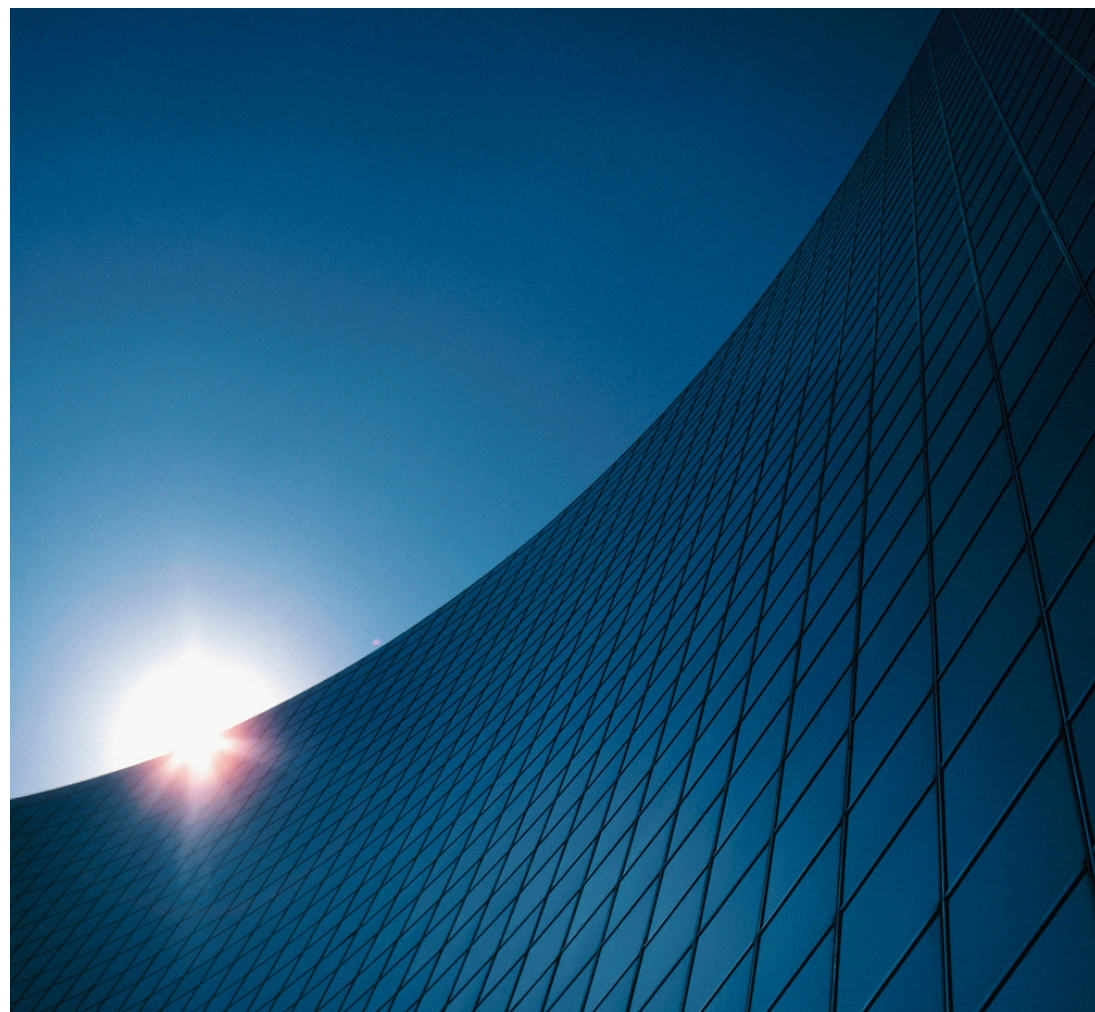


OCT 2025

BEST PRACTICE CASE STUDIES

from Jurisdictions with Enacted
Building Performance Standards



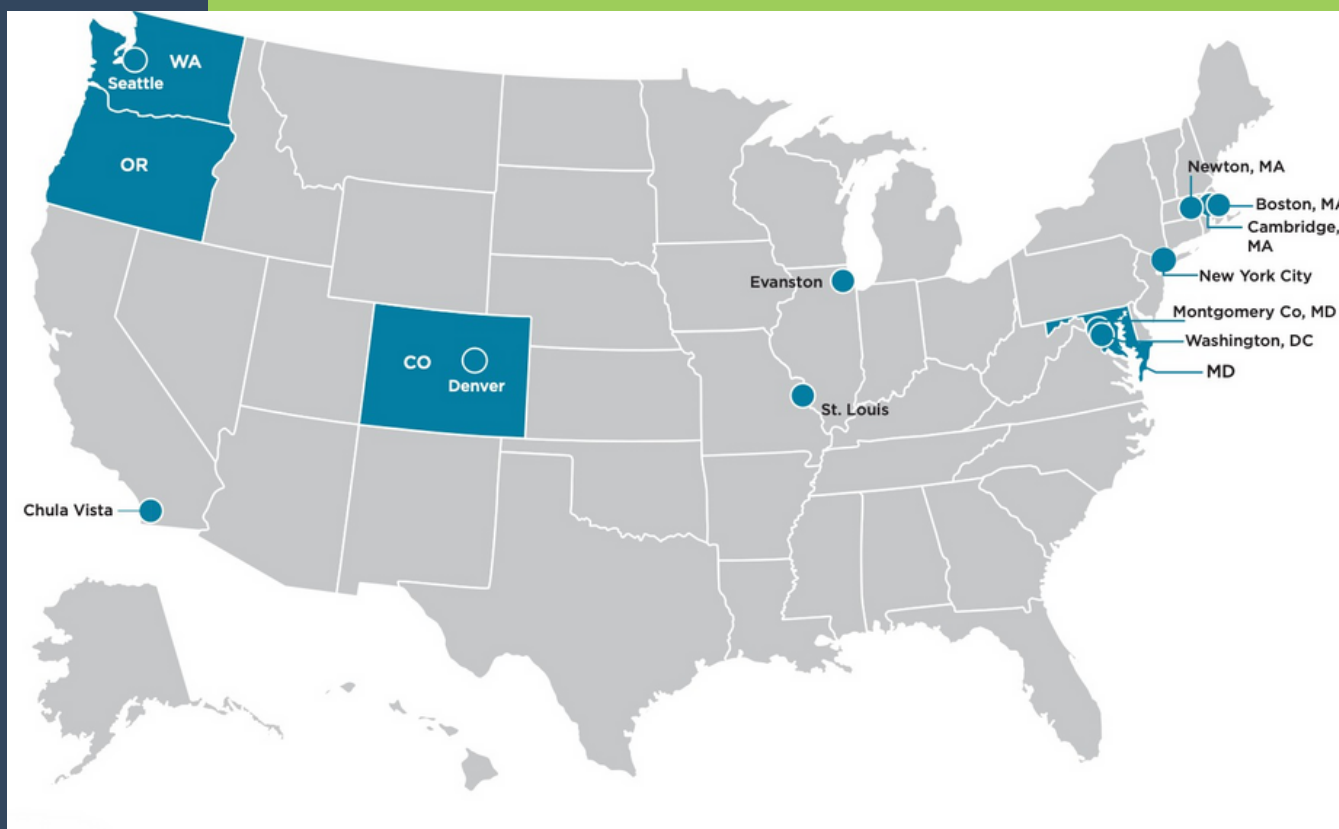
OVERVIEW

Collectively, these cases studies illustrate the range of metrics that can be employed in a Building Performance Standard (BPS). Covered material includes how different jurisdictions have implemented these metrics in an effort to help New Jersey's policymakers evaluate which approach may best support cost-effective energy and greenhouse gas (GHG) emission reductions, grid resilience, and New Jersey's climate and energy goals.

INTRODUCTION

The choice of metric is a critical and challenging step when considering BPS policies. As of September 2025, 15 jurisdictions have enacted BPS policies and at least 30 are in development. Their scope is to reduce energy and GHG emissions from existing large commercial and multifamily buildings and various BPS seek to address both energy efficiency improvements and the transition from fossil fuel systems to efficient electric technologies. To help New Jersey identify metrics for use in a potential BPS, Rutgers Center for Urban Policy Research (CUPR) conducted an extensive literature review with results presented below.

Cases: Washington, D.C.; New York, NY; Boston, MA; Maryland, Washington, and Colorado were selected as case studies as they represent the states with BPS policies currently in effect and include East Coast cities with regional relevance to New Jersey.



There are many available metrics that New Jersey could consider for its BPS. The metrics listed below include those found in current BPS policies as well as those that have been proposed, but not implemented, elsewhere. These metrics are classified in the following categories: energy efficiency, greenhouse gas emissions, and grid resilience.

Site EUI

WHAT

The total energy consumed by the building per square foot per year.

WHY

A simple measure of energy consumption that is an indicator of a building's actual energy performance. Reductions in energy use are primarily driven by investments in energy efficiency measures.

HOW

Building owners have some control over this metric since it captures all on-site energy use, including tenant consumption. Lowering a building's Site EUI may require coordination between owners and tenants. Efficient electrification (i.e., replacing fossil fuel systems with high-performance electric technologies) can further support energy reductions.

Source EUI

WHAT

The total energy consumed by the building per square foot per year (Site EUI) plus the energy lost from generation, transmission, and delivery.

WHY

Allows for the comparison of energy use across buildings that utilize different energy mixes. Incentivizes efficient electrification.

HOW

While building owners may reduce emissions intensity through equipment choices, efficiency measures, and building operations, tenant energy use impacts overall consumption. Building owners do not have control over the source conversion factors (the ratios that account for losses during generation, transmission, and delivery), which are determined by the EPA using national data. Source EUI encourages efficient electrification.

Site GHG Emissions Intensity

WHAT

The annual emissions intensity from the combustion of fossil fuels within the building.

WHY

Reducing onsite GHG emissions is in alignment with NJ climate policy goals.

HOW

Building owners have some control over these emissions through equipment selection and operational decisions, though tenant behavior influences total consumption. Owners make long-term infrastructure choices that can significantly impact emission reductions over time. This metric captures direct emissions from fuel combustion but does not account for indirect or offset emissions.

Total GHG Emissions Intensity

WHAT

The annual emissions intensity from both on-site fuel use (such as in Site GHG Emissions Intensity) and from the generation of grid-purchased electricity (Scope 2).

WHY

Captures the building's total climate impact. Emissions reduction can be achieved through efficiency improvements to reduce overall consumption or through the procurement of green power to offset the carbon emissions intensity factor of the grid.

HOW

While building owners may reduce emissions intensity through equipment choices, efficiency measures, and building operations, tenant energy use impacts overall consumption, and owners do not control the carbon intensity of the grid. Total GHG emissions may align BPS with the climate goals of New Jersey, but research may need to address time-of-use grid emissions rates, offsite renewable energy procurement, and the future grid mix.

ENERGY STAR Score

WHAT

A 1 to 100 rating that indicates a building's energy efficiency relative to similar buildings nationwide. This is a national standard administered by the United States Environmental Protection Agency (EPA).

WHY

Provides a national benchmark for energy performance and offers comparison to peer buildings, as it normalizes by property type. The metric accounts for variations in location, weather, and use activities; it encourages investment in energy efficiency and high efficiency electric alternatives (e.g., heat pumps).

HOW

Building owners control on-site energy consumption and operations. However, the score also depends on source conversion factors (the ratios that account for losses during generation, transmission, and delivery), which are determined by the EPA using national data and are outside owner control. The ENERGY STAR Score provides a consistent metric across jurisdictions, though it requires extensive data collection by building owners and is not available for all building types.

Peak Electric Demand

WHAT

The single highest electricity demand recorded for a building over a period of time.

WHY

Managing this metric encourages the reduction of peak electric load and is essential to manage grid infrastructure and stability. Building owners can implement strategies to shift energy use away from high-demand hours, install on-site energy storage systems, or enroll in a utility demand response program that automatically adjust loads during peak events.

HOW

Building owners influence, but do not fully control, their building's peak demand, as tenant behavior and equipment use significantly affect load patterns. Managing peak demand is often beyond an owner's direct oversight and may require advanced building management systems or coordination with tenants. Mechanisms such as utility pricing structures or energy storage requirements may be more effective in shifting energy use to support grid resilience.

Coincident Peak Electric Demand

WHAT

Electricity demand when total system demand on the utility serving the property was at its highest.

WHY

If buildings can reduce their demand when the grid's demand is highest, emissions from electric generation and subsequent costs decrease. This metric has been proposed for inclusion in BPS policies, but there may be more effective ways to achieve demand reductions and other grid balancing objectives.

HOW

Building owners influence, but do not fully control, their building's peak demand, as tenant behavior and equipment use significantly affect load patterns. They also do not control demand across the electrical system. This metric has been proposed for inclusion in BPS policies, but there may be more effective and simpler ways to achieve demand reductions and other grid resilience objectives.

WASHINGTON, D.C.

Building Energy Performance Standards (BEPS)

BENCHMARKING¹

YES ☒ NO ☐

PROCESS

1. Data reported to ENERGY STAR Portfolio Manager for all privately and publicly owned covered buildings
 - 2014: Buildings larger than 50,000 sq. ft.
 - 2022: Buildings larger than 25,000 sq. ft.
 - 2026: Buildings larger than 10,000 sq. ft.
2. Submitted annually by May 1
3. Data required to be verified every 6 years
4. Exempt: unoccupied, risk to national security, new construction, demolition
5. Penalties for noncompliance: fined up to \$100 per day



METRIC

ENERGY STAR Score or Site EUI for buildings ineligible for ENERGY STAR scores



STATUS OF POLICY

Building compliance



IMPLEMENTING AGENCY

Department of Energy and Environment



COVERED BUILDINGS

All buildings larger than 10,000 sq. ft.



AUTHORIZING LEGISLATION AND POLICY GOAL

- **2008 Clean and Affordable Energy Act:** benchmarking requirements
- **2018 Clean Energy DC:** created BEPS standards and outlined 60% reduction in GHG by 2030; carbon neutrality by 2045

BPS POLICY AND COMPLIANCE

2021 BEPS PERIOD 1

Private buildings larger than 50,000 sq. ft.; publicly owned larger than 10,000 sq. ft.

2028 BEPS PERIOD 2

Private buildings larger than 25,000 sq. ft.; publicly owned larger than 10,000 sq. ft.

2034 BEPS PERIOD 3

Private and public buildings larger than 10,000 sq. ft.

METHODS OF COMPLIANCE

- Performance pathway: demonstrate a 20% reduction in Site EUI
- Standard target pathway: meet the ENERGY STAR Score standard for the property type
- Alternative compliance pathway: individualized compliance plan
- Prescriptive pathway: energy audit; EE measures identified and implemented; monitoring
- Enforcement: \$10 per sq. ft. of gross floor area, capped at \$7.5M for noncompliance

NOTES

- First jurisdiction to have BPS
- **Affordable Housing Retrofit Accelerator:** DC Green Bank offers technical and financial assistance to owners and managers of affordable multifamily buildings that do not meet the BEPS

1. Refers to having a benchmarking policy in place prior to the BPS policy.

NEW YORK CITY, NY

Local Law 97

BENCHMARKING

YES ☒ NO ☐

PROCESS

1. Initiated through LL 84
2. Submit annual energy use to ENERGY STAR Portfolio Manager by May 1 for buildings larger than 50,000 sq. ft.
3. Buildings must post rating labels showing their ENERGY STAR Rating in a visible location within the building
4. Noncompliance:
 - \$500 for each quarter the report is late, up to \$2,000 per year
 - \$1,250 for failure to display the Building Energy Efficiency Rating Label
5. Third-party data verification required



METRIC

Greenhouse gas emissions



STATUS OF POLICY

Building compliance



IMPLEMENTING AGENCY

Department of Buildings



COVERED BUILDINGS

Buildings larger than 25,000 sq. ft.
Same tax lot: 2+ buildings that combined exceed 50,000 sq. ft.
Condominium ownership: 2+ buildings that combined exceed 50,000 sq. ft.



AUTHORIZING LEGISLATION AND POLICY GOAL

- **2009 LL84:** benchmarking law
- **2019 Climate Mobilization Act:** BPS; reduce GHG emissions 40% by 2030 and 80% by 2050 relative to 2005 levels

BPS POLICY AND COMPLIANCE

3 PHASES OF COMPLIANCE

- 3 phases of compliance (2024-2029; 2030-2034; 2035-2050) for all covered buildings. Emission limits are based on property type and will tighten every compliance cycle
 - First compliance report was due May 1, 2025, with a grace period through June 30

EXEMPT BUILDINGS

Industrial facilities used for generating electric power or steam; NYCHA buildings; Housing Development Fund Corporation (HDFC) buildings; city-owned buildings (excluding senior colleges in the CUNY system); multi-family dwellings no more than 3 stories tall without central HVAC or hot water heating systems; houses of worship; buildings participating in project-based federal housing programs

PENALTIES

- \$268 per ton of CO2 over the limit based on 2024 energy use and emissions
- \$0.05 per sq. ft. for failing to report
- \$500,000 for providing false statements

GOOD FAITH COMPLIANCE PATHWAY

Aims to help building owners avoid/reduce fines for non-compliance during the initial compliance period. Building owners must show good faith efforts and submit decarbonization plans

NOTES

- **NYC Accelerator Program:** provides free resources, training, and one-on-one guidance
- **Getting 97 Done:** 2023 plan from the Department of Buildings that offers comprehensive support to building owners (e.g., technical assistance, financial incentives, and educational resources) to support compliance
- **Beneficial Electrification Credit:** awarded to buildings that install high-efficiency heating, cooling, and domestic hot water systems before 2030 to encourage early adoption

BOSTON, MA

Building Emissions Reduction and Disclosure Act (BERDO 2.0)

BENCHMARKING

YES ☒ NO ☐

PROCESS

1. Data reported to ENERGY STAR Portfolio Manager for all commercial, industrial, and multifamily larger than 35,000 sq. ft. (or multifamily 35+ units)
2. Submitted annually by May 15
3. Penalties for noncompliance with fines structured based on building size



**



METRIC

Greenhouse gas emissions



STATUS OF POLICY

Building compliance



IMPLEMENTING AGENCY

Air Pollution Control Commission



COVERED BUILDINGS

Residential: 20,000+ sq. ft. or 15+ units

Non-residential: 20,000+ sq. ft.



AUTHORIZING LEGISLATION AND POLICY GOAL

- **BERDO 1.0 (2013):** Boston Climate Action Plan calls for reducing GHG 25% by 2020, 80% by 2050; Boston Climate Action Leadership Committee recommended in 2010 that the city adopt a building energy reporting and disclosure ordinance - recommendations adopted in the Boston 2011 Climate Action Plan
- **BERDO 2.0 (2021):** Align with objectives in the 2019 Climate Action Plan Update that detail strategies to reduce carbon emissions from buildings; 2020 resolution declaring that the climate crisis is a health emergency

BPS POLICY AND COMPLIANCE

DATA MUST BE REPORTED TO ENERGY STAR PORTFOLIO MANAGER ANNUALLY BY MAY 15

- Reported data includes: energy and water use, primary building use, use of any renewable energy certificates (RECs) or power purchase agreements (PPAs)

DATA IS THEN VERIFIED BY A THIRD-PARTY QUALIFIED ENERGY PROFESSIONAL

- Building owner pays for third-party verification
- Discrepancies may result in fines
- Verification years: 2022, 2026, 2031, 2036, 2041, 2046, and 2051

BUILDINGS MUST REDUCE EMISSIONS TO REMAIN COMPLIANT

- Reduce energy use/transition away from fossil fuels through building improvement measures
- Obtain renewable energy (local solar, RECs, PPAs, or Boston's Community Choice Electricity "Green 100" Plan [municipal aggregation program])
- Invest in Boston's environmental justice communities through Alternative Compliance Payments that are dedicated to the Equitable Emissions Investment Fund

** Klein, K. (Photographer). (n.d.). Faneuil Hall, Boston [Photograph]. Retrieved from https://image-tc.galaxy.tf/wijpeg-do933rr344rjgrs3k0w6kv75/faneuil-hall-kyle-klein-dji-0777fanueil-hall-fall_standard.jpg?crop=2%2C0%2C1997%2C1498

BOSTON, MA

Building Emissions Reduction and Disclosure Act (BERDO 2.0)

BPS POLICY AND COMPLIANCE (CONTD.)

COMPLIANCE

- 2025: buildings larger than 35,000 sq. ft. or 35+ residential units
- 2030: buildings larger than 20,000 sq. ft. or 15+ residential units

ENFORCEMENT

- Failure to report: \$300 per day for all buildings larger than 35,000 sq. ft.; \$150 per day for all buildings larger than 20,000 sq. ft.
- Failure to meet emissions standards: \$1,000 per day for all buildings larger than 35,000 sq. ft.; \$300 per day for all buildings larger than 20,000 sq. ft.

FLEXIBILITY MEASURES

- Blended emissions standards: for buildings with multiple primary uses
- Building portfolios: reduce emissions as a portfolio rather than individual buildings
- Individual compliance schedules: customized reduction timeline based on benchmarked data
- Hardship compliance: demonstrated technical or financial hardships for the owner or building

There are no specific building exemptions

NOTES

- **Equitable Emissions Investment Fund:** dedicated fund to support implementation and administration of GHG abatement projects, prioritizing environmental justice communities.
 - Initially seeded with \$3.5M from the city
 - 2025: allocated \$750,000, funding at least four projects not to exceed \$250,000
 - Eligible projects: emission reduction projects that prioritize air quality improvements, reduce energy burden, provide housing stabilization, workforce development and access to green jobs, and clean energy installations in EJ communities.
- **Review Board:** nine member independent board of volunteers appointed by the mayor and approved by the City Council. The board serves to oversee the implementation of BERDO and ensure EJ communities benefit from BERDO decarbonization efforts. Two-thirds of board members are nominated by community-based organizations. All board members must be Boston residents. The board can:
 - Create working groups to study/make recommendations for regulations
 - Approve hardship compliance plans
 - Allocate funding from the Equitable Emissions Investment Fund

MARYLAND (STATE)

Building Energy Performance Standards (BEPS)

BENCHMARKING

YES ☒ NO ☐

PROCESS

1. Data reported to ENERGY STAR Portfolio Manager for all covered buildings
2. Submitted annually by June 1, beginning in 2025 (2025 deadline was extended until September 1)
3. Third-party data verification is required in 2026 and every 5 years after



METRIC

Greenhouse gas emissions



STATUS OF POLICY

Benchmarking



IMPLEMENTING AGENCY

Department of Environment



COVERED BUILDINGS

Commercial: larger than 35,000 sq. ft.
Multifamily: larger than 35,000 sq. ft.



AUTHORIZING LEGISLATION AND POLICY GOAL

- **2022 Climate Solutions Now Act:** buildings need to achieve a 20% reduction by 2030 and be net zero by 2040; set goals of achieving a 60% reduction below 2006 emissions by 2031; Net zero GHG emissions statewide by 2045

BPS POLICY AND COMPLIANCE

COMPLIANCE

- Compliance will begin in 2030 for all covered buildings, with final performance standards achieved in 2040
- The Department of Energy will conduct an updated analysis with the 2025 benchmarking data to determine standards

COMPLIANCE CYCLES

2030-2034; 2035-2039; 2040 and beyond

COVERED BUILDINGS

Commercial or multifamily 35,000 sq. ft. or larger

EXEMPTIONS

- Historic properties, elementary or secondary schools, manufacturing buildings, agricultural buildings, federally owned buildings
- Financial distress, not occupied for the entire year, demolished during the calendar year, less than 50% of the gross floor area was not occupied for at least 180 days
- Affordable housing providers can apply for reduced alternative compliance fees

ALTERNATIVE COMPLIANCE PATHWAY

\$230 fee per metric ton of excess CO₂, increasing each year to adjust for inflation

Currently using on-site GHG, will potentially establish site EUI standards in 2027 using 2025 benchmarking data

WASHINGTON (STATE)

Clean Buildings Performance Standard

BENCHMARKING

YES ☐ NO ☒





METRIC
Site EUI



STATUS OF POLICY
Benchmarking



IMPLEMENTING AGENCY
Department of Commerce



COVERED BUILDINGS

Tier 1:

-Commercial: larger than 50,000 sq. ft.

Tier 2:

-Commercial: larger than 20,000 sq. ft.

-Residential: larger than 50,000 sq. ft.



AUTHORIZING LEGISLATION AND POLICY GOAL

- **2019 Clean Buildings Bill:** created benchmarking and compliance for Tier 1 buildings
- **2022 Clean Buildings Expansion:** created benchmarking for Tier 2 buildings
- **2023 Clean Buildings Amendment:** created requirement for district energy systems to develop 15-year decarbonization plans

BPS POLICY AND COMPLIANCE

Unlike most other jurisdictions that first establish benchmarking programs, Washington's benchmarking and BPS were created through the same legislation, with 4 to 6 year reporting → compliance requirements

TIER 1 BUILDINGS

Commercial buildings larger than 50,000 sq. ft.

- Submit benchmarking data
- Implement an operations and maintenance program
- Create an energy management plan
- Meet an average Site EUI or pursue investment criteria pathway which includes performing an energy audit and implementing all cost-effective measures.

TIER 1 EUI PERFORMANCE METRIC COMPLIANCE

- June 1, 2026: commercial buildings larger than 220,000 sq. ft.
- June 1, 2027: commercial buildings larger than 90,000 sq. ft.
- June 1, 2028: commercial buildings larger than 50,000 sq. ft.

WASHINGTON (STATE)

Clean Buildings Performance Standard

BPS POLICY AND COMPLIANCE (CONTD.)

TIER 2 BUILDINGS

Commercial buildings larger than 20,000 sq. ft.; multifamily buildings larger than 50,000 sq. ft.

- Reporting compliance: July 1, 2027 for all buildings.
- Implement an operations and maintenance program
- Create an energy management program
- As of 2025, there are no outlined or planned requirements for meeting a performance standard

DISTRICT ENERGY SYSTEMS

- First in the nation policy requiring publicly owned district energy systems to develop a decarbonization plan for up to 15 years.
- Non-state-owned district management systems can opt-in to comply:
 - June 30, 2025: Decarbonization plans submitted to Department of Commerce
 - 2026, 2027, and 2028: Energy Management Plans (EMP) and Operations and Maintenance Programs submitted
 - June 30, 2030: Decarbonization plan progress report
 - July 1, 2040: Completion date. Systems must comply with EUI target.

NOTES

- First state-wide BPS
- Oregon's policy very closely followed Washington's design
- **Early Adopter Incentive Program:**
 - **Tier 1:** offers eligible building owners a one-time incentive payment for demonstrating early compliance with the CBPS. Funds are limited to \$75M. Building owners can receive an incentive payment of \$2 per sq. ft. if they are 15 EUI or more above the target
 - **Tier 2:** offers eligible building owners a one-time incentive payment of \$0.30 per sq. ft. to make energy efficient upgrades. Multifamily building owners who are willing to sign anti-displacement agreements may be eligible for enhanced incentives of \$0.75 per foot
- **Clean Building Performance Grants:** offers funding for energy efficiency improvements in both private and public buildings working towards compliance. Over \$40M is allocated to support privately owned Tier 1 and publicly owned Tier 1 and 2



**** Space Needle LLC. (n.d.).
Space Needle [Photograph].
Retrieved from
https://www.spaceneedle.com/assets/_1440x810_crop_top-center_75_none/spaceneedle-desktop-posterimage.jpg

COLORADO (STATE)

Building Benchmarking and Performance Standards

BENCHMARKING

YES ☒ NO ☐

PROCESS

1. Data reported to ENERGY STAR Portfolio manager for all covered buildings
2. Submitted annually by June 1, beginning in 2024
3. Must identify compliance pathways in benchmarking process (2024 report for 2026 compliance; 2028 report for 2030 compliance)
4. Exemptions: (1) **Building types**: storage facilities, stand alone parking garages, airplane hangars, buildings in which more than 50% of gross floor area is used for manufacturing, industrial, or agriculture, single family, duplex, and triplex homes; (2) **Scenarios**: if the building was unoccupied for at least 30 days, a demolition permit was issued, financial hardship, utility data unavailable



METRIC

Greenhouse Gas Emissions and Site EUI



STATUS OF POLICY

Benchmarking



IMPLEMENTING AGENCY

Colorado Energy Office and the Air Quality Control Commission



COVERED BUILDINGS

All buildings larger than 50,000 sq. ft.



AUTHORIZING LEGISLATION AND POLICY GOAL

- **2021 Energy Performance for Buildings Act**: meet statutory greenhouse gas reduction targets of 7% by 2026 and 20% by 2030
- Also supports meeting the **2021 Greenhouse Gas Pollution Reduction Roadmap** goal of reducing GHG emissions 50% statewide by 2030

BPS POLICY AND COMPLIANCE

COMPLIANCE BEGINS IN 2026 FOR ALL COVERED BUILDINGS

Building owners can select EUI or GHG pathway

- EUI
 - Meet EUI target through energy reduction
 - Standard percent reduction: if unable to meet EUI target, building owners can reduce by a standard percent reduction. In 2026, reduce 13% compared to 2021; 2030, reduce 29% compared to 2021
- GHG
 - Meet GHG target through emissions reduction. If unable to meet targets, can use RECs, utility subscription services
 - Standard percent reduction: 2026, reduce 13% from 2021 levels; 2030, reduce 29% from 2021 levels

ALTERNATIVE COMPLIANCE PATHWAYS

Renewables, partial electrification

IF STILL NOT MET, THEN COMPLIANCE PATHWAY ADJUSTMENTS

Adjusted timelines, standard performance target adjustments

NOTES

- **Building Decarbonization Enterprise Fund**: provides technical and financial support to buildings decarbonizing. Support may include on bill finance programs, funding for building energy audits, technical advice for building owners/operators, etc. Charges an annual fee of \$400 for all covered buildings to create a funding pool