



# **Energy and Water Benchmarking and Disclosure Ordinance - January 2025 Report**

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# TABLE OF CONTENTS



- 1. Ordinance Background**
- 2. Report - Key Findings**
- 3. Report - Compliance**
- 4. Report - Data Accessibility**
- 5. Report - Data Accuracy**
- 6. Report - Trends**
- 7. Questions**

# A<sup>2</sup>ZERO Plan



**STRATEGY 3:** Significantly Improve the Energy Efficiency in our Homes, Businesses, Schools, Places of Worship, Recreational Sites, and Government Facilities

## 4. BENCHMARK AND DISCLOSE ENERGY USAGE

In order to understand our community's potential for and achievement of energy efficiency improvements, we need more granular information about how we use energy. Benchmarking, through the disclosure of energy usage, identifies where we can make the most significant impacts, and serves to motivate performance improvements.

### Vision for Benchmarking and Disclosing Energy Usage

Through standardized energy audits and self-reporting, residents and businesses take ownership of their energy usage, and have worked towards significant energy improvements. Achievements have been recognized across sectors, and as a community we have reduced our energy usage by 20%.

#### Party Responsible for Implementation

- Office of Sustainability and Innovations

#### Collaborators / Project Co-Designers

- Ann Arbor Information Technology Department
- Commercial property owners and tenant Real estate agents, brokers, and homeowners
- Energy auditors
- DTE Energy and Consumers Energy
- Ann Arbor 2030 District

#### Equity Impacts

Lower-income homeowners may suffer lower sales prices for their homes if they have inefficient homes. Rents may rise for highly efficient rental units, which may further exacerbate race and income disparities in the community.

#### Indicators of Success / Goals

Benchmarking requirements are passed, with 90% compliance by the residential, commercial, and institutional sectors by 2025.

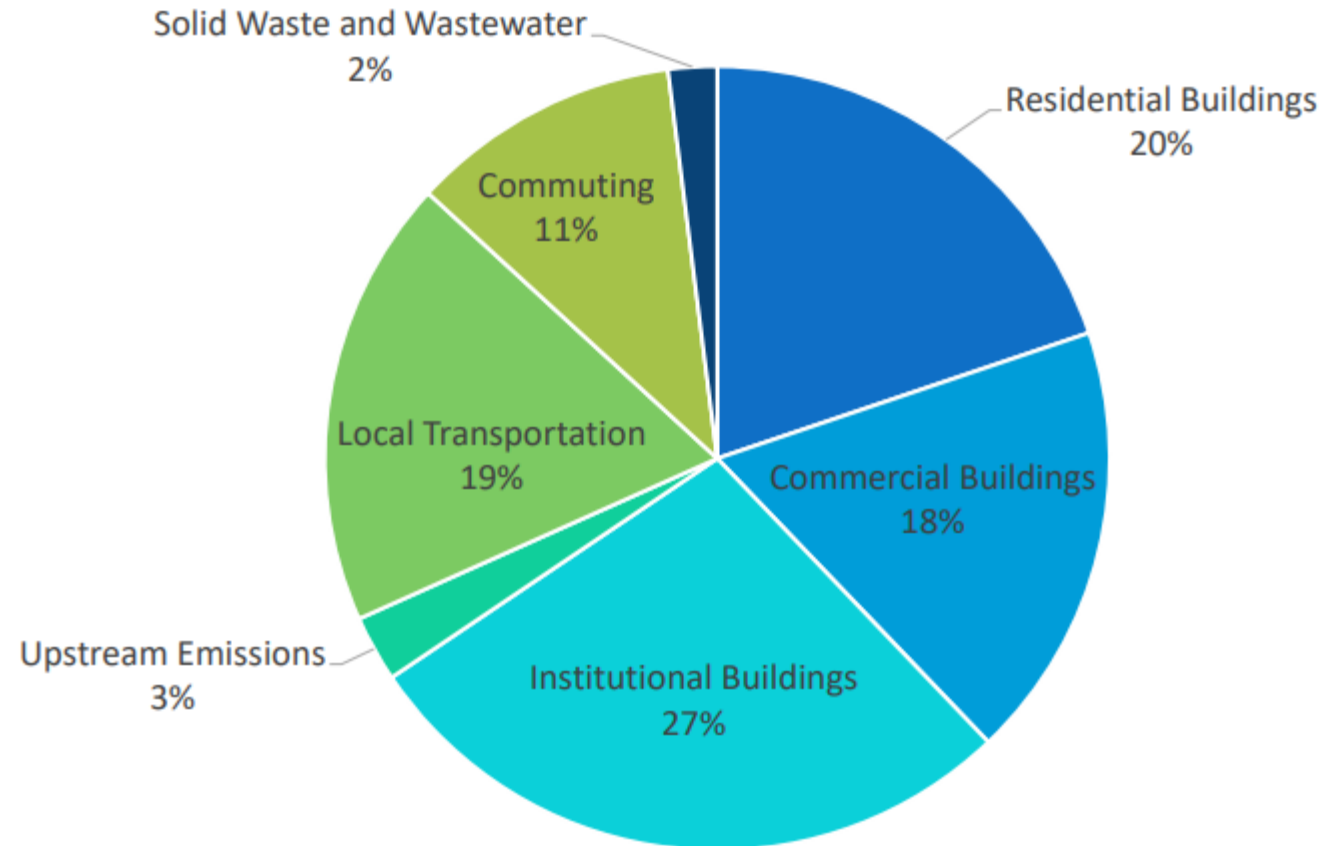
#### Assumptions

- A back-end portal to automatically report energy usage is built between the utilities and the City
- Sufficient Code Enforcement staff exist to ensure compliance in the program
- Support resources are available to help building owners and tenants reduce energy after benchmarking; this initiative contributes to participation in other energy efficiency initiatives in this Plan

# Where our Emissions Come From



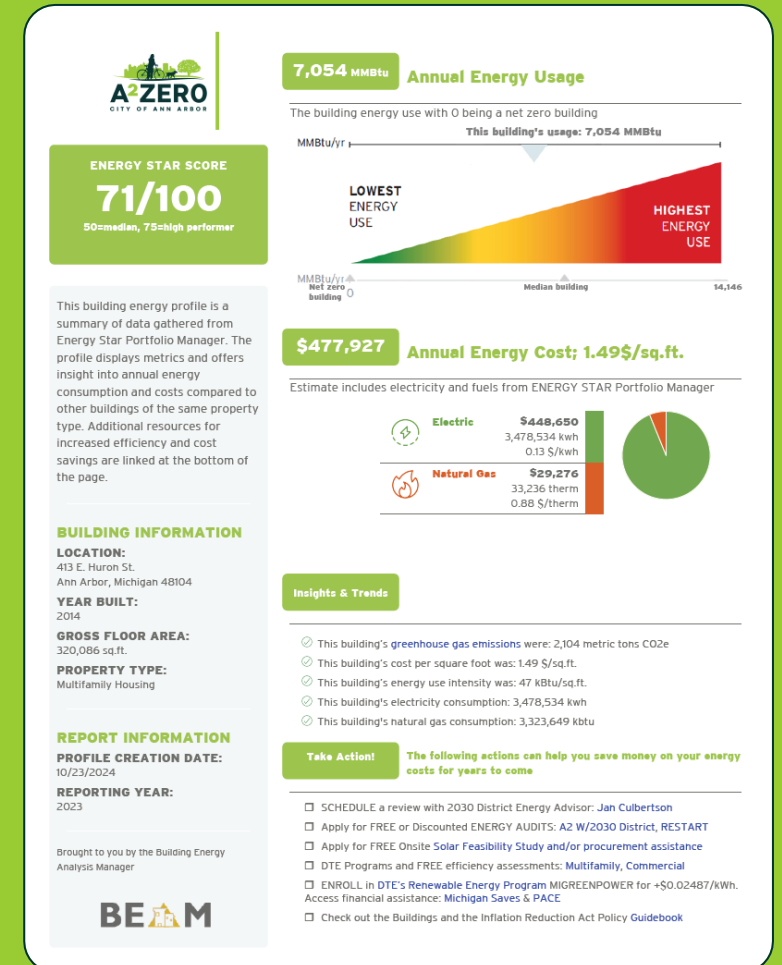
- **Buildings account for two-thirds of Ann Arbor's GHG emissions**



# Why Benchmarking?

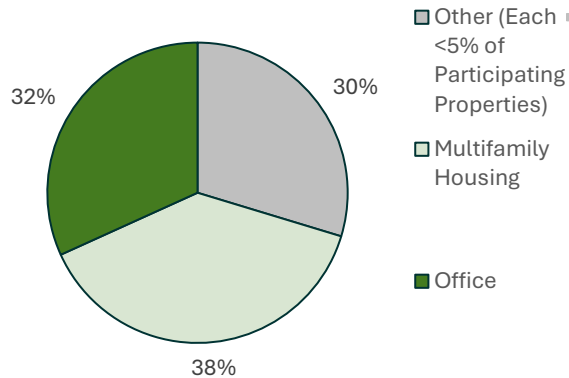


- You can't improve what you can't measure
- Putting data in the hands of decision makers, renters, owners and managers
- Energy use reduction (cost savings)



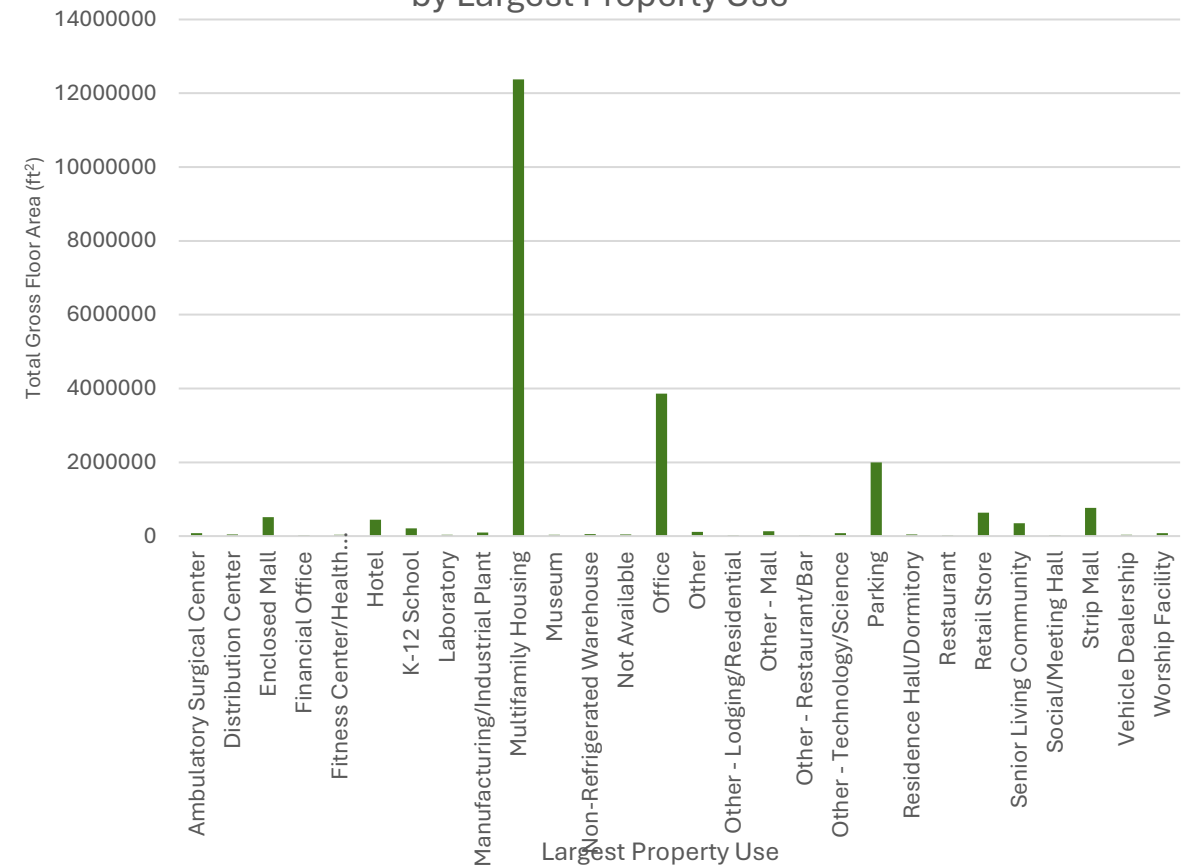
# Who is Benchmarking?

2023 Participating Properties  
by Largest Property Use



Other (Each <5% of Participating Properties)	
Largest Property Use	Percent of Total Participating Properties
Not Available	1%
Vehicle Dealership	1%
Ambulatory Surgical Center	1%
Financial Office	1%
Other - Lodging/Residential	1%
Laboratory	1%
Other - Mall	1%
Non-Refrigerated Warehouse	1%
Other - Restaurant/Bar	1%
Fitness Center/Health Club/Gym	1%
Residence Hall/Dormitory	1%
Enclosed Mall	1%
Restaurant	1%
Museum	1%
Social/Meeting Hall	1%
Other	1%
Senior Living Community	1%
Other - Technology/Science	1%
Distribution Center	1%
Manufacturing/Industrial Plant	1%
Worship Facility	2%
K-12 School	2%
Strip Mall	3%
Retail Store	3%
Hotel	4%
Parking	4%

Total Gross Floor Area (ft<sup>2</sup>) of 2023 Participating Properties  
by Largest Property Use



# Key Dates



## Original Deadlines

Property Size	Initial Reporting Deadline
Covered City Properties $\geq$ 10,000 sq. ft.	December 31, 2021
Covered Non-City Properties $\geq$ 100,000 sq. ft.	June 1, 2022
Covered Non-City Properties $\geq$ 50,000 sq. ft.	June 1, 2023
Covered Non-City Properties $\geq$ 20,000 sq. ft.	June 1, 2024

## Adjusted Deadlines

Property Size	New Enforcement Deadline
Covered Non-City Properties $\geq$ 100,000 sq. ft.	September 1, 2024
Covered Non-City Properties $\geq$ 50,000 sq. ft.	June 1, 2025
Covered Non-City Properties $\geq$ 20,000 sq. ft.	June 1, 2025

# Covered City Properties



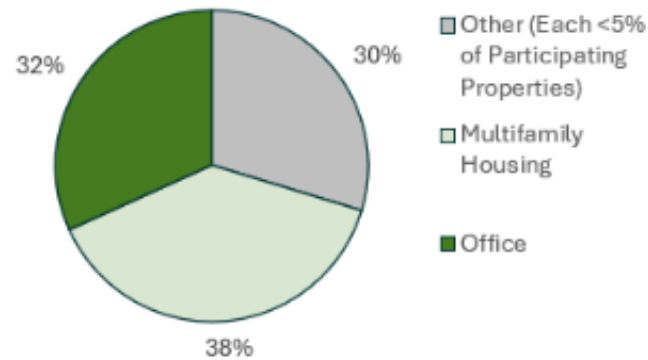
- **Covered City Property means a property that:**
  - Exceeds 10,000 gross square feet in total floor area; and
  - Is owned, leased, or managed by the City such that the City regularly pays all or part of the annual energy and/or water bills.
- **Seven properties fit these definitions with varied uses**
- **For the seven properties required to comply:**
  - Site EUI decreased 2021-2023
  - Source EUI increased 2021-2022; decreased 2022-2023 to slightly above 2021 levels.
  - Total GHG emissions intensity decreased 2021-2022; did not change 2022-2023.
  - Water use intensity increased from 2021 to 2022 but decreased from 2022 to 2023.
- **While not required by the ordinance, there are benefits to benchmarking all City properties, and OSI continues to work toward that goal in 2025.**



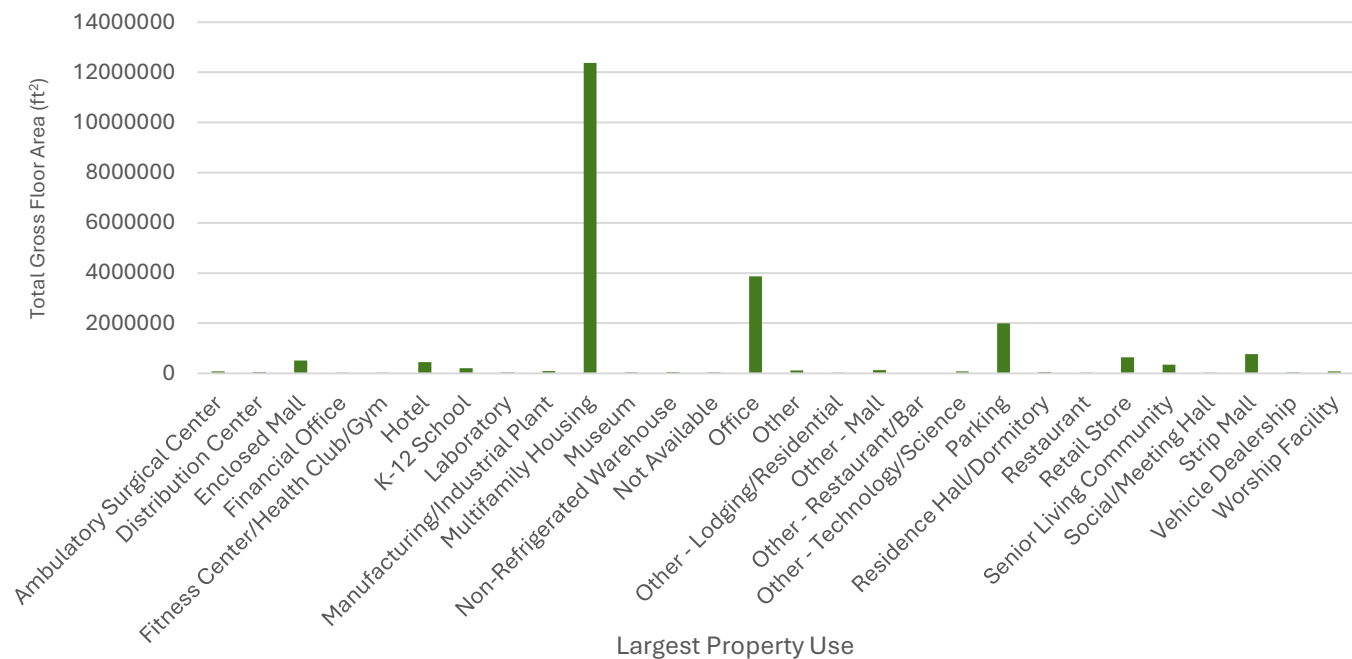
# Key Findings

## 1. Multifamily housing is the Largest total GFA covered, followed by offices.

2023 Participating Properties  
by Largest Property Use



Total Gross Floor Area (ft<sup>2</sup>) of 2023 Participating Properties by Largest Property Use



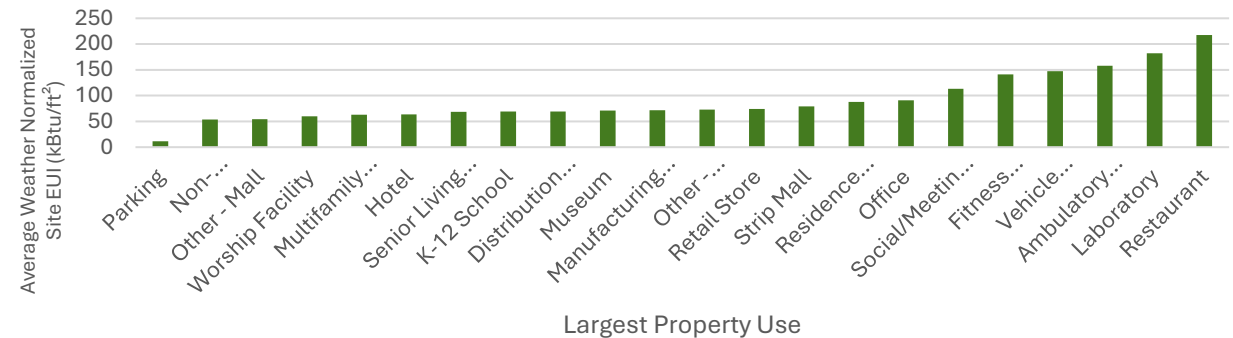
# Key Findings



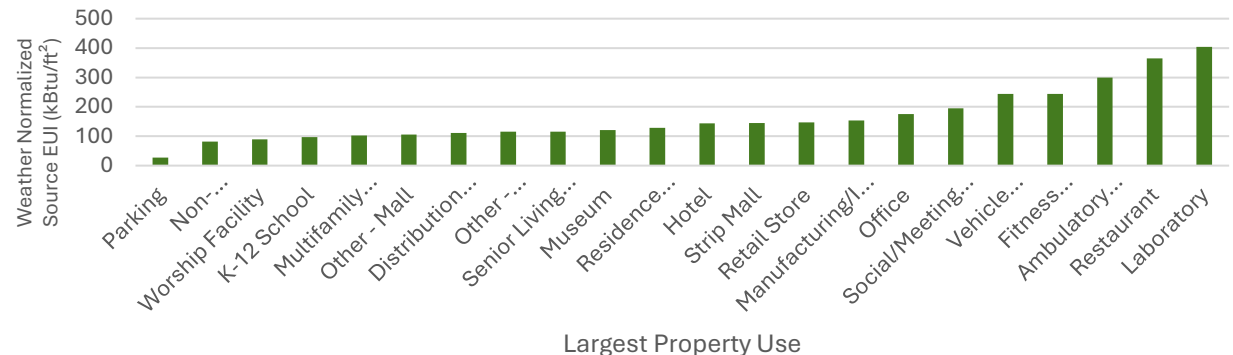
2. **Properties with highest EUI:**
  - a. Ambulatory service centers
  - b. Laboratories
  - c. Restaurants.
3. **Properties with the lowest EUI are**
  - b. Parking garages
  - c. Non-refrigerated warehouses
  - d. Worship facilities.

**Larger properties tend to have lower EUIs, but this could be attributed to property types**

2023 Compliant Properties' Average Weather Normalized Site EUI (kBtu/ft<sup>2</sup>) by Primary Property Use Type



2023 Compliant Properties' Average Weather Normalized Source EUI (kBtu/ft<sup>2</sup>) by Largest Property Use



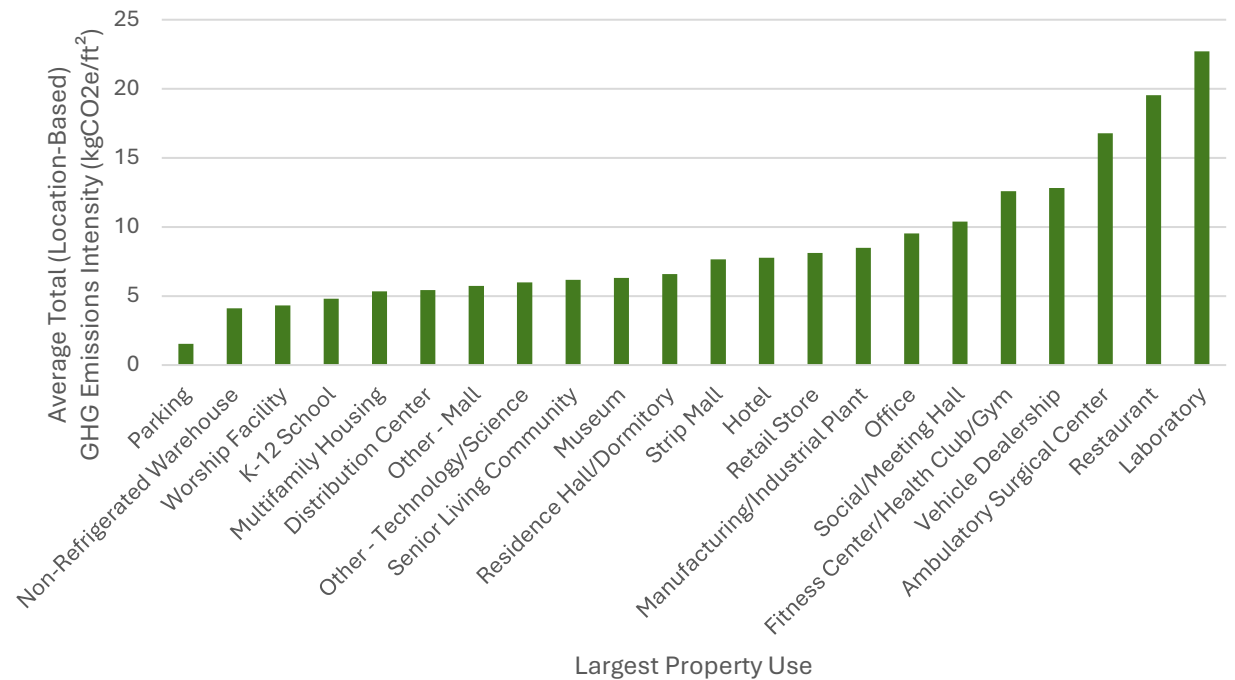
# Key Findings



4. **Properties with highest GHG emission intensities:**
  - a. **Laboratories**
  - b. **Restaurants.**
  - c. **Ambulatory service centers**
5. **Properties with the lowest GHG emission intensities**
  - b. **Non-refrigerated warehouses**
  - c. **Worship facilities.**
  - d. **Parking garages**

**Larger properties tend to have lower GHG emission intensities, but this could be attributed to property types**

2023 Compliant Properties' Average Total (Location-Based) GHG Emissions Intensity (kgCO<sub>2</sub>e/ft<sup>2</sup>) by Largest Property Use Type

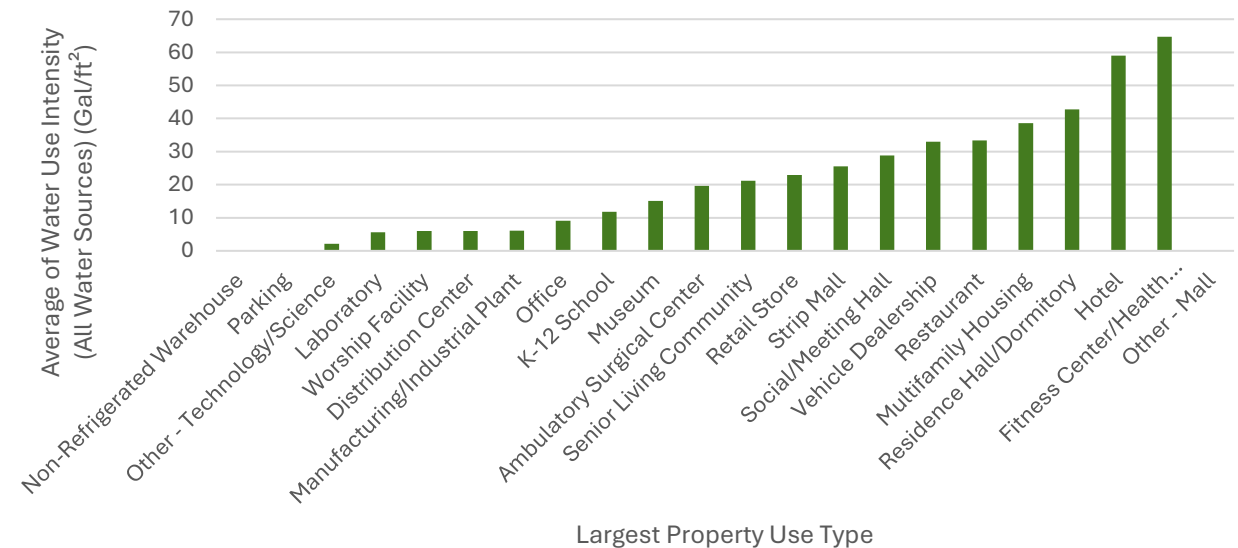


# Key Findings



6. Properties with the highest water use intensity
  - a. Fitness centers/health clubs/gyms
  - b. Hotels.
  - c. Residence Hall/Dormitory
7. Properties with the lowest water use intensity are
  - a. Non-refrigerated warehouses,
  - b. Parking garages and
  - c. "Other - technology/science"

2023 Compliant Properties' Average of Water Use Intensity (All Water Sources) (gal/ft<sup>2</sup>) by Largest Property Use Type

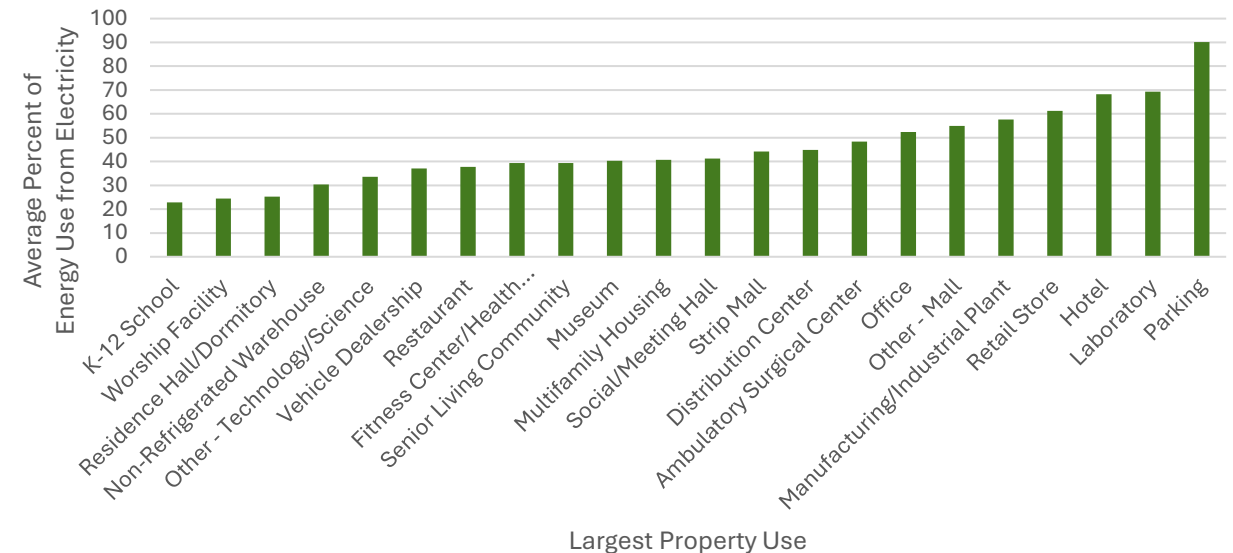


# Key Findings



8. Properties with highest percent of energy use from electricity:
  - a. Parking garages
  - b. Laboratories
  - c. Hotels
9. Properties with the lowest percent of energy use from electricity:
  - a. K-12 schools,
  - b. Worship facilities
  - c. Residence halls/dorms

2023 Compliant Properties' Average Percent of Energy Use from Electricity by Largest Property Use

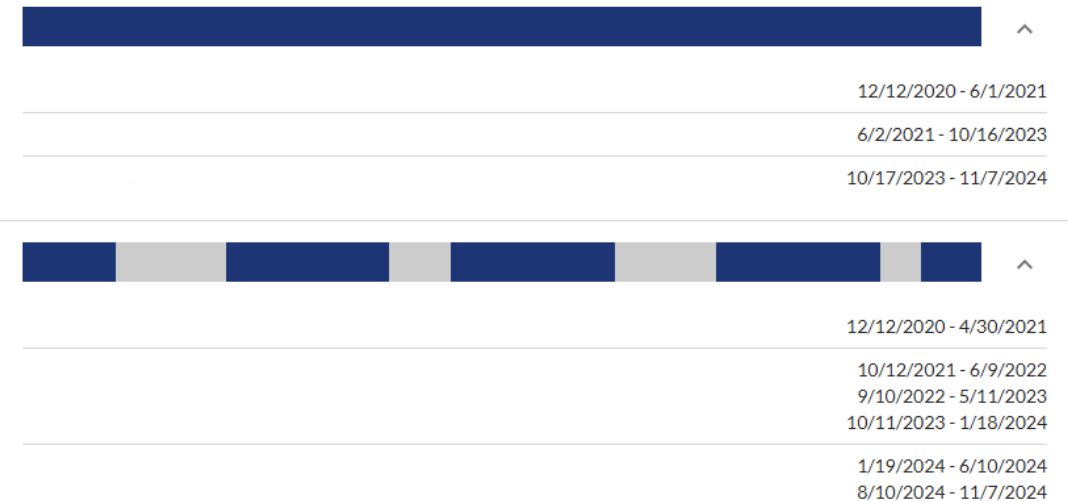


# Key Findings Cont.



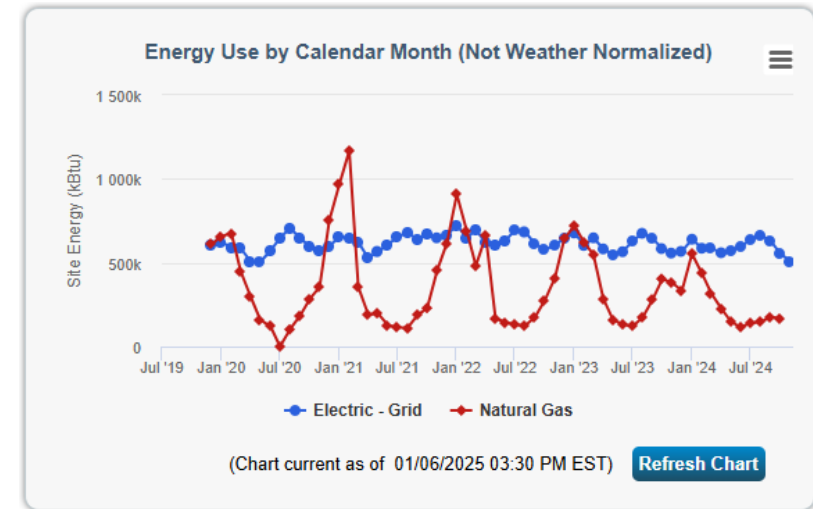
10. Data is generally accurate with variation across utilities.  
Constellation Energy has the most accurate data, followed by the City of Ann Arbor water data and DTE Energy data.
11. Data accessibility varies widely.  
DTE Energy and City of Ann Arbor water data can be automated, but enrolling in DTE's automated data portal can be difficult.  
Constellation Energy has no data automation, easily obtainable data




Data Completeness (December 12, 2020 - November 7, 2024)



# Key Findings Cont.

12. Difficulty increasing compliance is a common issue. Robust and repeated outreach is essential. Data automation also assists compliance and the sustainability of benchmarking within an organization.
13. Moving forward, OSI looks to increase compliance, increase data access and accuracy, benchmark Covered City Properties beyond those required by the Benchmarking Ordinance, and identify granular trends among benchmarking properties to guide the creation of future commercial and multifamily decarbonization programs.

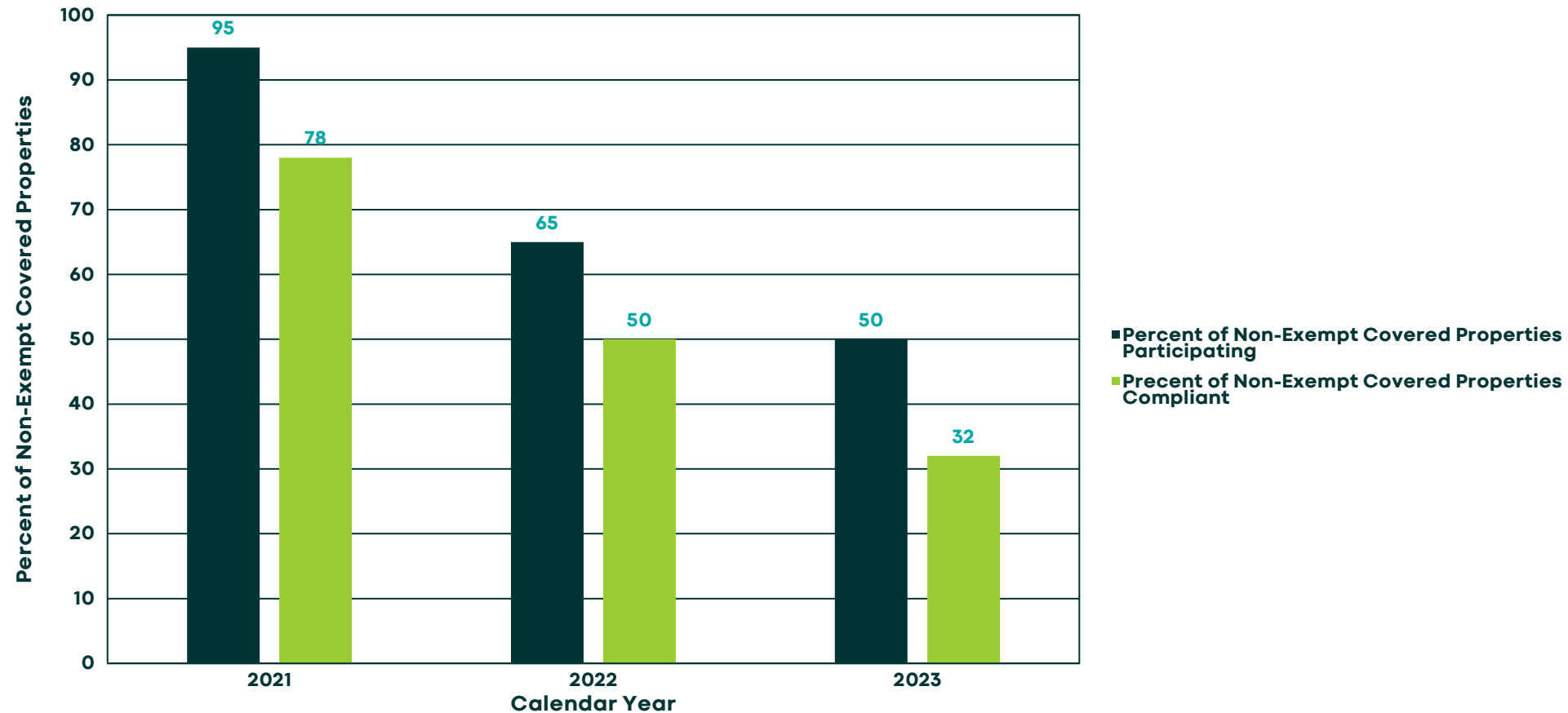


Metrics Summary			
Metric 	Dec 2023 (Other) 	Oct 2024 (Energy Current) 	Change 
ENERGY STAR Score (1-100)	76	82	6.00 (7.90%)
Source EUI (kBtu/ft <sup>2</sup> )	131.8	124.2	-7.60 (-5.80%)
Site EUI (kBtu/ft <sup>2</sup> )	60.9	54.8	-6.10 (-10.00%)
Energy Cost (\$)	174,350.23	146,594.57	-27,755.66 (-15.90%)
Total (Location-Based) GHG Emissions Intensity (kgCO <sub>2</sub> e/ft <sup>2</sup> )	7.48	7.08	-0.40 (-5.30%)
Water Use (All Water Sources) (kgal)	6,387.0	<a href="#">Not Available</a>	N/A
Total Waste (Disposed and Diverted) (Tons)	<a href="#">Not Available</a>	<a href="#">Not Available</a>	N/A

# Compliance Rates



Benchmarking Participation and Compliance by Calendar Year





# Data Accessibility



## DTE Energy

- Largest energy provider
- Data is available via:
  - Bills
  - Direct requests
  - Online account
  - DTE Energy Data Hub (automated)
- DTE Energy Data Hub recommended, but enrollment is challenging

Benchmarking Report

## Constellation Energy

- Choice energy provider, mainly natural gas
- Data available via:
  - Bills
  - Direct requests
  - Online account
- No data automation, but manual data is quickly and easily accessible

## City of Ann Arbor Water

- Sole water utility
- Data available via:
  - Bills
  - AquaHawk portal
  - Data automation

# Data Accuracy



## DTE Energy

- Generally accurate
- A small subset of properties moderate to severe issues.
- Issues are often small gaps whose root cause is hard to determine.
- Rare cases have seen up to two years of data missing.
- Issues can be resolved but take time.

Benchmarking Report

## Constellation Energy

- Generally very accurate.
- Rare to have gaps in data. Usually only one month missing.
- Only egregious example was due to a physical meter error.
- Properties rarely have multiple Constellation meters - likely a factor.

## City of Ann Arbor Water

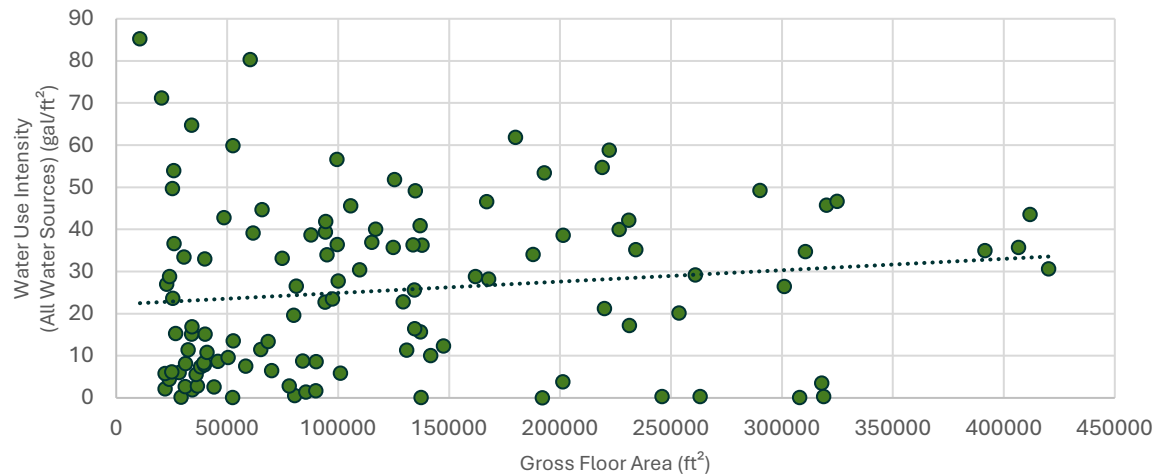
- Generally very accurate.
- Most issue are due to meter replacements.
- Gaps can be lengthy during replacements but is almost always explainable.
- Data can be extremely granular in AquaHawk.

# Trends

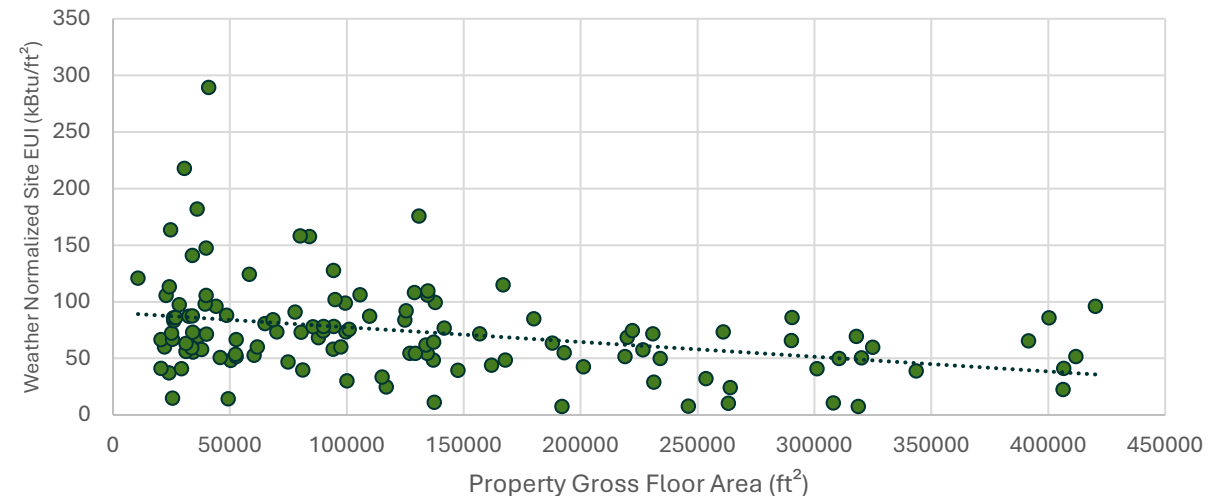


- Trends observed thus far are not representative of overall performance or improvements
- In general, larger properties tend to have lower EUIs and GHG emission intensities, but higher water usage intensity. This is likely due to the types of properties larger properties tend to be.

2023 Compliant Properties' Water Use Intensity (All Water Sources) (gal/ft<sup>2</sup>) by Gross Floor Area (ft<sup>2</sup>)



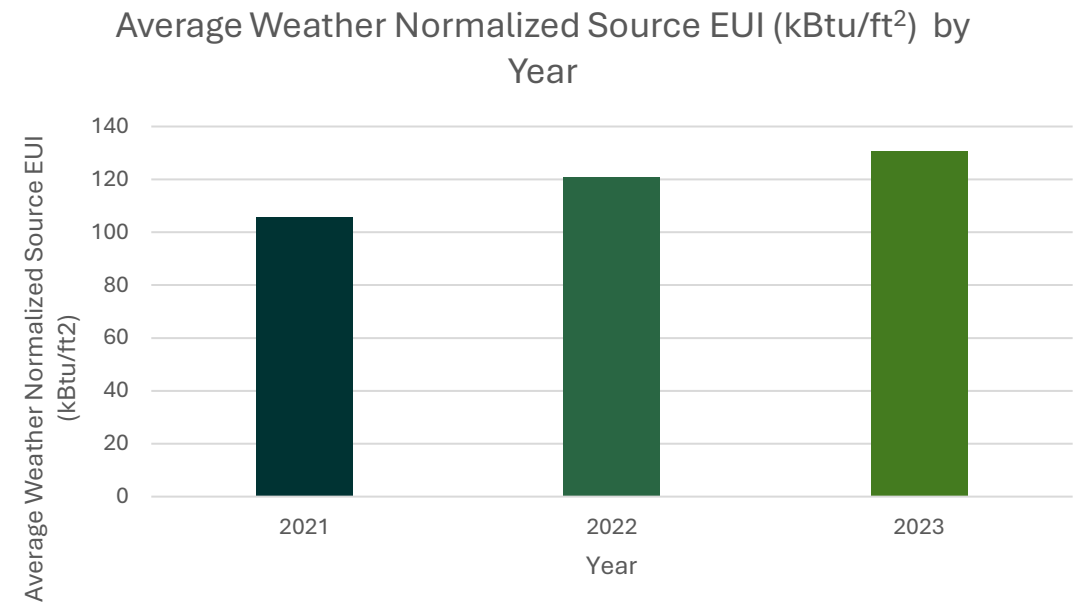
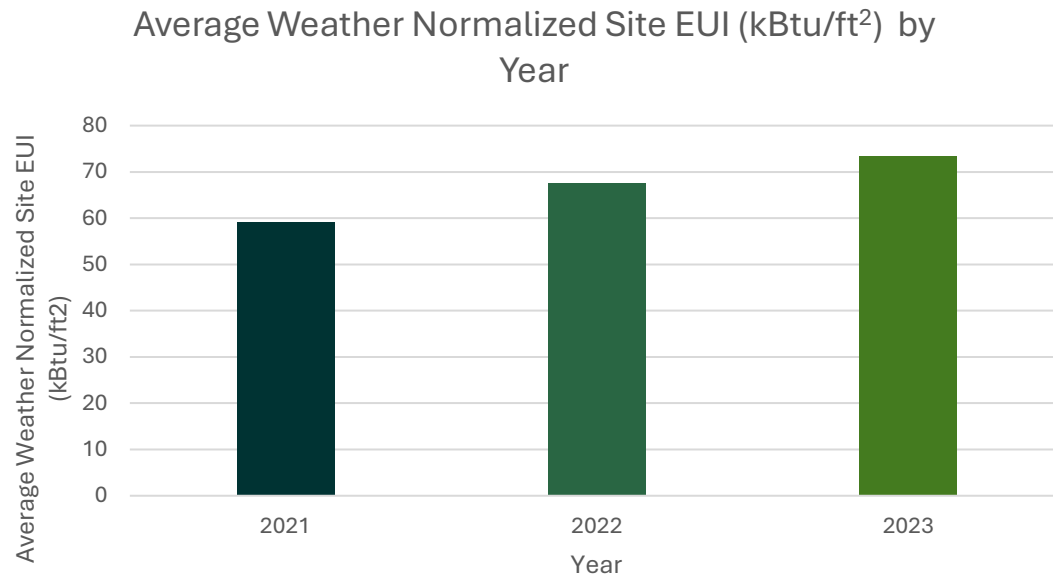
2023 Compliant Properties' Weather Normalized Site EUI (kBtu/ft<sup>2</sup>) by Gross Floor Area



# Trends



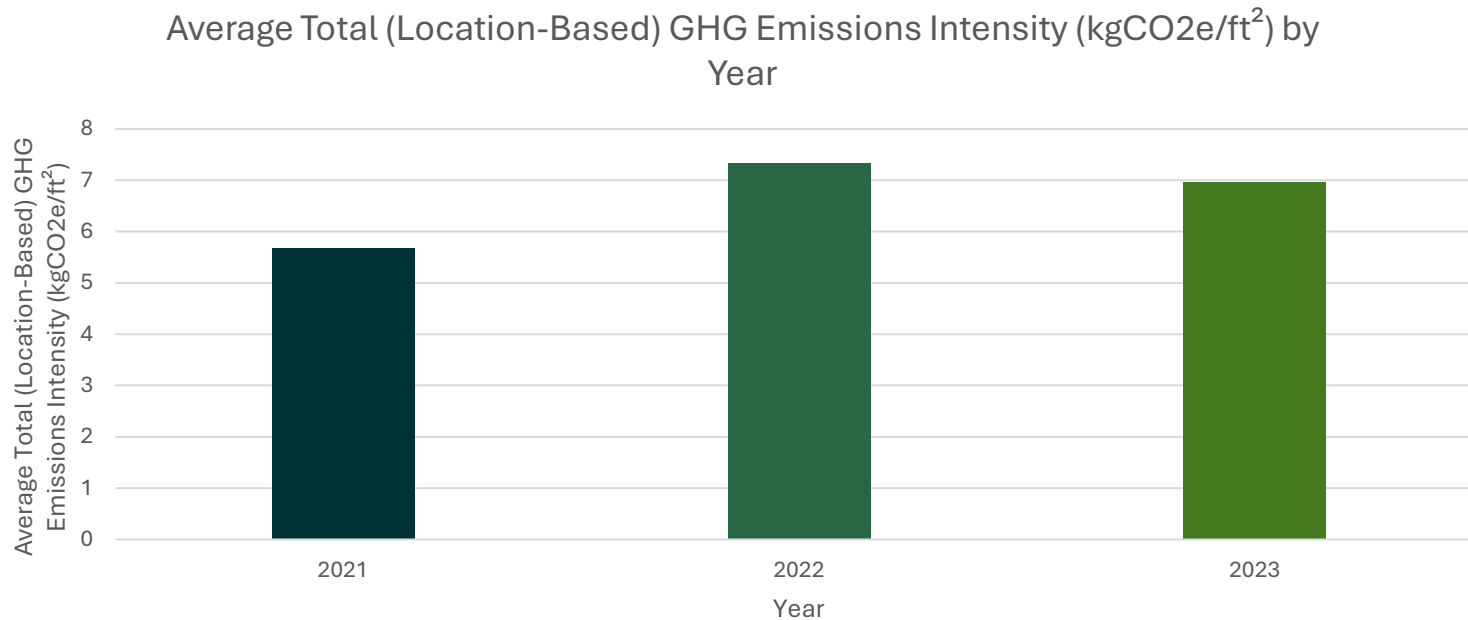
- **Site and Source EUI increased from 2021 to 2023**



# Trends



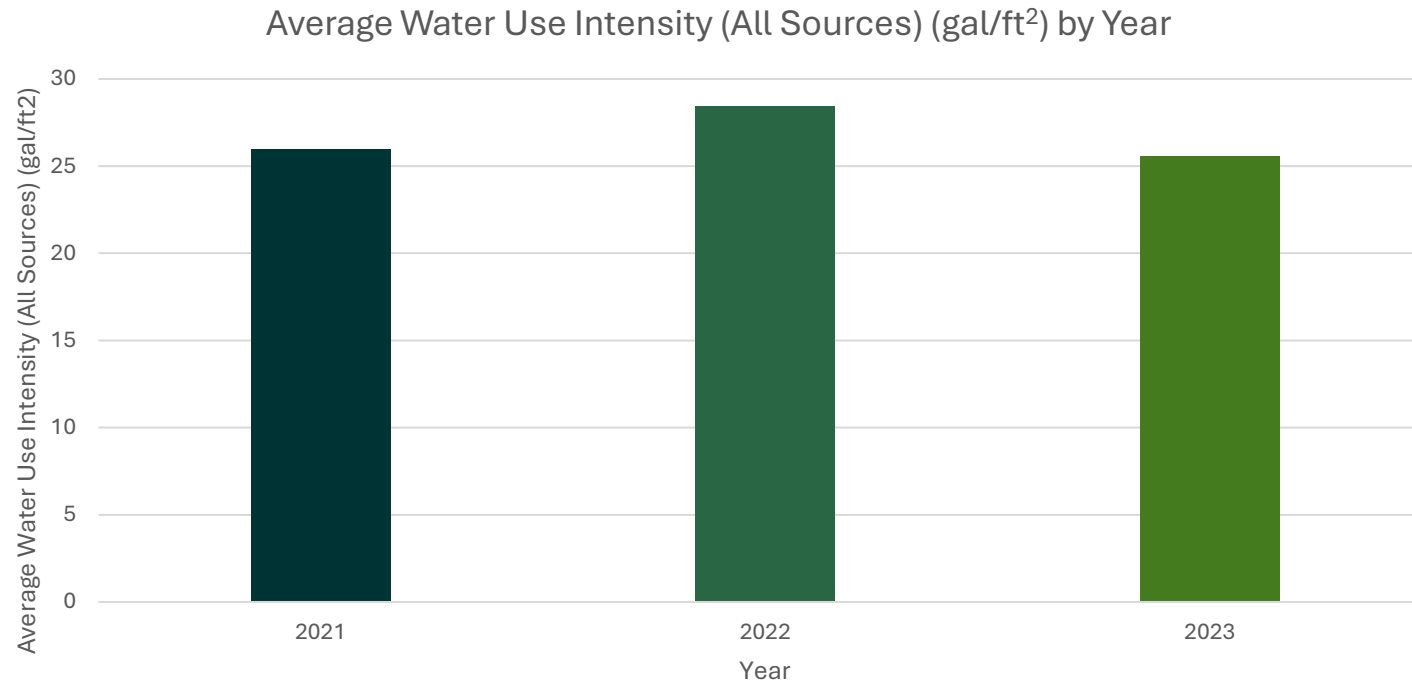
- **GHG emission intensity increased from 2021 to 2022 but decreased from 2022 to 2023.**



# Trends



- **Water use intensity increased from 2021 to 2022 but decreased from 2022 to 2023.**





# THANK YOU

Questions?