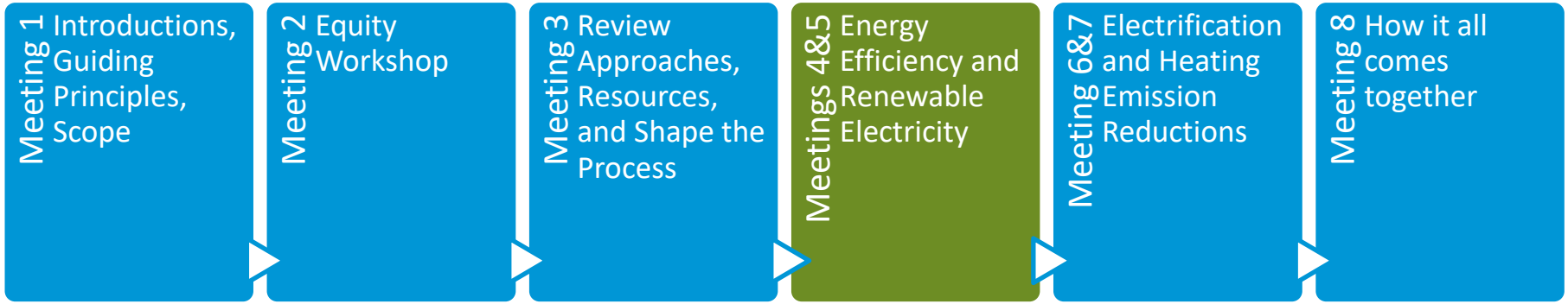




Energize Denver Task Force

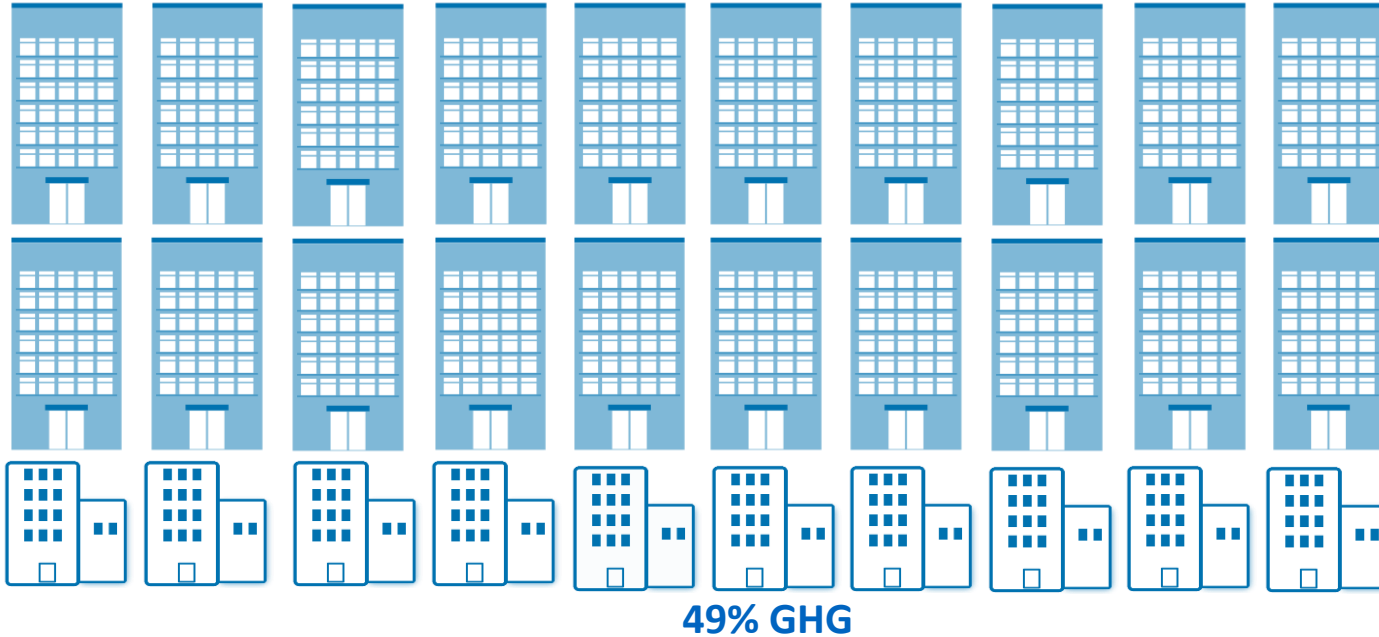
Meeting 4 prep-briefing, April 12th, 2021

Task Force Draft Schedule



Workgroups:
Equity Workgroup
Workforce Workgroup
Climate Solutions Workgroup

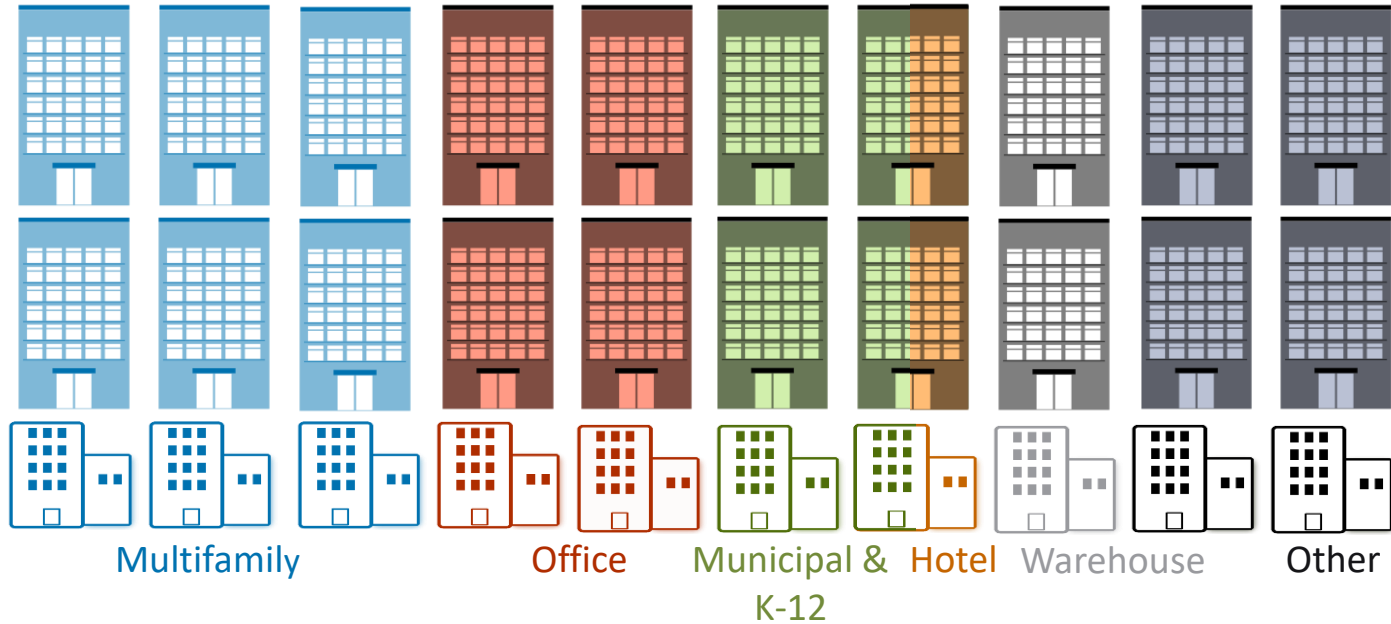
Commercial and Multifamily Buildings Account for 49% of Denver's GHG Emissions



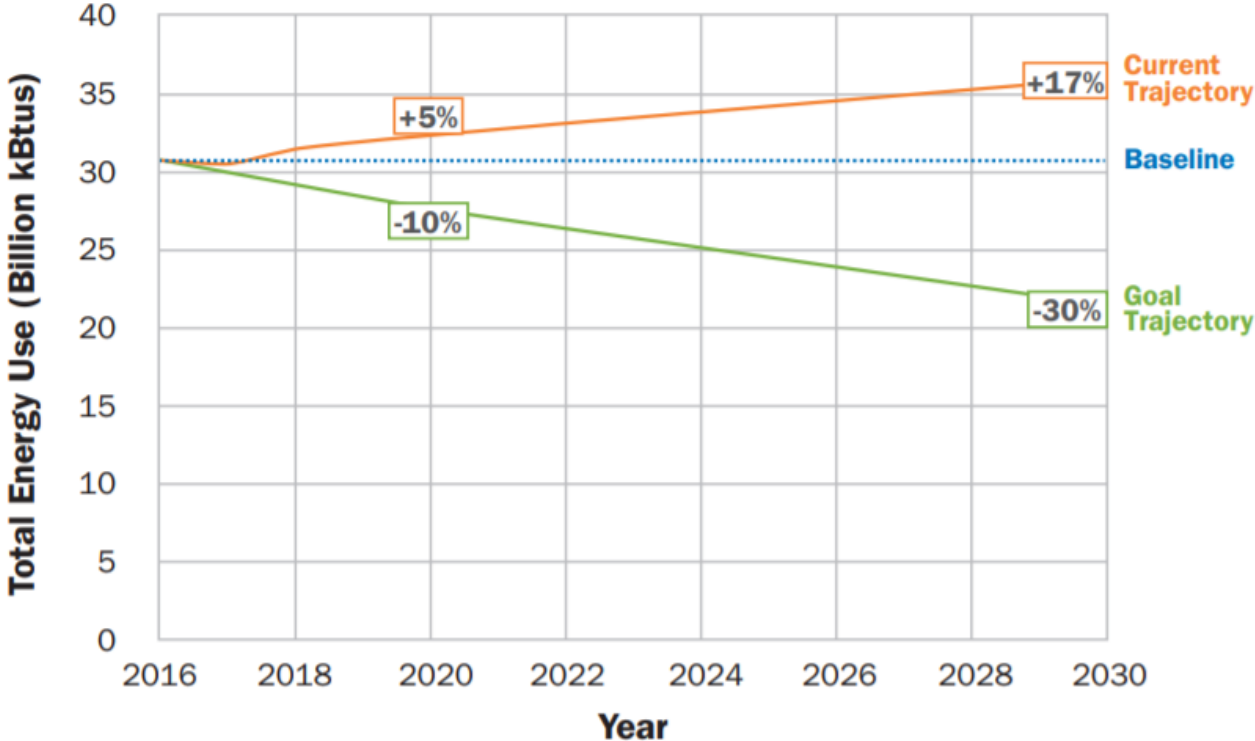
- >25,000 sq ft:
- 82% of square footage
 - **3,000** buildings

- <25,000 sq ft:
- 18% of square footage
 - **14,000** buildings

Building Types and Sizes



Progress Towards Efficiency Goals: All Buildings



Net Zero Energy

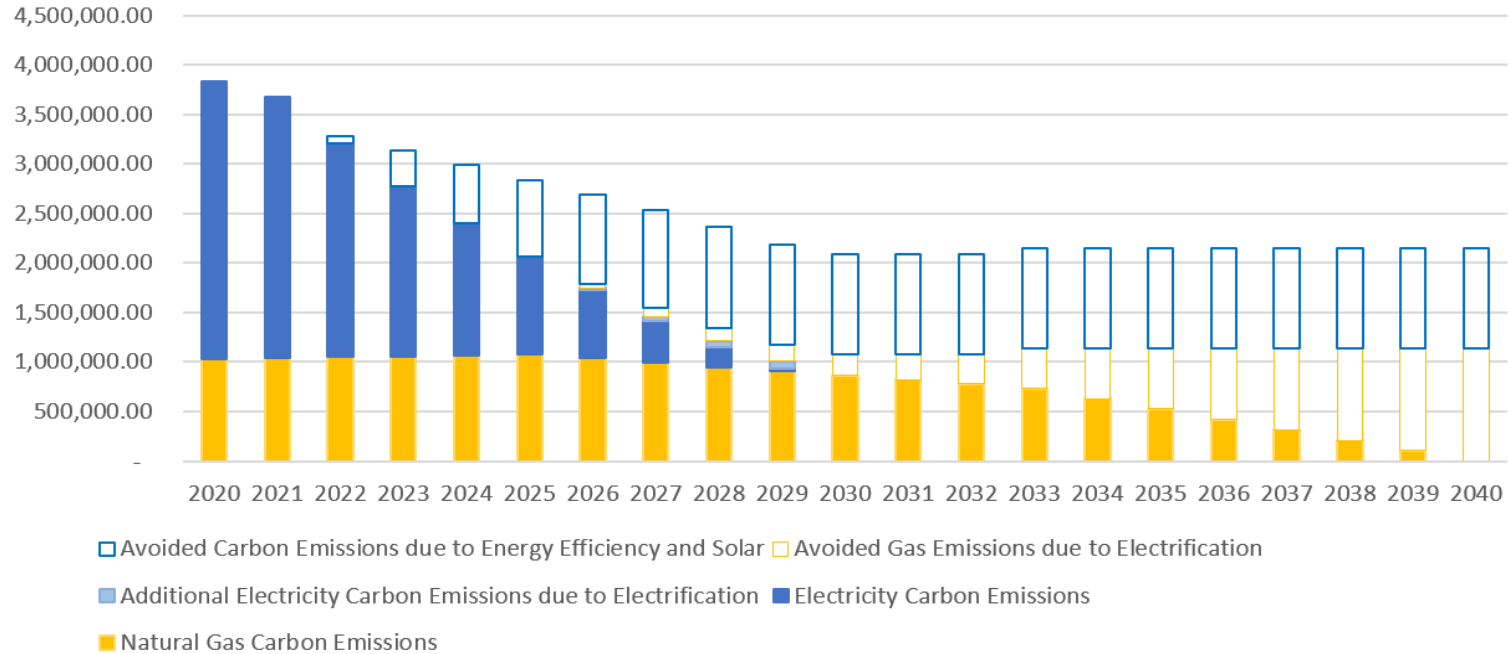
Highly Energy
Efficient

Renewable
Energy

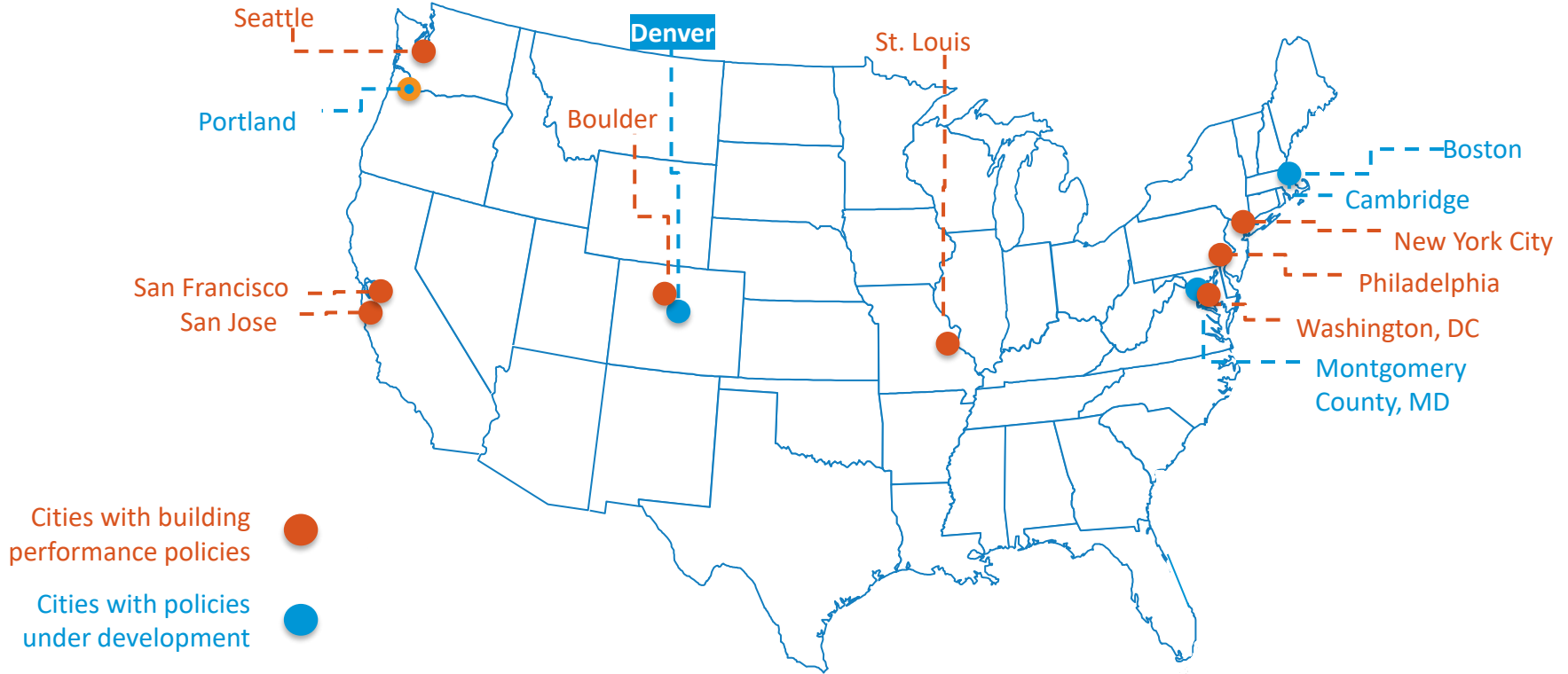
Demand
Flexible

All-Electric

Goal of the Task Force



Building Performance Policies in Other Cities





New York City
LL 97 Annual Emissions Limits

New York City LL 97 - Standards

- Standards apply to buildings 25,000 sf and up
- Standards based on annual GHG emissions limits.
- Limits get stricter over time in 5 year increments up to 2050.
- Buildings must meet standards annually

NYC LL 97 Emissions Limits for Occupancy Groups – Fixed Standards through 2034

| Occupancy Group | Space Use | Limit (kgCO2e/sf) 2024-2029 | Limit (kgCO2e/sf) 2030-2034 | Future periods through 2050 |
|------------------------|------------------|------------------------------------|------------------------------------|------------------------------------|
| B – Ambulatory Health | Medical Office | 23.81 | 11.93 | TBD |
| M – Mercantile | Retail | 11.81 | 4.3 | TBD |
| A – Assembly | Assembly | 10.74 | 4.2 | TBD |
| R1 – Hotel | Hotel | 9.87 | 5.26 | TBD |
| B – Business | Office | 8.46 | 4.53 | TBD |
| E – Educational | School | 7.58 | 3.44 | TBD |



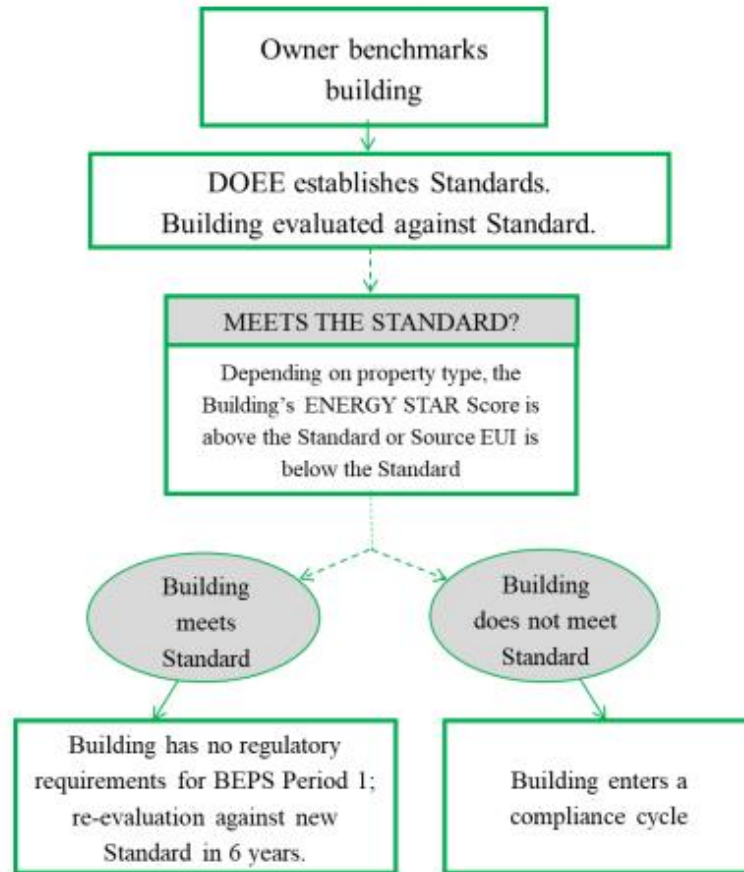
District of Columbia
Building Energy Performance Standard

1

2

Washington DC BEPS Policy Overview - Standards

- DC will define a performance standard based on ENERGY STAR Score for each building type.
- Building types not eligible for ENERGY STAR Score will use site EUI.
- Standard is recalculated for every new compliance cycle.
- Standards will phase in over time according to building size
 - Jan 2021 – Buildings 50,000 sf and up
 - Jan 2027 – Buildings 25,000 sf and up
 - Jan 2033 – Buildings 10,000 sf and up





St. Louis
Building Energy Performance Standard (BEPS)

St. Louis BEPS Policy Overview - Standards

- St. Louis' performance standard is based on site EUI set for each building type
- Standards apply to buildings 50,000 sf and up
- Standard may not be lower than 65th percentile by property type (65% of buildings have to improve)
- Standard is recalculated for every new compliance cycle (4 years with 1 year in between cycles to recalculate)
- Buildings that meet the standard at the end of each 4 year cycle are compliant

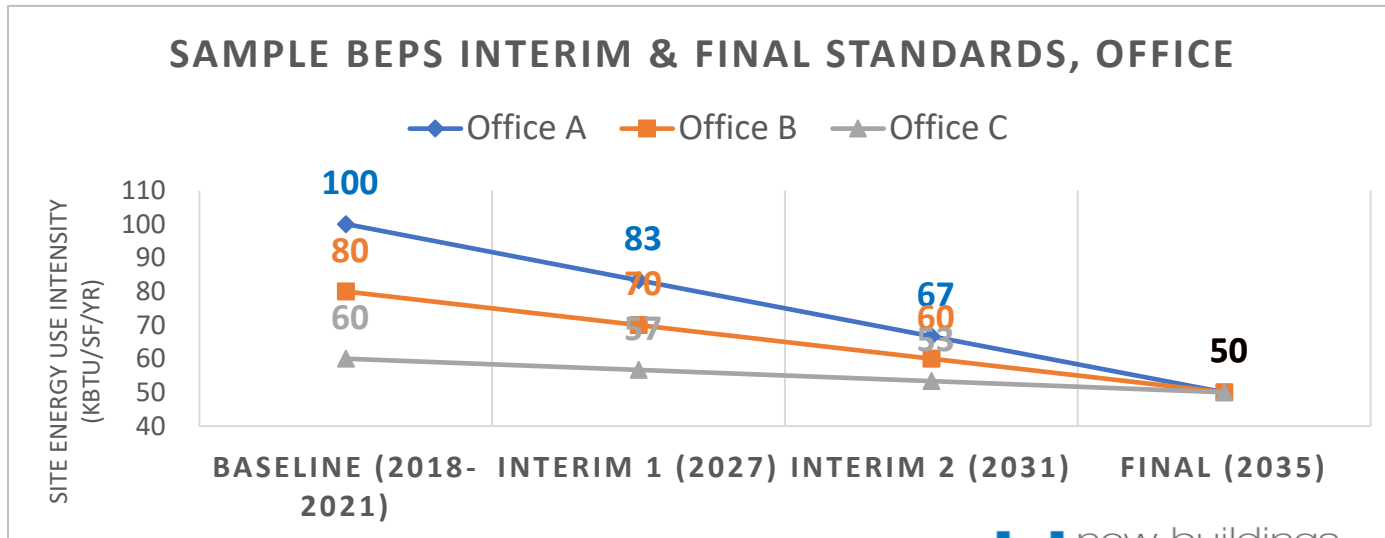


Montgomery County, MD

Proposed Building Energy Performance
Standard (BEPS)

Montgomery County BEPS Policy Overview

- Long-term site energy use intensity standards are created for each covered property type (25,000 sf and up)
- Onsite solar is fully credited against site energy use as “net normalized site EUI” to incentivize solar
- Each covered building’s baseline based on average historical energy use. Interim standards determined by drawing line from baseline performance to final performance standard.



Compliance Details



- Every 4 years, properties are evaluated as to whether they are meeting interim targets
- Alternative Compliance Option:
Building owners seeking additional flexibility may propose a detailed **Building Performance Improvement Plan** to create customized requirements for a building



State of Washington
Commercial Clean Buildings Performance Standard

Washington Performance Standard Overview - Standards

- Sets standard based on site energy use intensity (EUI) for commercial buildings 50,000 sf and up
- Standards updated every five years. First compliance period 2022-2029
- EUI targets must be no greater than the average EUI for the building's occupancy type with adjustments for unique energy-using features
- First EUI target set at 15% below 2009-2018 average EUI for building type
- Law creates an early adoption incentive program



Seattle, WA
Building Tune-Up Ordinance

WHO MUST COMPLY AND WHEN?

Building Tune-Ups are required every five years for **buildings with 50,000 square feet (SF) or more of non-residential space**, excluding parking. To support building owners, compliance deadlines are staggered by building size.

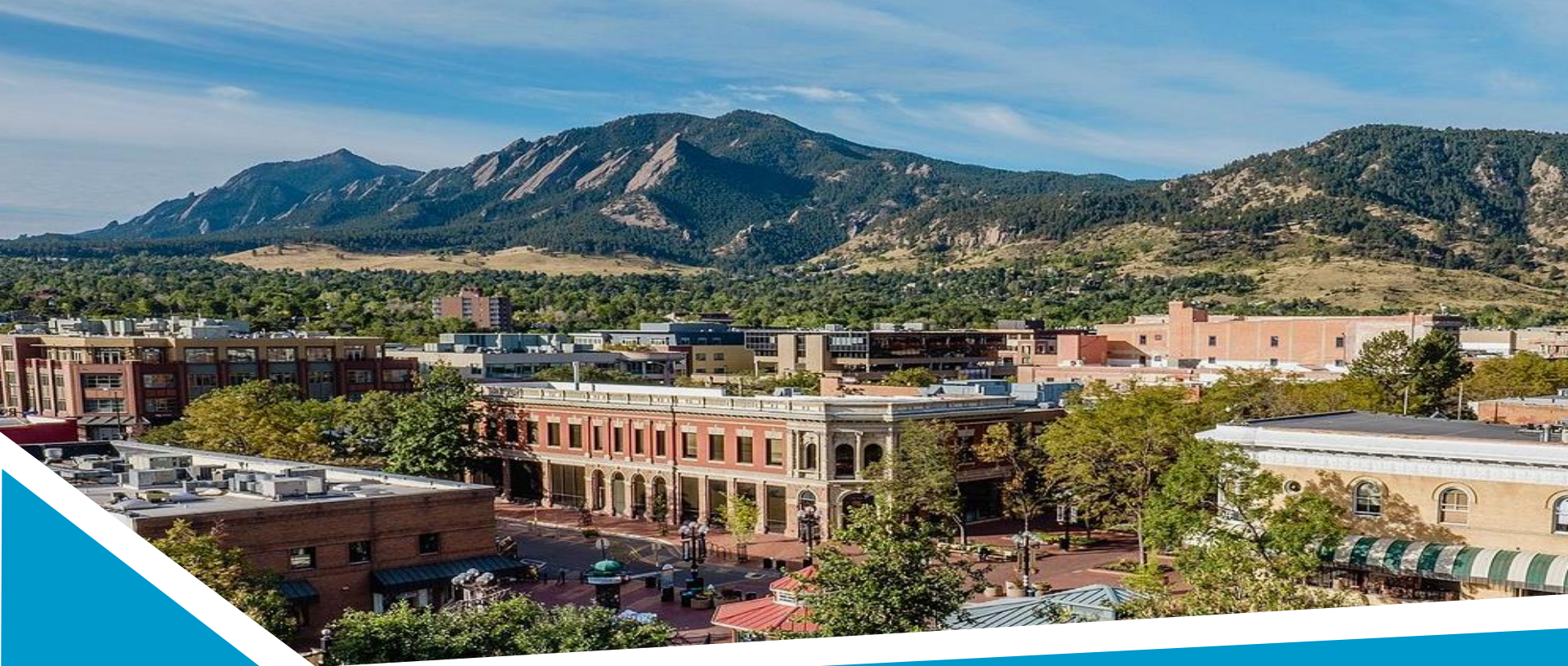
TUNE-UP SCHEDULE

Ongoing, every five years

| BUILDING SIZE* | DUE |
|-----------------------|-----------------|
| 200,000+ SF | March 1, 2019 |
| 100,000-199,999 SF | October 1, 2019 |
| 70,000-99,999 SF | April 1, 2021 |
| 50,000-69,999 SF | October 1, 2021 |

* *Excluding parking*





Boulder, CO
Building Performance Ordinance

Boulder Building Performance Ordinance Requirements

- Covers all buildings 20,000 square feet plus all buildings >10,000 sf built after Jan 2014
- All covered buildings must implement a one-time lighting upgrade within 5 years of first benchmarking deadline
- Buildings must meet the performance requirements
 - ENERGY STAR or LEED O&M certification, or
 - Pattern of significant efficiency or emissions improvements

OR

- Complete prescriptive requirements
 - Energy audit every ten years
 - Retrocommissioning every ten years and implement any measure with a <2 year payback



Colorado **Proposed** Performance Standard

Proposed Colorado State Bill

- 50,000 square feet or greater
- Requires Benchmarking
- June 2027 compliance date (2026 performance)

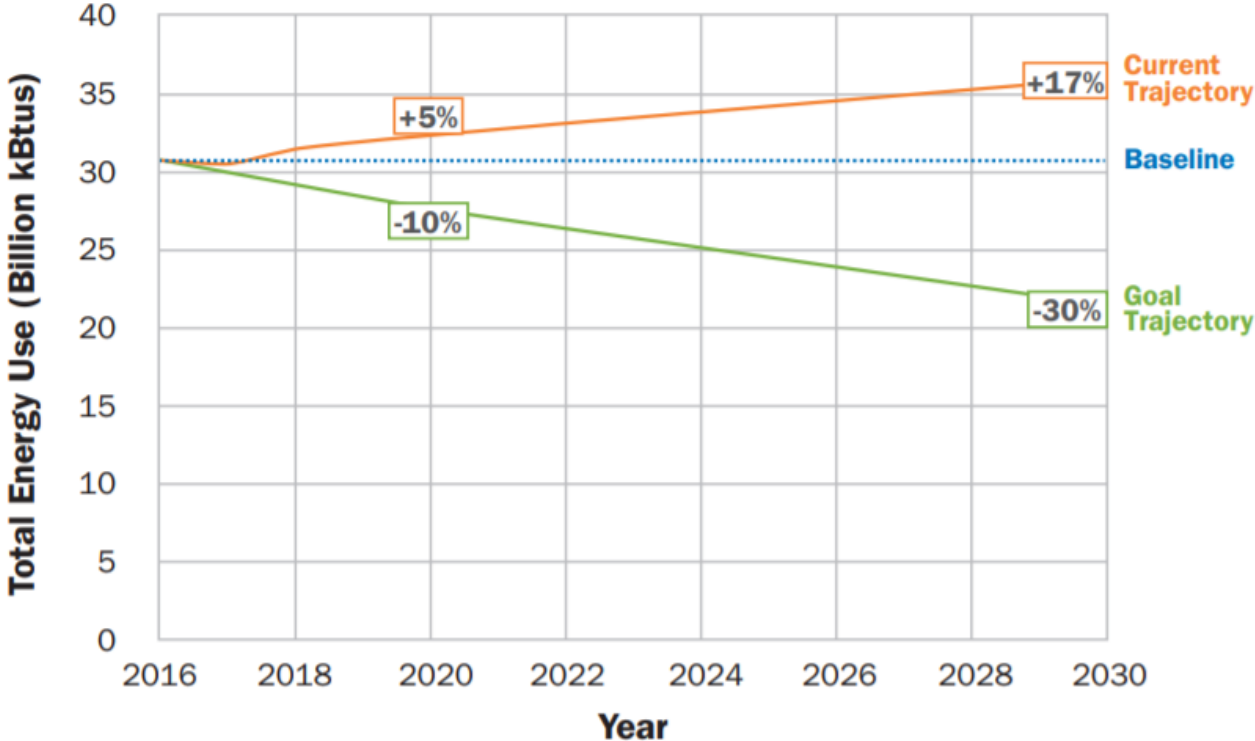
Multiple compliance paths

- EnergyStar Score of 75 (or 15 point improvement)
- EUI that:
 - meets target set by authority (or ASHRAE Standard 100)
 - is 25% less than national median
 - shows a 15% improvement
- Meet modeling standard of a current national energy code
- 50% renewable energy (with minimum efficiency)

Denver Options

Energy Efficiency and Renewable Electricity (EE/RE)

Progress Towards Efficiency Goals: All Buildings



Supports Needed

City needs:

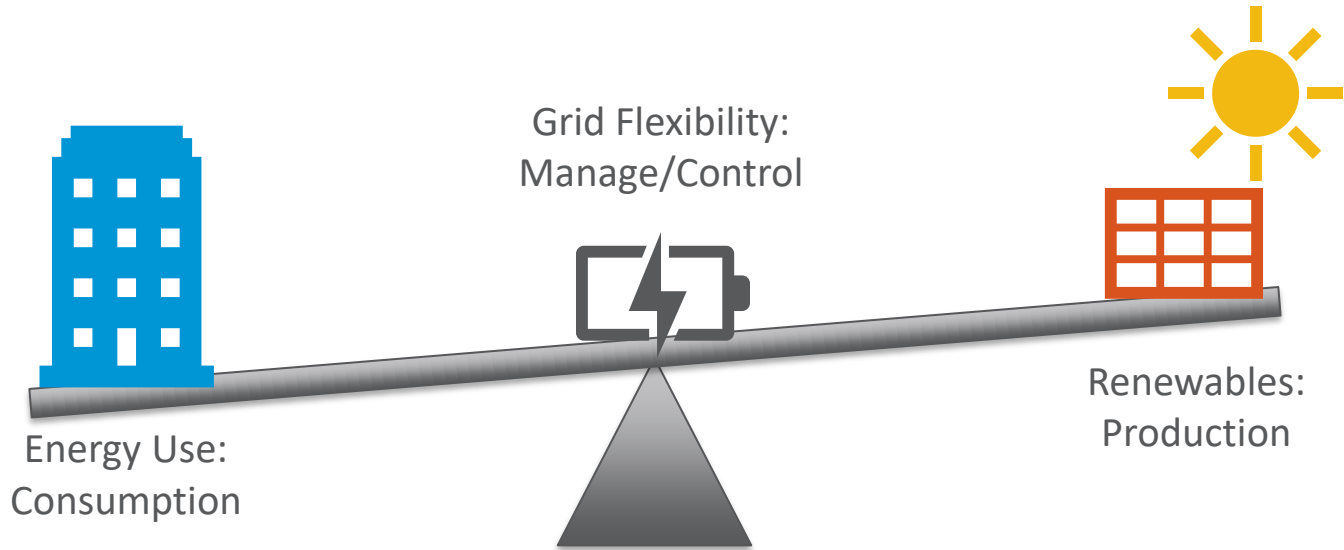
- Resources
- Staff



Community needs:

- Workforce Training
- Outreach and Education
- Financing
- Advocacy
- Education
- Programs

Balancing Energy



EE/RE Option 1: performance with prescriptive back-up

Montgomery County model

Final EUI targets set for every building type
Interim targets set for every building
Onsite solar can count

If a building cannot meet a target options prior to a penalty/fine are:

- Custom building performance improvement plan
- Prescriptive options if a little shy one year, allowing one year to come into compliance.

EE/RE Option 2: performance only

Colorado state bill (proposed)

Must achieve one of the following by 2026:

- ENERGY STAR Score 75 or higher
- ENERGY STAR score improved 15 points
- EUI sector-specific target
- EUI 15% reduced
- On-site solar reduces requirements

EE/RE Option 3: prescriptive with performance options

Boulder or Seattle model

Must undertake specific prescriptive options such as:

- Tune-up
- Audit
- Lighting upgrade
- VFD and motor upgrades

Exemptions exist for meeting certain performance targets

Custom compliance plans might be available

Could be tiered based on the building's performance, with lower performers doing

Questions/Discussion