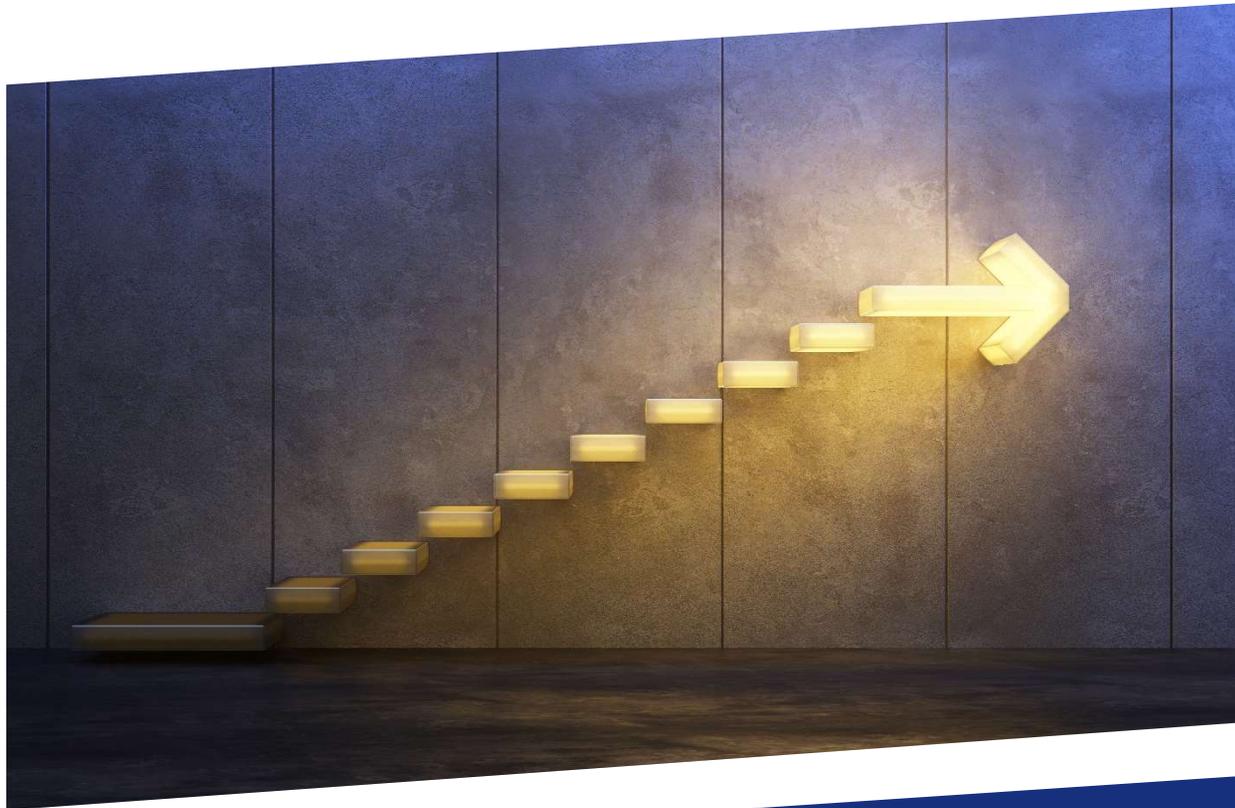




# Benchmarking + Building Performance Standards



**Milwaukee Green Building Working Group**  
**August 4, 2021**

# About The Institute for Market Transformation (IMT)



## Mission

Catalyze widespread and sustained demand for high-performing buildings.



## How we work

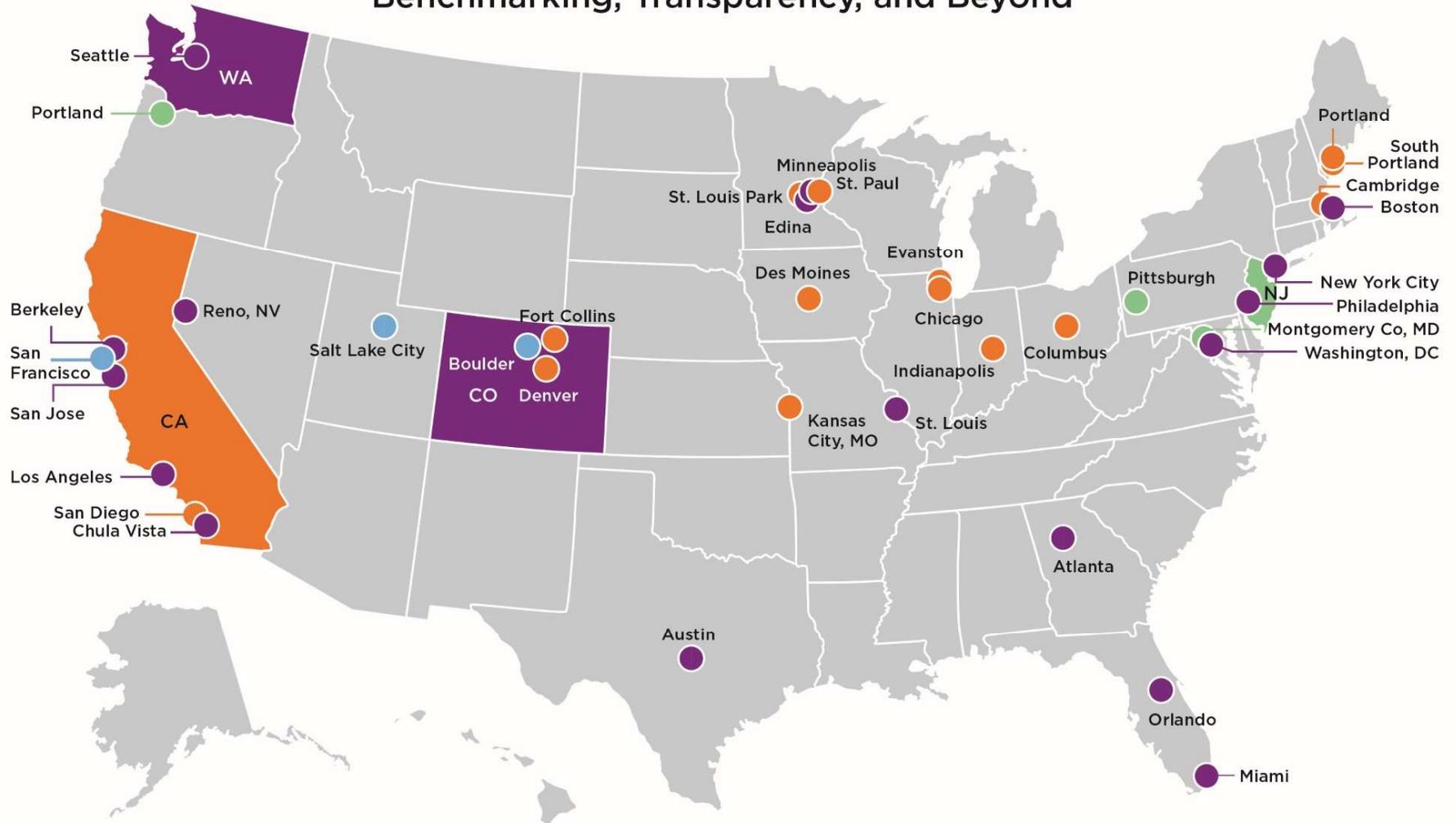
Advancing policies and business practices that enable people to build and operate healthy, high-performing buildings.

## Why Benchmarking + Building Performance Standards?

- Buildings waste ~30% energy and role in decarbonizing energy supply is not defined by markets
- Current energy-related renovation rates: 2% of commercial buildings and <.5% of residential buildings



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

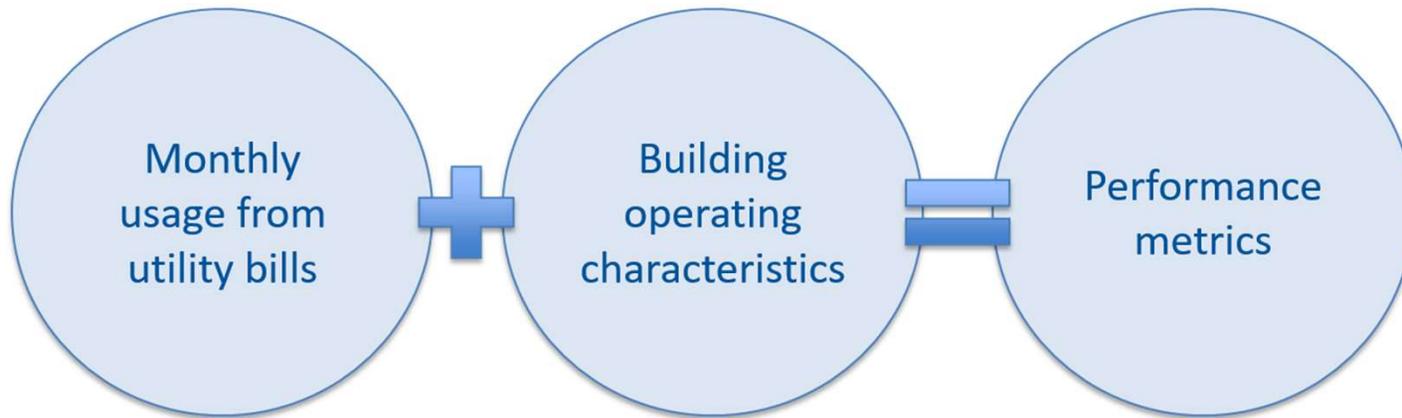


- Benchmarking required for public and commercial buildings
- Benchmarking and additional actions required for public and commercial buildings
- Benchmarking and additional actions required for public, commercial, and multifamily buildings
- Benchmarking and additional actions required for public, commercial,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



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# Benchmarking process



Compare your building to a **national sample** of similar buildings



Compare your buildings of a similar type to **each other**

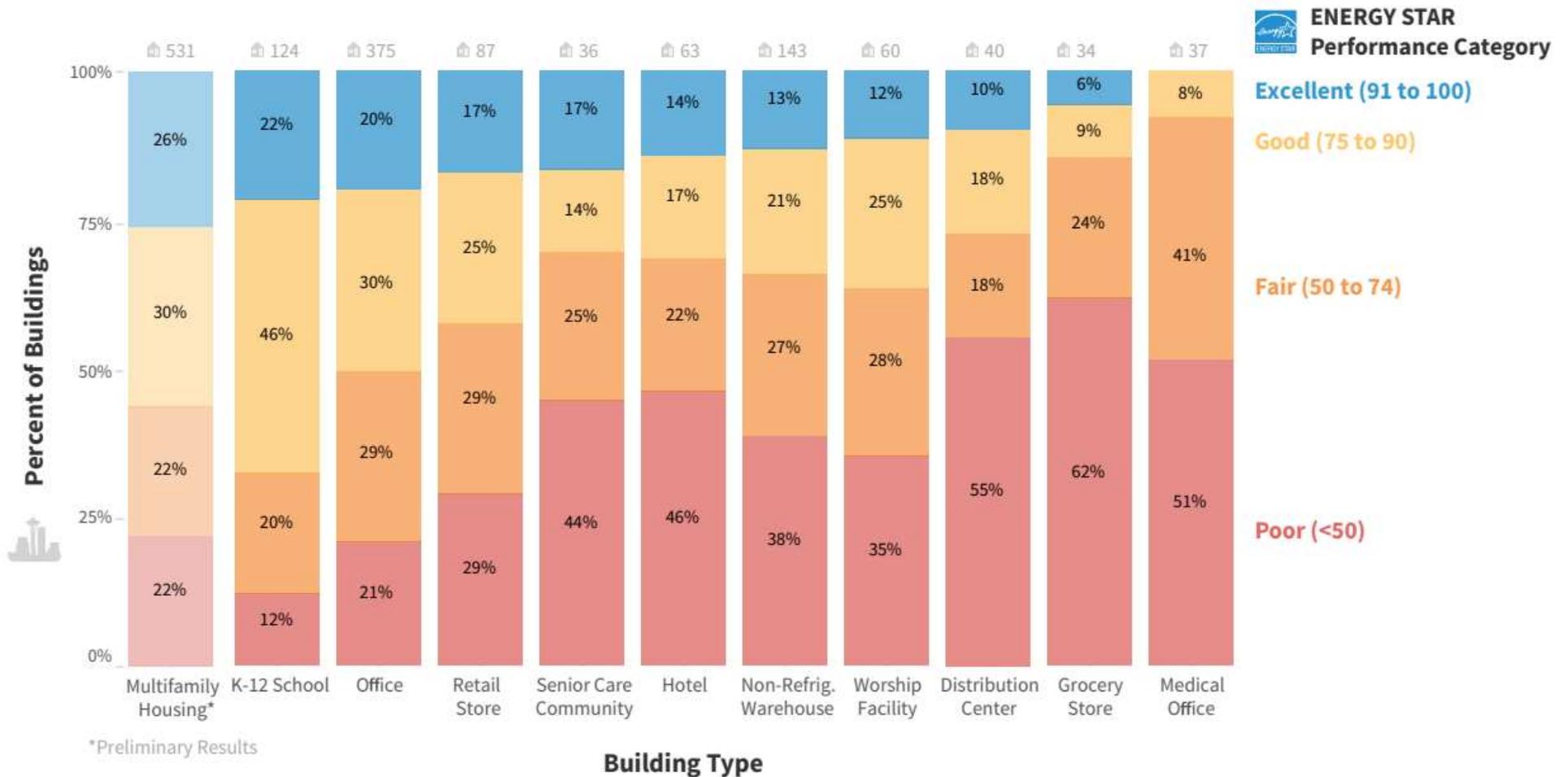


**Identify underperformers** in your portfolio & set priorities for staff time & investment capital

# Benefits of Transparency



# Analyze Data and Report Findings



# Implementation Work streams and Timelines

SETTING THE FOUNDATION  
PRE-ORDINANCE PASSAGE

0-6 MONTHS  
AFTER ORDINANCE

6-9 MONTHS BEFORE FIRST  
COMPLIANCE DATE

AFTER FIRST  
COMPLIANCE DATE

Engage the Community

Engage Utilities

Develop an Inventory of Covered Buildings

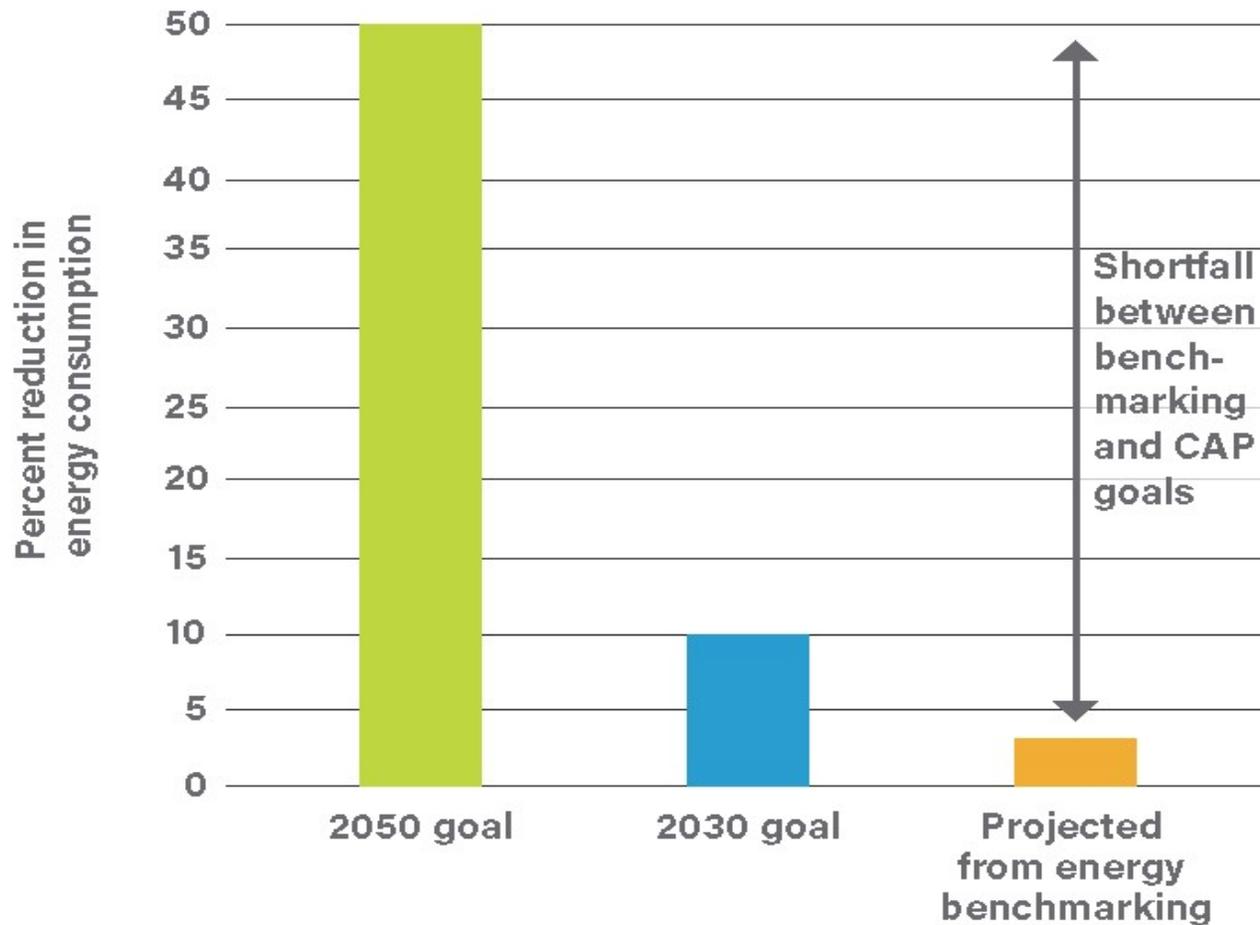
Collect and Manage Building Data

Educate to Improve Compliance

Communicate  
Results

# Gap Between Benchmarking and Energy Goals

## Benchmarking alone cannot achieve our CAP goals



# Why Benchmarking + Building Performance Standards?

- Buildings waste ~30% energy and role in decarbonizing energy supply is not defined by markets
- Current energy-related renovation rates: 2% of commercial buildings and <.5% of residential buildings
- **Building performance standards make performance meaningful to business: shift from *a nice to have***
- **BPS establish the role of buildings in decarbonizing energy supply**

Photo: Onion Flats, by Sam Oberter

# What Makes a BPS Different?

Requires Improvement Across a Wide Range of Buildings

Yields Deep Retrofits at Scale

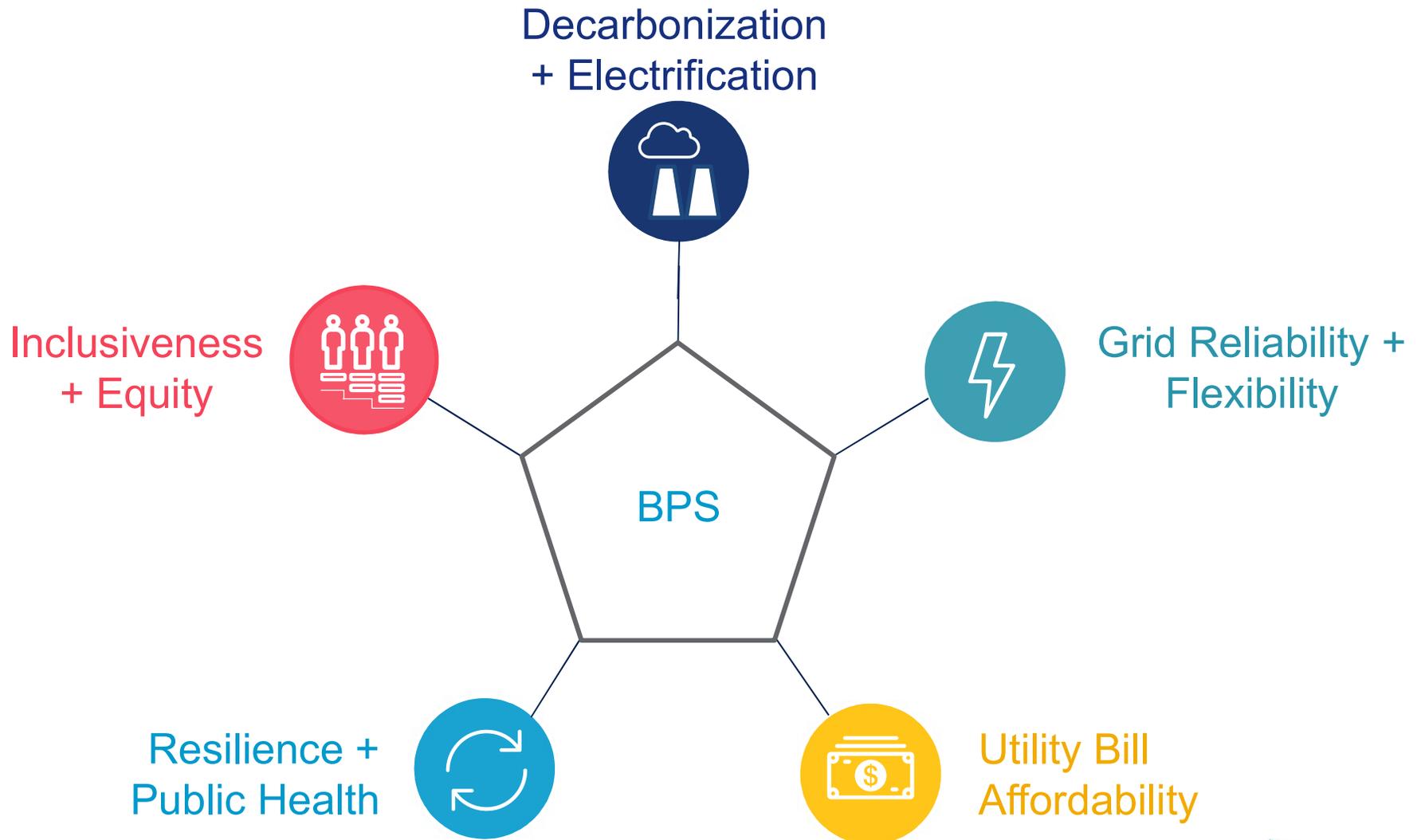
Drives Private Value, Creating Investment in Private Buildings

Provides Comprehensive Approach to Performance

Balances Flexibility and Immediate Action

Sends Long-Term Signal

# BPS: A Platform for Building Regulation

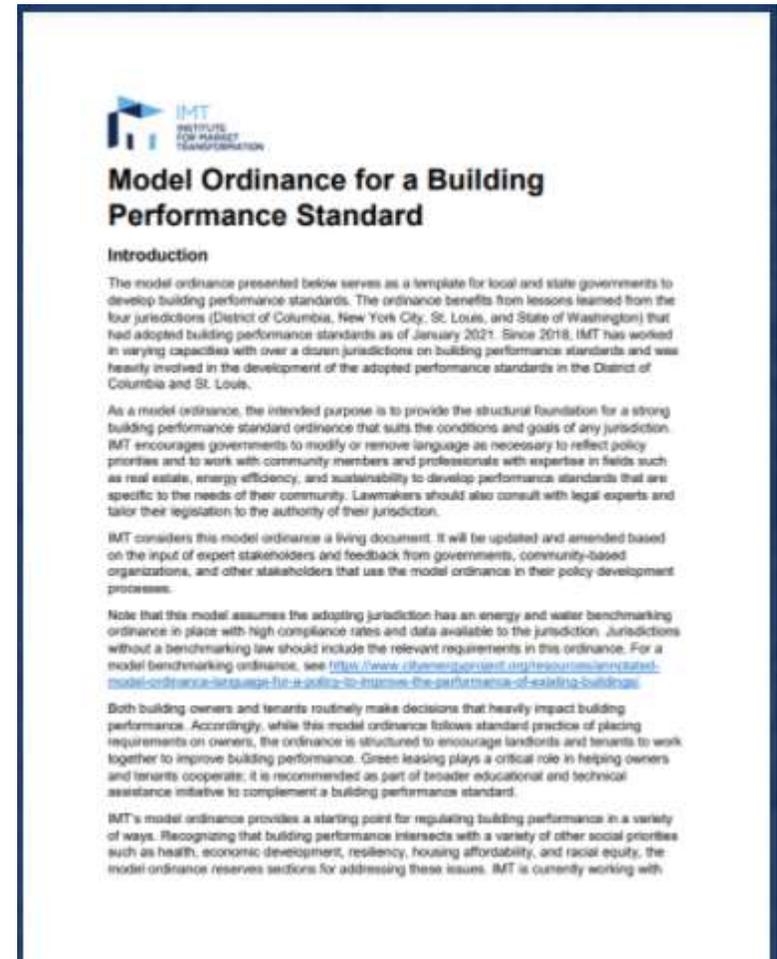


# BPS Around the United States

	Washington, DC	New York City	WA State	St. Louis, MO	Montgomery County
Year Adopted	2019	2019	2019	2020	Pending
First Compliance Deadline	2026	2024	2026	2025	~2026
Minimum Threshold Performance by building type	Standards set no lower than median <b>ENERGY STAR score</b> (or equivalent)	<b>CO<sub>2</sub>e</b> emissions limits on a sq. ft. basis	<b>Site EUI</b> targets are 15% less than 2009-2018 averages	Standards set no higher than 35 <sup>th</sup> percentile <b>site EUI</b> (so 65+% of buildings must improve)	In development to be set in regulation, based on <b>site EUI</b>
Covered Buildings	Commercial and multifamily > 10K sq. ft.	Commercial and multifamily > 25K sq. ft.	Commercial > 50K sq. ft.	Commercial and multifamily > 50K sq. ft.	Commercial and multifamily > 25K sq. ft.
Compliance Cycle	5 years	Buildings must comply annually; limits get stricter every ~5 years	5 years	4 years (6 years for affordable housing and houses of worship)	Long-term target with 4 year interim check ins

# 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](#)



# How IMT's BPS Strategy Addresses Building Performance



## Standards Based on Performance Metrics

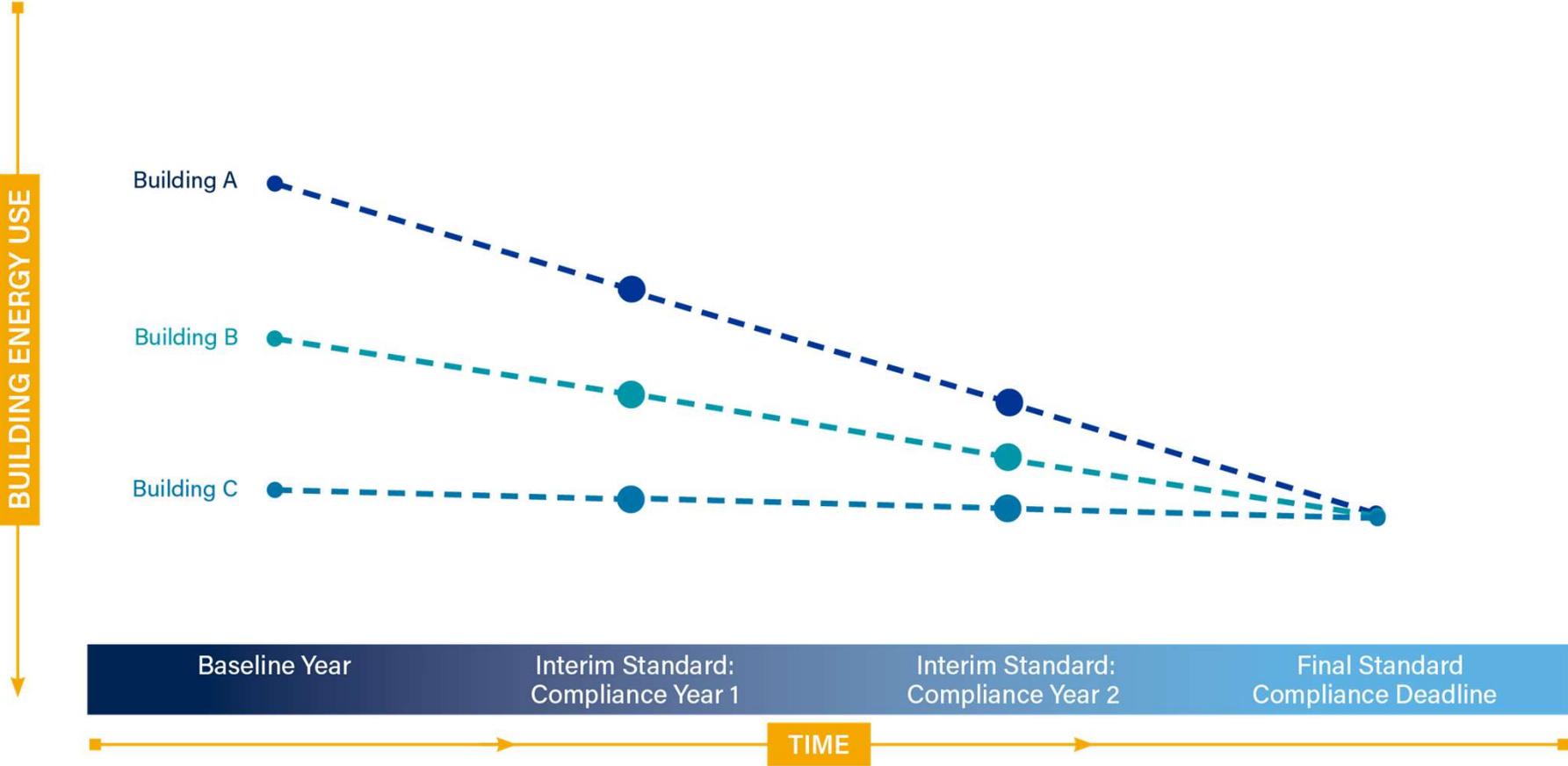
- Site Energy Use Intensity
- Onsite and District Thermal GHGs
- Water Use Intensity



## Actions to Advance Community Priorities

- Exploring affordable housing protections
- Owners seeking additional flexibility could be required to advance community priorities

# IMT's BPS Trajectory Approach: Final and Interim Standards for Three Office Buildings

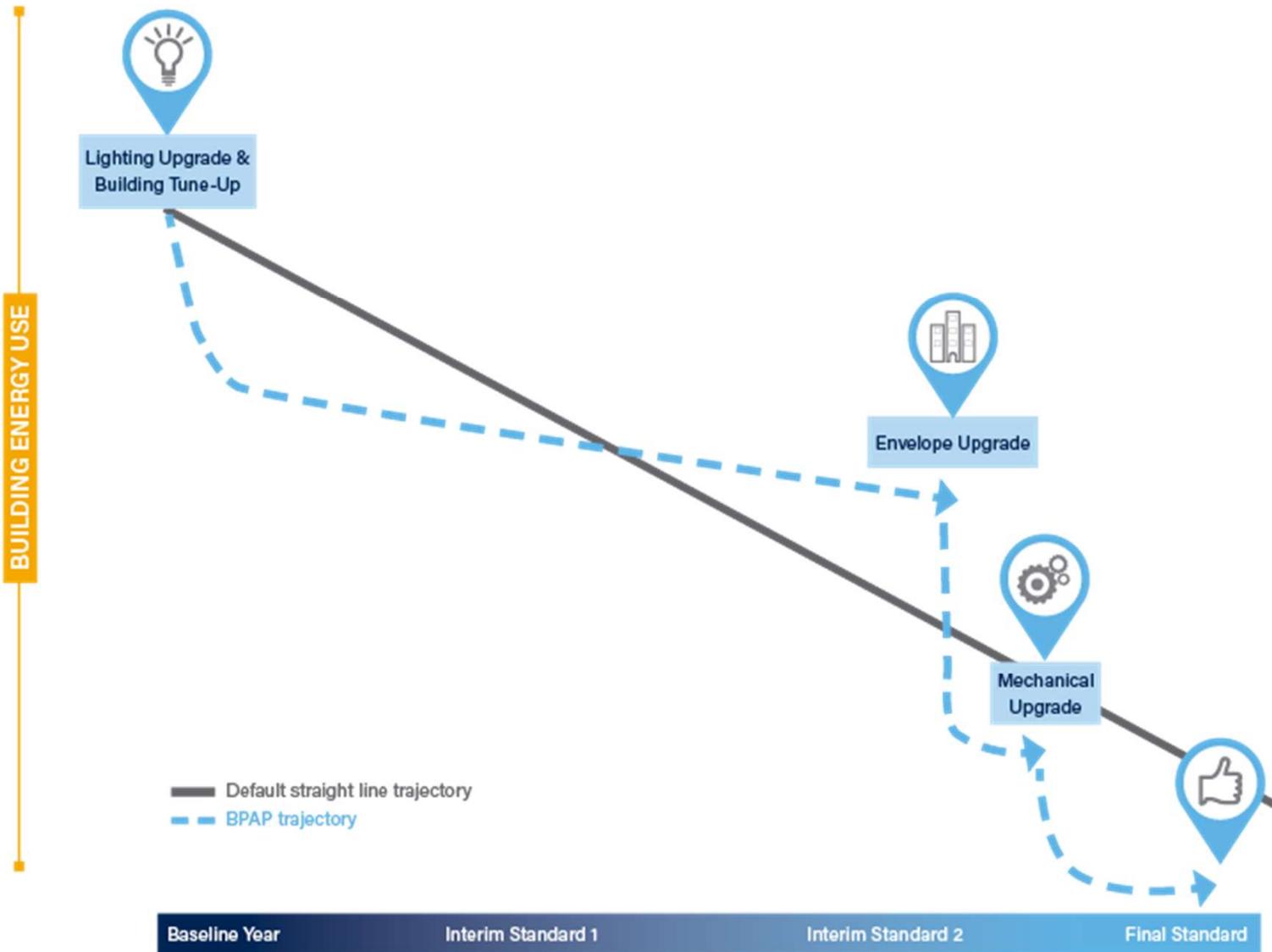




## Compliance Flexibility: Building Performance Action Plan (BPAP)

- Method by which building owner can propose an alternative compliance plan to avoid penalties for missing upcoming standard(s)
- The BPAP, if approved, is a binding agreement between building owner and jurisdiction
- Newly created attachment to building's deed and any for-sale listings shall reference BPAP

# BPAP Example: Building Ahead on Compliance



# Community Priorities Policy Toolkit



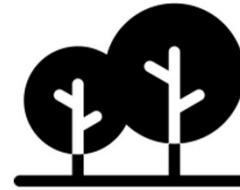
## Health

- Ventilation system design – ASHRAE 62.1 compliant?
- CO2 monitoring ramping up to include PM, VOCs, etc.



## Affordability

- Implementation support (\$\$+TA)
- Tenant Protections
- Rental Standards
- Reporting on energy burden impact



## Resilience

- Risk & vulnerability assessments
- Grid Interactivity
- Compliance flexibility for adaptation measures

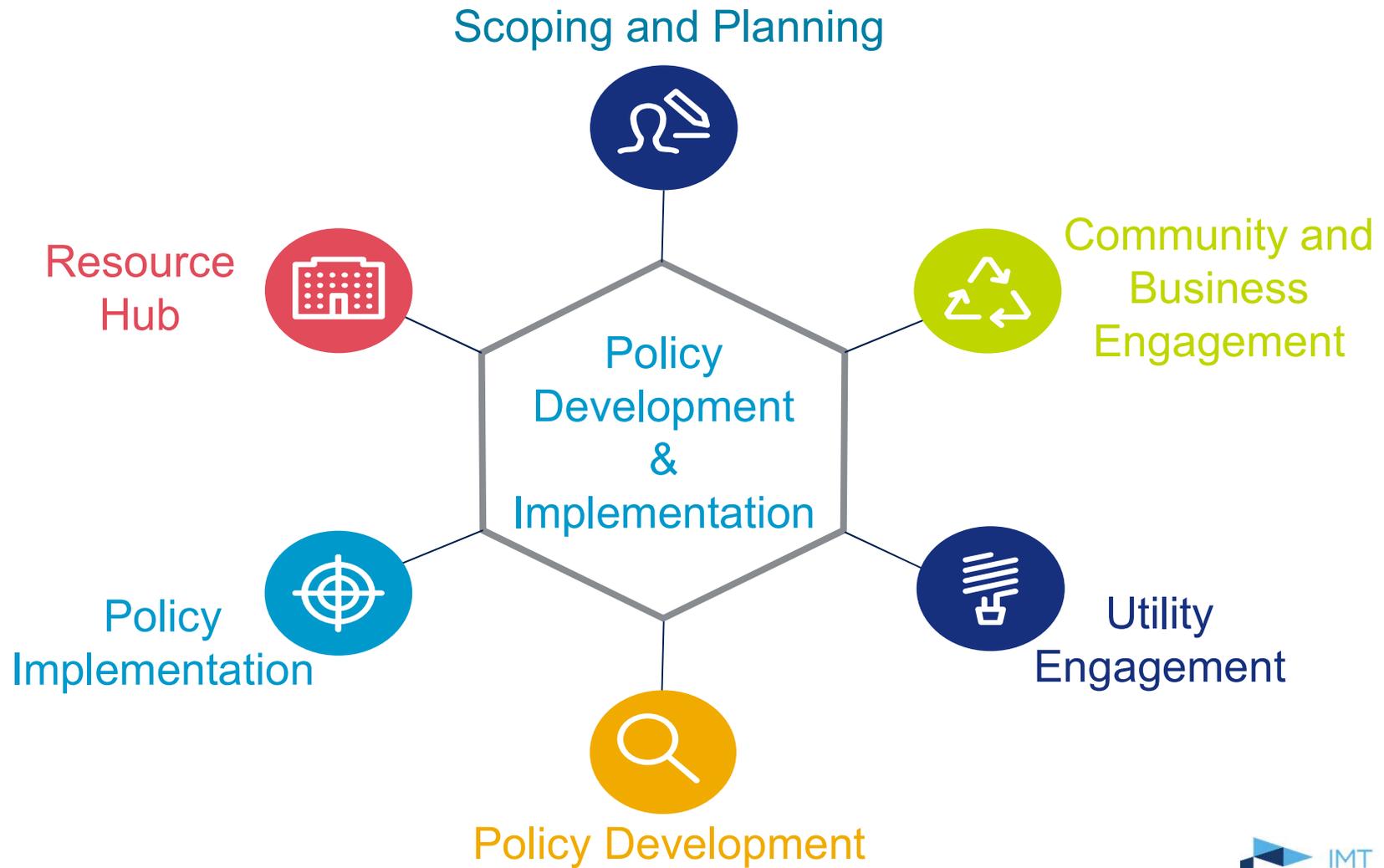


## Economic Development

- Workforce development parameters
- Procurement standards

Community engagement 

# Creating a Building Performance Policy



# Q&A

Tara Brown  
City Solutions Manager  
[Tara.brown@imt.org](mailto:Tara.brown@imt.org)

# Advisory Group



\* Additional examples of groups to engage

# Data Transparency Benchmarking Implementation and Resources Visualizations Scorecards

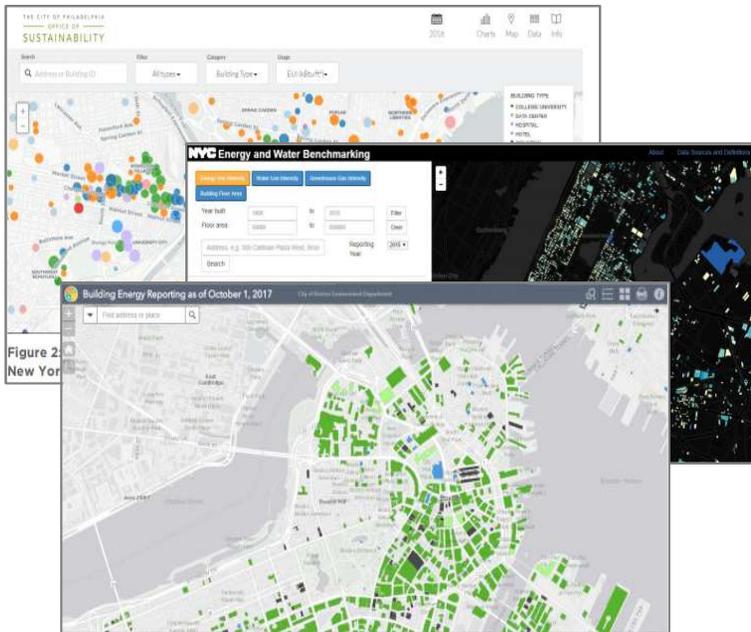
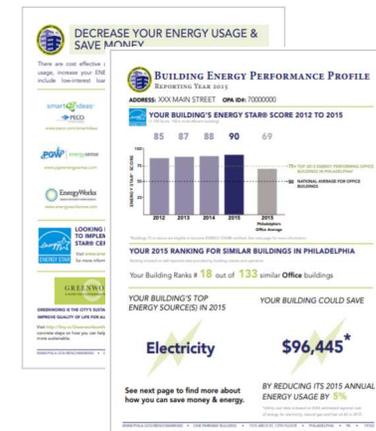


Figure 2  
New York

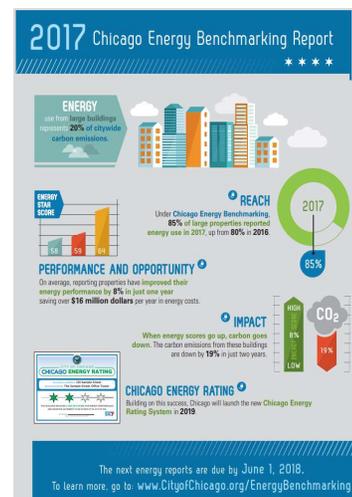
Visualizations for the Cities of Philadelphia, New York, and Boston (top to bottom)



City of Seattle



City of Philadelphia



## Infographics

City of Chicago



# Share Data to Enable Transparency

## 2017 Building Energy Benchmarking

Seattle's Building Energy Benchmarking Program (SMC 22.920) requires owners of non-residential



OSEBull...	DataYear	Building...	Primary...	Pro
1	2017	NonResidenti...	Hotel	May
2	2017	NonResidenti...	Hotel	Par
3	2017	Campus	Hotel	84S
5	2017	NonResidenti...	Hotel	HO1
8	2017	NonResidenti...	Hotel	WA1
9	2017	Nonresidenti...	Other	Wes
10	2017	NonResidenti...	Hotel	Can
11	2017	NonResidenti...	Other	Par
12	2017	NonResidenti...	Hotel	311
13	2017	Multifamily ...	Mid-Rise Mul...	Lyo
15	2017	NonResidenti...	Hotel	Hot
16	2017	NonResidenti...	Hotel	42S
17	2017	NonResidenti...	Hotel	Exe
18	2017	NonResidenti...	Hotel	Cro
19	2017	NonResidenti...	Hotel	Hot
21	2017	Nonresidenti...	Other	The

## Seattle Energy Benchmarking

Office of Sustainability & Environment

Search building name, address, or ID  Neighborhood  Council District

**METRIC FILTERS** RESET ALL

Select a metric to see filtered results on the map

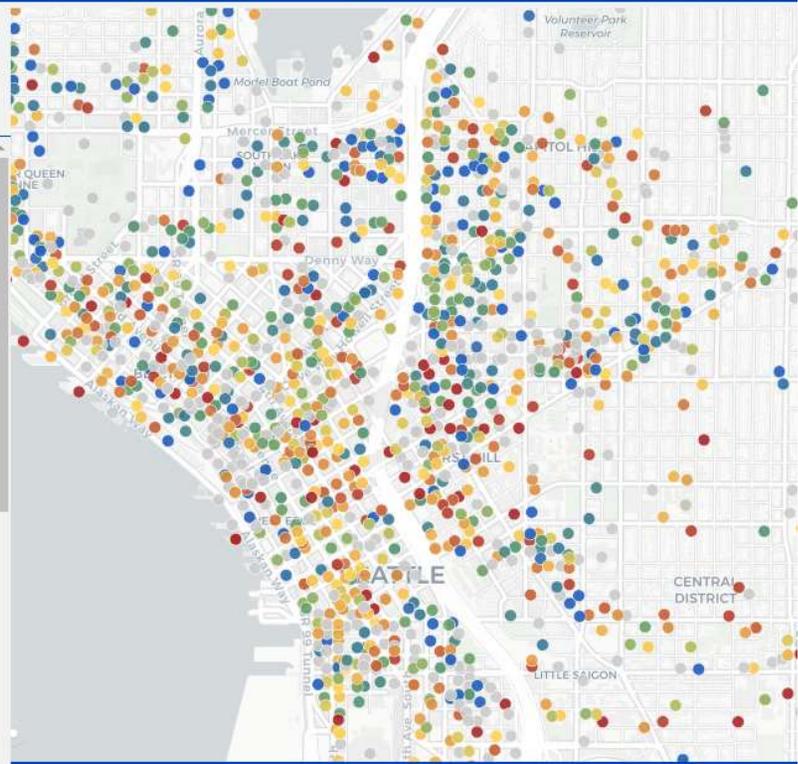
Show All Buildings

Property Information

Energy Performance Metrics

**Building EUI Quartiles** MORE INFO

Building EUI Quartiles cannot be calculated across building types. Select a building type above to view this metric.



3,538 OUT OF 3,538 BUILDINGS

# San Antonio Engagement

Myth	Reality
I am going to be required to buy expensive software or hire consultants.	Reporting will require the use of EPA’s Energy Star Portfolio Manager which is a <b>free online tool</b> . The proposed benchmarking and reporting requirements will not require the hiring of consultants.
I am going to be forced to undertake expensive improvements.	The proposed requirements are for <b>benchmarking and transparency only</b> and property owners will not be required to make any improvements. However, incentives and financing will be available for voluntary improvements.
This will take too much staff time.	Annual reporting will take minimal time depending on the number and complexity of buildings. Research has shown that compliance can range from <b>one to eight hours per year</b> .
We won’t be able to get the data we need.	Utilities across the country have developed the required mechanisms to provide the needed data for benchmarking programs and have done so in a manner that provides required data security. <b>CoSA is currently working with CPS Energy</b> on requirements and logistics.
Industrial properties have circumstances that would make compliance difficult.	Industrial properties are <b>typically exempt</b> from benchmarking requirements.
I am going to be shamed if my building has a low score.	The goal is to <b>highlight top performers</b> and to phase in transparency to allow property owners to improve their scores. A couple of cities only publish scores over a certain threshold.