Building Performance Advisory Group

Meeting 1: Setting the Context

September 5, 2019

THE CITY OF COLUMBUS
ANDREW J. GINTHER, MAYOR

DEPARTMENT OF BUILDING AND ZONING SERVICES

SUSTAINABLE COLUMBUS

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ANDREW J. GINTHER, MAYOR

DEPARTMENT OF BUILDING
AND ZONING SERVICES

Facilitator:

Mo Wright, RAMA Consulting

Agenda

1. Welcome and introductions
2. Columbus' history of energy efficiency
3. Importance of efficiency in buildings
4. Establishing the need for policy
5. Standardizing policy definitions
6. Current policy landscape
7. Looking ahead

Welcome and Introductions

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Welcome

- Opening remarks
  - Tony Celebrezze, Assistant Director, Department of Building and Zoning Services

Advisory Group introductions

- Member introductions
  - Name
  - Organization
  - Aspirations for the group
  - Why you agreed to participate

Objectives for our time together

- Provide input on policy considerations for energy efficiency in large existing buildings
- Identify barriers and solutions to increasing energy efficiency
- Advise on implementation planning to achieve maximum potential
- Suggest resources and tools to support building owners

Ground rules

- Practice democracy of time
- Chatham house rule
  - "When a meeting, or part thereof, is held under the **Chatham House Rule**, participants are free to use the information received, but neither the identity nor the affiliation of the speaker(s), nor that of any other participant, may be revealed."
- Consider short and long term implications of policy options
- Deliberation must be positive and future-directed

Columbus' History of Sustainability

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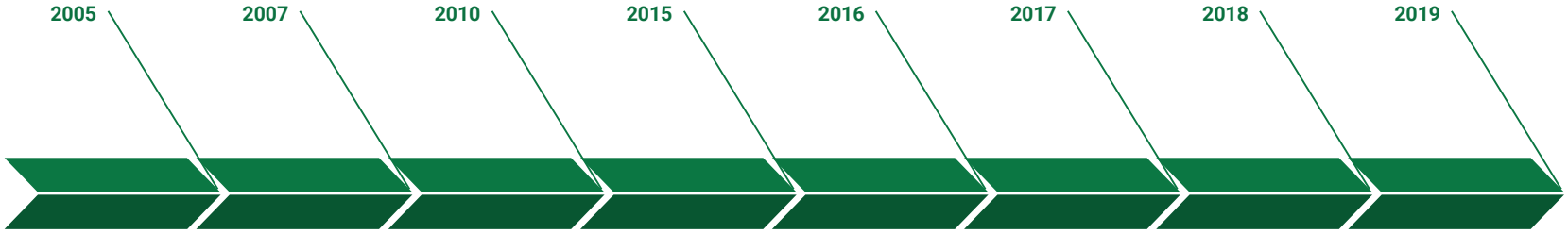
What we've done



2005 Mayor Coleman launches Get Green Columbus

2007 Mayor Coleman signs U.S. Mayors' Climate Protection Agreement

2010 Columbus Green Fund launched

2015 Columbus Energy Challenge launched

2016 Mayor Ginther signs Compact of Mayors

2017 Mayor Ginther & City Council join Sustainable 2050

2018 Columbus named Leadership City by Bloomberg Philanthropies

2019 Launch of American Cities Climate Challenge

American Cities Climate Challenge

Columbus was selected as 1 of 25 leadership cities to participate in a two-year acceleration program to tackle climate change & promote a sustainable future

LOWER ENERGY CONSUMPTION

through clean energy financing programs and benchmarking policies

- Benchmarking: **Commercial/ Industrial/ Multifamily buildings**
- Energy audits: **30,000 audits**
- New clean energy financing: **$15M in new financing**
- Clean energy financing: **Decreased energy burden**
- Workforce development: **10 Energy Efficiency Specialists & 40 Community Energy Advocates**

REDUCE EMISSIONS FROM TRANSPORTATION

with new mobility programs & improved public transit lines

- Incentives for low-carbon mobility: **100% large employers**
- New mobility options: **3,000 new bikes/vehicles**
- Increasing ridership: **5%**
- Parking management and pricing: **850 street segments**

Our goals

30%

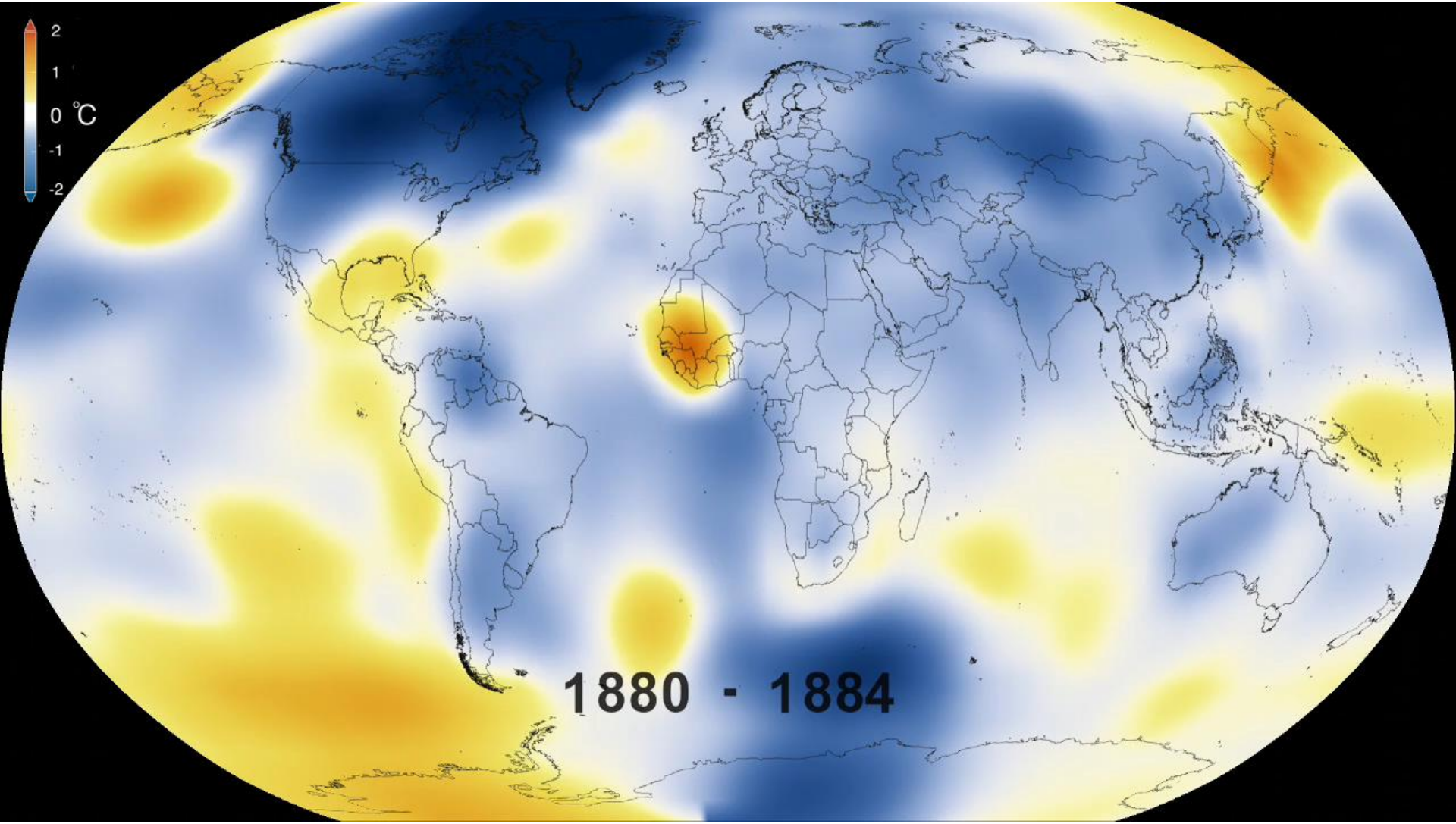
reduction in municipal CO2 emissions by 2020

20%

reduction in city CO2 emissions by 2020

20%

reduction in per-capita energy consumption by 2020


2
1
0 °C
-1
-2
1880 - 1884

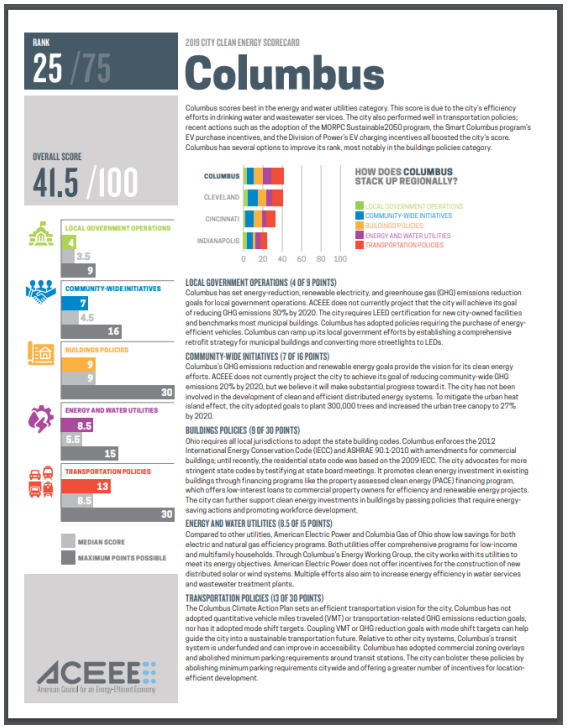
How are we doing?

Progress toward reduction goals

- Municipal operations:
  - Decrease of emissions by 14.6% from 2005
- City-wide operations:
  - Increase of emissions by 2.7% from 2013

ACEEE City Clean Energy Scorecard & Ranking

- #25 on 2019 ranking of cities (out of 75)
  - 9 of 30 points earned for buildings policies
  - 8.5 of 15 points earned for energy & water utilities



Importance of Efficiency in Buildings

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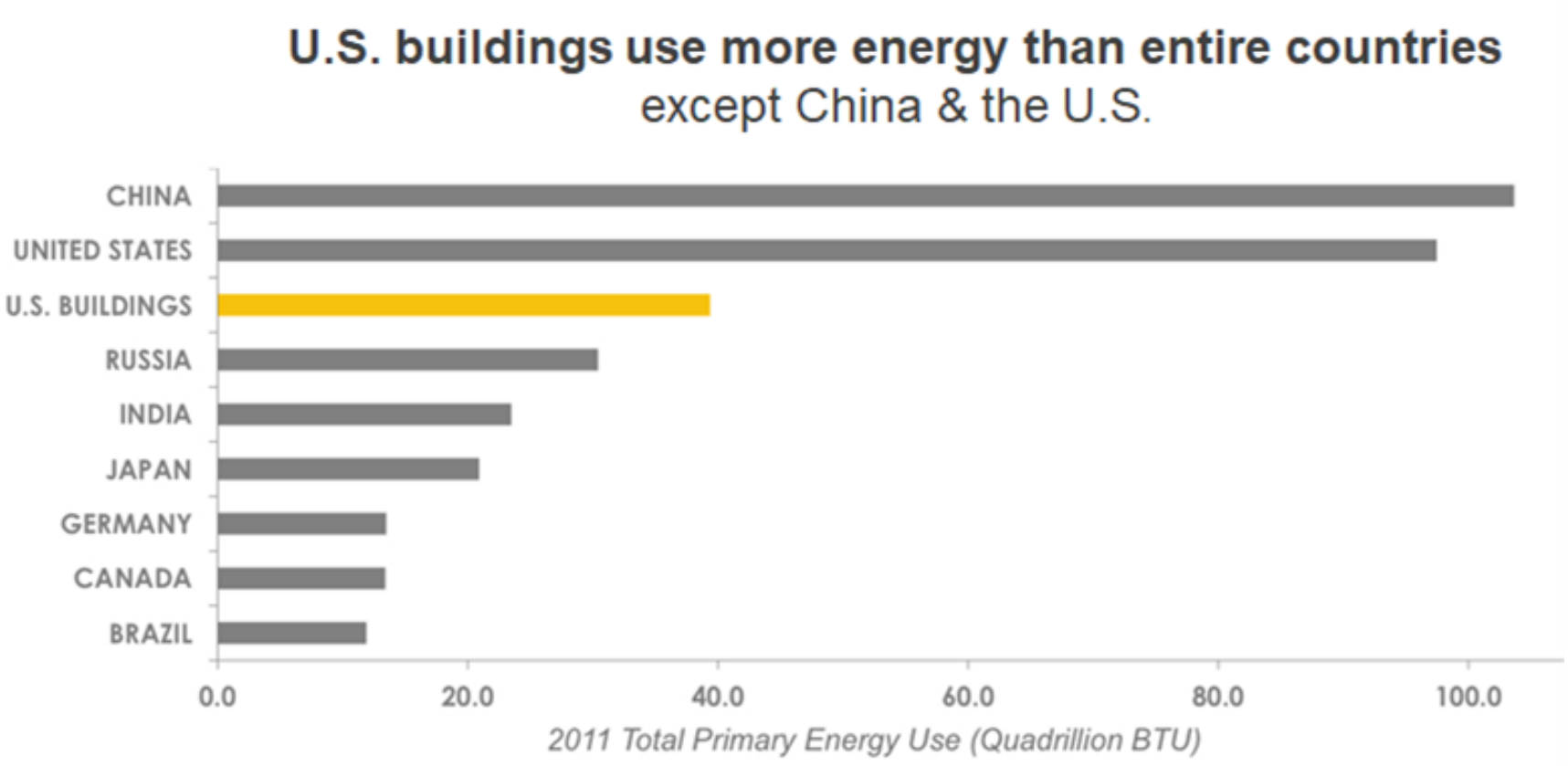
Turning Point Instructions

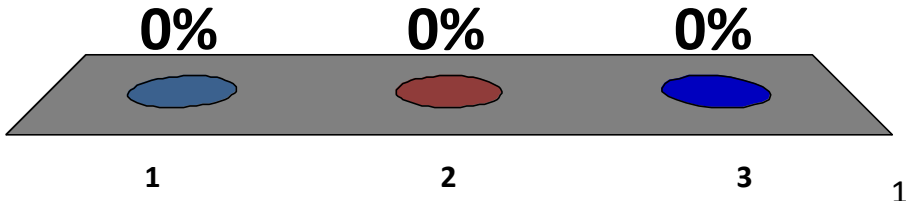
- Do NOT change the channel of your clicker
- To respond, press the button on the clicker that corresponds to the answer choice you believe is correct
- Polling results will be shown when the presenter ends the polling

Why buildings?

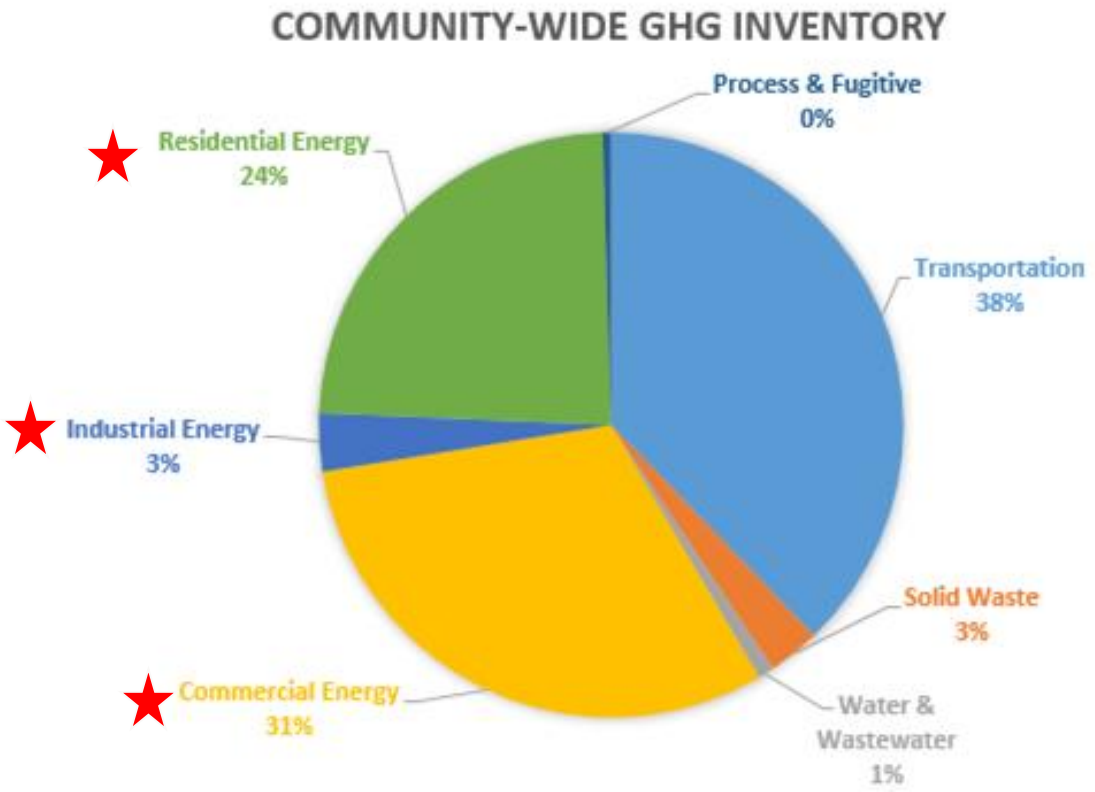


In Columbus, what percentage of emissions come from buildings?

1. 23%
2. 58%
3. 81%



Opportunity for Columbus

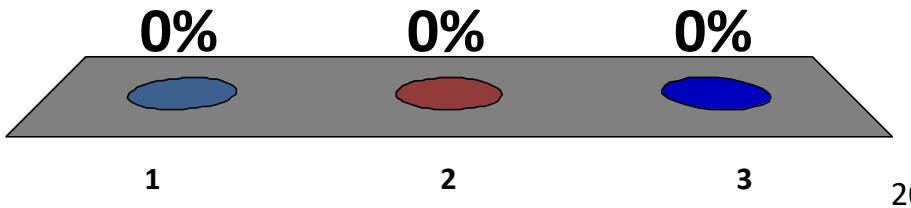


58% of our emissions come from buildings

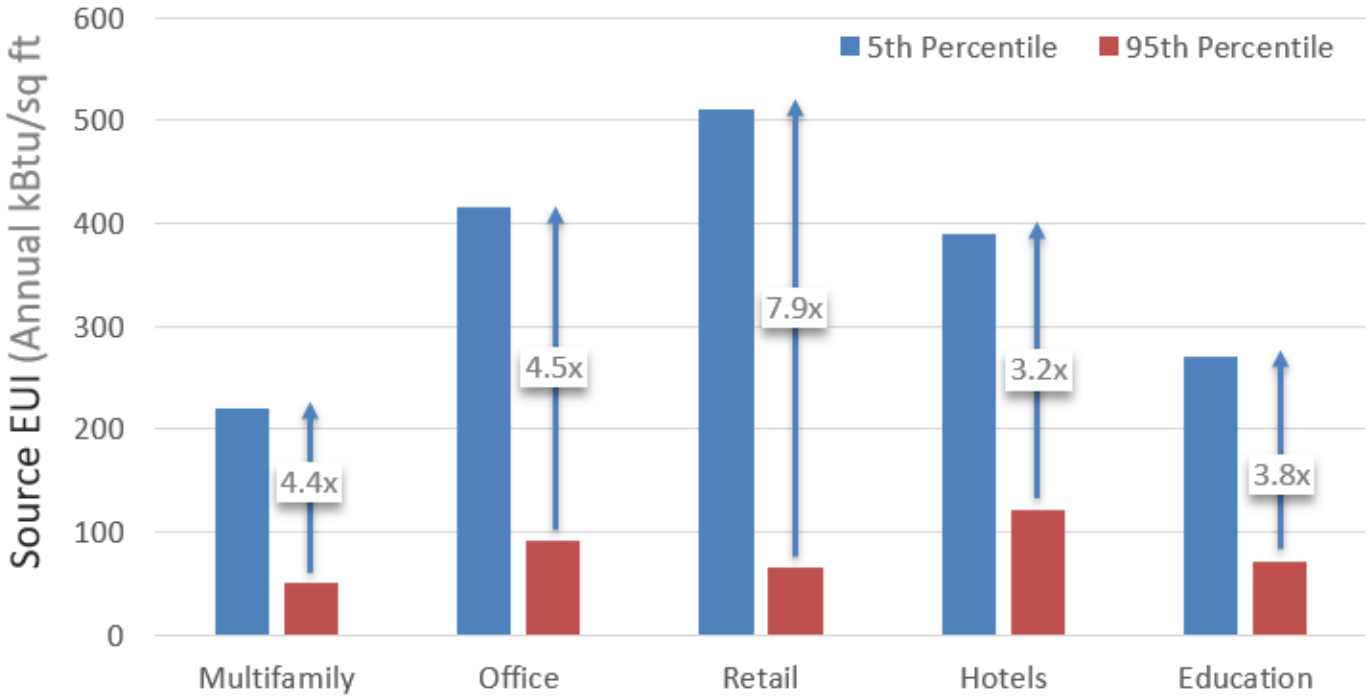
Source: City of Columbus 2018 GHG inventory

Poor performing buildings use _____ times more energy across all building types.

1. 2-3
2. 4-8
3. 10-12



Varying building efficiency

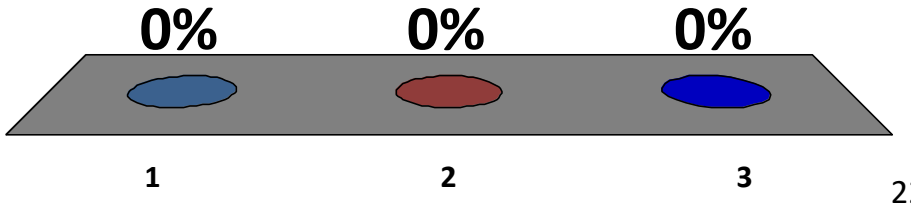


Poor performing buildings use **4 to 8 times more energy** than the best performing buildings. Poor performers represent an enormous energy savings opportunity.

Results based on New York City's benchmarking data

According to the U.S. EPA, how much energy consumed by buildings is wasted?

1. 15%
2. 30%
3. 45%

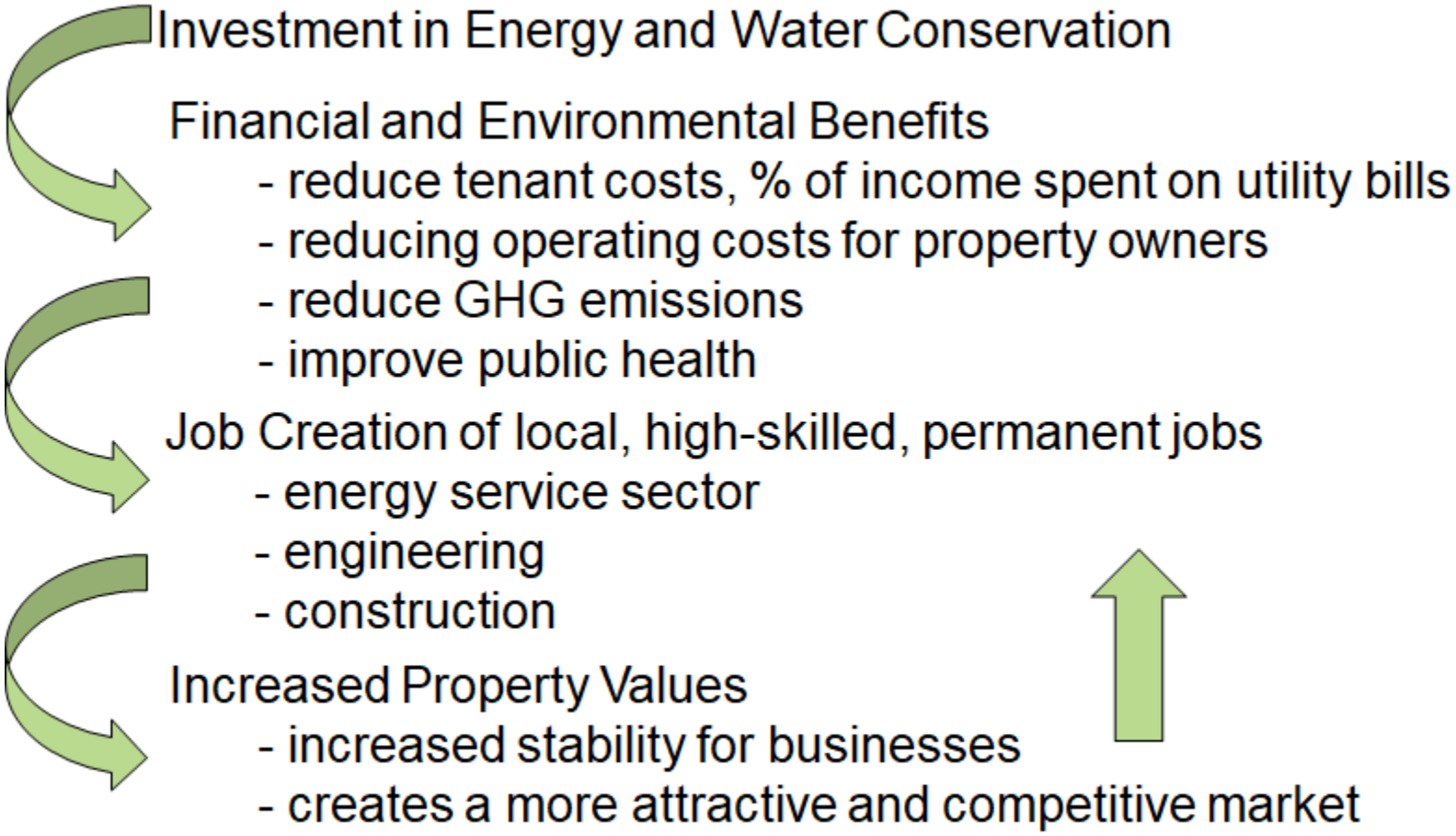


Energy waste and energy reduction

- Buildings waste 30% of the energy consumed[1]
- Reducing energy consumption in buildings:

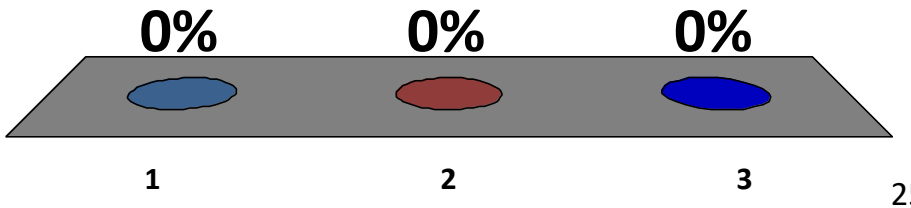
1. https://www.energystar.gov/ia/partners/publications/pubdocs/C+I_brochure.pdf

Energy efficiency benefits & impacts



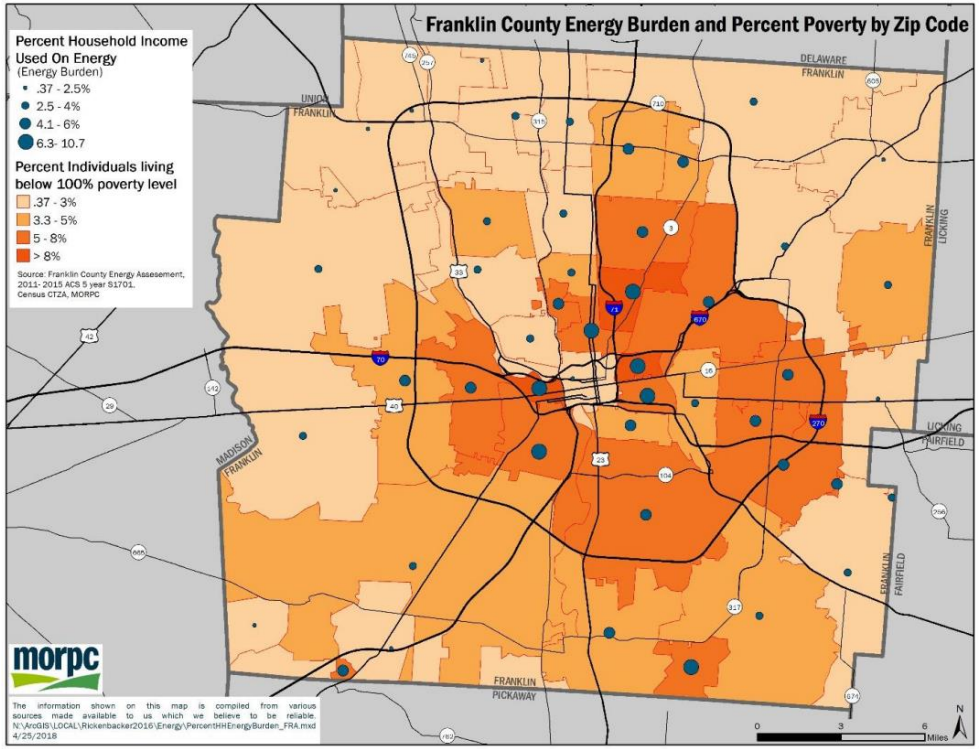
Nearly 21% of Columbus' population lives below the poverty line. How much of their income do you think they spend on utilities?

1. 3.5%
2. 7.4%
3. 11%



Intersection of equity & energy efficiency

- **20.8%** of Columbus residents live below the poverty line[1]
  - These residents spend up to **11% of their income** on utility bills[2]
- Inclusion of multifamily buildings in energy efficiency policy, including affordable & low-income housing
- **Reduce energy burden** in opportunity neighborhoods



Source: MORPC's 2018 Franklin County Energy Study

1. https://datausa.io/profile/geo/columbus-oh/
2. https://www.nrdc.org/stories/columbus-makes-its-historically-disadvantaged-neighborhoods-key-its-climate-future

BREAK

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Standardizing Policy Definitions

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Building performance policy definitions

What is benchmarking?

- Measuring & tracking a building's energy & water use over time.

What is reporting?

- Submitting a building’s energy & water use to the City annually.

What is transparency?

- Disclosing whole-building energy & water performance metrics to the market.

What is retuning or retrocommissioning?

- The process to identify & correct suboptimal performance of building equipment, lighting, & controls systems.

Building performance policy definitions continued

What are retrofits?

- Replacement of outdated & inefficient equipment.

What are audits?

- The process of identifying & quantifying opportunities to improve a building's energy efficiency.

What is energy & water data verification?

- Confirmation of energy, water, & other benchmarking data to ensure it is being tracked & reported correctly.

What are performance standards?

- Minimum efficiency thresholds a building must meet.

Establishing the Need for Policy

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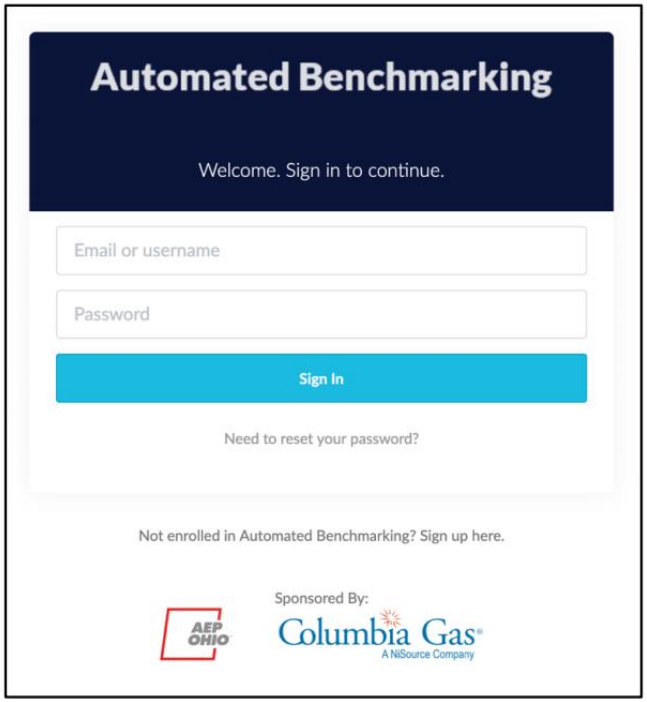
The market needs motivation

- Our current landscape poses many barriers to energy efficiency:
  - Access to reliable to whole-building utility data
  - Lack of market awareness of building performance
  - Access to financing methods

- Policy is **necessary** for action from the entire building population

Access to reliable, whole-building data

- Utilities assist building owners & operators by providing **whole-building energy data**
- Provides business customers with 36 months of historical data
- Aggregated, anonymous data provided with 5+ tenants



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An AEP Company

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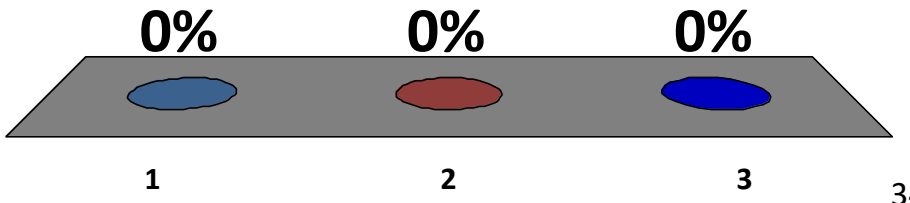
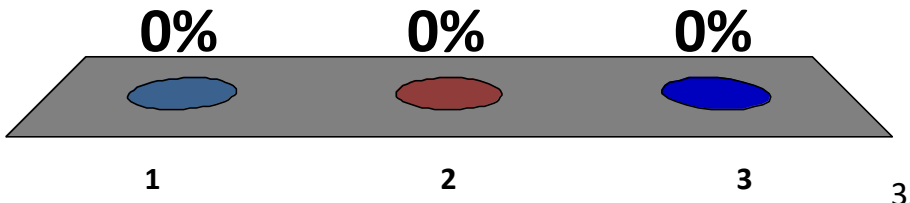
How many calories is in this bean burrito?

1. 190 calories
2. 360 calories
3. 880 calories



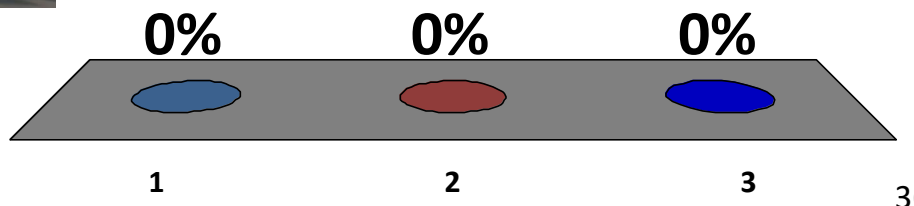
What is the city miles per gallon for this car?

1. 25 MPG
2. 45 MPG
3. 60 MPG

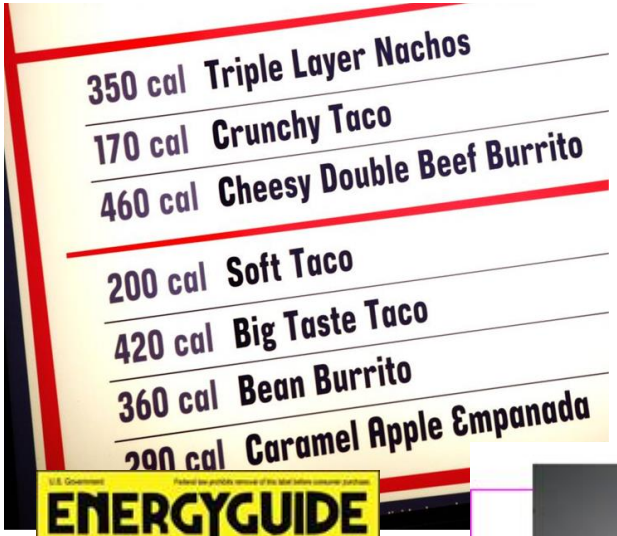


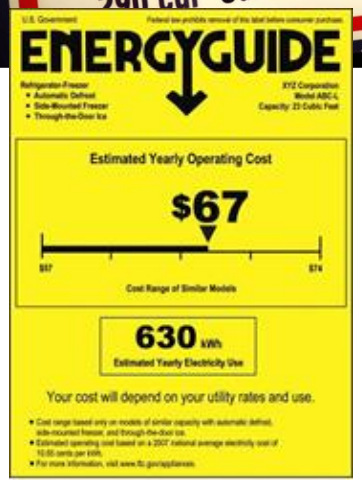
What is the ENERGY STAR score of this building?

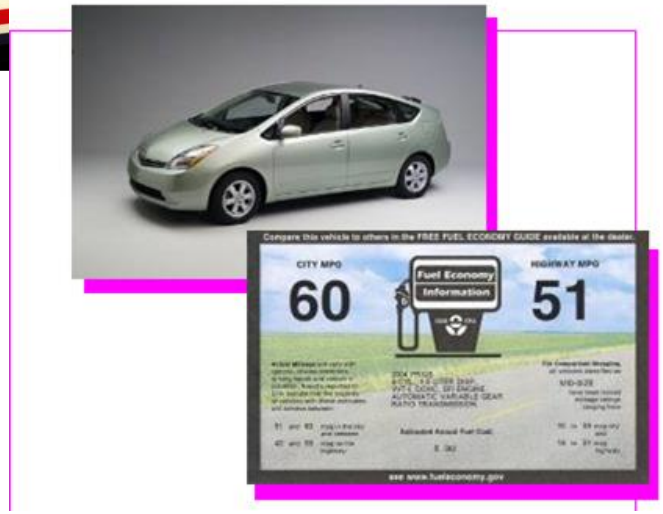
1. 62
2. 87
3. 91

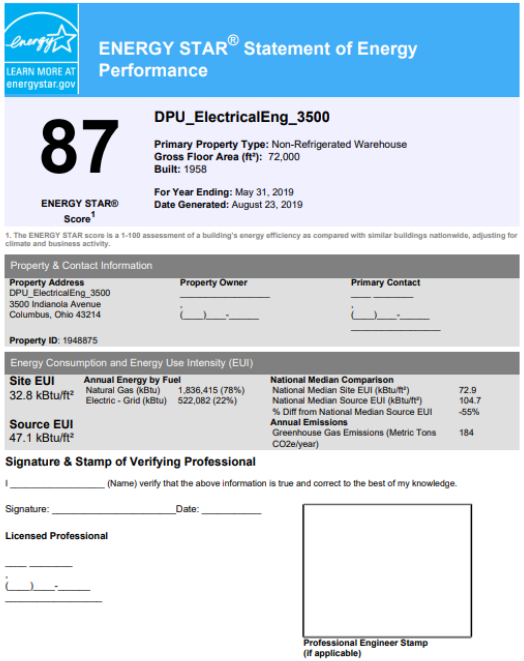


Market transformation through transparency



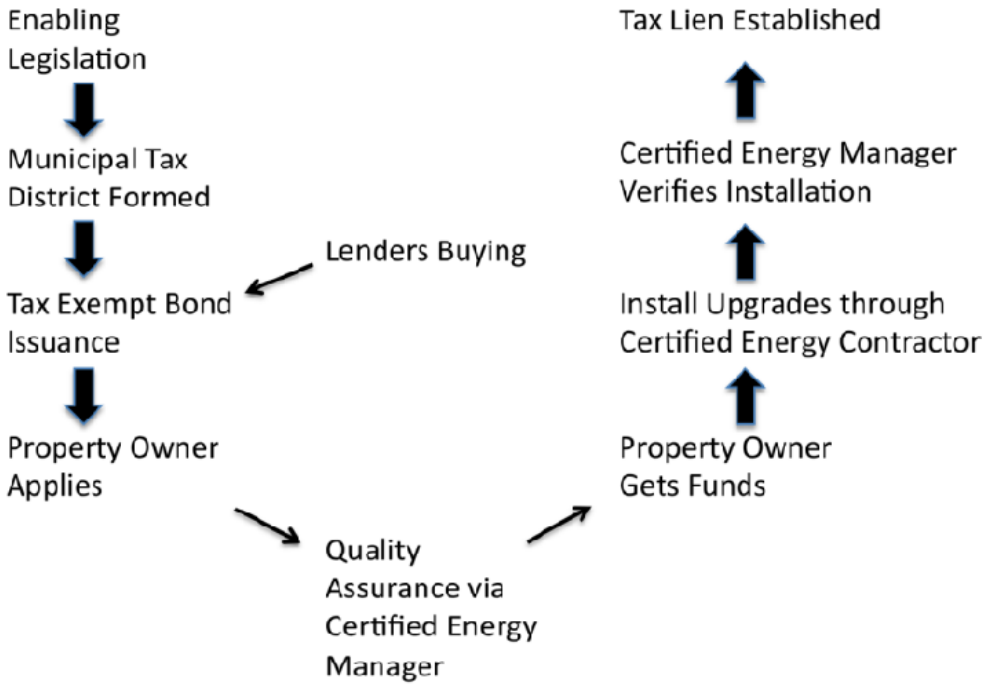






Access to financing methods

- Property Assessed Clean Energy Financing (C-PACE)



Source: Brown, M. A., Jackson, R., Cox, M., Cortes, R., Deitchman, B., & Lapsa, M. V. (2011). *Making Industry Part of the Climate Solution: Policy Options to Promote Energy Efficiency.*

Source: PACENation

A virtuous cycle

Current Policy Landscape

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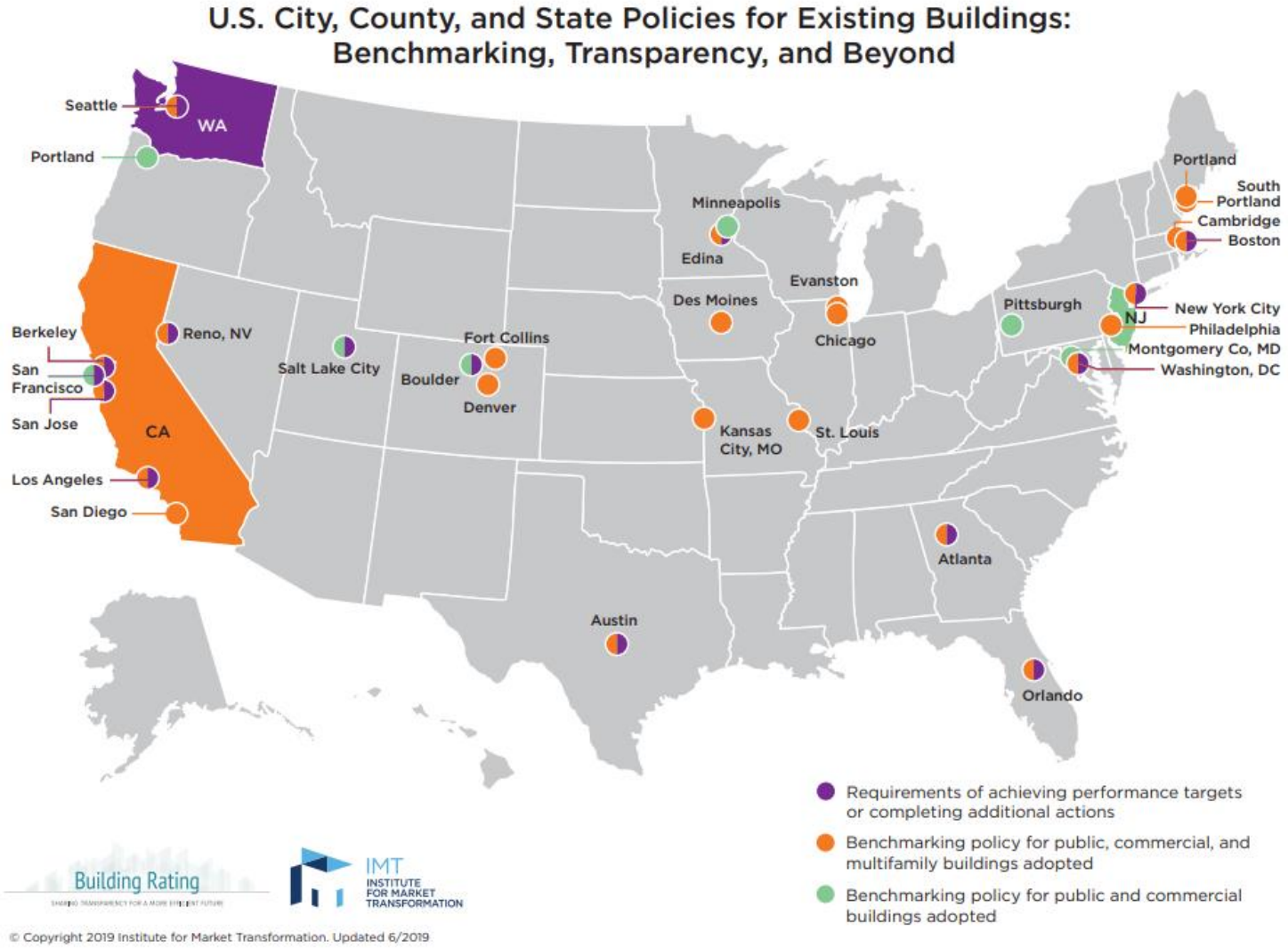
U.S. City, County, and State Policies for Existing Buildings: Benchmarking, Transparency, and Beyond
Seattle
WA
Portland
Berkeley
San Francisco
San Jose
CA
Los Angeles
San Diego
Reno, NV
Salt Lake City
Fort Collins
Boulder
Denver
Minneapolis
Edina
Des Moines
Evanston
Chicago
Kansas City, MO
St. Louis
Austin
Atlanta
Orlando
Pittsburgh
Portland
South Portland
Cambridge
Boston
NJ
New York City
Philadelphia
Montgomery Co, MD
Washington, DC
Requirements of achieving performance targets or completing additional actions
Benchmarking policy for public, commercial, and multifamily buildings adopted
Benchmarking policy for public and commercial buildings adopted
Building Rating
IMT
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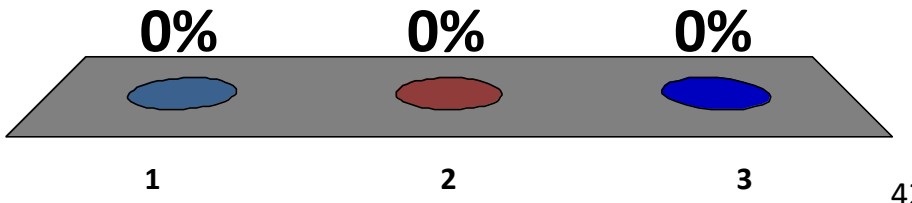
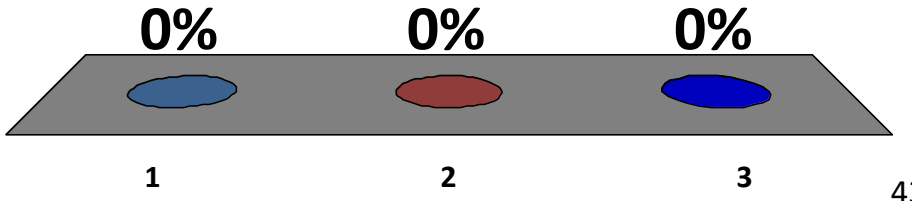
How many buildings will existing policies impact?

1. 79,700
2. 84,300
3. 91,800



What is the total floor space impacted by policies?

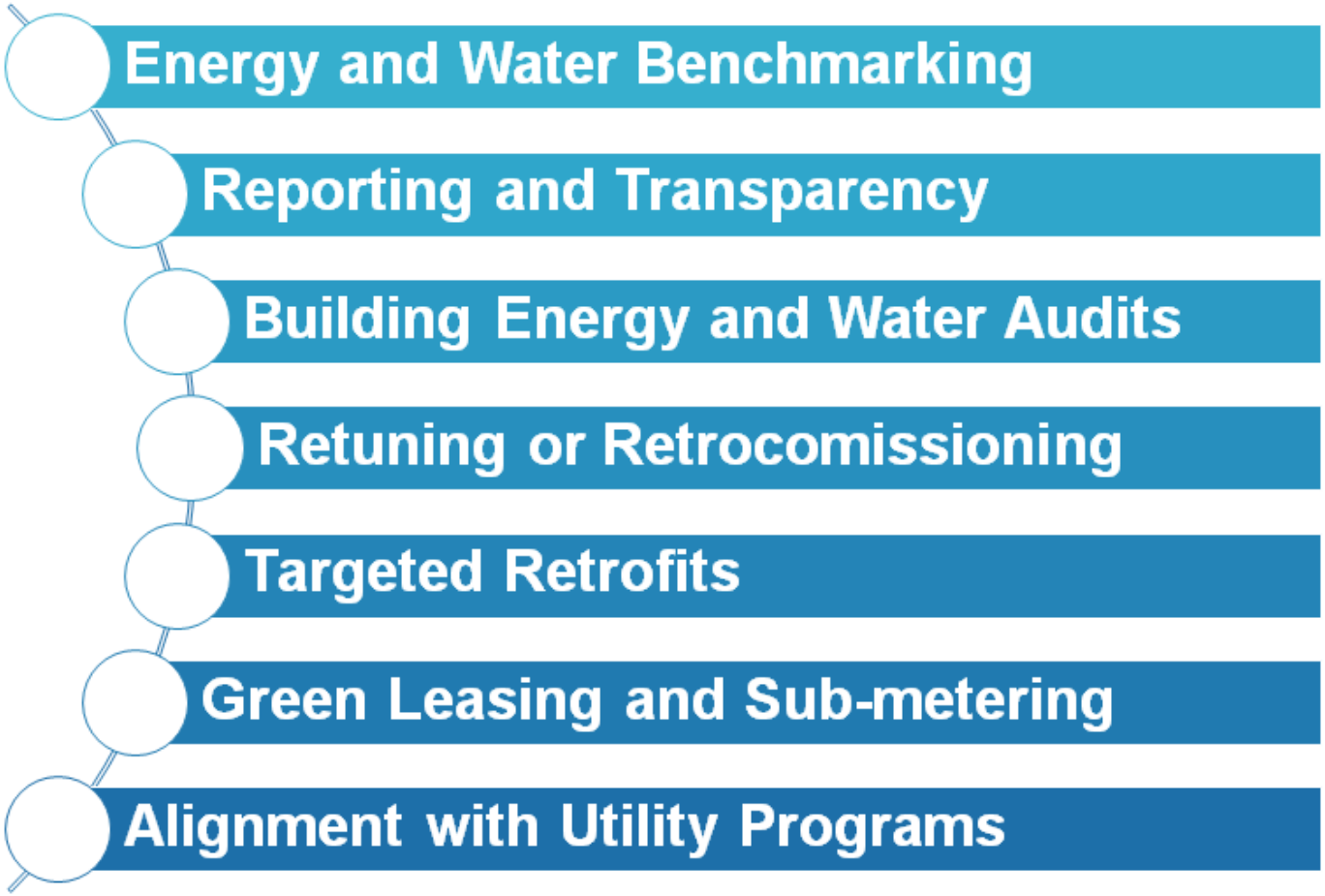
1. 6 billion square feet
2. 11 billion square feet
3. 20 billion square feet



Early adopters & proven energy savings

Legislation	Policy Impact			Buildings Included	Compliance	
Jurisdiction	Number of Bldgs	Square Footage	Energy Savings	Types & Sizes	By # of Buildings	By % of Sq. Ft.
Chicago	3,500	900 million	**10%** (2010-15)	**Comm ≥ 50K MF ≥ 50K**	**84%** (2014)	**92%** (2014)
District of Columbia	2,000	357 million	**9%** (2010-13)	**Comm ≥ 50K MF ≥ 50K**	**83%** (2013)	-
New York City	33,417	2.8 billion	**6-14%** (2010-14)	**Comm & MF ≥ 50K** *Comm & MF ≥ 25K*	**84%** (2012)	**84%** (2012)
San Francisco	2,312	203 million	**7.9%** (2010-14)	**Comm ≥ 10K**	-	**82%** (2013)
Seattle	3,250	281 million	**2.7%** (2014-15)	**Comm & MF ≥ 20K**	**99.2%** (2013)	**99.4%** (2013)

Trends & best practices from other cities



Improvement through ambitious policy

Action:

- **Passed building performance policy requiring:**
  - Annual benchmarking & reporting
  - Annual data disclosure & market transparency
  - Periodic audits and/or retrocomissioning action for low-performing buildings

Results:

- **Orlando, Florida**
  - Improved ACEEE ranking from #30 to #15 (2015 to 2019)
  - Increased ‘buildings policies’ points from 4 to 14 (out of 30)

- **San Jose, California**
  - Improved ACEEE ranking from #16 to #11 (2015 to 2019)
  - Increased ‘buildings policies’ points from 10 to 23 (out of 30)

Small Group Discussion

- Based on what you've heard other cities are doing, is there anything that you find interesting or would like to see us consider in developing our policy?

- Group report outs

Looking Ahead

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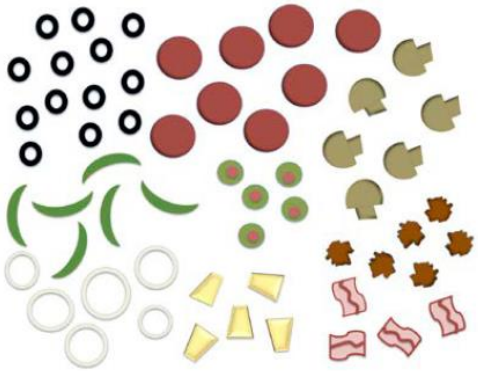
Next month… assembling our policy pizza!

Policy Elements



Potential Policies

Recommended Policies

Upcoming meeting schedule

- September 5, 2019 - ***Setting the Context***
- October 8, 2019 - ***Building Performance Policy Design Part I***
- November 12, 2019 - ***Building Performance Policy Design Part II***
- December 10, 2019 - ***Confirming Advisory Group Recommendations***
- January 14, 2020 - ***Policy Implementation***

All meetings held from **9am-11am** at the Coleman Government Center, 111 N. Front Street, 2nd Floor Hearing Room. Calendar invite meeting holds forthcoming.

For More Information:

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