

# Welcome! We'll start the **SEATTLE BPS TARGETS WEBINAR** shortly.

## **A FEW HOUSEKEEPING ITEMS:**

- This webinar is being recorded.
- We are expecting more than 200 participants today.
- Participants are joining in "listen only" mode with cameras off and chat is disabled.
- Please use the "Q&A" button for questions.
- To “upvote” questions, give the question you like a “thumbs up.”
- If you would like closed captions (CC), please click on the "Live Transcript" button.

# 100% Clean Buildings

## Draft Emissions Targets for Seattle Building Performance Standards

Technical Webinar | October 25, 2022



**Seattle**  
Office of Sustainability  
& Environment

# Agenda

- Welcome, Agenda and Instructions (5 min)
- Part 1: Policy Update (City of Seattle - 10 min)
  - Policy Timeline
  - Building Performance Standards (BPS) overview
  - Compliance timelines
  - GHG Intensity and GHGI Targets
- Part 2: Draft GHG Targets & Analysis (SBW Consulting - 20 min)
  - Analysis background
  - Draft targets
  - Examples
- Questions and Answers - (25 min)

**Reminder:** June and April  
online open house materials  
at [seattle.gov/building-  
performance-standards](https://seattle.gov/building-performance-standards)

- Watch the recordings
- See the slide decks
- Review the FAQs

# Zoom Webinar Instructions

- **Q&A:** Chat is disabled. Use the "Q&A" button for questions. To “upvote” questions, give the question you like a “thumbs up.”
- We will save all questions, though may not have time to address them all live.
- **Technical support:** Please also send in through the Q&A
- **Recording and Slides:** Will be posted to the [seattle.gov/building-performance-standards](https://seattle.gov/building-performance-standards) by the 31st.
- **Closed captioning:** On the toolbar, click "Live Transcript" to select "Show Subtitle."



# Part 1

# Seattle BPS Policy Update

Office of Sustainability & Environment

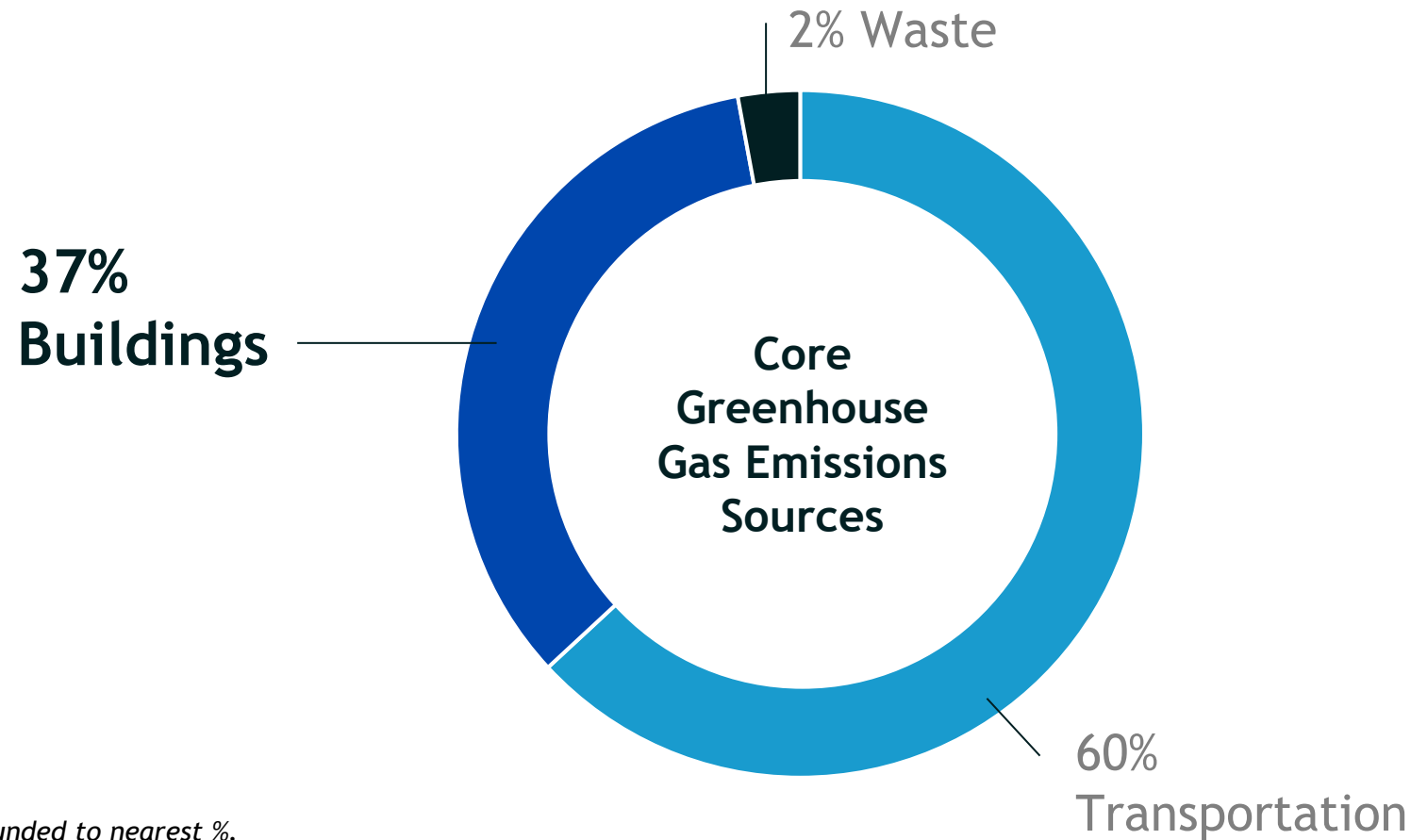


# Draft Timeline

- April & June: Open houses & stakeholder engagement
- July - October: Stakeholder input on preliminary draft legislation
- October 25: Draft GHG Targets Webinar
- October 2022- January 2023: Final legislation drafted & Mayor review
- February - March 2023: Legislation considered at City Council
- April - December 2023: rulemaking



# Buildings are one of the largest and fastest growing sources of Seattle's climate pollution.



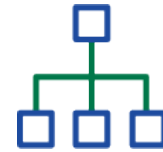
*Note: Sources are rounded to nearest %.*

Source: 2018 Seattle Greenhouse Gas Emissions Inventory

**Seattle emissions-based building performance standards are the single most impactful building policy to reduce climate pollution from buildings.**



Set GHG emissions reduction targets that buildings must meet over time.



Provide a framework for owners to improve energy efficiency and transition to cleaner energy sources.



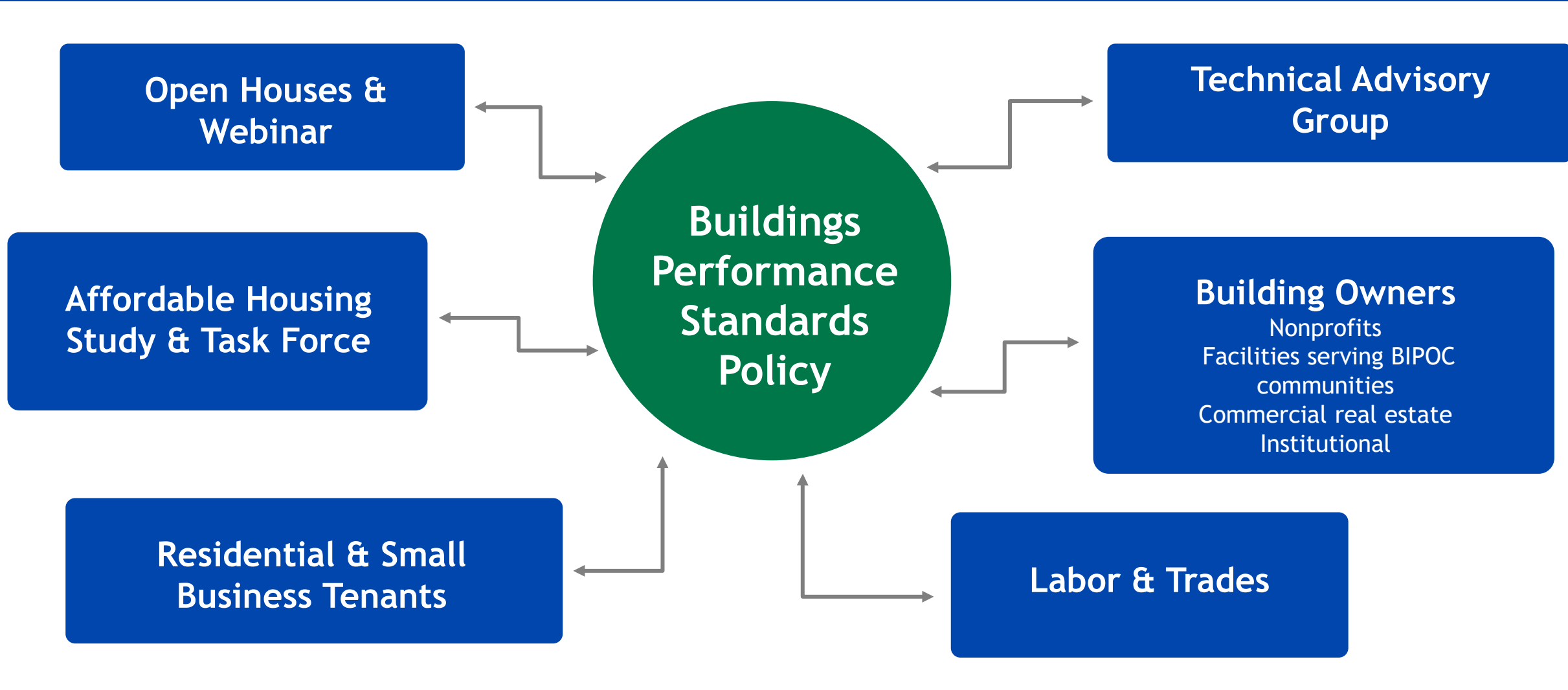
Offer flexibility to choose the technologies and operational strategies that work best for owners.



Identify long-term expectations so owners can plan for upgrades.



**Many voices are helping shape this policy.**



# What we've heard



**Timing** - Communicate targets now to provide long lead times for owners to plan and for the labor workforce to grow, diversify, and transition.



**Support** - Provide financial incentives, lower interest financing, and robust technical help for all types of buildings and owners, especially for those under resourced.

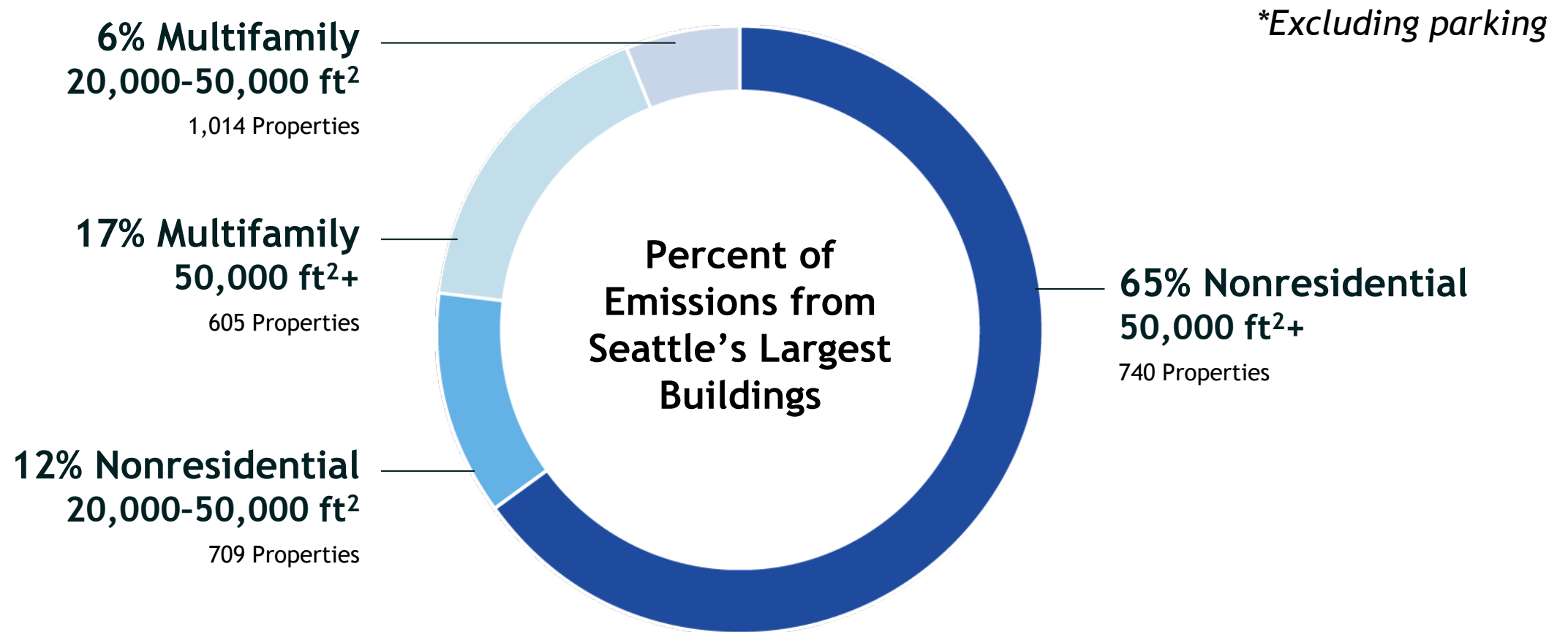


**Flexibility** - Create a streamlined policy that allows for flexible options for compliance.

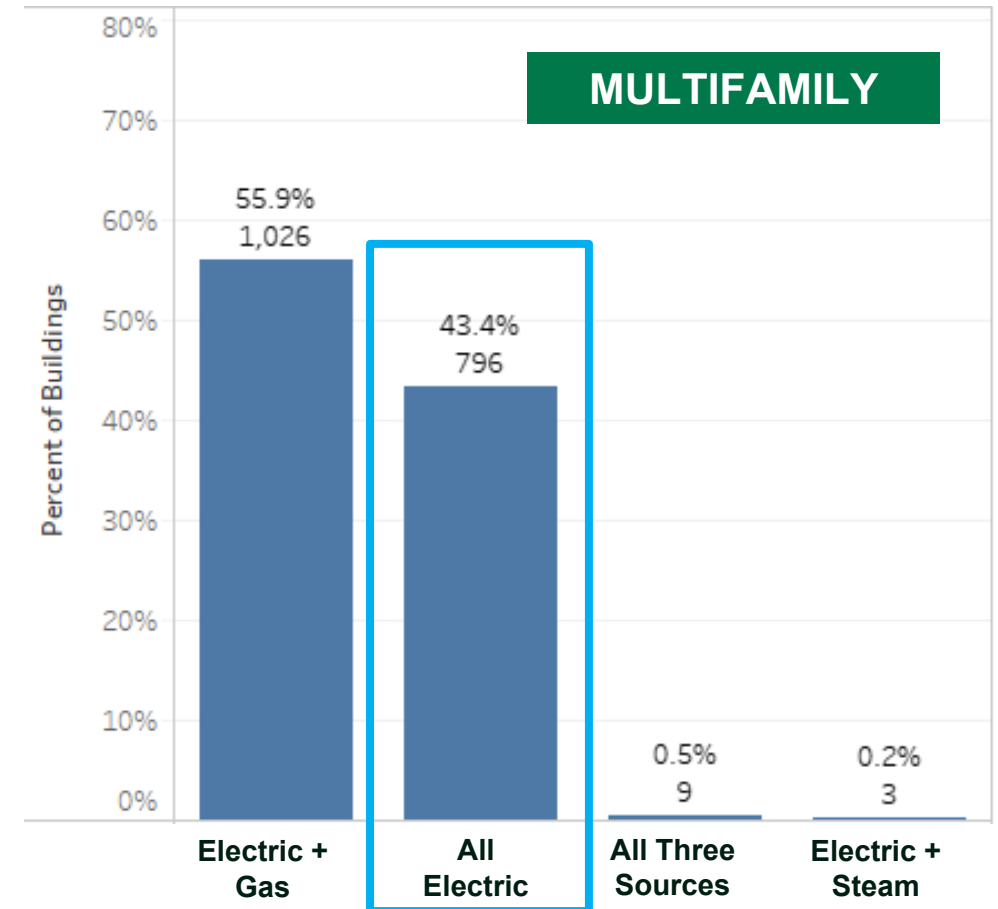
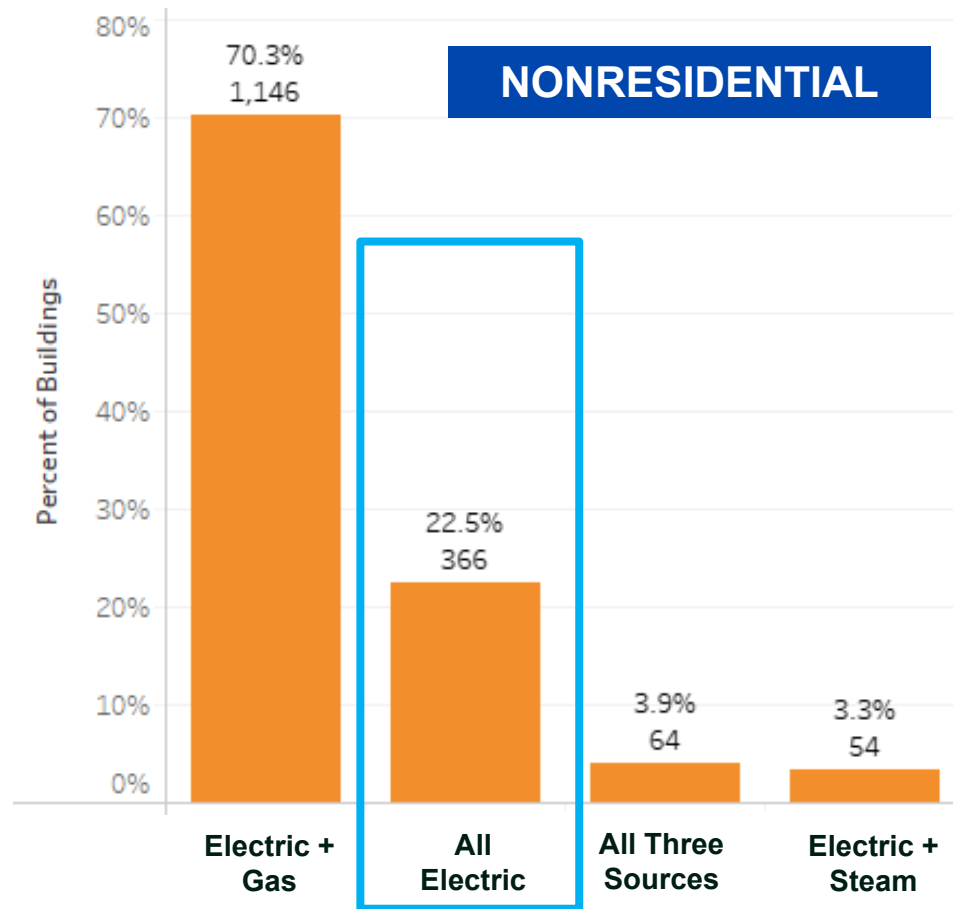


**Workforce Development** - Support a just transition by investing in pre-apprenticeships and outreach to youth and BIPOC, workforce re-skilling, and partner with labor to develop refrigerant management best practices.

# Applicability: Nonresidential and multifamily buildings >20,000 SF\*



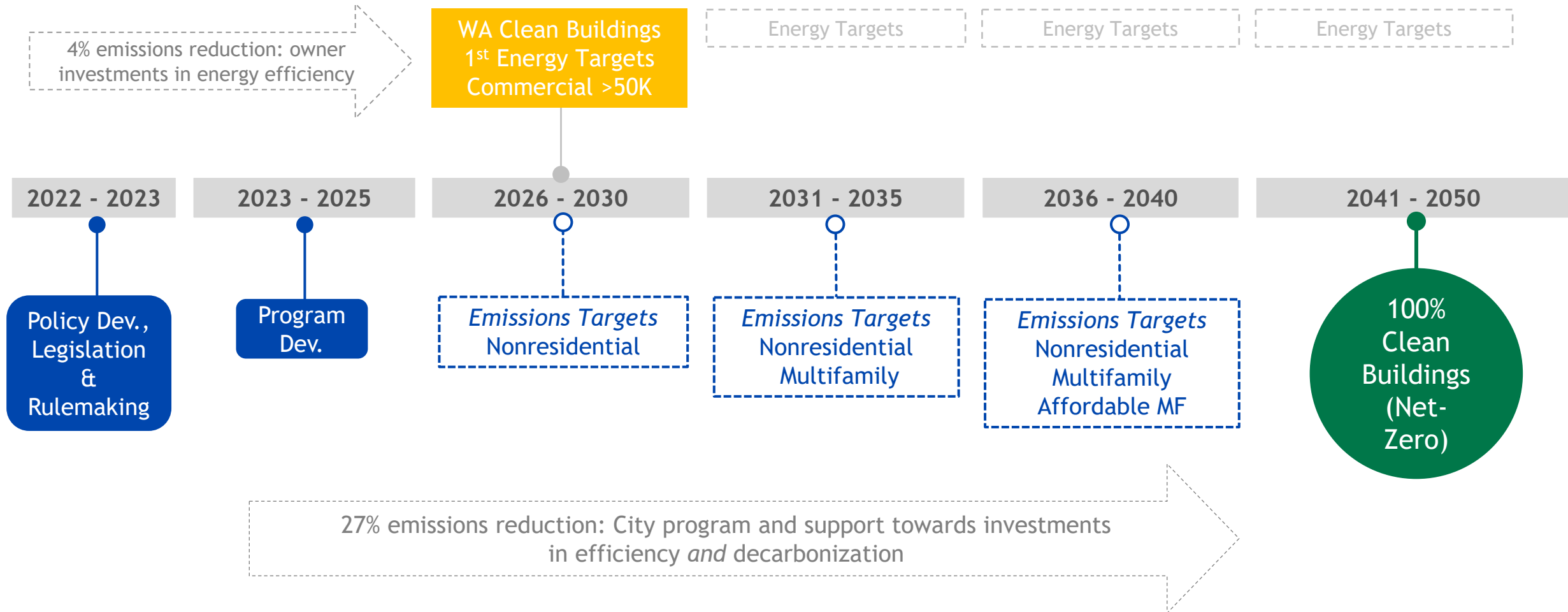
# About 38% of the applicable buildings already report very low emissions.



*Buildings 20,000 SF and greater that reported energy benchmarking data in 2019.*

# A Long Runway





Seattle Building Emissions Performance Legislation  
signals the market and allows for a gradual transition to 100% clean buildings





# Seattle Building Emissions Performance Standards

## Building Owner Requirements - Every 5 years:

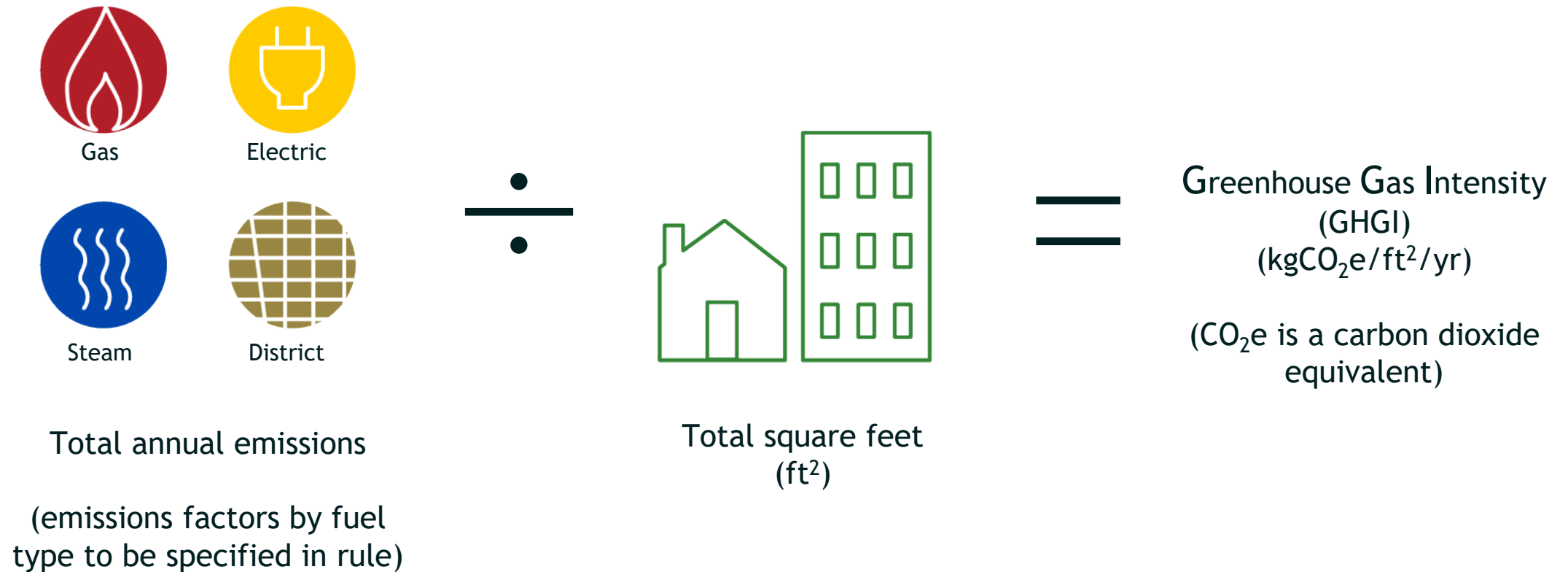
-  **Verify Benchmarking:** by someone who meets qualifications (like Building Tune-Ups Specialist approach)
-  **Plan & Identify:** Document current performance & equipment, actions to achieve targets
-  **Meet GHGI Emissions Targets (or Alternative Compliance):**  
Phased in by building size and type (2026-2049)
-  **Achieve:** Get to net-zero emissions (2041-2050)



Building Tune-Ups requirement proposed to sunset after the 2023-2026 compliance cycle is done.



# Greenhouse Gas Intensity (GHGI) Metric



# Standard GHGI Targets by Building Activity Type

## Why:

- Provides defined, publishable targets with clear metrics for owners and city staff.

## How:

- Targets for multi-use buildings calculated on pro-rated mix of spaces (e.g., office, retail etc.). Like WA Clean Buildings EUI.
- Target normalizations to account for weather, hours of operation and multifamily housing occupancy density. (TBD in Rule)

## When:

- Draft Greenhouse Gas Intensity (GHGI) targets today.
- Final targets for at least 1<sup>st</sup> and 2<sup>nd</sup> compliance intervals in legislation.
- Provisional targets for final intervals and net-zero emissions.

## Alternative Compliance

- Individual Targets
- Portfolio / Campus
- Customized Plan
- Alternative Compliance Payment (2026-2035 only)













## Extensions or Exemptions

- Certain situations or end-uses

**SEE APPENDIX SLIDES  
FOR DETAILS**

# Nonresidential Buildings Timeline: 2026-2045

By October 1<sup>st</sup> of each year listed:

	1st Interval	2nd Interval	3rd Interval	4th Interval
Requirements	  	  	  	  
>220,000 SF	2026 (2027)	2031	2036	2041
>90,000 - 220,000 SF	2027	2032	2037	2042
>50,000 - 90,000 SF	2028	2033	2038	2043
>30,000 - 50,000 SF	2029	2034	2039	2044
>20,000 - 30,000 SF	2030	2035	2040	2045



## Alternative Compliance option (2026-2030)

Buildings above GHGI target must reduce emissions 10% instead of meeting target.



Verify benchmarking report



Plan & identify actions for meeting next cycle targets















Meet GHGI Targets 2026-2040 (or alternative compliance)



Achieve Net-Zero 2041-2045

# Multifamily Buildings Timeline: 2031-2050

By October 1<sup>st</sup> of each year listed:

	1st Interval	2nd Interval	3rd Interval	4th Interval
Requirements	  	  	  	  
>220,000 SF	2031	2036	2041	2046
>90,000 - 220,000 SF	2032	2037	2042	2047
>50,000 - 90,000 SF	2033	2038	2043	2048
>30,000 - 50,000 SF	2034	2039	2044	2049
>20,000 - 30,000 SF	2035	2040	2045	2050



## Affordable Housing Exemption (2031-2035)

Not required to meet GHGIT. Benchmarking verification & planning report only.



Verify benchmarking report



Plan & identify actions for meeting next cycle targets



Meet GHGI Targets 2031-2045 (or alternative compliance)



Achieve Net-Zero 2046-2050



# Building Portfolio & Campus Configurations

(Details TBD in Rulemaking)



Verify benchmarking report



Plan & identify actions for meeting next cycle targets 2028-2048\*















Meet GHGI Targets 2028-2048\* (or alternative compliance)



Achieve Net-Zero 2043 or 2048\*

*\*Whether reporting as portfolio/campus or as affordable housing.*

By October 1<sup>st</sup> of each year listed:

	1st Interval	2nd Interval	3rd Interval	4th Interval
Requirements	  	  	  	  
Nonresidential	2028	2033	2038	2043
Affordable Multifamily Buildings	2033	2038	2043	2048



## Affordable Housing Exemption (2031-2035)

Not required to meet GHGIT. Benchmarking verification & planning report only.

SEE APPENDIX FOR MORE INFORMATION.

# Proposed Compliance Phase-In

[illegible]

# We need to provide support as buildings are improved.

## Seattle Clean Buildings Accelerator

OSE launched a \$220K/year support hub for building owners and managers, specifically prioritizing those who are under-resourced, especially non-profits and those serving BIPOC communities. Program will help participants with:

- Meeting WA State Clean Buildings mandate
- Emissions reduction planning
- Identifying incentives and financing

### Staff Resources

- *Office of Housing/Office of Sustainability: Affordable Housing Decarbonization position, beginning Q1 2023*
- *Mayor Green New Deal 2023 budget recommendation: OSE position to manage and grow Accelerator program to serve more priority building owners and tenants and provide more services.*

## Engineering & Capital Investments

- \$520K AARA loan funds reallocated for affordable housing
- Awarded \$1.8M Dept. of Energy grant for decarbonizing affordable housing
- Green New Deal 2022 Opportunity Fund: \$2M for multi-family affordable housing electrification
- Mayor Green New Deal 2023 budget recommendation: \$4.5M / year for non-profits and affordable housing
- Preparing to pursue federal infrastructure funds, inflation reduction act funds, and other opportunities

# Draft GHG Targets & Analysis

SBW Consulting

# Building Activity Types

Building Activity Types	Portfolio Manager Building / Space Types Included
College/University	College/University
Data Center	Data Center
Entertainment/Public Assembly	Convention Center, Lifestyle Center, Movie Theater, Other - Entertainment/Public Assembly, Social/Meeting Hall, Performing Arts, Museum, Transportation Terminal/Station, Stadium (Open), and Pre-school/Daycare
Fire/Police Station	Fire Station, Police Station
Hospital	Hospital (General Medical & Surgical), Other/Specialty Hospital
Hotel	Hotel, Other-Lodging/Residential
K-12 School	K-12 School
Laboratory	Laboratory
Mixed Use Property	Mixed Use Property
Multifamily Housing	Multifamily Housing
Non-Refrigerated Warehouse	Non-Refrigerated Warehouse, Distribution Center
Office	Office, Medical Offices, and Other-Financial Offices
Other	Courthouse, Adult Education, Other – Education, Prison/Incarceration, Other, Other – Utility, and Energy/Power Station, Outpatient Rehabilitation/Physical Therapy, Urgent Care/Clinic/Other Outpatient.
Recreation	Fitness Center/Health Club/Gym and Other – Recreation
Refrigerated Warehouse	Refrigerated Warehouse
Residence Hall/Dormitory	Residence Hall/Dormitory
Restaurant	Restaurant, Food Service, Other - Restaurant/Bar
Retail Store	Retail Store, Automobile Dealership, Bank Branch, Enclosed Mall, Other – Mall, Strip Mall
Self-Storage Facility	Self-Storage Facility
Senior Living Community	Senior Living Community, Residential Care Facility
Services	Library, Repair Services (Vehicle, Shoe, Locksmith, etc), Other – Services, Other - Public Services, Mailing Center/Post Office, and Personal Services (Health/Beauty, Dry Cleaning, etc)
Supermarket/Grocery Store	Supermarket/Grocery Store
Worship Facility	Worship Facility



# Baseline energy and emissions

- Using 2019 benchmarking data to derive baseline GHG emissions
  - 2020 and 2021 were atypical years
  - 2022 benchmarking data will not be available until late 2023
- Applying local emissions factors to convert from energy units to kg CO<sub>2</sub>e

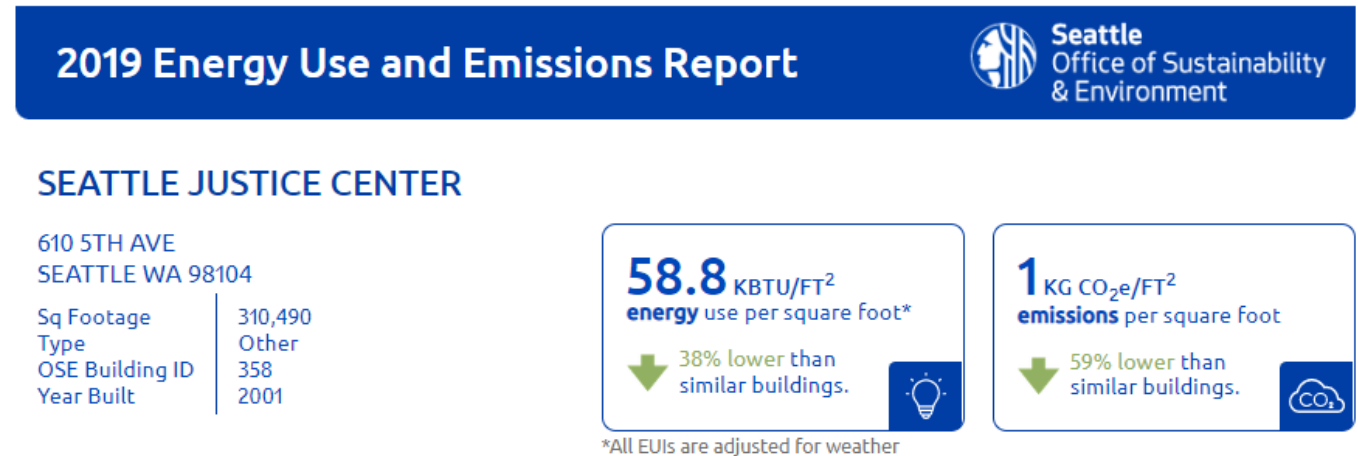
	kg CO <sub>2</sub> e/kBtu
Electricity	0.0055
Fossil Gas	0.053
Steam	0.083

# Greenhouse Gas Intensity (GHGI) Estimation

Use Portfolio Manager WN energy data and local emissions factors to calculate. **Didn't use ESPM's GHGI.**

## Quick look:

- [seattle.gov/energybenchmarkingmap](https://seattle.gov/energybenchmarkingmap)
- Select data year (upper right)
- Search building
- Click view building report



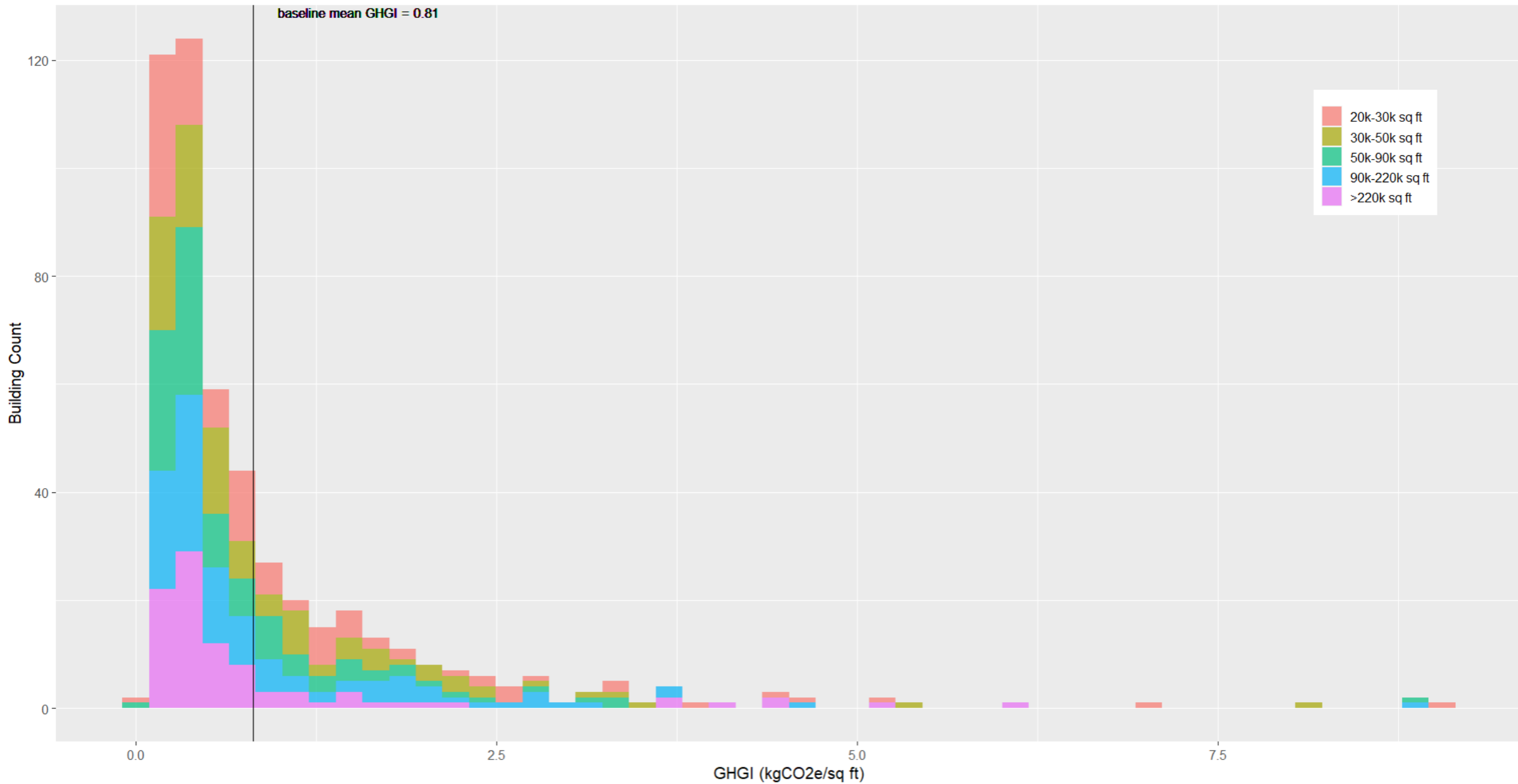
\*Use Portfolio Manager building type.

For each **Building Activity Type**:

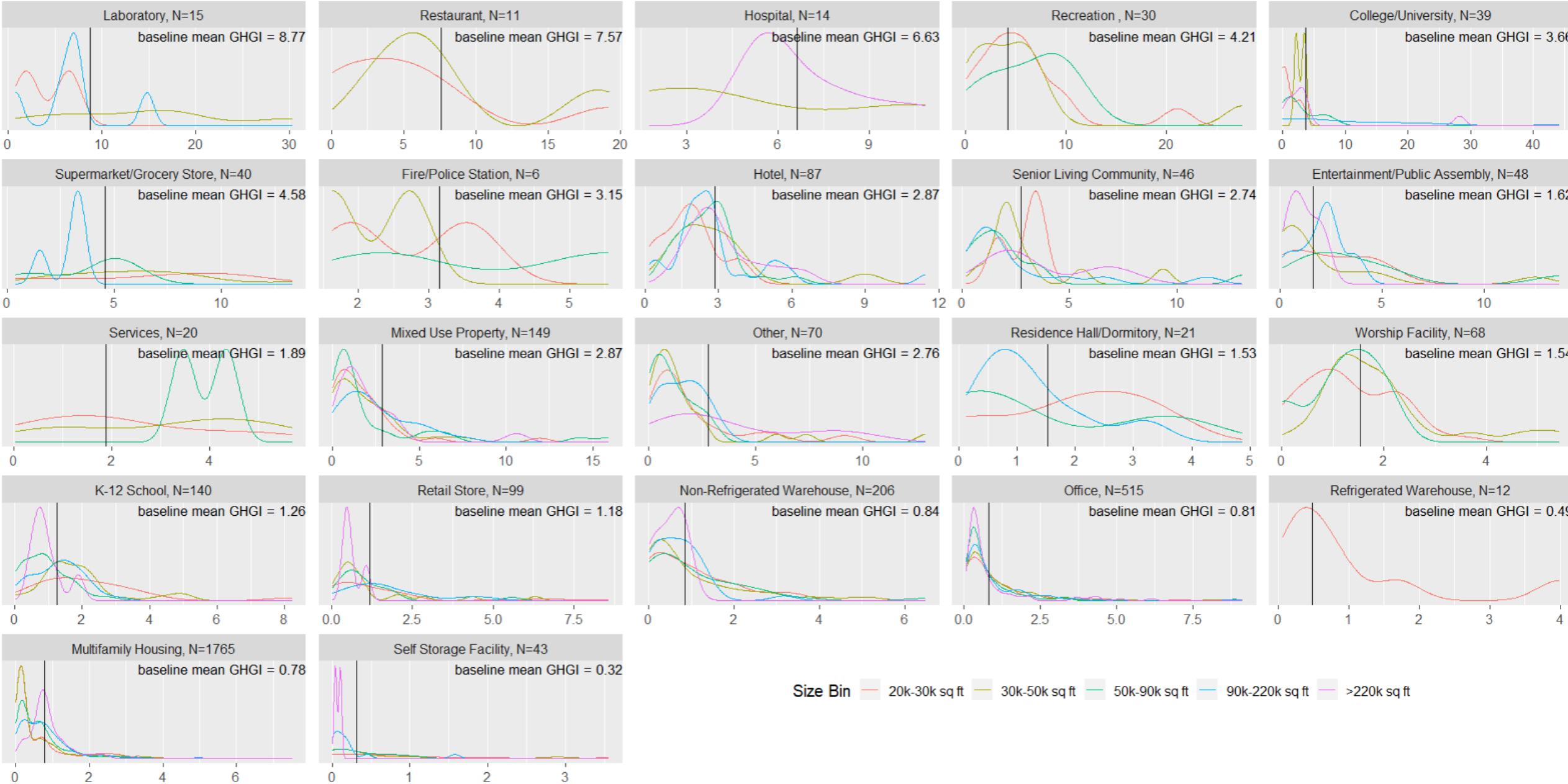
$$\text{Mean GHGI} = \frac{\text{Total GHG emissions}}{\text{Total Gross Floor Area*}}$$

\* excluding parking

2019 Office Buildings Baseline GHGI Distribution



2019 Baseline GHGI Distributions

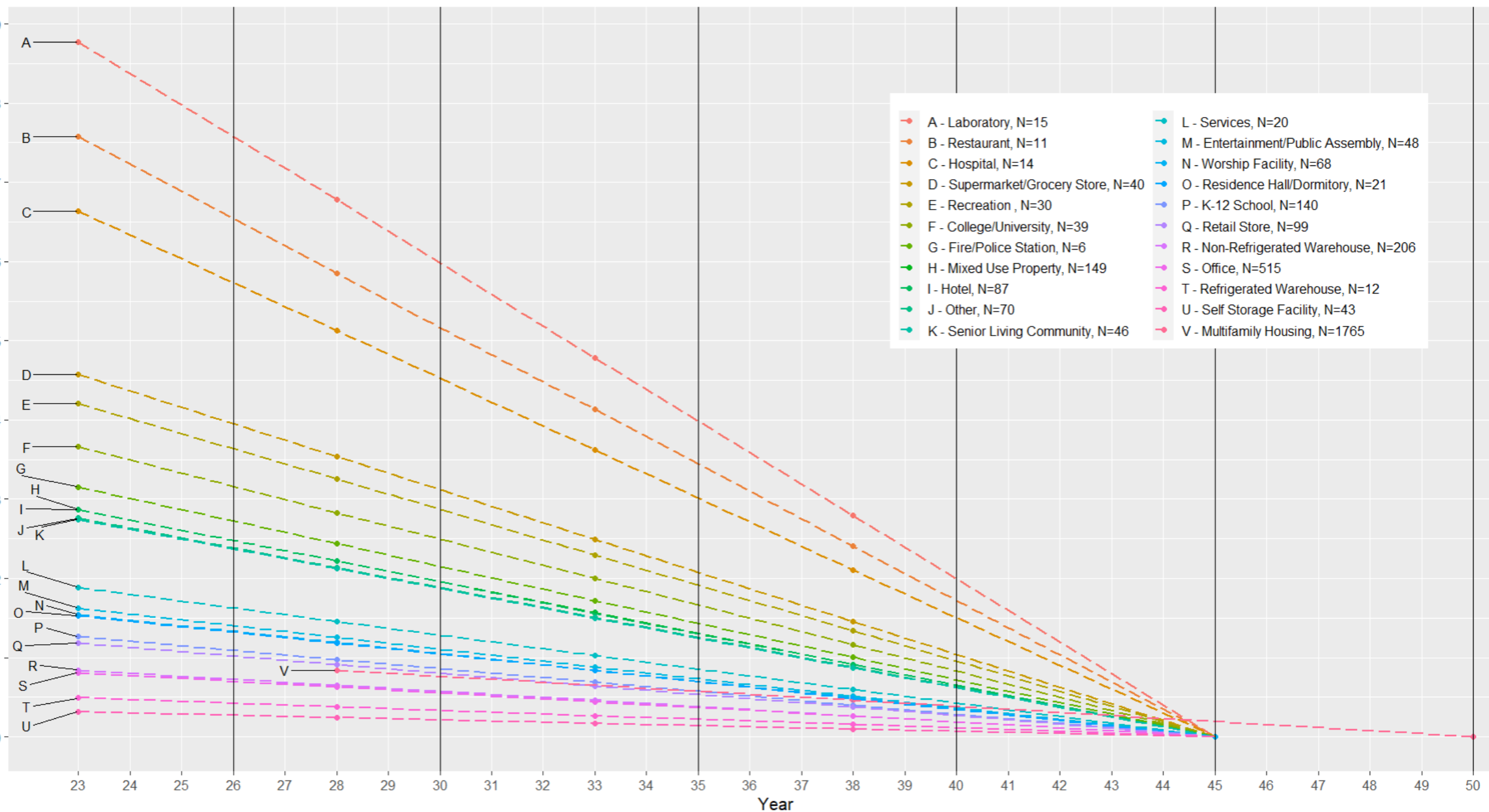


GHGI (kgCO<sub>2</sub>e/sq ft)

Density plots used for comparing shapes of distributions.  
Y-axis values left off to reduce clutter.

Figure 1 is a line graph illustrating the projected decline of various building types from 2023 to 2050. The Y-axis represents the number of buildings, and the X-axis represents the year. The graph shows that Multifamily Housing (V) has the highest number of buildings and the slowest decline, while other building types like Laboratories (A) and Restaurants (B) show a more rapid decline. The legend lists 20 building types with their respective counts (N).

Building Type	Count (N)
A - Laboratory	15
B - Restaurant	11
C - Hospital	14
D - Supermarket/Grocery Store	40
E - Recreation	30
F - College/University	39
G - Fire/Police Station	6
H - Mixed Use Property	149
I - Hotel	87
J - Other	70
K - Senior Living Community	46
L - Services	20
M - Entertainment/Public Assembly	48
N - Worship Facility	68
O - Residence Hall/Dormitory	21
P - K-12 School	140
Q - Retail Store	99
R - Non-Refrigerated Warehouse	206
S - Office	515
T - Refrigerated Warehouse	12
U - Self Storage Facility	43
V - Multifamily Housing	1765





		Draft Standard GHGI Targets (KGC02e/SF/YR)							Draft Standard GHGI Targets (KGC02e/SF/YR)				
Building Activity Type	2019 Baseline Average	2026 - 2030	2031 - 2035	2035 - 2040	2041 - 2045*	2046 - 2050*	Building Activity Type	2019 Baseline Average	2026 - 2030	2031 - 2035	2035 - 2040	2041 - 2045*	2046 - 2050*
College/University	3.66	2.83	2.00	1.17	0		Other	2.76	2.13	1.51	0.88	0	
Entertainment/ Public Assembly	1.62	1.25	0.89	0.52	0		Recreation	4.21	3.25	2.29	1.34	0	
Fire/Police Station	3.15	2.44	1.72	1.00	0		Refrigerated Warehouse	0.49	0.38	0.27	0.16	0	
Hospital	6.63	5.12	3.62	2.11	0		Residence Hall/ Dormitory	1.53	1.18	0.84	0.49	0	
Hotel	2.87	2.22	1.57	0.91	0		Restaurant	7.57	5.85	4.13	2.41	0	
K-12 School	1.26	0.98	0.69	0.40	0		Retail Store	1.18	0.91	0.64	0.38	0	
Laboratory	8.77	6.78	4.79	2.79	0		Self-Storage Facility	0.32	0.25	0.17	0.10	0	
Mixed Use Property	2.87	2.22	1.57	0.91	0		Senior Living Community	2.74	2.12	1.50	0.87	0	
Multifamily Housing	0.84	-	0.65	0.46	0.27	0	Services	1.89	1.46	1.03	0.60	0	
Non-Refrigerated Warehouse	0.84	0.65	0.46	0.27	0		Supermarket/ Grocery Store	4.58	3.54	2.50	1.46	0	
Office	0.81	0.63	0.44	0.26	0		Worship Facility	1.54	1.19	0.84	0.49	0	

\* Net zero emissions by the compliance year required.

# Projected business-as-usual emissions

- LBNL projection of energy use
  - Building Tune-Ups on buildings over 50,000 sq ft - applied one time reduction of 4% in 2021
  - Natural replacement - assumed equipment replacement at end of life with more efficient system of same fuel
  - WA state CBPS - *for purposes of this analysis*, assumed targets reduced by 10% each compliance cycle and all buildings implement sufficient energy efficiency to comply with targets each cycle



Credit: UW Integrated Design Lab

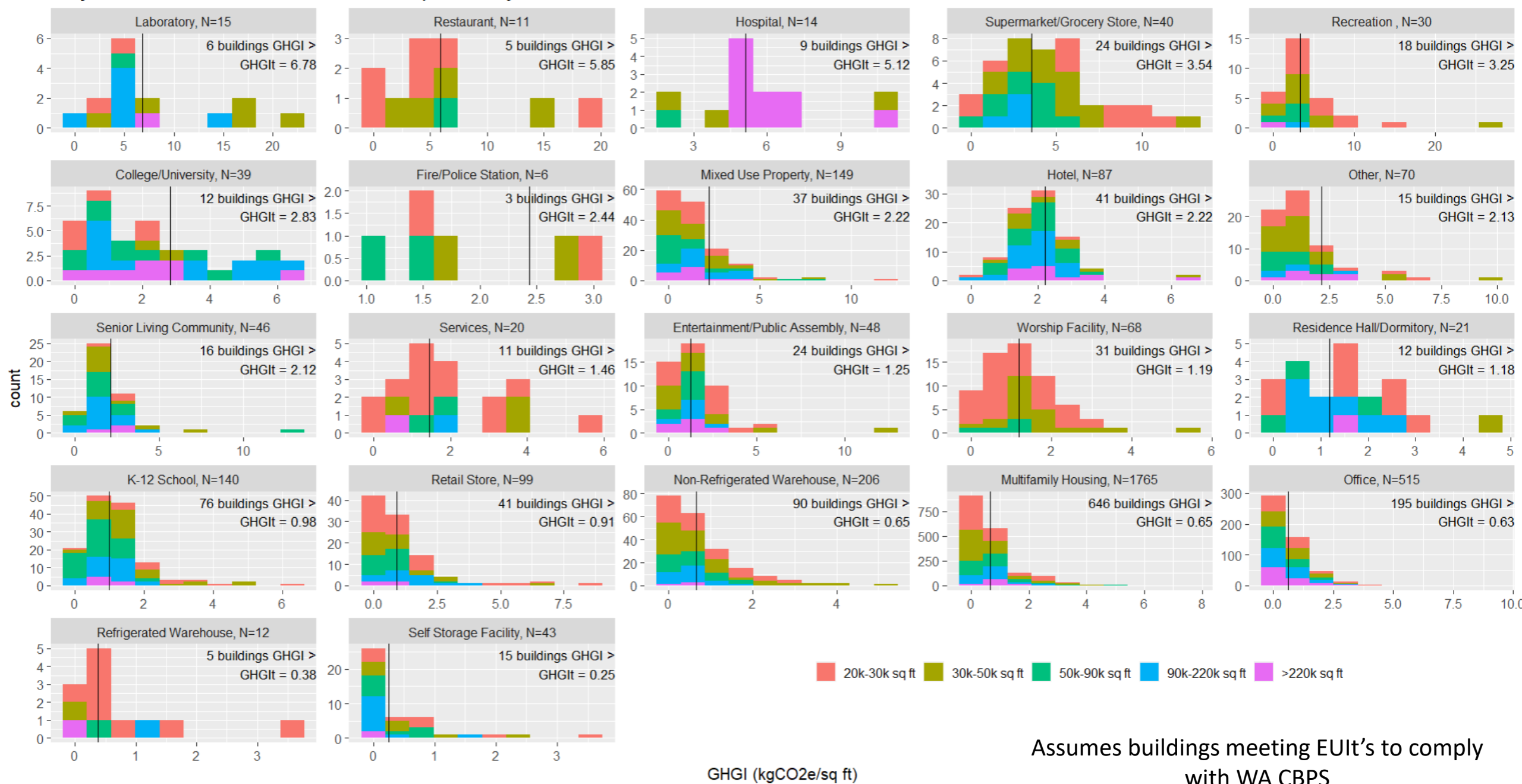
# Projected Impacts

	First Compliance Cycle <sup>1</sup>		Second Compliance Cycle <sup>1</sup>
Sector	Exceeds Seattle GHGIt	Also exceeds State EUIt <sup>2</sup>	Exceeds Seattle GHGIt
Nonresidential (N = 1,679)	686 (41%)	355 (21%)	848 (51%)
Multifamily (N = 1,765)	646 (37%)	NA	832 (47%)
<b>Total (N = 3,444)</b>	<b>1,332 (39%)</b>	<b>355 (21%)</b>	<b>1,680 (49%)</b>

1. First Compliance Cycle is 2026-2030 for Nonresidential and 2031-2035 for Multifamily. Second compliance cycle is 2031-2035 for Nonresidential and 2036-2040 for Multifamily

2. Of the buildings projected to exceed Seattle GHGIt. There are also buildings (all electric) that are projected to meet the Seattle GHGIt but exceed the State EUIt.

# Projected GHGI Distributions in First Compliance Cycle





**Q&A:**  
**What clarifying questions  
do you have?**



# Opportunities for input.

- This recording and presentation will be posted at [seattle.gov/building-performance-standards](https://seattle.gov/building-performance-standards).
- Send comments after this meeting to [cleanbuildings@seattle.gov](mailto:cleanbuildings@seattle.gov).
- During the City Council legislative process, once it is introduced.
- During the rulemaking process (after legislation is passed).



# Thank You for Attending

City of Seattle Office of Sustainability & Environment

[seattle.gov/building-performance-standards](https://seattle.gov/building-performance-standards)

[cleanbuildings@seattle.gov](mailto:cleanbuildings@seattle.gov)



**Seattle**  
Office of Sustainability  
& Environment



# APPENDIX

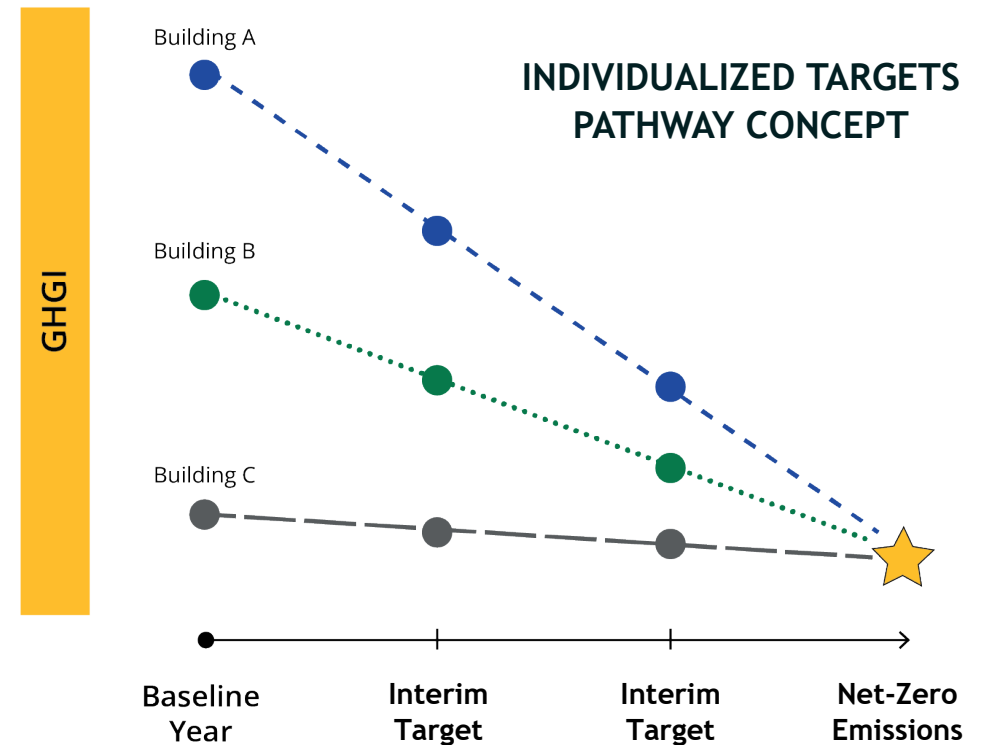
# Proposed Alternative Compliance Individual Targets Pathway (Details TBD in Rulemaking)

## Individual Targets Pathway

- Start at building's own baseline and set interim targets based on that to net-zero.
- 2019 or 2022, 2023, or 2024 GHGI baseline (for setting before 1<sup>st</sup> compliance interval)

## Allowed if meets at least one criteria:

- At least 50% of building activity type doesn't have a Standard GHGIT or is "other" category
- Building exceeds Standard GHGI target by 250%
- Campus with on-site district energy owned by campus owner



# Proposed Alternative Compliance Building Portfolio / Campus Configurations

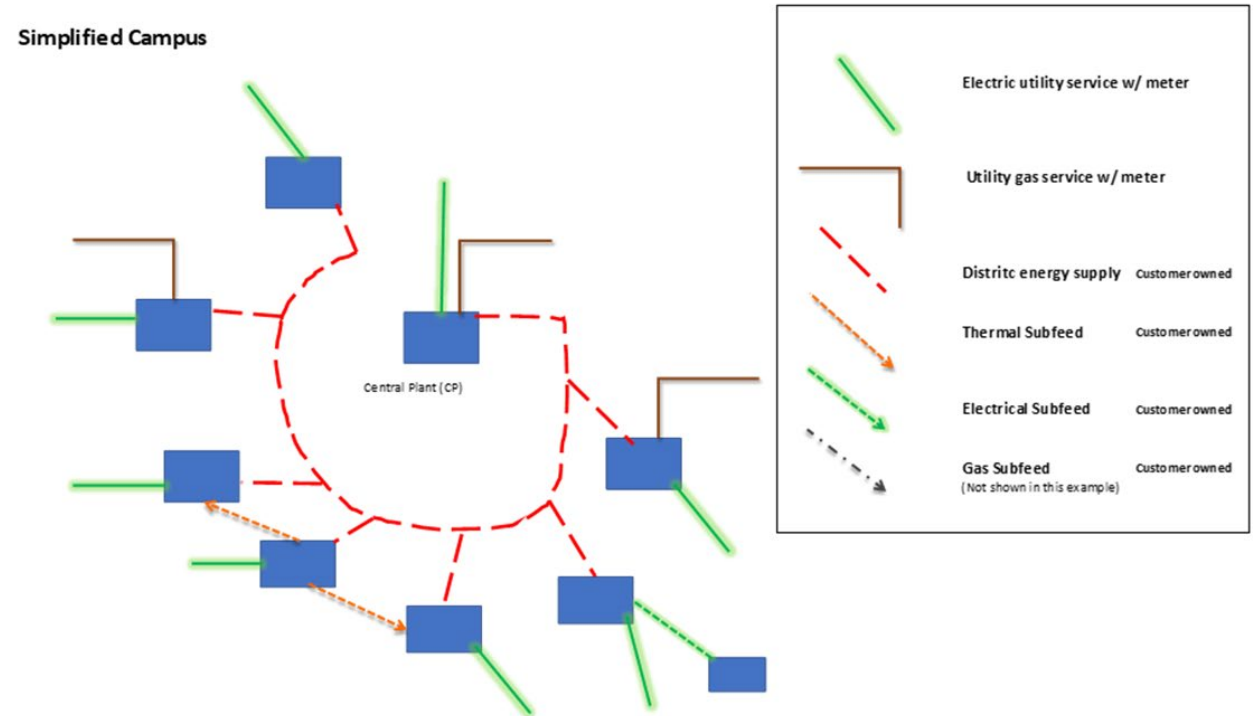
## (Details TBD in Rulemaking)

### Building Portfolio or Campus

- **Portfolio:** Multiple buildings with the same long-term owner (e.g., public entity or nonprofit)
- **Campus:** Multiple buildings with on-site district system that is owned by the campus owner
- **Jointly metered:** Multiple buildings with shared energy meters

### How

- Emissions target applied in aggregate and pro-rated by building activity types
- Building portfolio or campus compliance at midpoint of each compliance interval. (e.g., 2028, 2033, etc.)



# Proposed Alternative Compliance

(Details TBD in Rulemaking)

## Specific Compliance Intervals:

- 2026-2030 Nonresidential only:  
Reduce GHGI 10% if exceeding target
- 2026-2030 and 2031-2035 All Types:  
Alternative Compliance Payment based on an annual per MTCO<sub>2</sub>e basis, for emissions above GHGIT
- 2031-2035 and 2036-2040 Multifamily only:  
Prescriptive options for measures such as space or hot water heating

## All Compliance Intervals:

- Customized Plan for unique circumstances:
  - upgrade impacts historical integrity of designated landmarks or historic buildings
  - upgrade triggers multifamily tenant relocation
  - unreinforced masonry
  - compliance triggers sub-alteration

# Proposed Extensions

(Details TBD in Rulemaking)

## Extension for One Compliance Interval (excluding final net-zero compliance interval).

### If meets at least one criteria:

- New building that receives Certificate of Occupancy less than three years before its compliance date
- Affordable multifamily buildings, if refinancing occurs after 1<sup>st</sup> compliance, for 2036-2040 only
- Building requires significant electrical service upgrade, such as new on-site transformer vault to meet the GHGIT
- Non-profit owned / primarily leased that is serving communities historically most harmed by economic, racial, and environmental injustice
- Significant financial distress (e.g., building owned by bank). May reapply in subsequent compliance intervals if needed

# Building Exemptions Proposed

(Details TBD in Rulemaking)

## Exemption for 2031-2035 Only:

- Affordable Housing exempt from GHGITS (still need to verify benchmarking and submit GHGI report)

## Exemption for All Compliance Intervals:

- Scheduled to be demolished within 3 years of compliance
- All-electric buildings exempt from meeting GHGITS (still need to verify benchmarking)

# End-Use Exclusions Proposed

(Details TBD in Rulemaking)

## Exemption for 2026-2030:

- Fossil fuel HVAC heating or service hot water system equipment permitted under the 2018 Seattle Energy Code

## Exemption for 2026-2030 and 2031-2035:

- Fossil fuel used for:
  - commercial cooking equipment
  - high intensity process equipment in healthcare and laboratories
  - high intensity laundry equipment in hospitality and healthcare

## Exemption for All Compliance Intervals:

- Electric vehicle service equipment (EVSE)
- Fossil fuel used for:
  - generators used exclusively for emergency power back-up
  - back-up emergency heat in healthcare



# Enforcement

## Two Tiers

1. Failure to report - Benchmarking verification and planning step

- Flat fine

2. Failure to meet GHGIT (or achieve alternative compliance)

- Building floor area to be considered in calculation

