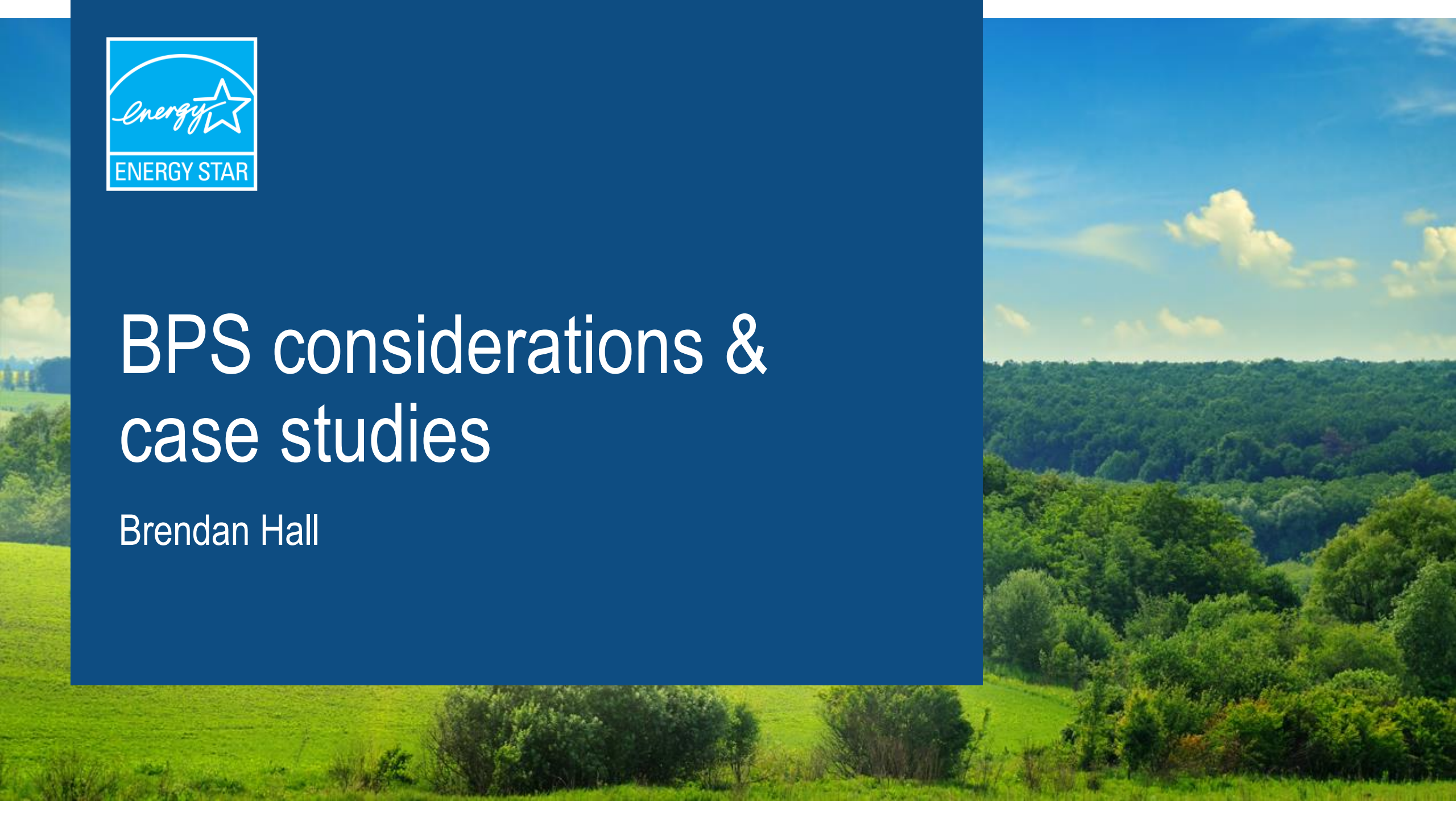




# BPS considerations & case studies

Brendan Hall



# Passed BPS

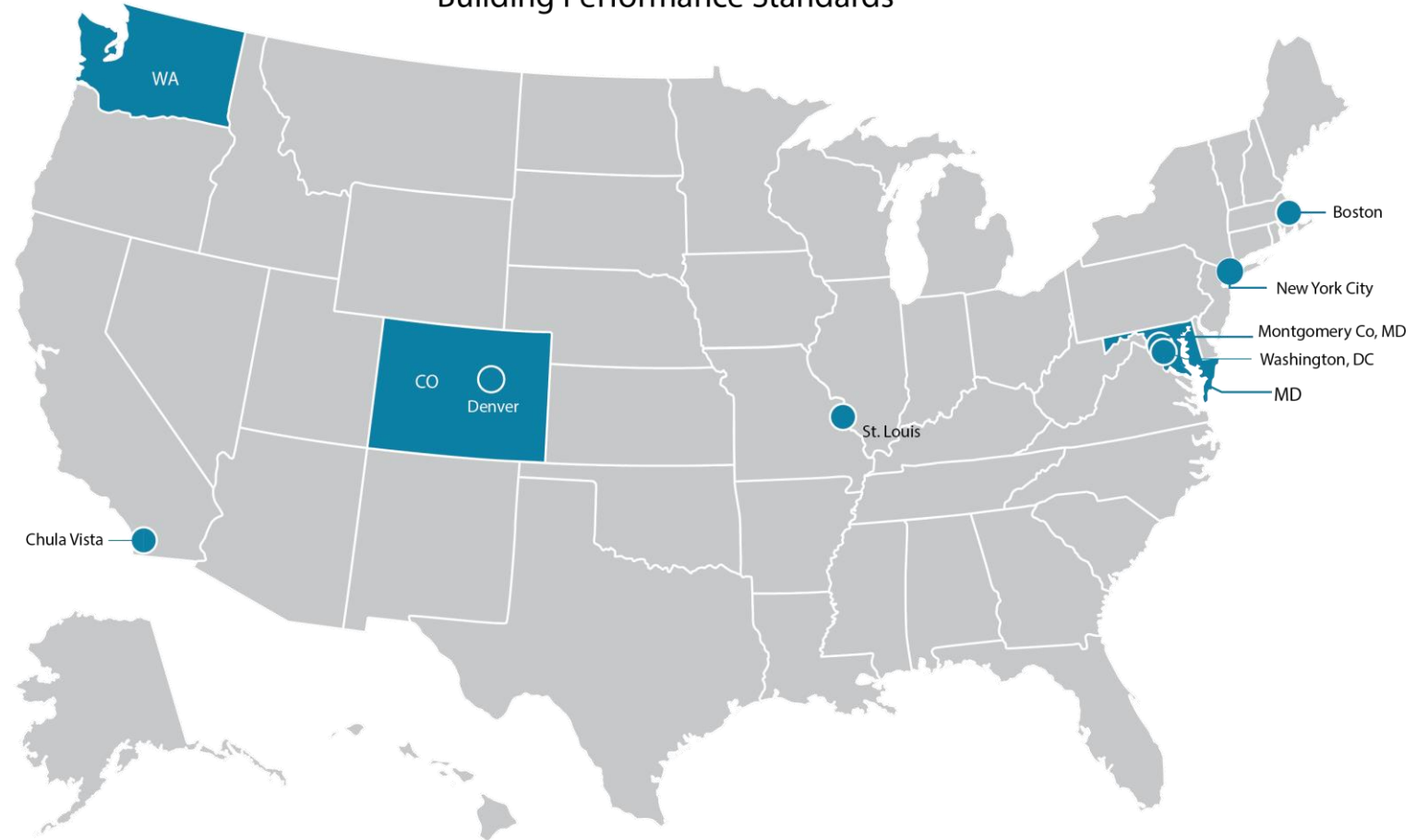
## U.S. City and State Policies for Existing Buildings: Building Performance Standards

### Completed rules & regulations:

- Washington, DC
- Washington – Phase I
- St. Louis, MO
- Denver, CO
- New York, NY
- Boston, MA – Phase I+II

### Rulemaking still in progress:

- Colorado
- Washington – Phase II+
- Boston, MA – Phase III
- Montgomery County, MD
- Maryland
- Chula Vista, CA





# Standing up a BPS



# Differences among BPS policies enacted to date

Metric(s)

Performance levels

Building sizes and types covered

How performance level was set

Alternative compliance paths

Types and levels of enforcement

Timeframe including interim & final standards

Trajectory approach / use of baseline?

Business activity normalization

Net metrics / Credits or adjustments for the use of renewable energy

Data verification

Incentives and support available



# EPA ENERGY STAR

- ENERGY STAR is a voluntary program at the U.S. Environmental Protection Agency that helps businesses and individuals save money and protect our climate through superior energy efficiency
  - ENERGY STAR means energy efficient and supportive of clean energy



Coming soon!

 **NextGen**  
CERTIFIED BUILDING | 2024  
EMPOWERING A CLEAN ENERGY FUTURE

1–100   
ENERGY STAR® SCORE



# ENERGY STAR and BPS

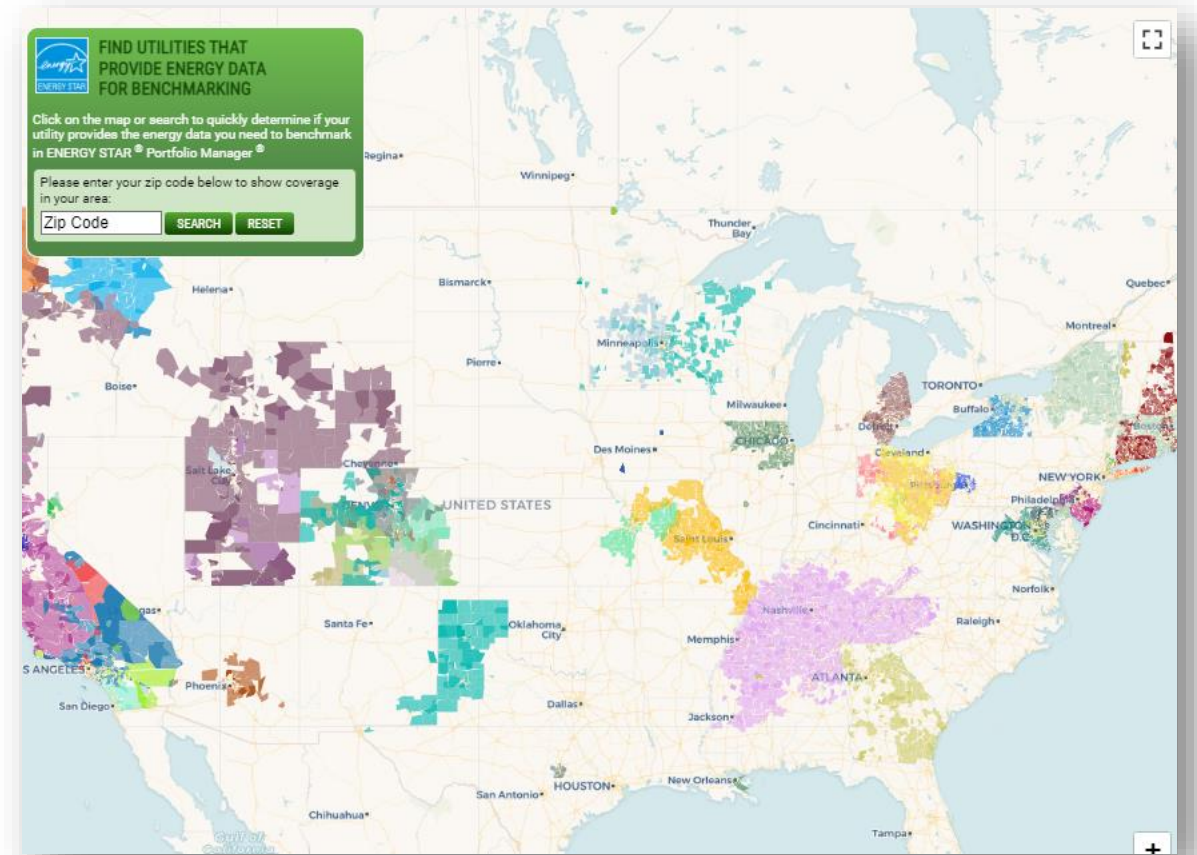
- Providing and enhancing tools for implementation
  - See the logos!
- Developing policy recommendations and guidance based on building owner realities
  - One example: [EPA Benchmarking and Building Performance Standards Policy Toolkit](#)
- Engaging and convening policymakers, influencers, and building owners
  - One example: Reviewing draft laws and regulations

Ensure that state and local benchmarking and improvement initiatives result in efficient decarbonization based on building owner realities



# Whole-Building Energy Data

- One related EPA priority is driving the coverage, data quality, and customer ease-of-use of utility-provided whole-building energy data
- Without access to this data, multitenant buildings like offices and multifamily housing aren't practically able to benchmark their energy use



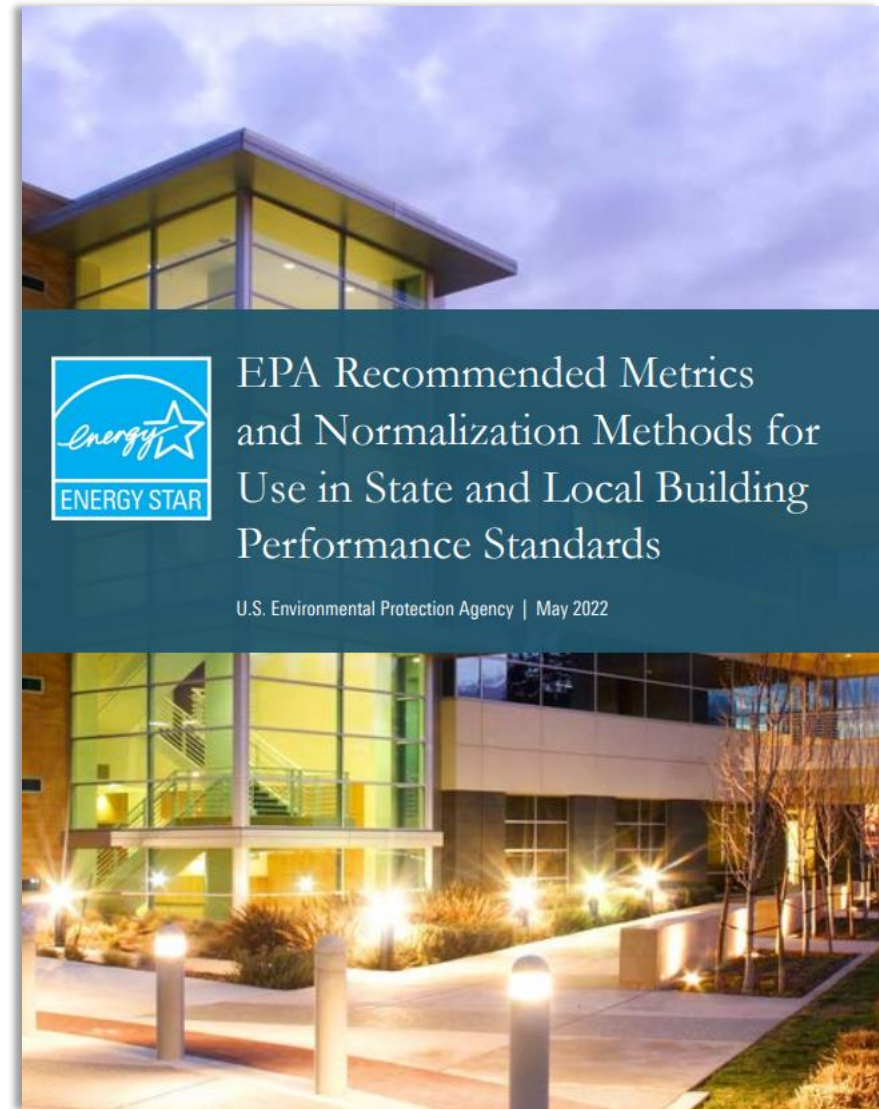
[www.energystar.gov/utilitydata](http://www.energystar.gov/utilitydata)





# Metric recommendations

- To reduce energy use:
  - **Site Energy Use Intensity (EUI)**
- *[Optionally, in combination with the above]* To reduce onsite greenhouse gas emissions (GHG) and encourage electrification:
  - **Direct GHG emissions OR**
  - **Adopt a fossil fuel phaseout schedule**
- EPA recommends against the use of net energy metrics in BPS

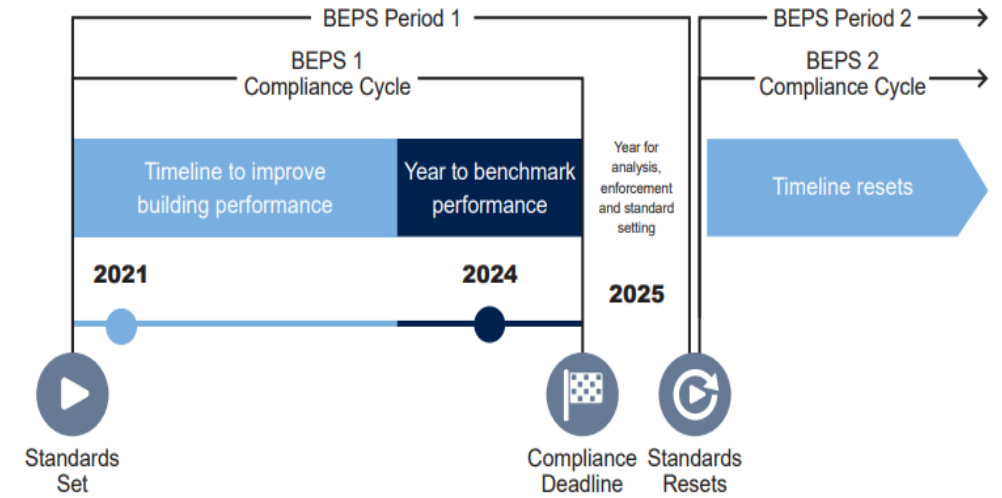


[EPA recommended metrics and normalization methods for BPS](#)



# Metrics: St. Louis case study

- Set standards at 35th percentile of weather normalized (WN) site EUI for each property type
  - Using 2018 reported benchmarking data, cleaned
  - Where a property type had less than 10 local buildings, STL used the national 35th percentile values for it
- Four compliance paths
  1. Be at or below WN site EUI standard
  2. Extra compliance: 20% or 50% reduction plus the above
  3. For cycles 1 & 2, buildings can comply by achieving a 50% reduction over their baseline towards the standard
  4. Custom alternative compliance pathway\*



Source: St. Louis [BEPS Compliance Pathways Fact Sheet](#)

“Buildings and their owners that fail to comply will face violations in the forms of fines and/or loss of occupancy permits for future tenants.”

# Metrics: Alternatives

## DC (combination)

- Hit BEPS by property type
  - 1-100 ENERGY STAR Score
  - Source EUI
- If don't meet BEPS, enter compliance cycle
  - 20% reduction in site EUI
  - Prescriptive compliance path
  - Hit standard
  - Alternative compliance path

## NYC (total GHGi)

- Hit Direct GHGi by property type, or pay penalty

## WA state (Site EUI)

- Hit Site EUI target by property type for climate zone and operating hours range

# Normalization recommendations

- Set targets by property type using an intensity metric;
- Assess whether additional normalization is needed;
- If needed, use either the binning method or ENERGY STAR Score method

| OPERATING HOURS PER WEEK | 2030 TARGET SITE EUI (KBTU/FT <sup>2</sup> ) |
|--------------------------|--|
| Less than 50             | 32 kBtu/ft <sup>2</sup>                      |
| 50 – 70                  | 46 kBtu/ft <sup>2</sup>                      |
| 71 – 100                 | 52 kBtu/ft <sup>2</sup>                      |
| 101 or more              | 60 kBtu/ft <sup>2</sup>                      |

# Normalization: Denver case study

- 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
  - Previous benchmarking submission were incorrect
  - Building alterations

## B.1 OPERATING HOURS

TABLE 14: OFFICE

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

TABLE 15: 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 16: 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 17: 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 18: 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 19: 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                 |





# Wrap-up

- Contact us! [statelocal@energystar.gov](mailto:statelocal@energystar.gov)
  - Quarterly Building Performance Initiative Network calls – jurisdictions and firms that represent them
  - Quarterly BPS ‘influencer organizations’ calls – organizations & firms actively involved in BPS design and implementation
  - One on one planning/strategy calls – jurisdictions
- Sign-up for our twice-yearly [building performance policy briefs newsletter](#) – anyone!

