider office hours (registration for this session will sign you up for the monthly recurring meeting)
- Thursday, April 11, 9:00-10:00am
- Wednesday, April 17, 2:00-1:00pm





# Next Steps

- Check your previous years benchmarking reports to ensure you benchmarked accurately (property types and square footage) with both Colorado & Denver.
- Review Colorado's and Denver's target lists to evaluate which EUI target is more stringent for your property type (the lower the EUI #, the more stringent it is)
  - *Please note: building owners who plan to comply with the more stringent target/requirement need to be mindful of certain actions that could comply with one program but not another, like the use of renewable energy.*
- Get an on-site [energy assessment](#) to understand areas of improvement. If you're considering an energy audit, perform an ASHRAE Level 2 at a minimum (so it qualifies for timeline adjustment application).
- Start creating an implementation plan following [Strategic Energy Management](#) ideas

# Helpful Resources & Programs

- [Energize Denver Trained Service Provider List](#): Training on benchmarking, performance requirements and MAI option for large buildings, and training for small building requirements.
- [Xcel Energy](#): Cost savings programs, lighting and equipment rebates, new building programs, electric vehicle options, renewable energy, strategic energy mgmt. cohort. Contact your account manager or the Business Solutions Center at 855-839-8862 or [EnergyEfficiency@xcelenergy.com](mailto:EnergyEfficiency@xcelenergy.com)
- Financing programs for energy improvement projects:
  - [C-PACE](#) financing
  - [Colorado Clean Energy Fund](#)
  - [Energy Performance Contracting](#)

# Questions

## Denver Building Performance Help Desk

[www.denvergov.org/energizeddenver](http://www.denvergov.org/energizeddenver)

Hours: 8am-5pm, M-F

Phone: 844-536-4528

[Schedule](#) a phone appointment

• Buildings 25,000 sq. ft. and over: email

[energizeddenver@denvergov.org](mailto:energizeddenver@denvergov.org)

• Buildings 5,000-24,999 sq. ft.: email

[energizesmallbuildings@denvergov.org](mailto:energizesmallbuildings@denvergov.org)

Asistencia en español disponible

[Resources for Building Owners](#) page;

Step-by-Step Compliance Guides for Denver Buildings:

- [Compliance Guide](#) for Building 5,000-24,999 SF
- [Compliance Guide](#) for Buildings 25,000 SF and larger



## Building Performance Colorado Help Center

Website: [co.beam-portal.org/helpdesk/](http://co.beam-portal.org/helpdesk/)

- Go to “New Ticket” To submit eligible forms

Email: [building.performance@state.co.us](mailto:building.performance@state.co.us)

*(Help Center Phone number will go live in April)*

Help Desk Office Hours:

- [Register for April 2, 12:00 - 1:30 PM MT](#)
- [Register for April 11, 12:00 - 1:30 PM MT](#)

[Building Performance Colorado: Technical Resource Guide](#)