

# Policy Overview: Building Performance Standards



From Risk to Readiness: Practical Solutions for Meeting the Existing Building Retrofit Challenge

RDH Building Science

May 17, 2022

# About The Institute for Market Transformation (IMT)



## Mission

- Catalyze widespread and sustained demand for high-performing buildings



## How we work

- Advancing policies and business practices that enable people to build and operate healthy, high-performing buildings

# Agenda

- What are Building Performance Standards?
- Current Building Performance Policy Landscape
- Closer Look: Washington, Boston, and Denver performance standards
- National BPS Coalition

# Why regulate existing buildings?

In 2040:

- 2/3 of the buildings that exist today still exist
- Global building floor area will double

Current pace of major improvements annually is:

- 2% commercial buildings
- 0.5% residential buildings



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Data Source: IEA Energy Technology Perspectives 2020, February 2021 Revised Edition

# Building Performance Policy Landscape

## Types of Building Performance Policy

Type	Description
Building Codes	<ul style="list-style-type: none"><li>• Sets standards for building design and construction for primarily new buildings and major renovations</li></ul>
Benchmarking and Transparency	<ul style="list-style-type: none"><li>• Requires owners to report their annual energy performance to the government which publishes a subset of that info for the public</li></ul>
Audit Requirement	<ul style="list-style-type: none"><li>• Requires owners to conduct an energy audit identifying opportunities to improve building performance</li></ul>
Tune-up Requirement	<ul style="list-style-type: none"><li>• Requires owners to identify and correct operational inefficiencies through low- and no-cost repairs and adjustments</li></ul>
Building Performance Standard	<ul style="list-style-type: none"><li>• Requires buildings to meet a minimum threshold of performance</li></ul>

# What makes Building Performance Standards (BPS) Different?

Requires Improvement Across a Wide Range of Buildings

Yields Deep Retrofits at Scale

Drives Private Value, Creating Investment in Private Buildings

Provides Comprehensive Approach to Performance

Balances Flexibility and Immediate Action

Sends Long-Term Signal

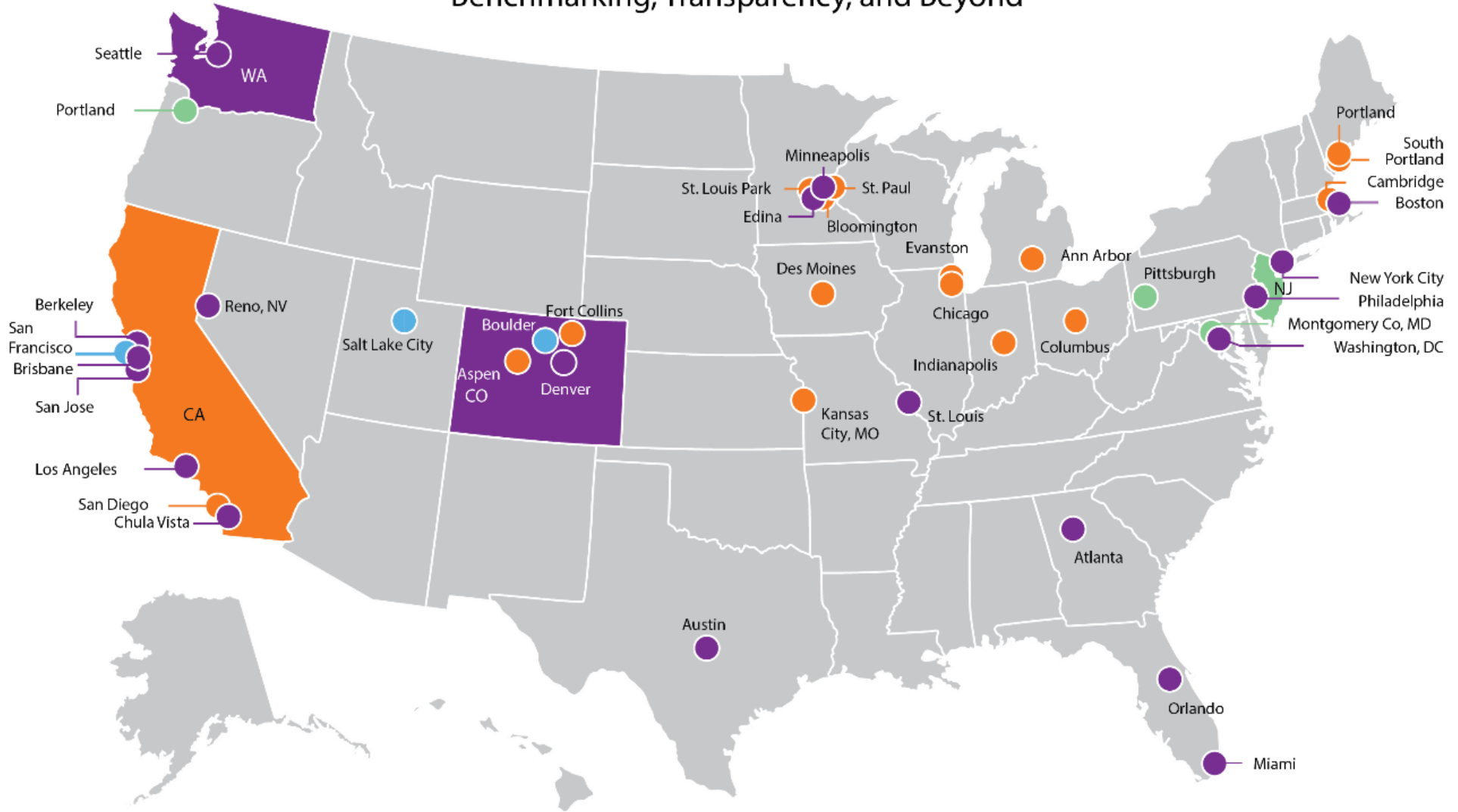
# Canadian Policies for Existing Buildings: Benchmarking, Transparency, and Beyond



*\* requirement is still in development*

- Benchmarking required for public and commercial buildings
- Benchmarking required for public, commercial, and multifamily buildings
- Benchmarking and additional actions required for public and commercial buildings
- Benchmarking and additional actions required for public, commercial, and multifamily buildings
- Voluntary programs and commitments

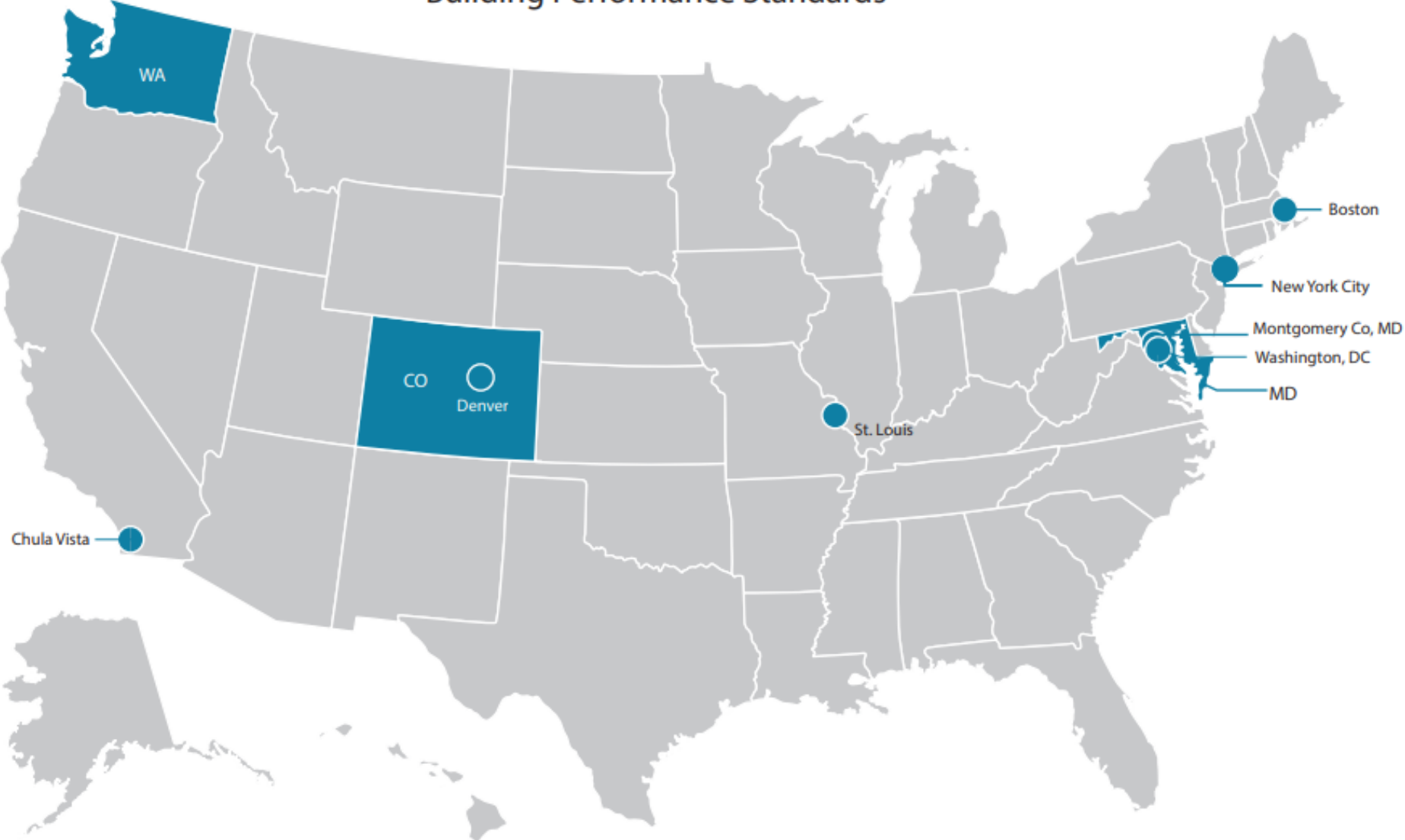
# U.S. City, County, and State Policies for Existing Buildings: Benchmarking, Transparency, and Beyond



- Benchmarking required for public and commercial buildings
- Benchmarking required for public, commercial, and multifamily buildings
- Benchmarking and additional actions required for public and commercial buildings
- Benchmarking and additional actions required for public, commercial, and multifamily buildings



# U.S. City and State Policies for Existing Buildings: Building Performance Standards



# IMT's BPS Model Ordinance

- IMT published the first model ordinance for building performance standards in January 2021
- Reviewed by expert stakeholders in real estate, equity, building science, building performance policy, law
- [Model ordinance](#)
- [Summary of ordinance](#)
- [Summary presentation](#)



# BPS Type 1: Standards recalculated every 4-5 years



## DC BEPS

- Covers Comm, MF  $\geq 10,000$  sf
- Metric: ENERGY STAR Score, site EUI for score-ineligible buildings
- Performance, prescriptive, and alternative compliance paths



## St. Louis BEPS

- Covers Comm, MF  $\geq 50,000$  sf
- Metric: Site EUI
- Custom compliance path



- Washington Clean Buildings Standard
- Covers Comm, MF  $\geq 20,000$  sf
- Metric: Site EUI
- Custom compliance path based on life-cycle cost analysis



State of Washington

HB 1257 and SB 5722 – Clean Buildings Performance Standard

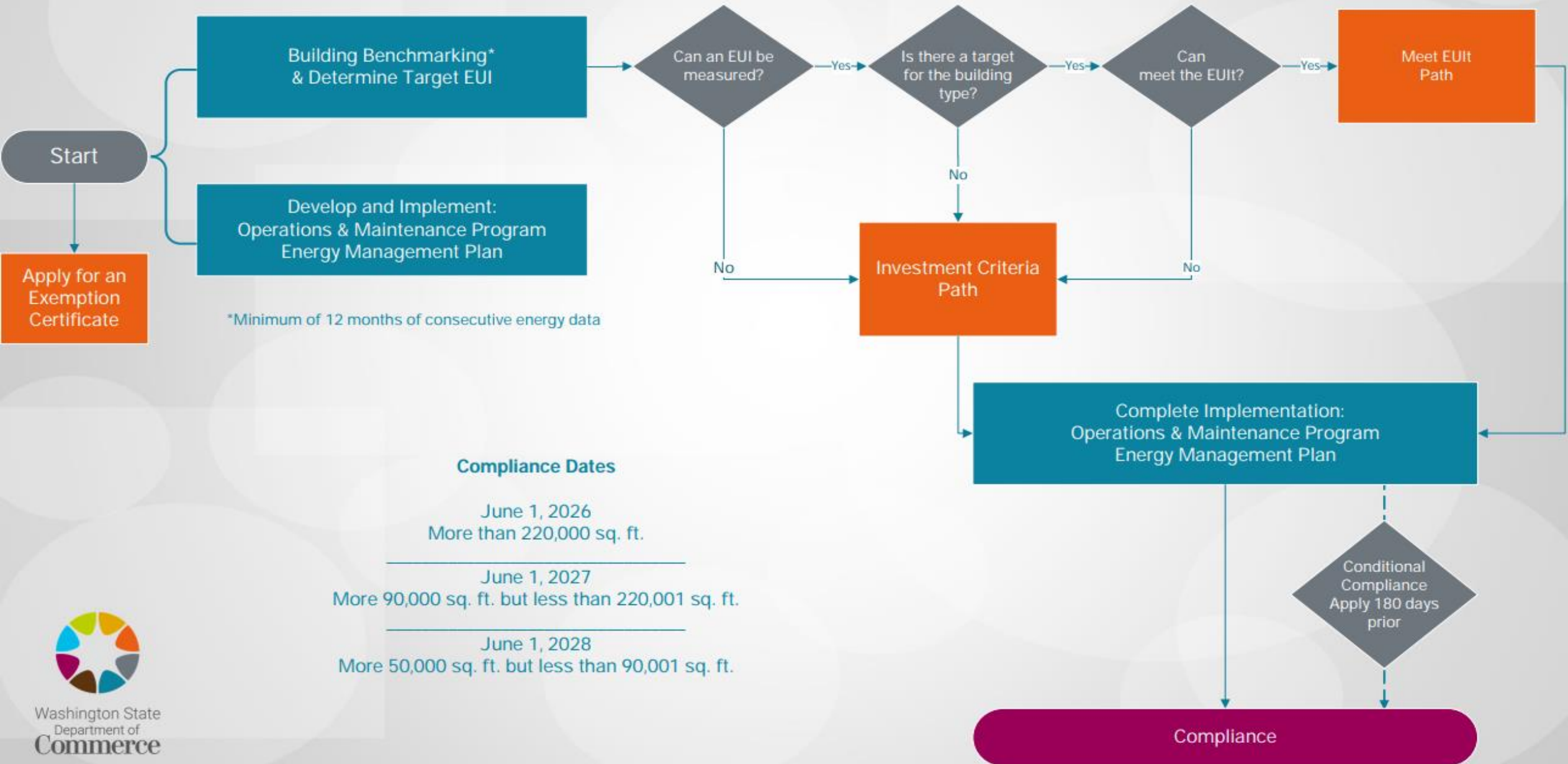
# Washington Performance Standard Overview

- Based on ASHRAE Standard 100-2018 with state amendments.
- Site energy use intensity (EUI) standards updated every five years
- Law creates an \$225m early adoption incentive program administered by utilities

Covered Buildings	Initial Compliance Date(s)
Commercial $\geq$ 220,000 sf	<ul style="list-style-type: none"><li>• Meet standard by June 1, 2026</li></ul>
Commercial 90,001 – 220,000 sf	<ul style="list-style-type: none"><li>• Meet standard by June 1, 2027</li></ul>
Commercial 50,000 – 90,000 sf	<ul style="list-style-type: none"><li>• Meet standard by June 1, 2028</li></ul>
Commercial 20,000 – 49,999 sf Multifamily $\geq$ 20,000 sf	<ul style="list-style-type: none"><li>• Submit performance report July 2027</li><li>• Meet standard after 2031 (Date TBD)</li></ul>

# Compliance Path

CLEAN BUILDINGS PERFORMANCE STANDARD



# BPS Type 2: Absolute, Longterm Standards



## **New York City**

Covers: Comm, MF  $\geq$  25,000 sf

Metric: Annual GHG emissions

Targets: Begin in 2024 and get stricter every 5 years until 2050

Alt Compliance: Bldgs can get adjusted limits in certain conditions



## **Boston**

Covers: Comm, MF  $\geq$  20,000 sf

Metric: Annual GHG emissions

Targets: Begin in 2025 and get stricter every 5 years until 2050

Alt Compliance: Reduce GHGs 50% by 2030, 100% by 2050 from 2005 or later baseline



Boston

## Building Emissions Reduction and Disclosure Ordinance (BERDO)

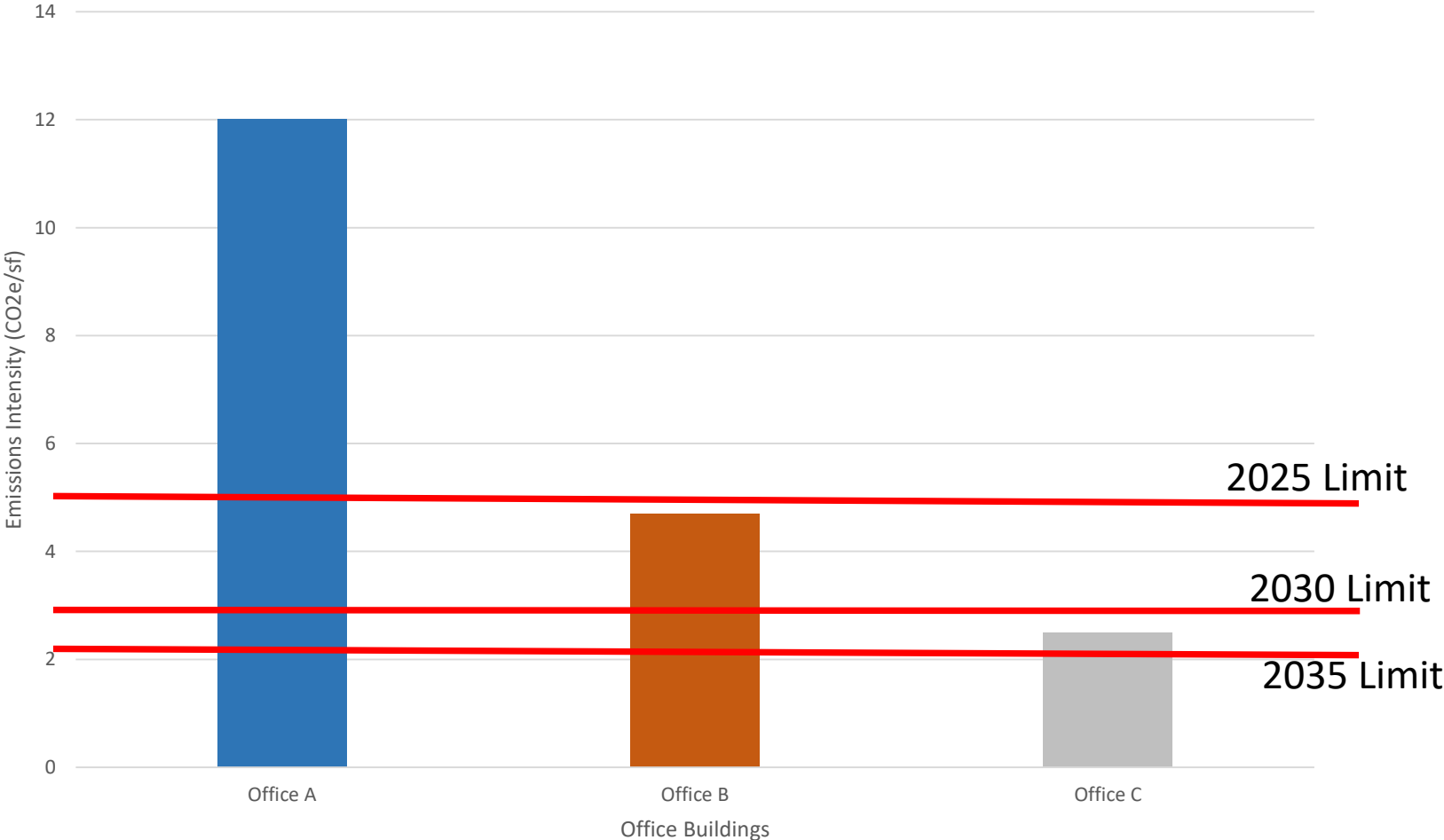


# BERDO Emissions Standards for Building Types (kgCO<sub>2</sub>e/SF/yr)

BUILDING USE	2025- 2029	2030 - 2034	2035 - 2039	2040- 2044	2045-2049	2050 -
<b>Assembly</b>	7.8	4.6	3.3	2.1	1.1	0
<b>College / University</b>	10.2	5.3	3.8	2.5	1.2	0
<b>Education</b>	3.9	2.4	1.8	1.2	0.6	0
<b>Food Sales and Service</b>	17.4	10.9	8	5.4	2.7	0
<b>Healthcare</b>	15.4	10	7.4	4.9	2.4	0
<b>Lodging</b>	5.8	3.7	2.7	1.8	0.9	0
<b>Manufacturing / Industrial</b>	23.9	15.3	10.9	6.7	3.2	0
<b>Multifamily Housing</b>	4.1	2.4	1.8	1.1	0.6	0
<b>Office</b>	5.3	3.2	2.4	1.6	0.8	0
<b>Retail</b>	7.1	3.4	2.4	1.5	0.7	0
<b>Services</b>	7.5	4.5	3.3	2.2	1.1	0
<b>Storage</b>	5.4	2.8	1.8	1	0.4	0
<b>Technology / Science</b>	19.2	11.1	7.8	5.1	2.5	0

# Boston Building Performance Standard: Absolute Emissions Limits

Office Buildings: Sample Emissions Limits to 2035



\*illustrative example only

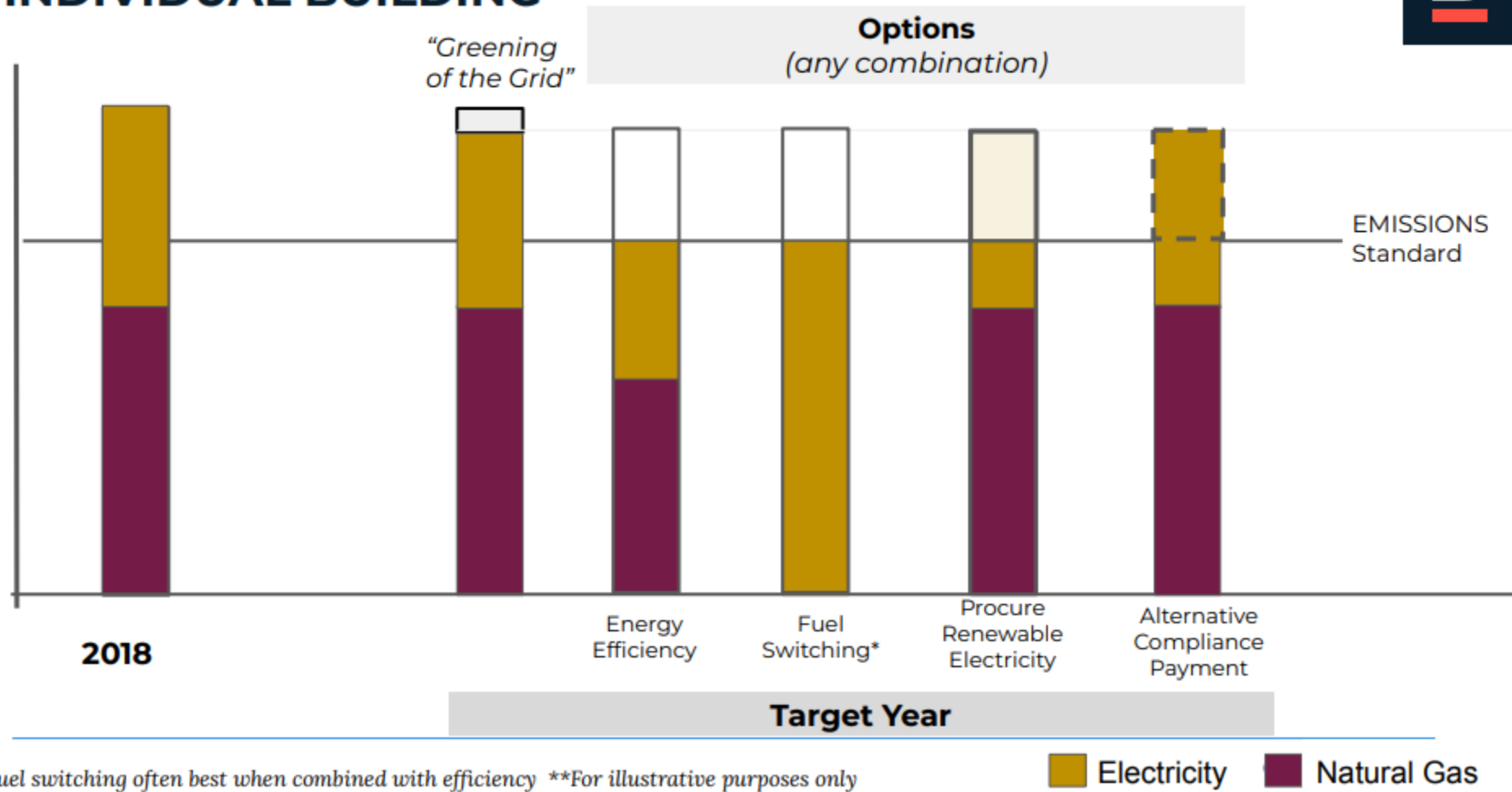
## BERDO Compliance Paths

- **Portfolio Compliance** – owners may comply on a portfolio basis
- **Individual Compliance Schedules** – Owners (of single buildings or portfolios) can opt into a self improvement pathway of 50% by 2030 and 100% by 2050
- **Hardship Compliance Plans** – custom compliance plans for buildings with unusual circumstances that present a hardship in complying with the standards
  - Historic designation
  - Affordable housing refinancing timelines
  - Pre-existing long-term energy contracts
  - Financial hardship

# Boston's BERDO Compliance Example



## INDIVIDUAL BUILDING



\* Fuel switching often best when combined with efficiency \*\*For illustrative purposes only

# BPS Type 3: Trajectory Approach



## IMT Model Ordinance

- Compatible with any metric except ENERGY STAR Score
- Sets final, long-term standards for each building type
- Buildings have individual trajectory with interim standards to check progress
- Custom compliance path



## Denver BPS

- Comm, MF  $\geq$  25,000 sf
- Metric: Site EUI
- Prescriptive and Custom compliance paths



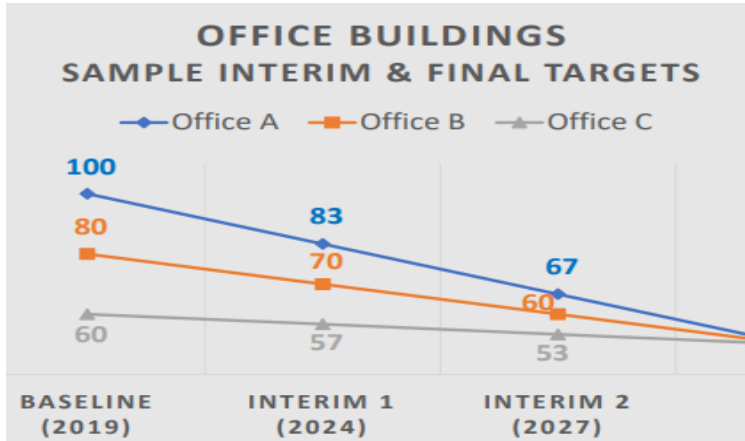
- Montgomery County, MD
- Comm, MF  $\geq$  25,000 sf
- Metric: Site EUI
- Custom compliance path



Denver, CO  
Building Performance Policy

# Denver Building Performance Policy

## Three Combined Policies



- Building Performance Standard
- Comm, MF  $\geq 25,000$  sf



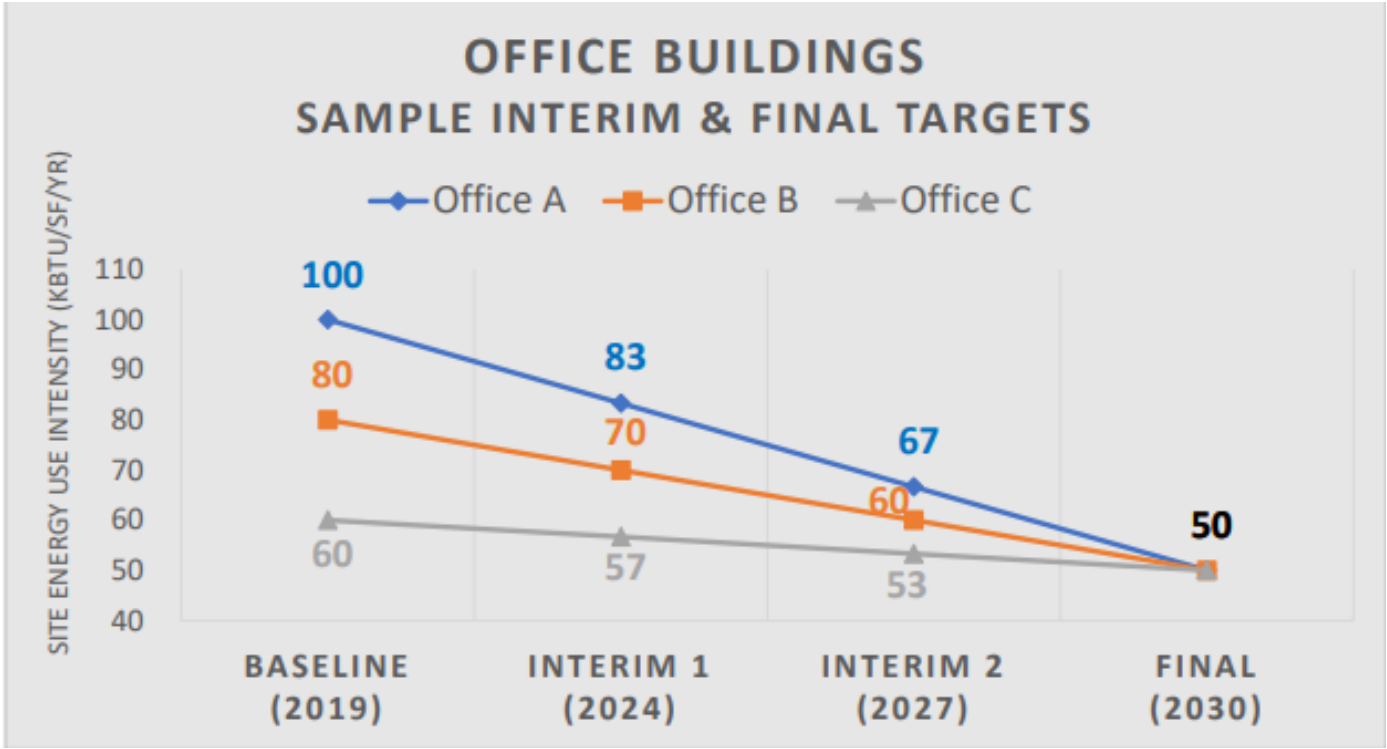
- Electrification Requirements
- All buildings



- Efficiency Reqs for Small Buildings
- Comm, MF 5,000 – 24,999 sf

# Policy 1 – Denver Building Performance Standard: Trajectory Approach

2030 **site energy use intensity (EUI) standards** are created for each covered property type (25,000 sf and up).





## Denver Compliance Paths

**Alternative Compliance Path** – for buildings that cannot reasonably meet interim or final energy performance targets

- Different timeline
  - If capital improvements will be most cost effective at end of system life, time of major renovation, etc., or
  - If under-resourced building needs delay to coincide with refinancing of building
- Adjust End Goal – if inherent characteristics of the bldg. make achieving the standard exceptionally challenging

**Prescriptive Compliance Path for buildings 25,000 – 100,000 sf** (for Interim Standards only)

- Requires electrification of at least 70% of heating equipment
- Replacement of all lights with LEDs

## Policy 2 – Renewable Heating and Cooling Policy

Date Requirements Move Into Code	Requirements for all Commercial and Multifamily Buildings	Planned Incentives (funded by Climate Protection Fund)
2023	<ul style="list-style-type: none"> <li>Permitting equal for a heat pump and a gas system</li> </ul>	<ul style="list-style-type: none"> <li>2022: incentives for electrification feasibility studies</li> <li>2023: Incentives for heat pumps for <u>all</u> buildings</li> </ul>
2025	<ul style="list-style-type: none"> <li>Require heat pumps on replacement for easy-to-electrify systems (furnaces, roof top units, individual water heaters) <u>when cost effective</u></li> </ul>	<ul style="list-style-type: none"> <li>Incentives for heat pumps for all buildings, including harder to electrify systems</li> </ul>
2027	<ul style="list-style-type: none"> <li>Require heat pumps upon replacement for harder to electrify systems (PTACs, boilers, central hot water) <u>when cost effective</u></li> </ul>	<ul style="list-style-type: none"> <li>Incentives for heat pumps for only <u>under-resourced</u> buildings</li> </ul>



**National BPS Coalition**

<https://nationalbpscoalition.org/>

# National Building Performance Standards Coalition

- President Biden and the White House Center on Environmental Quality launched the coalition in January 2022
- Nationwide group of [33 state and local governments](#) that have committed to inclusively design and implement equitable building performance standards and complementary programs by Earth Day 2024
- Federal agencies, including U.S. Department of Energy and Environmental Protection Agency providing technical assistance

# National Building Performance Standards Coalition

March 7, 2022



## IMT Ally Program: ESCOs, Tech Firms & Service Firms




- Building climate policy guidance on national trends and future adoption outlook
- Customized regulatory opportunity and risk assessments
- Localized policy impact and business opportunity analyses
- Identification of local policy engagement opportunities including stakeholder meetings
- Training and educational materials for employees, members, and stakeholders
- Strategic guidance on tenant-landlord alignment with policy compliance

ESCOs

Tech Firms

Service Firms



*thanks!*

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For more info: [www.imt.org/bps](http://www.imt.org/bps)