



# *Energy Benchmarking & Disclosure*

Gina Anselmo, CEM  
Forest City

# Agenda

- Forest City Overview
- **WHAT** is benchmarking?
- **WHY** is benchmarking important?
- **WHERE** is benchmarking mandatory?
- **WHO** is the general target of mandatory benchmarking?  
And what does it involve?
- **HOW** is benchmarking implemented / enforced?
- Forest City's experience
- Cleveland 2030
- City of Cleveland

# Forest City Portfolio Overview



100+ Places to *Live*



30+ Places to *Work*



30+ Places to *Shop*

# Integrative Design Services Department



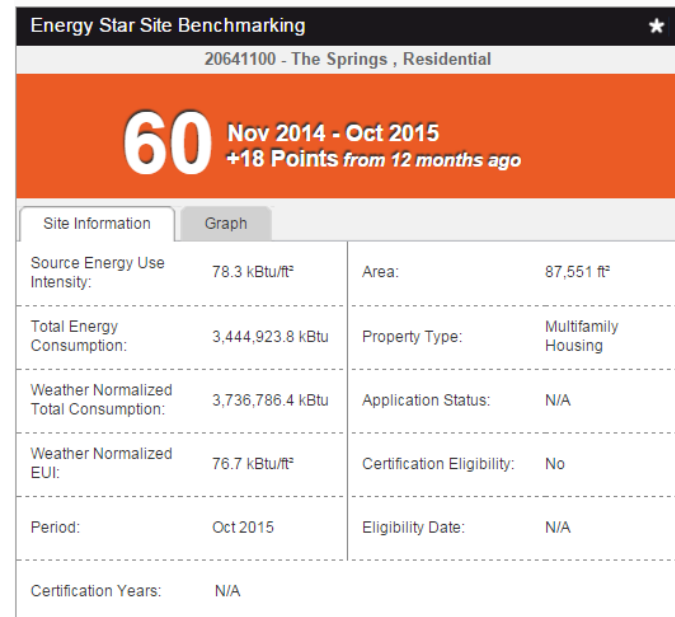
# WHAT is benchmarking?

*Energy benchmarking is the process of comparing your energy performance to **something similar**.*

*Compared to yourself at a previous time*



*Compared to properties with similar construction and operating characteristics*



# WHY is benchmarking important?

## General

- Performance awareness
- Need a baseline to set goals and improve

## Public Disclosure

- Transparency
- Peer pressure
- Competitive edge
- Quantify the energy efficiency market



# Chicago 2014 Building Energy Benchmarking Report

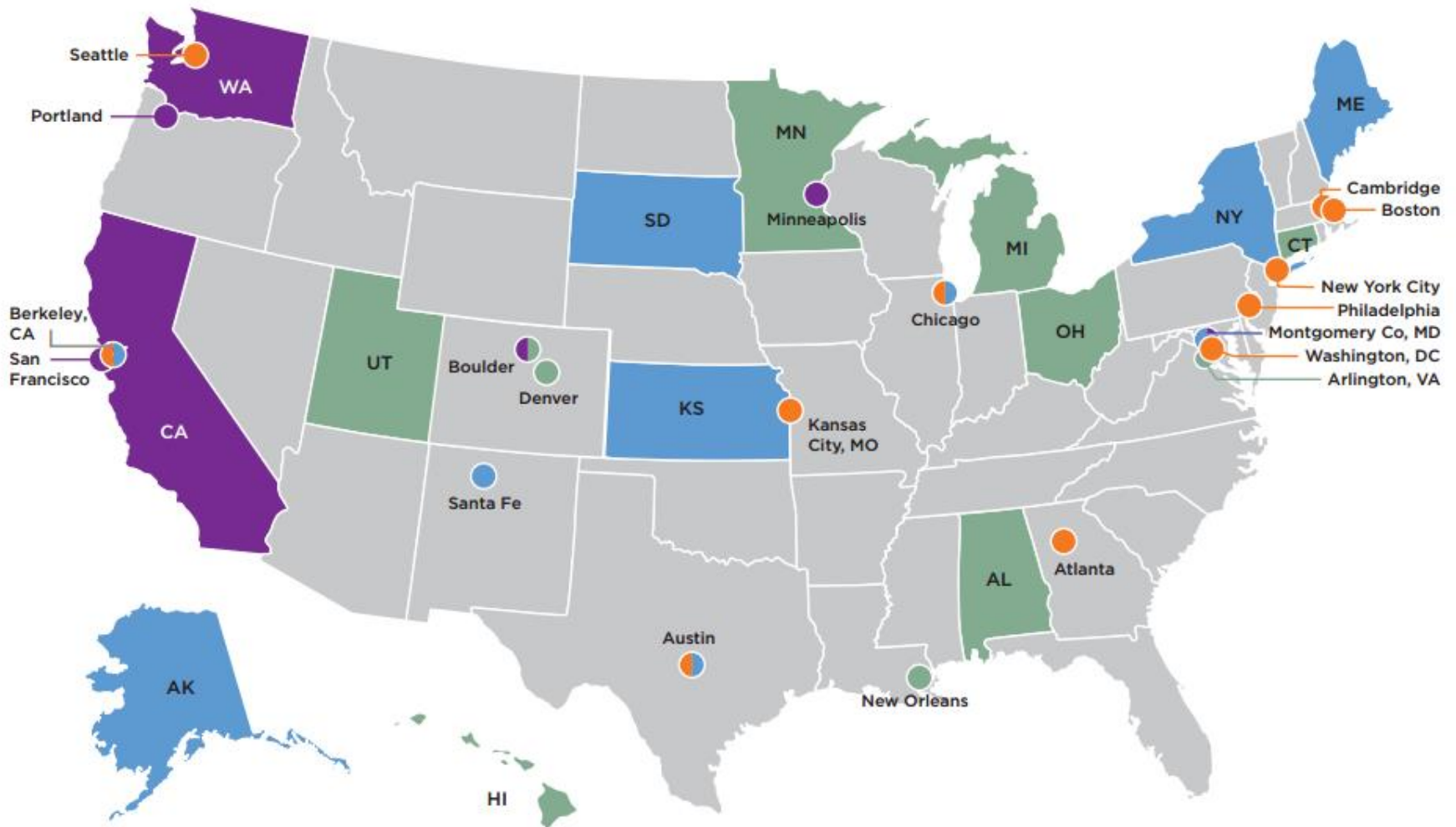
## ENERGY SAVINGS OPPORTUNITY

Analysis of benchmarking data shows a wide range of energy intensity, with high-intensity buildings using three to seven times more energy per square foot than low-intensity buildings in the same sector. The potential savings opportunity if all buildings achieved the median (50th percentile) or the 75th percentile for energy use intensity in their sector is enormous:

- 13–23% reduction in weather-normalized source energy use (total of 6.5–11.2 million MMBTU/year)
- \$44–77 million in energy cost savings
- 460,000–844,000 tons of avoided greenhouse gas emissions (equivalent to removing 95,000–175,000 cars from the road)
- Energy efficiency investments of \$152–265 million
- More than 1,000 jobs would result from the investments to achieve these savings

# WHERE is benchmarking mandatory?

## U.S. Building Benchmarking and Transparency Policies



- Commercial policy adopted
- Commercial & multifamily policy adopted
- Public buildings benchmarked
- Single-family transparency adopted



**WHO** is the target and **WHAT** does it  
involve?

# Comparison of U.S. Commercial Building Energy Benchmarking and Transparency Policies

	Legislation				Building Type & Size Threshold			Transparency				Rating System		Additional Elements		
	Jurisdiction	Short Name	Enacted	First Compliance Deadline	Municipal	Commercial	Multifamily	To Gov't	On Public Website	Time of Transaction	To Current Tenants	Energy Star	Other	Utility Req't	Water Use Tracking	Additional Requirements
Cities	Atlanta	Atlanta Commercial Buildings Energy Efficiency Ordinance	Apr 2015	Jul 2015	10K SF+	25K SF+	25K SF+	✓	Energy Star Score of 50+	-	-	✓	-	-	✓	ASHRAE level II audits every 10 years
	Austin	Energy Conservation Audit & Disclosure (ECAD) Ordinance	Nov 2008	June 2011	✓	10K SF+	Audits	✓	-	Buyers	-	✓	ACLARA	-	-	Audits & mandatory upgrades for multifamily buildings
	Berkeley	Building Energy Saving Ordinance	Mar 2015	Oct 2016	25K SF+	25K SF+	25K SF+	✓	✓	Buyers, Lessees	✓	✓	-	-	-	Energy report every 5 years for large buildings, every 8 years for medium and small buildings
	Boston	Boston Energy Reporting and Disclosure Ordinance	May 2013	May 2014	✓	35K SF+	35+ units or 35K SF+	✓	✓	-	-	✓	-	-	✓	Periodic energy assessments and/or actions
	Boulder	Boulder Building Performance Ordinance	October 2015	May 2016	5K SF+	20K SF+	-	✓	✓	-	-	✓	-	-	-	One-time lighting upgrade, periodic audits & RCx
	Cambridge	Building Energy Use Disclosure Ordinance	July 2014	December 2014	10K SF+	25K SF+	50+ units	✓	✓	-	-	✓	-	-	✓	-
	Chicago	Chapter 18-14. Building Energy Use Benchmarking Ordinance	Sept 2013	June 2014	50K SF+	50K SF+	50K SF+	✓	✓	-	-	✓	-	-	-	Verification of benchmarking data by licensed professional 1 <sup>st</sup> year, then every 3 years
	District of Columbia	Clean and Affordable Energy Act of 2008	July 2008	April 2013	10K SF+	50K SF+	50K SF+	✓	✓	-	-	✓	Energy Star Target Finder	-	✓	-
	Kansas City	Energy Empowerment Ordinance	Jun 2015	May 2016	10K SF+	50K SF+	50K SF+	✓	✓	-	-	✓	-	-	✓	-
	Minneapolis	Chapter 47.190. Commercial Building Rating and Disclosure Ordinance	Jan 2013	May 2014	25K SF+	50K SF+	-	✓	✓	-	-	✓	-	-	✓	-
New York City	Local Law 84 (additional requirements in LL 87, LL 88)	Dec 2009	August 2011	10K SF+	50K SF+	50K SF+	✓	✓	-	-	✓	-	-	✓	ASHRAE level II audits & RCx (LL 87), lighting upgrades & submetering (LL 88)	

# Comparison of U.S. Commercial Building Energy Benchmarking and Transparency Policies

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	District of Columbia	Clean and Affordable Energy Act of 2008	July 2008	April 2013	10K SF+	50K SF+	50K SF+	✓	✓	-	-	✓	Energy Star Target Finder	-	✓	-
	Kansas City	Energy Empowerment Ordinance	Jun 2015	May 2016	10K SF+	50K SF+	50K SF+	✓	✓	-	-	✓	-	-	✓	-
	Minneapolis	Chapter 47.190. Commercial Building Rating and Disclosure Ordinance	Jan 2013	May 2014	25K SF+	50K SF+	-	✓	✓	-	-	✓	-	-	✓	-
New York City	Local Law 84 (additional requirements in LL 87, LL 88)	Dec 2009	August 2011	10K SF+	50K SF+	50K SF+	✓	✓	-	-	✓	-	-	✓	ASHRAE level II audits & RCx (LL 87), lighting upgrades & submetering (LL 88)	

# Comparison of U.S. Commercial Building Energy Benchmarking and Transparency Policies



Building Rating

	Legislation				Building Type & Size Threshold			Transparency				Rating System		Additional Elements		
	Jurisdiction	Short Name	Enacted	First Compliance Deadline	Municipal	Commercial	Multifamily	To Gov't	On Public Website	Time of Transaction	To Current Tenants	Energy Star	Other	Utility Req't	Water Use Tracking	Additional Requirements
Cities	Philadelphia	§9-3402 of the Philadelphia Code	June 2012	October 2013	50K SF+	50K SF+	50K SF+	✓	✓	Buyers, Lessees	-	✓	-	-	✓	-
	Portland, OR	Energy Performance Reporting Policy	Apr 2015	Apr 2016	20K SF+	20K SF+	-	✓	✓	-	-	✓	-	✓	-	-
	San Francisco	Existing Commercial Buildings Energy Performance Ord.	Feb 2011	October 2011	10K SF+	10K SF+	-	✓	✓	†Buyers, Lessees, Lenders	✓	✓	-	†	-	ASHRAE level I or II audits or RCx every 5 years
	Seattle	CB 116731	Jan 2010	October 2011	20K SF+	20K SF+	20K SF+	✓	-	†Buyers, Lessees, Lenders	✓	✓	-	✓	-	-
County	Montgomery County, MD	Bill 2-14 Environmental Sustainability – Buildings – Benchmarking	Apr 2014	June 2015	✓	50K SF+	-	✓	✓	-	-	✓	-	-	-	Verification of benchmarking data by licensed professional 1 <sup>st</sup> year, then every 3 years
States	California	AB 802	Sept 2015	TBD	†	50K SF+	50K SF+	✓	✓	-	-	✓	-	✓	-	Mandatory upgrades to be developed under AB 758
	Washington State	Efficiency First SB 5854	May 2009	January 2011	10K SF+	10K SF+	-	-	-	Buyers, Lessees, Lenders	-	✓	-	✓	-	Audits for public buildings with low ratings

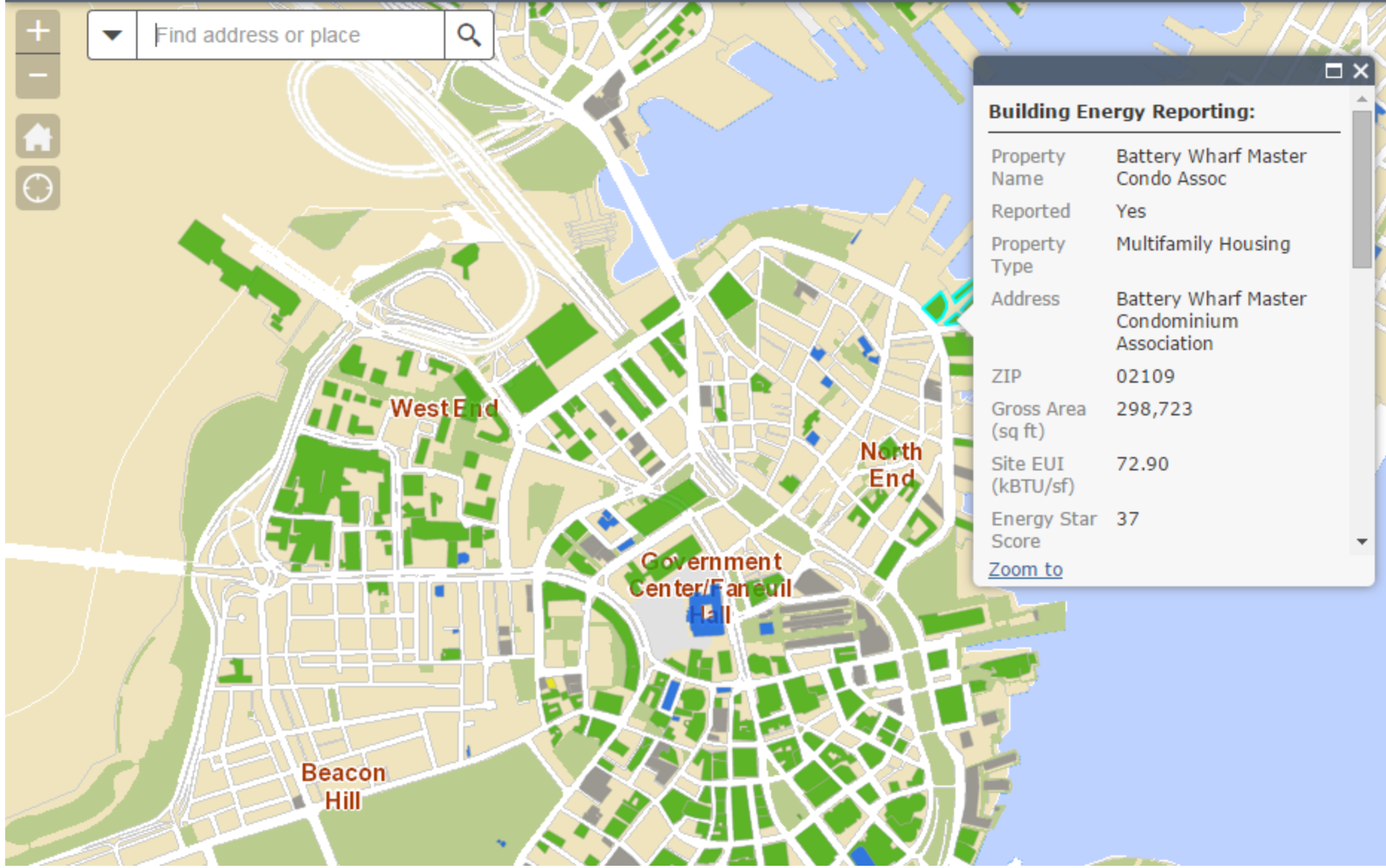


# Building Energy Reporting

City of Boston Environment Department



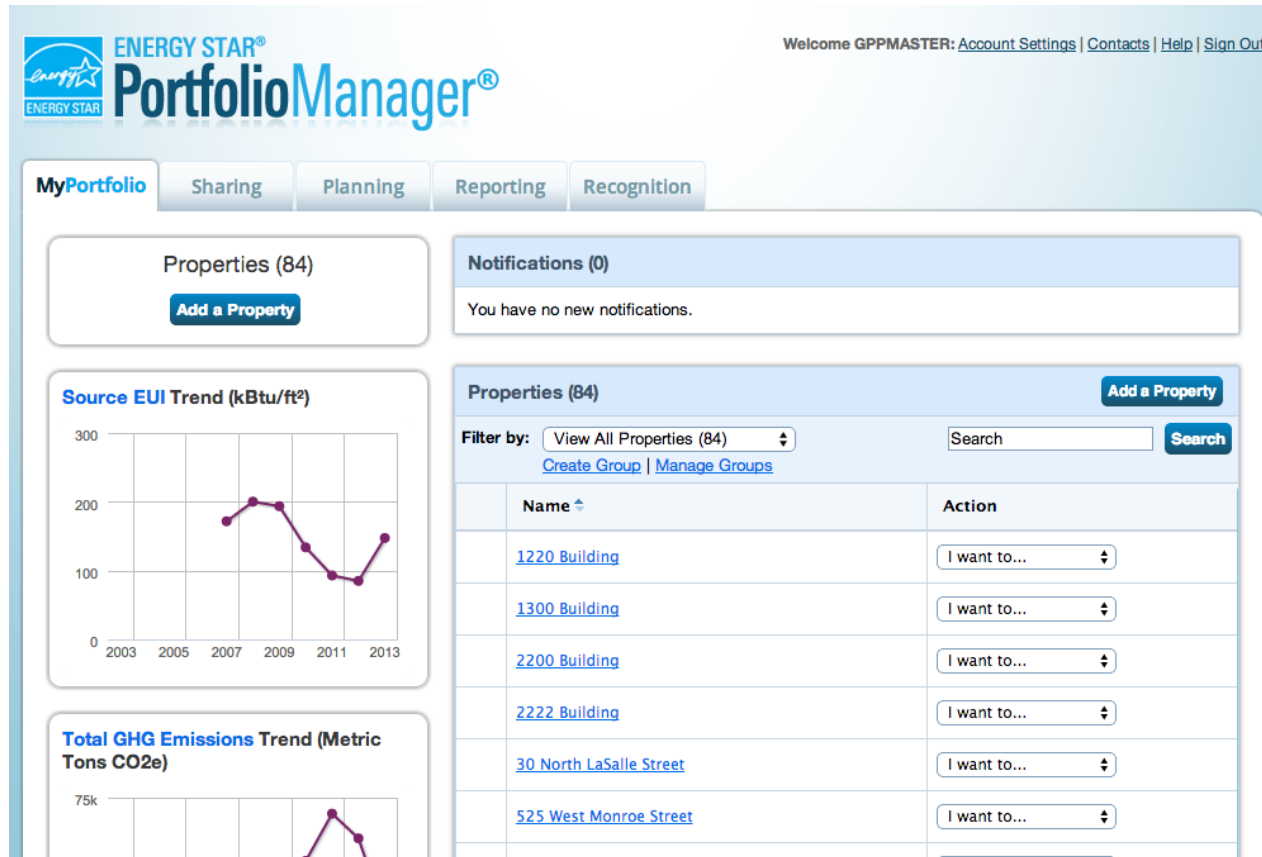
Find address or place



**Building Energy Reporting:**

Property Name	Battery Wharf Master Condo Assoc
Reported	Yes
Property Type	Multifamily Housing
Address	Battery Wharf Master Condominium Association
ZIP	02109
Gross Area (sq ft)	298,723
Site EUI (kBTU/sf)	72.90
Energy Star Score	37
<a href="#">Zoom to</a>	

# HOW is benchmarking implemented / enforced?



Every city, county, and state with mandatory benchmarking requires use of **Portfolio Manager**.

# Forest City's experience

- Standardized, straightforward process due to use of Portfolio Manager
- Utility company responsible to provide tenant and resident data

# Challenges

- Some energy use **out of landlord control**
- Some **utility companies** have cumbersome process to get whole building data
- **Building types**
- Managing so many different requirements across the country – **every city is different**

## Our vision

To be the real estate leader and partner-of-choice in creating **distinctive** places to live, work and shop.

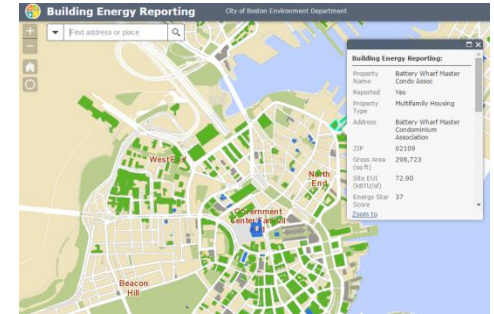


Core Market Strategy



# Potential Risks

- Public data to renters and buyers
- Will reductions be mandated?
  - Are we responsible for resident/tenant use?



# Turning Challenges into Opportunities

Builds a better case for programmatic approach to achieve energy savings

The screenshot shows the 'Resource Advisor' web application. At the top, it displays the user's name 'Gina Anselmo, Forest City Enterprises' and navigation links for 'Logout', 'Settings', and 'Help'. Below this is a green navigation bar with tabs for 'Research', 'Analyze', 'Plan', 'Manage', 'Report', and 'Administration'. The main content area is titled 'Energy Star Site Overview' and includes a 'Feedback' button. The 'Site Overview' section allows users to select a site, with '20641100 - The Springs' selected. It also shows 'Meter Level Data' options and a 'Portfolio Manager Property' search field. The 'Energy Star Site Benchmarking' section displays a large '60' score for 'Nov 2014' with a '+18 Point' change. A table below provides detailed energy metrics:

Site Information	Graph
Source Energy Use Intensity:	78.3 kBtu/ft <sup>2</sup>
Total Energy Consumption:	3,444,923.8 kBtu
Weather Normalized Total Consumption:	3,736,786.4 kBtu
Weather Normalized EUI:	76.7 kBtu/ft <sup>2</sup>
Period:	Oct 2015
Certification Years:	N/A
Property:	The Springs

## Integrative Design Services

### Inside IDS

#### Energy and Sustainability

Building energy & sustainability awareness while reducing operating costs and our impact on the environment.

#### Architectural Design

Offering professional interior design and architectural services for new developments, renovations, and model units.

#### Building Technology Services

Leveraging technology to create business value across existing portfolio and new developments.

## Training & Event Calendar

Thursday, Dec 10 2015

The Value of ENERGY STAR for Commercial Building Design

2:00 PM - 3:00 PM  
[see details](#)

## Articles of Interest

### Article of Interest: Sustainability - The New Norm In Real Estate Development and Investing

Check out this article by the national real estate practice leader at PricewaterhouseCoopers ...



## Building Ideas Blog

### Article of Interest: Sustainability - The New Norm In Real Estate Development and Investing

Check out this article by the national real estate practice leader at PricewaterhouseCoopers ...

### HVAC 101 Series: Boilers and Furnaces

Introduction Since heating season is upon us, it's a good time to learn about boilers ...

### 4th and final week of the plastic purge challenge!

Week 4 - Conquer the Kitchen It's the final week of the 28 day ...

## Green Building Certifications



Forest City currently has 19 LEED and 3 ENERGY STAR certified properties.

# Questions?

Gina Anselmo

216-416-3385

[ginaanselmo@forestcity.net](mailto:ginaanselmo@forestcity.net)

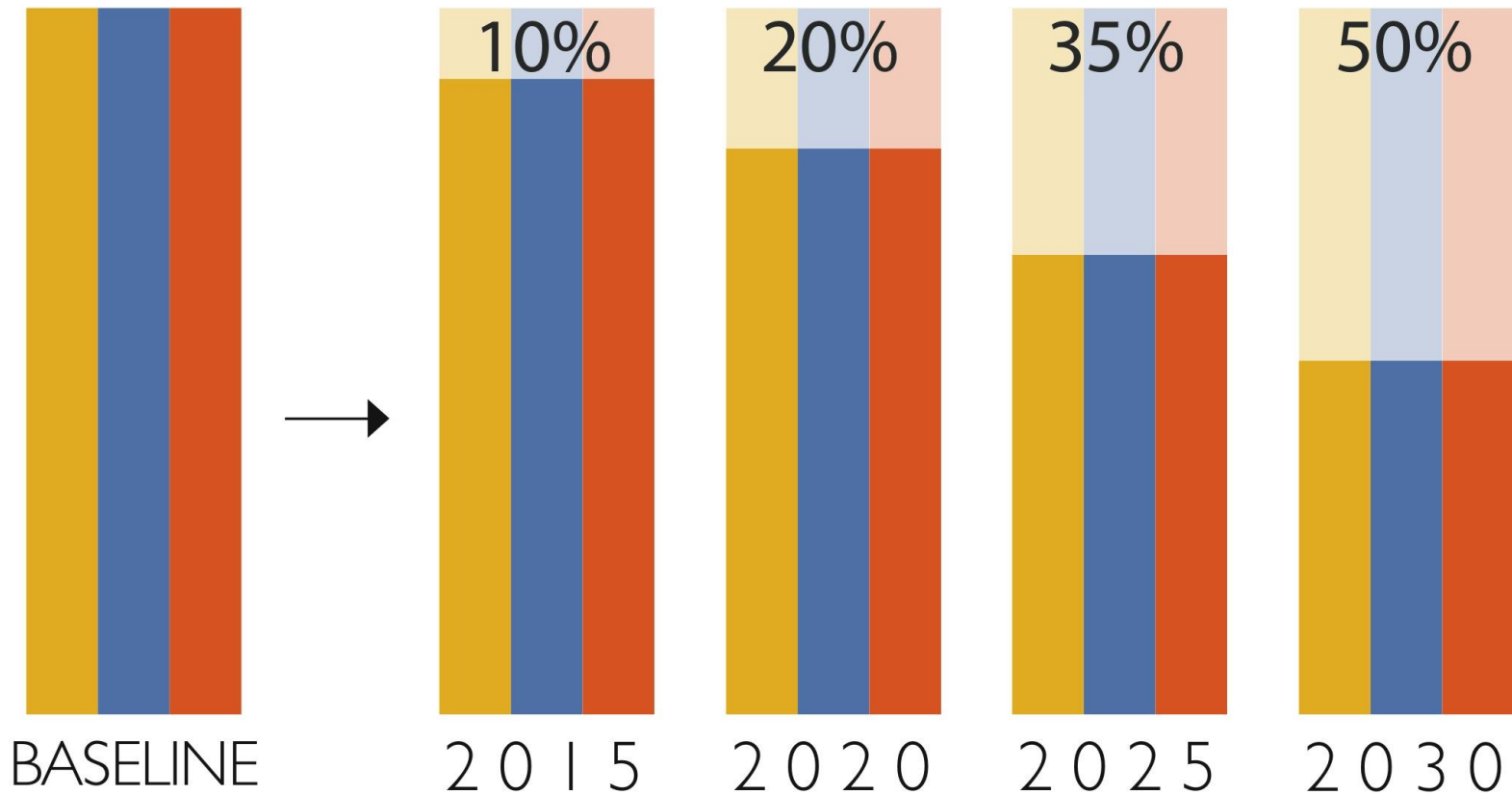
CLEVELAND



DISTRICT



# THE 2030 CHALLENGE FOR PLANNING



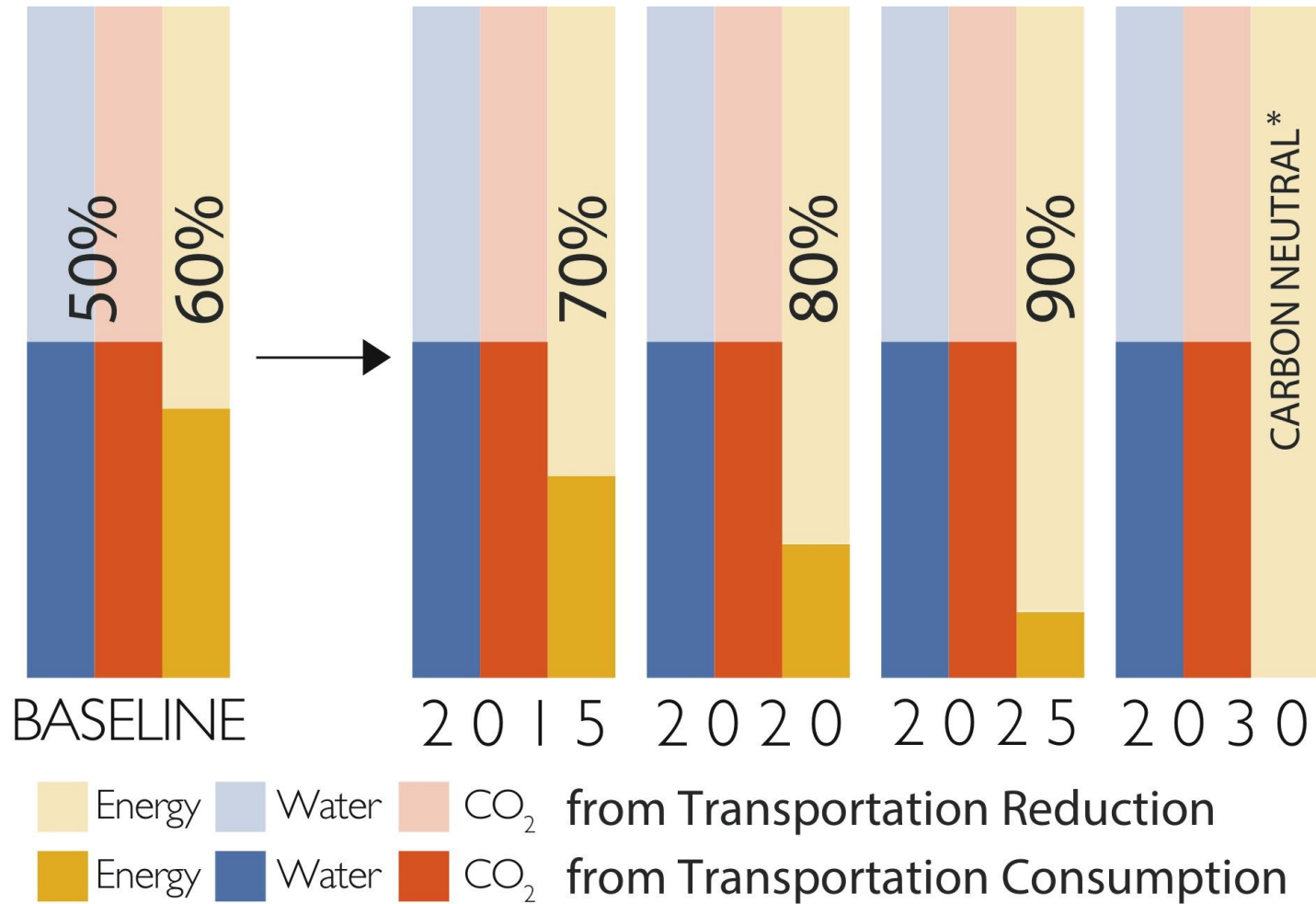
   Energy, Water, and CO2 from Transportation Reduction

   Energy, Water, and CO2 from Transportation Consumption

## The 2030 Challenge for Planning: Existing Buildings

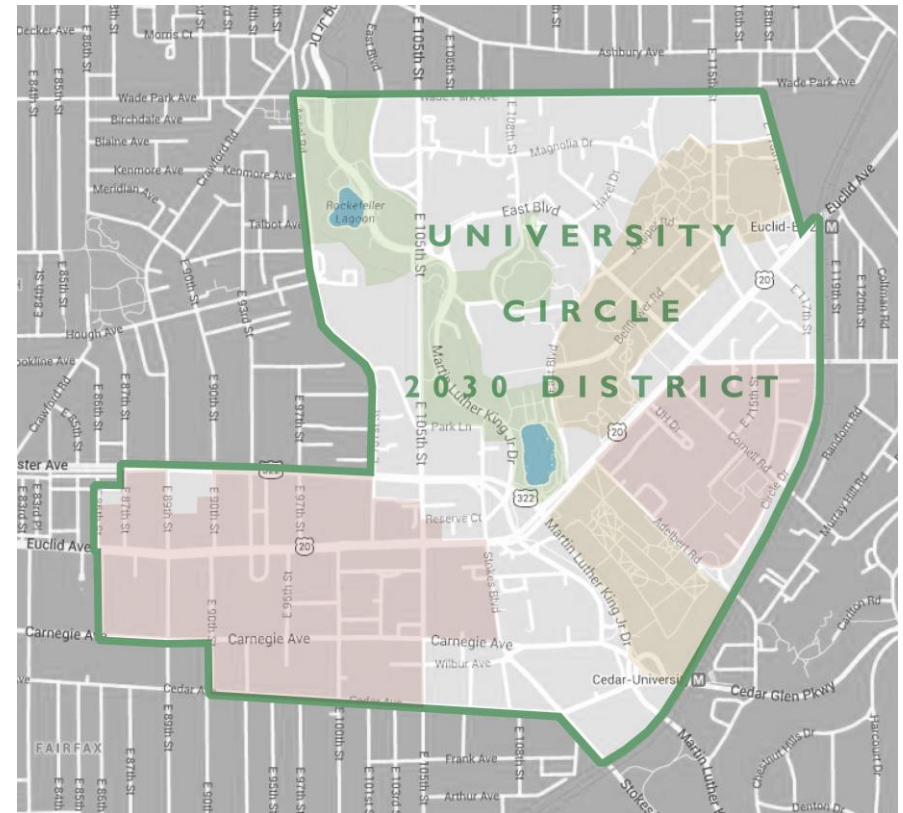
Source: © 2011 2030, Inc. / Architecture 2030. All Rights Reserved.

# THE 2030 CHALLENGE FOR PLANNING

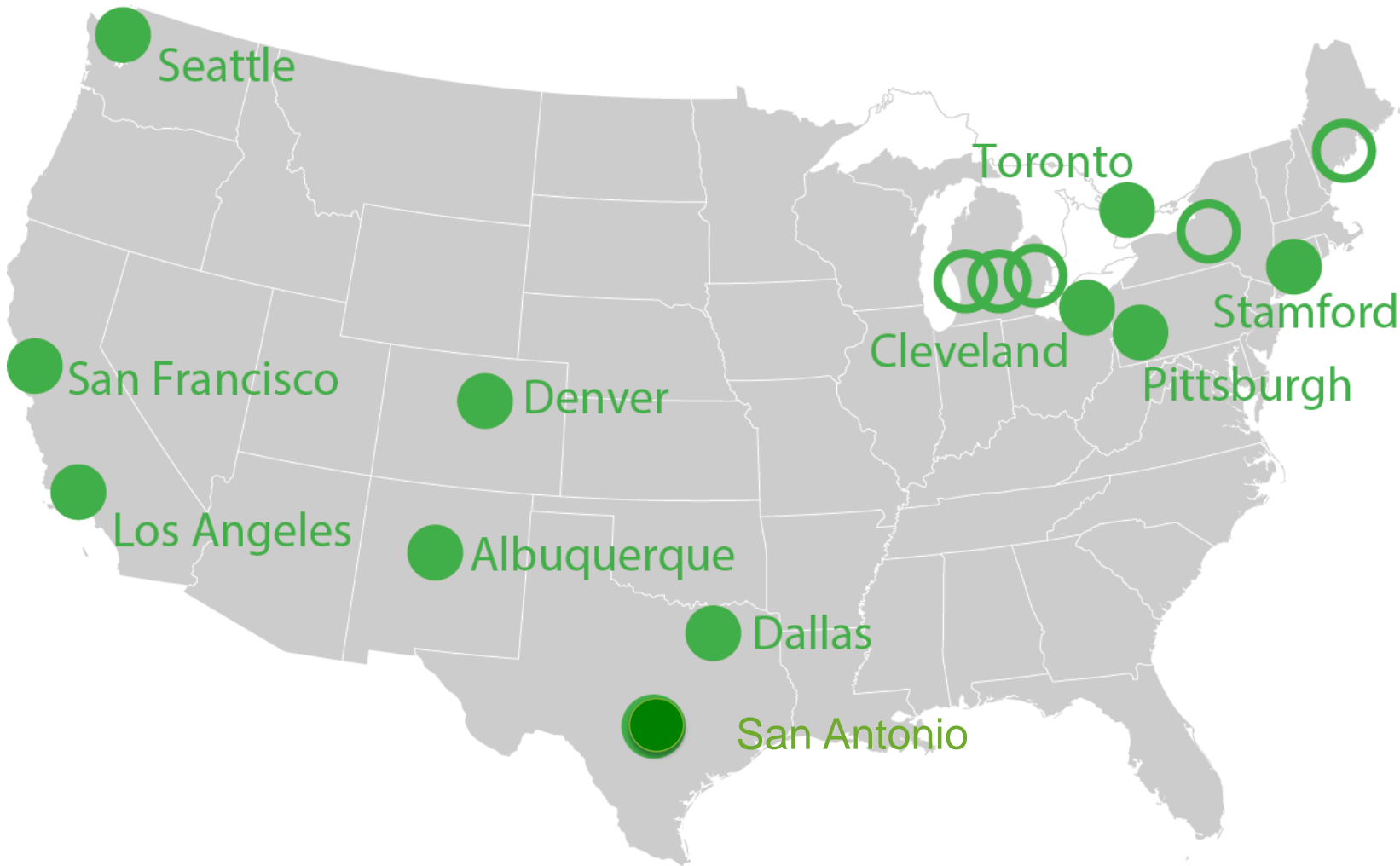


The 2030 Challenge for Planning:  
New Buildings & Major Renovations

# THE 2030 CHALLENGE FOR PLANNING



**Downtown Cleveland and University Circle Maps**



● Established 2030 District ○ Emerging 2030 District



# WHAT DOES C2030D DO?

- C2030D is a voluntary program
- Sign-up Property Adopters
- Portfolio Manager assistance
- Initial benchmarking
- Ongoing reporting of trends and comparisons
- Educational events for property owners/managers
- Professional Partner Network
- Discounted LED Purchasing Program
- **MEASURE PROGRESS**

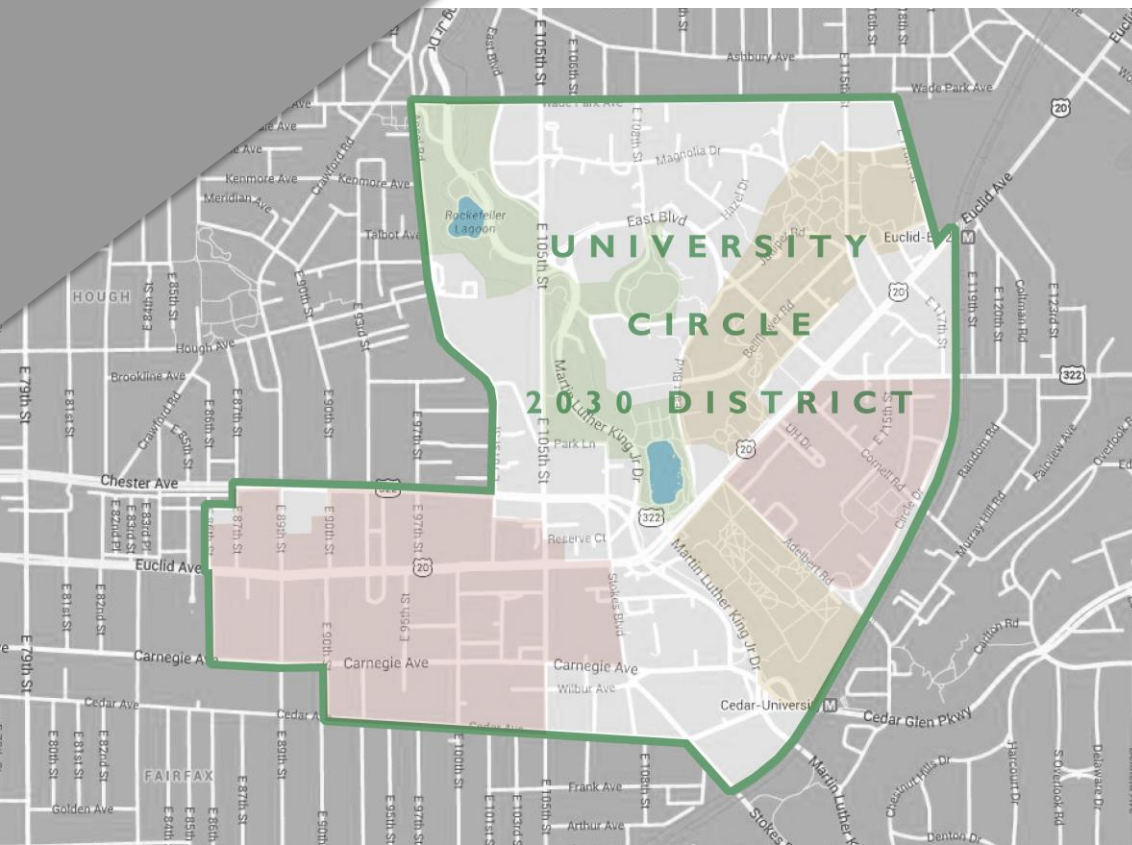
# 39 Property Adopters



- CITY OF CLEVELAND
- CLEVELAND PUBLIC LIBRARY
- ST VINCENT CHARITY
- CUYAHOGA COMMUNITY COLLEGE
- GEIS PROPERTIES
- FOREST CITY ENTERPRISES
- GL HOUSING GROUP
- LANDMARK RE MGMT
- PNC FINANCIAL SERVICES
- AMERICAN LANDMARK PROPERTIES
- THE 820 COMPANY
- CALFEE, HALTER AND GRISWOLD
- UNITED WAY OF CLEVELAND
- CLEVELAND INDIANS
- UNITED STATES GSA
- CLEVELAND STATE UNIVERSITY
- BECKY'S BAR & GRILL
- NORTH COST COMMERCIAL LLC

# 160+ Buildings Participating

JAMES BREEN REAL ESTATE  
GREAT LAKES SCIENCE CENTER  
AM HIGLEY  
ROBERT MADISON ARCHITECTS  
ROCK AND ROLL HALL OF FAME  
MRN, LTD  
OLD STONE CHURCH  
CLEVELAND BROWNS  
PLAYHOUSE SQUARE  
CLEVELAND CAVALIERS  
UNIVERSITY CIRCLE, INC  
JONES DAY  
CHURCH OF THE COVENANT  
MAGNOLIA CLUBHOUSE  
MEDICAL MUTUAL  
CLEVELAND MUSEUM OF ART  
CLEVELAND BOTANICAL GARDEN  
OPTIMA MANAGEMENT GROUP  
UNIVERSITY HOSPITAL  
CUYAHOGA COUNTY



- No cost to participate
- Voluntary Program
- Commitment letter is not binding
  - No penalties if you do not achieve the reduction goals
- Fixed baseline (2003 CBECS Survey)
  - Anything you have done in the past will be counted toward your overall improvement
- Data kept private
  - Data shared with C2030D will not be released to the public

**C'MON! GET IN THE POOL!**



# Thank you to our Funders and Elite Sponsor



FORESTCITY





# Thank you

Cindy Cicigoi  
Executive Director – C2030D

[cindycicigoi@2030districts.org](mailto:cindycicigoi@2030districts.org)

216.577.4485





# Energy Benchmarking

AEE Northern Ohio Chapter  
December 10, 2015



**SUSTAINABLE CLEVELAND**  
TOGETHER, WE'RE BUILDING A THRIVING  
GREEN CITY ON A BLUE LAKE



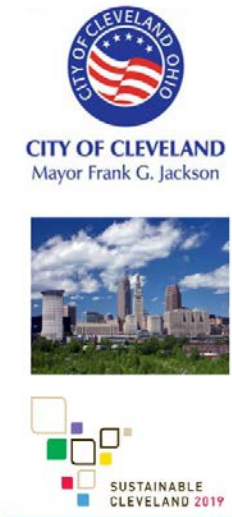
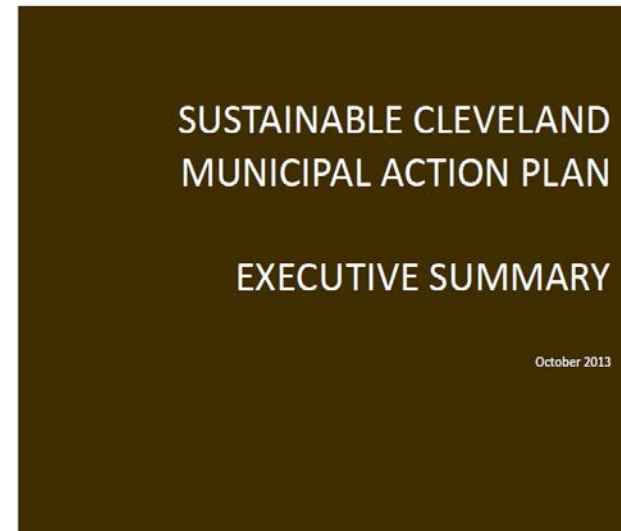
**CITY OF CLEVELAND**  
Mayor Frank G. Jackson <sup>1</sup>





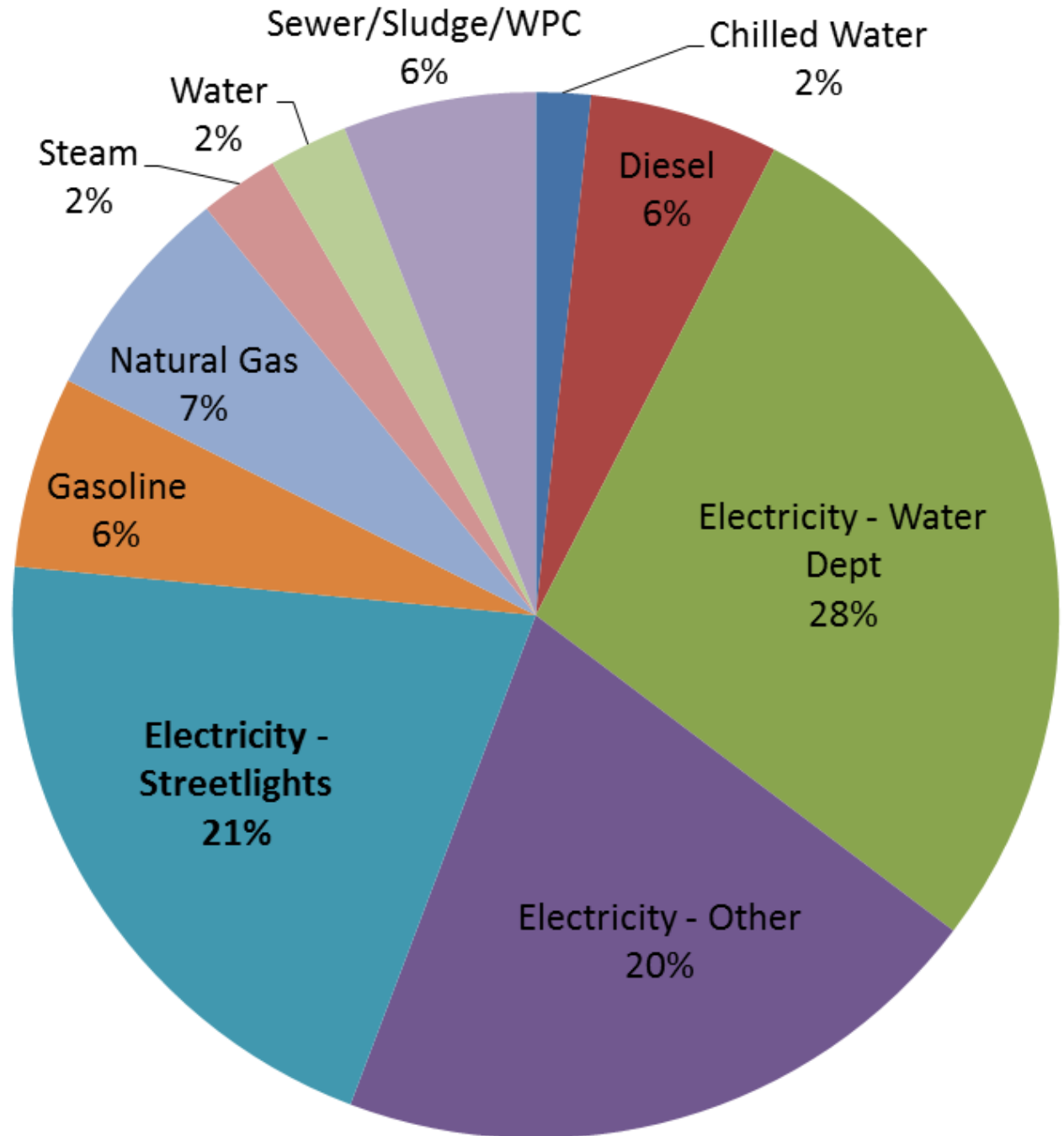
# Sustainable Cleveland 2019

- Together, we're Building a Thriving Green City on a Blue Lake
- Integrate sustainability into the City of Cleveland's municipal operations, our residents' lives and the priorities of our corporate and institutional partners



# City Operations Utility Cost

2010 Total  
Cost (base  
year) =  
**\$64,172,754**



# EnergyCAP → Portfolio Manager

Firefox | ECI EnergyCAP Online | https://web.energycap.com

**EnergyCAP.**

Buildings & Meters | Actual Data | Calendarized Data | Normalized Data | Savings | Organization Properties

Summary | Commodity | Monthly | Greenhouse Gas

Fiscal Year Summary (FY ends in Dec of year shown) Last updated: 04/22/2014 1:33:49 AM

**Electric**

**Total Cost Summary**

Year	Cost (\$ x 1,000,000)
2011	13.5
2012	13.5
2013	13.5
2014 YTD	0.5

**Total Use Summary**

Year	Use (KWH x 1,000,000)
2011	80
2012	80
2013	80
2014 YTD	0

**Daily Average Cost**

Percentage Change from Previous Year To Current Year

**12.8 %**

**Current Year:**  
Mar 2013 - Feb 2014  
\$32,192.48

**Previous Year:**  
Mar 2012 - Feb 2013  
\$36,944.47

**Daily Average Usage**

Percentage Change from Previous Year To Current Year

**16.6 %**

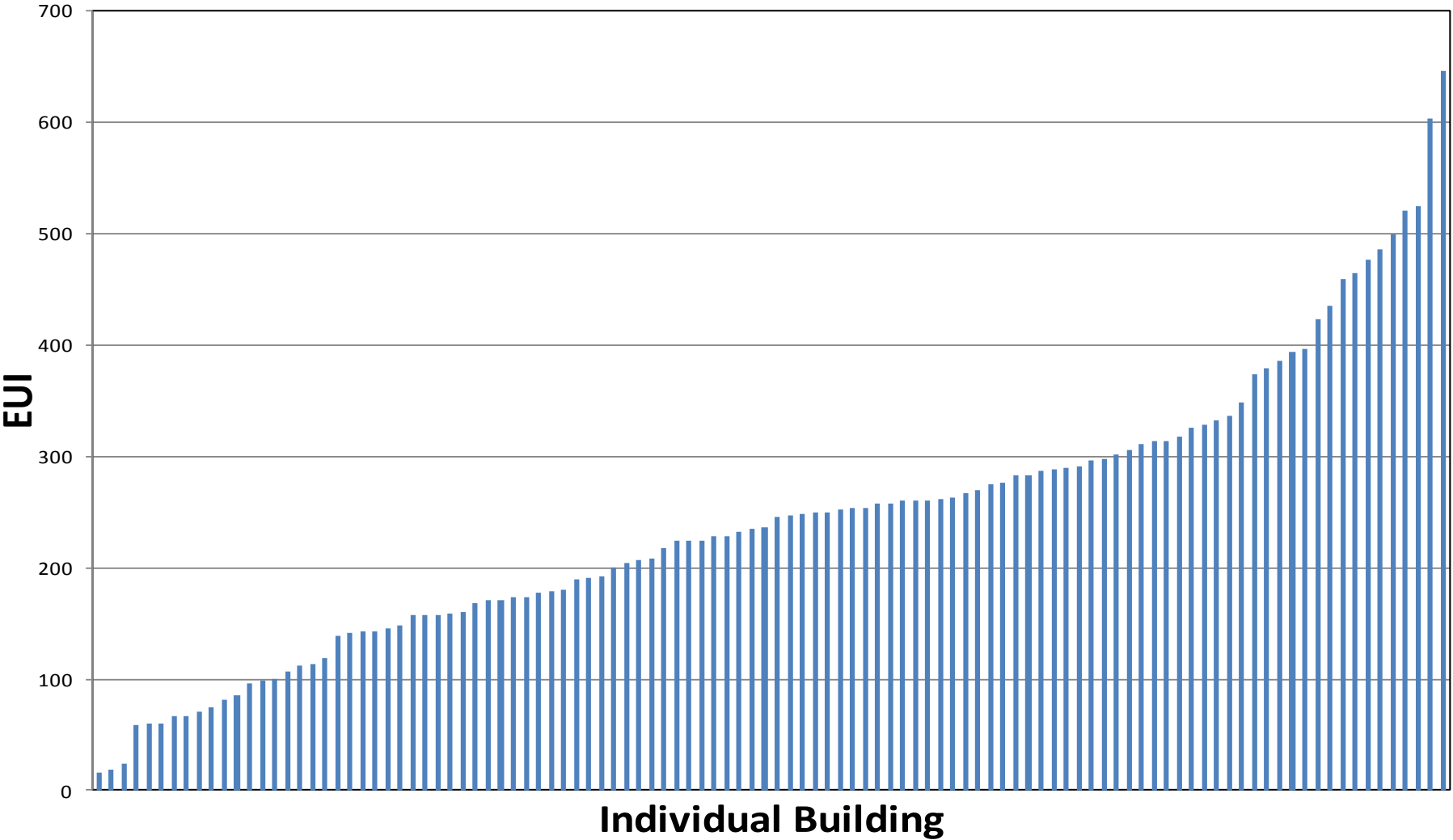
**Current Year:**  
Mar 2013 - Feb 2014  
184,677.97 KWH

**Previous Year:**  
Mar 2012 - Feb 2013  
221,489.33 KWH

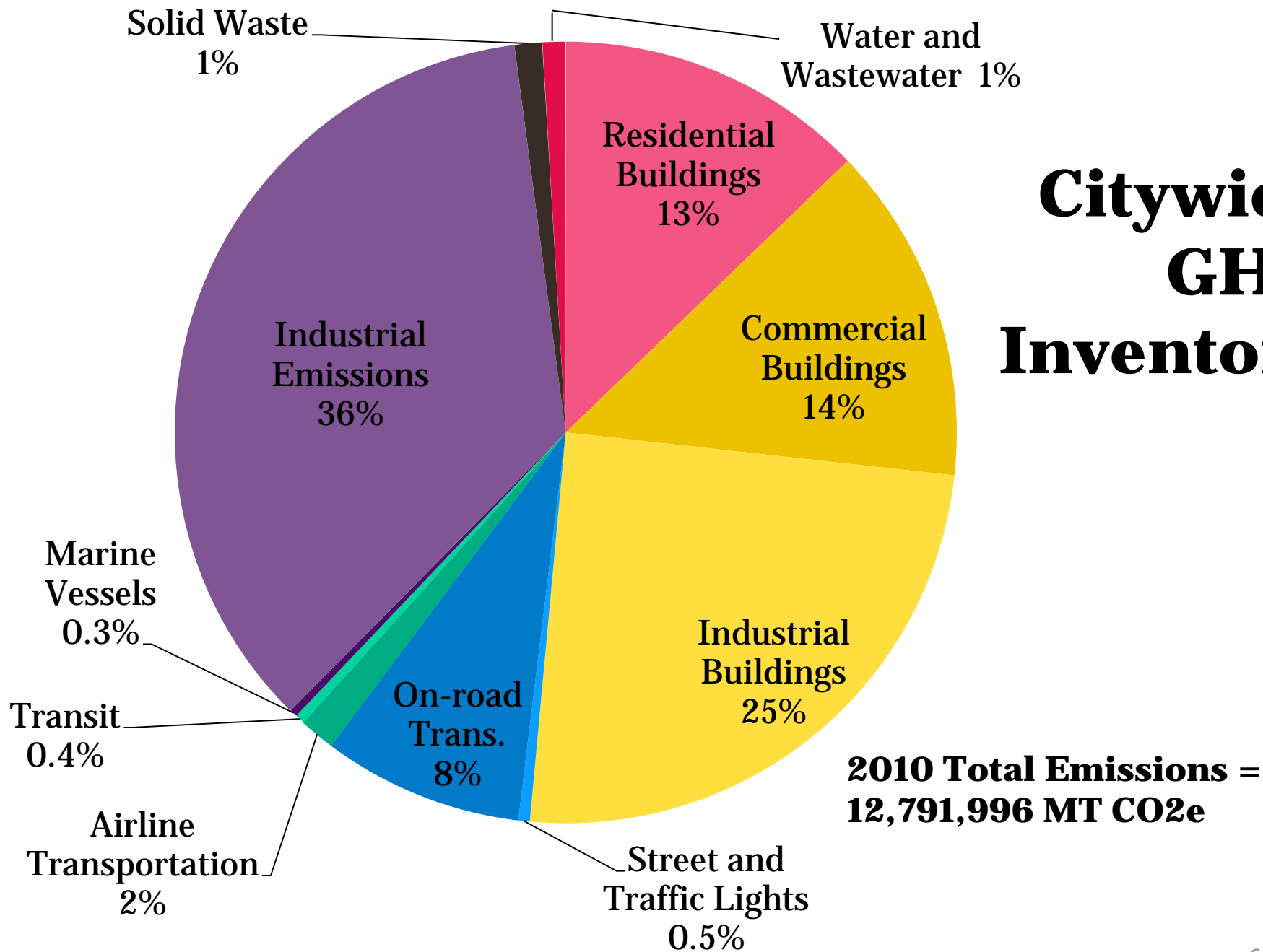
- Buildings
  - City of Cleveland
    - Aging (Department)
    - Building & Housing (Department)
    - Community Development (Department)
    - Finance (Department)
    - General Government (Department)
    - Law (Department)
    - Office of Capital Projects
    - Outliers
    - Port Control (Department)
    - Public Health
    - Public Safety
    - Public Utilities
    - Public Works (Department)
    - Streetlights & Traffic Lights
      - Streetlights
        - CPP Streetlights
        - Lakeside Ave Streetlights
        - Shaker Square Streetlighting
        - W. 140th Streetlights
        - Traffic Lights
      - Courts
      - State of Ohio
      - Unknown

# Benchmarking City Buildings

## 5% EUI Reduction between 2010-2014

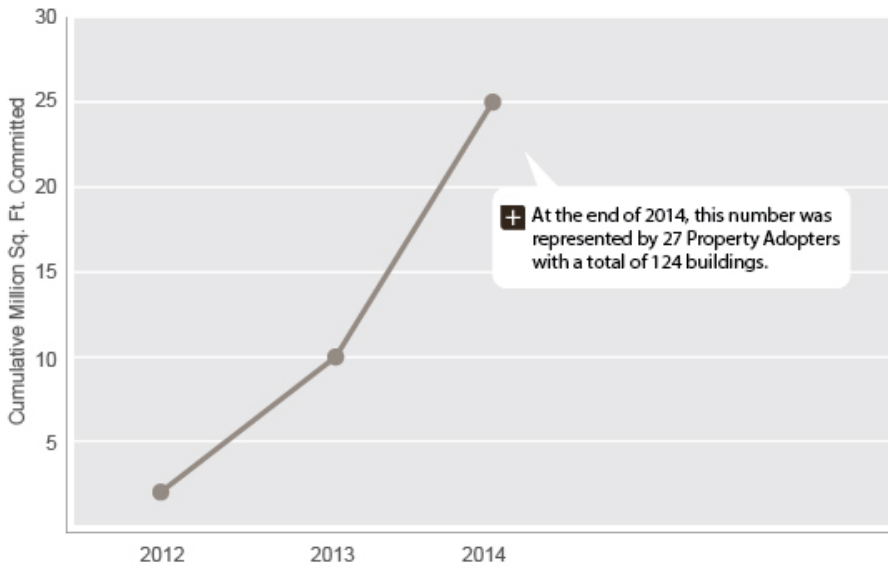


# Citywide GHG Inventory

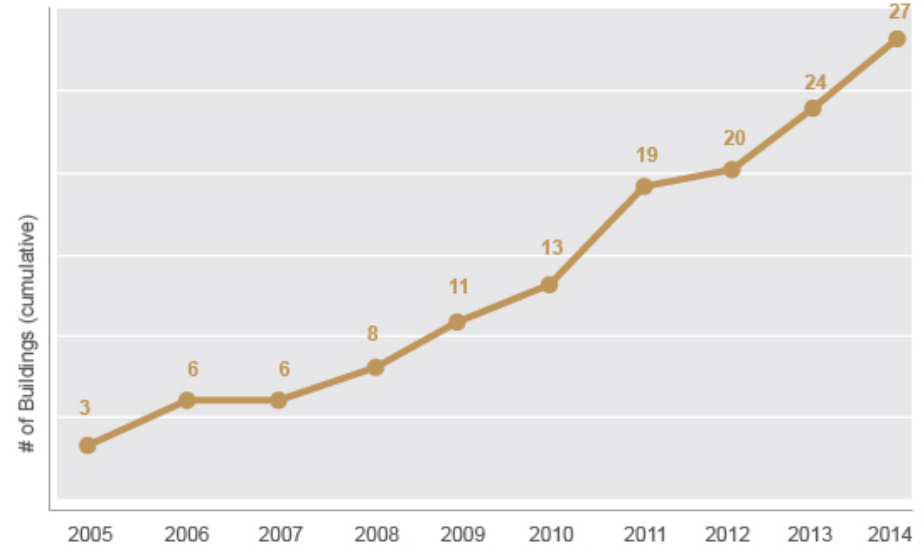


# Community Leaders

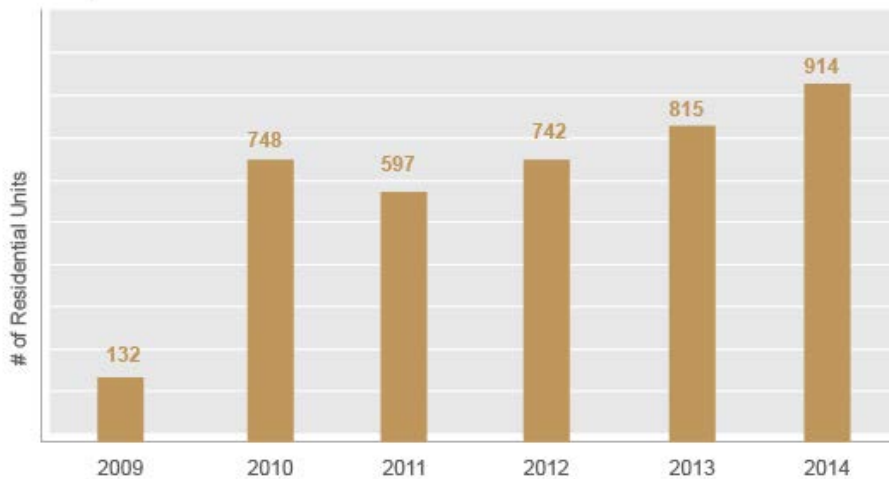
Cleveland 2030 District



ENERGY STAR



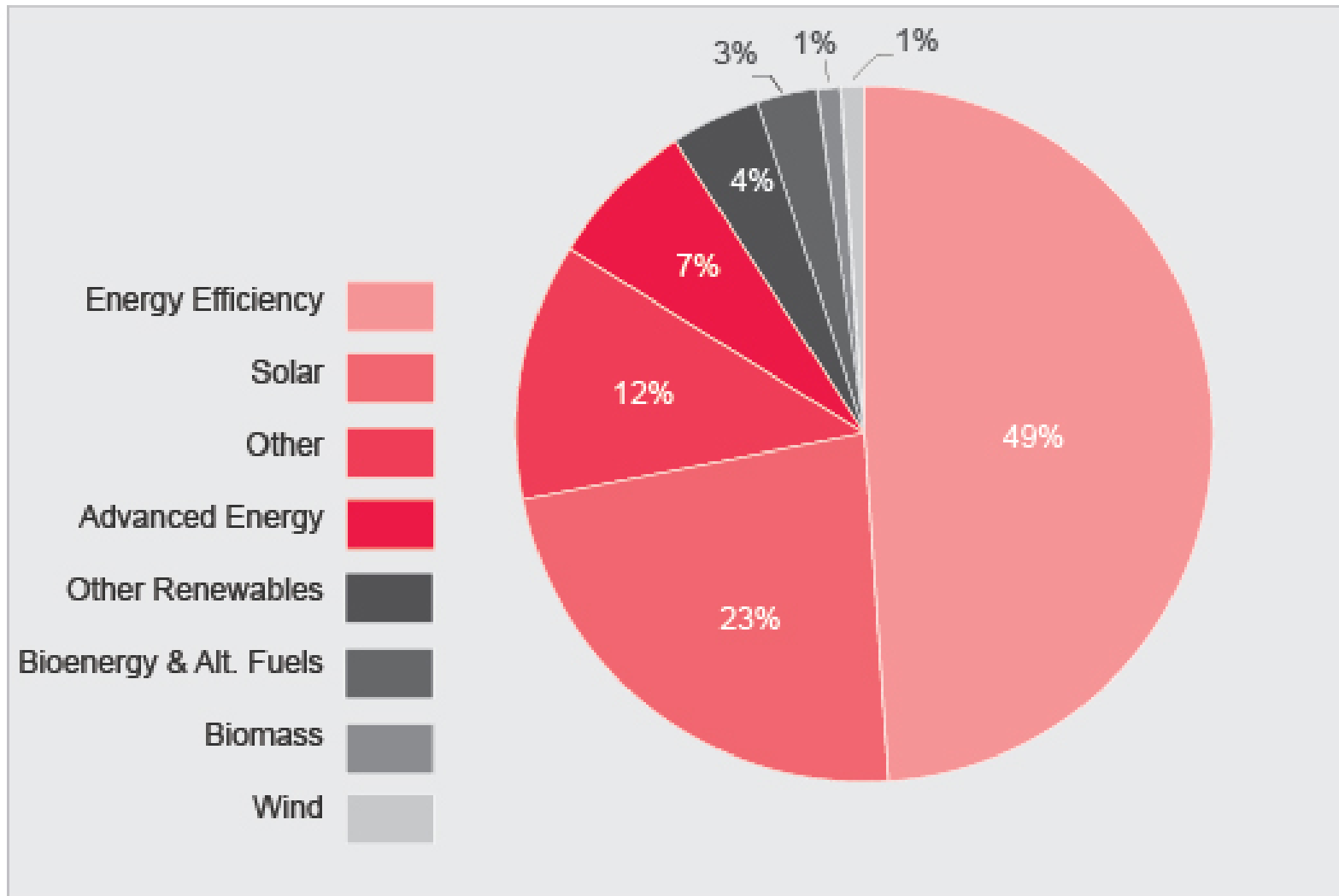
Enterprise Green Communities



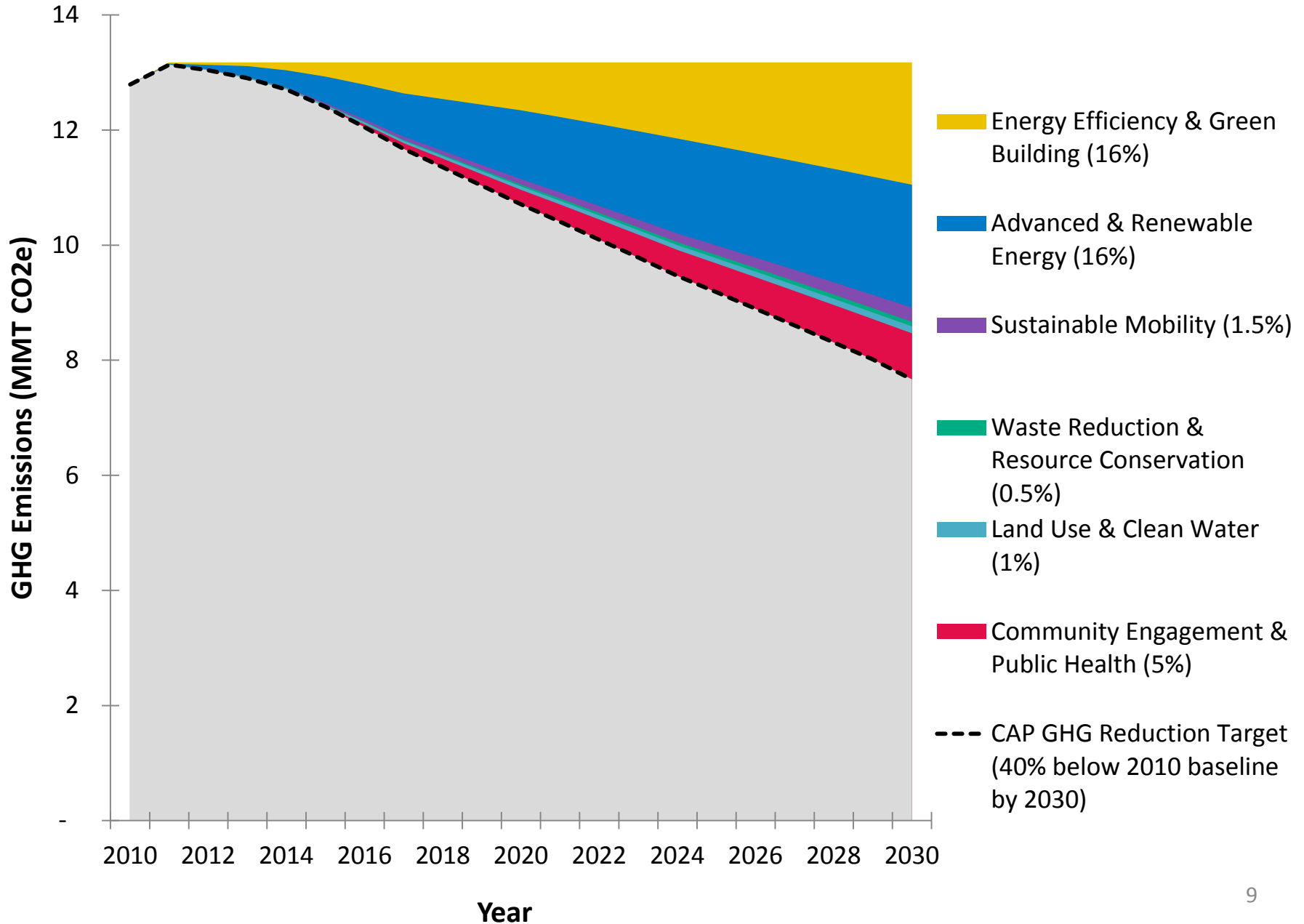
LEED



# Employment in Ohio's Clean Energy Industry (31,000 jobs in Ohio)



# The Challenge: Reduce Emissions 40% by 2030





# In Summary...

- Through local leaders, national experts, and our own firsthand experience, we understand the value of benchmarking
- Continue to grow the voluntary market (e.g. Cleveland 2030 District)
- Need to significantly reduce energy use in our existing building stock... but how do we scale up?
  - Track progress of peer cities (Benchmarking and Disclosure, other carrots and sticks)
  - Work with building owners and key stakeholders to identify path forward

# Thank You!

Matt Gray, Director  
City of Cleveland, Mayor's Office of Sustainability  
[mgray@city.cleveland.oh.us](mailto:mgray@city.cleveland.oh.us)



Join us at :

[www.SustainableCleveland.org](http://www.SustainableCleveland.org)