



GREENERGOV CT

STEERING COMMITTEE MEETING

April 21, 2026

79 Elm Street, Hartford, CT 06106

Gina McCarthy Auditorium



Welcome!

From the Co-Chairs



Commissioner
Katie Dykes
DEEP



Secretary
Joshua Wojcik
OPM



Commissioner
Michelle Gilman
DAS

GREENERGOV CT





State of Connecticut GreenerGovCT

AGENDA

1. Welcome and Introductions: Commissioner Dykes, Commissioner Gilman, Secretary Wojcik
2. Keynote Speaker: Bruce Becker
3. GreenerGov Annual Report
4. Recent Efforts to Meet Sustainability Targets: Presentations by Department of Labor (DOL), Connecticut Housing Finance Authority (CHFA), & the Department of Administrative Services (DAS)
5. Public Comment
6. Closing

KEYNOTE BRUCE BECKER





CT GreenerGov Steering Committee

**Capital and Operating Cost Savings from
Electrification and Passive House design:**

*A Case Study of the Pirelli Building's
Reinvention as Hotel Marcel*

Bruce Redman Becker, FAIA

April 21 , 2026



BECKER + BECKER



Hotel Marcel



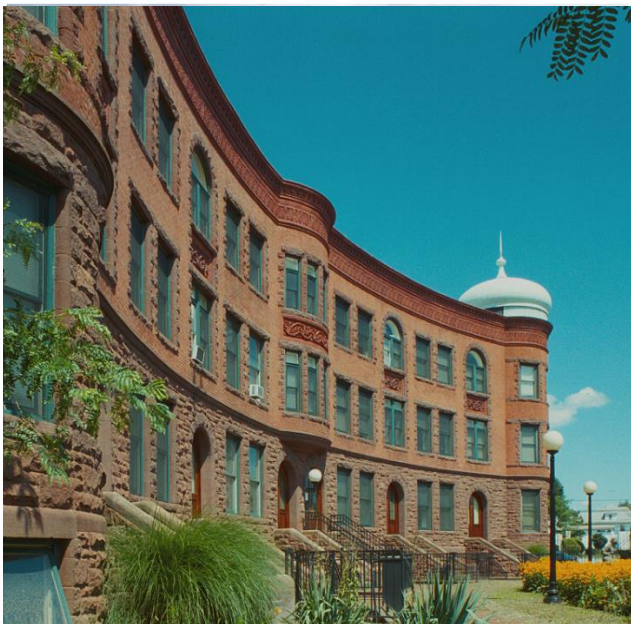
Cary Institute of Ecosystem Studies



777 Main



360 State



The Crescent Building



The Wauregan



STOP
ILMASTOTUHO

STOP
FOSSIL
BURNING

EKOenergy

Isovanhemmat
vaativat
ILMASTO-
REKOLA

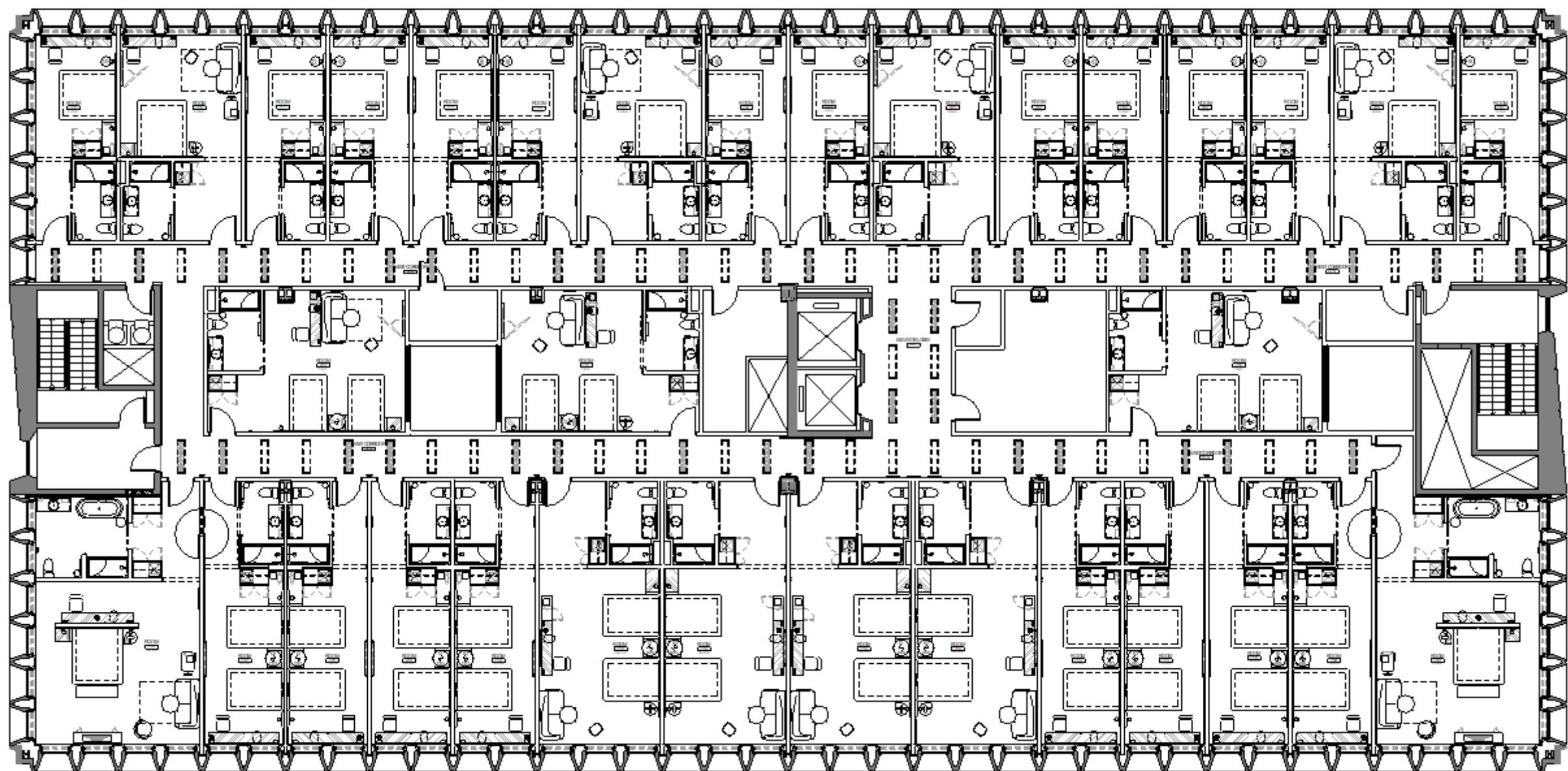
FÖR
BARNBARNENS
FRAMTID

CLIMATE
STRIKE











Hotel Marcel – Program for Reinvention of *Place*

- 165 room Boutique Hotel, including restaurant, 9,000 sf of meeting space
- Listed on National Register of Historic Places
- Certified historic rehabilitation (approved by National Park Service and SHPO)
- Meet standards required for inclusion in Tapestry Collection by Hilton

Sustainability – Program for Reinvention of *Impact*

- LEED Platinum Certification (one of only about a dozen such hotels in United States)
- Passive House Certification (believed to be first such hotel in United States)
- No use of fossil fuels (including 100% of HVAC, hot water, kitchen and laundry)
- All electric building (no natural gas connection)
- Zero-emissions (believed to be first such hotel in United States)
- Use of Power over Ethernet (POE) DC Power for all Lighting and Shades
- Creation of Micro-grid for resilience with 1.5 megawatt hours of battery storage
- Preservation of embodied carbon as well as preservation of a cultural resource

Hotel Marcel Project Finance:

Bank Loan from Liberty Bank (regional bank) 4.5% 10 yrs	\$25 million (41%)
Developer Equity with Opportunity Zone Tax Deferral	\$15 million (25%)
Federal & State Historic Tax Credit Equity Bank of America	\$13 million (21%)
State of Connecticut waiver of sales tax on materials	\$500,000 (0.8%)
Commercial Property Assessed Financing (CPACE) 6% 20 yrs	\$6 million (9.8%)
30% IRA Federal Energy Tax Credit for Solar, Battery, Microgrid	\$1 million (1.6%)
Energy Conscious Blueprint Grant from United Illuminating	<u>\$500,000 (0.8%)</u>
Total Sources used to fund Development Costs	\$61 million. (100%) \$370k per key
Conventional Equity and Debt (net of incentives)	\$40 million (65.5%) \$242k per key





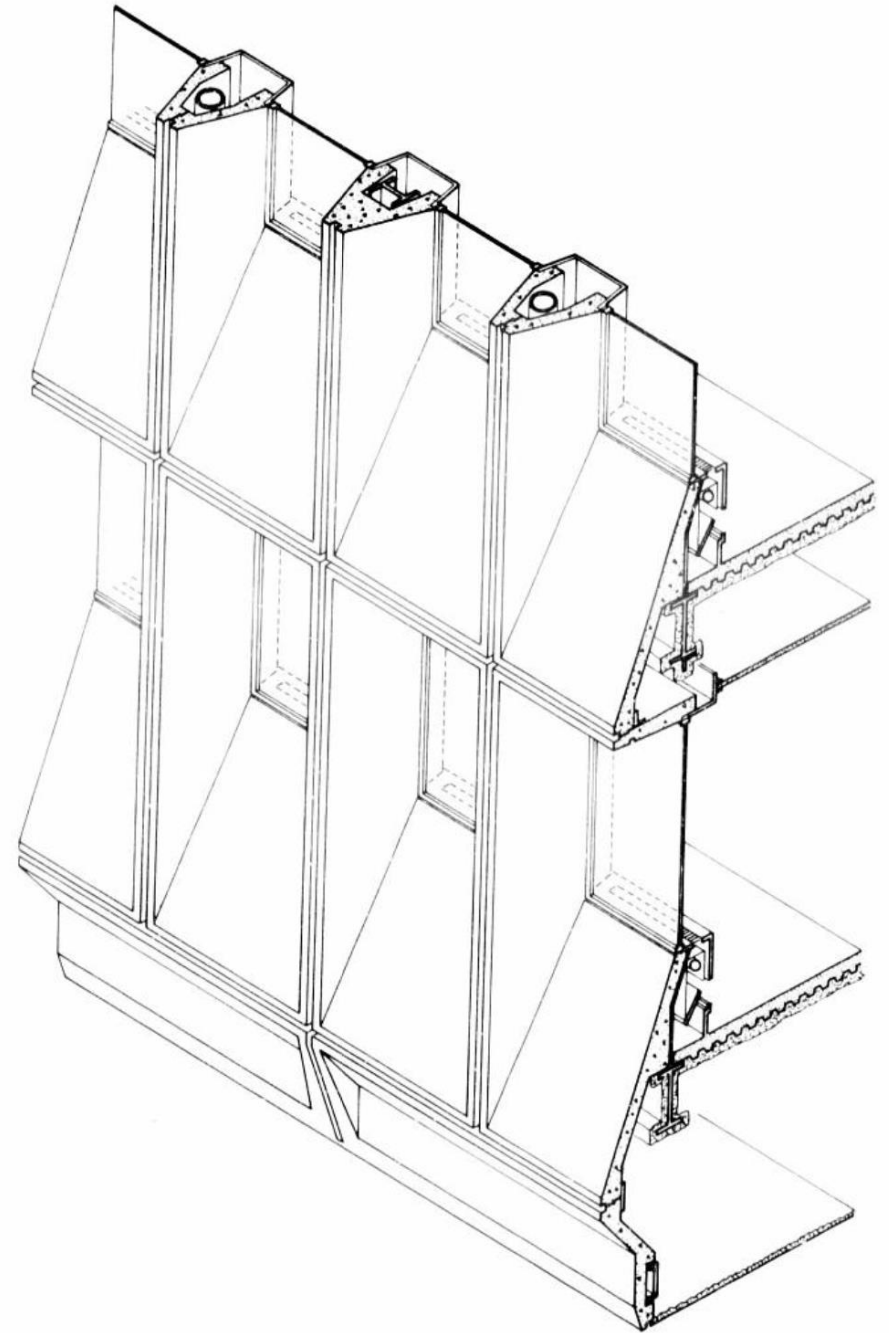




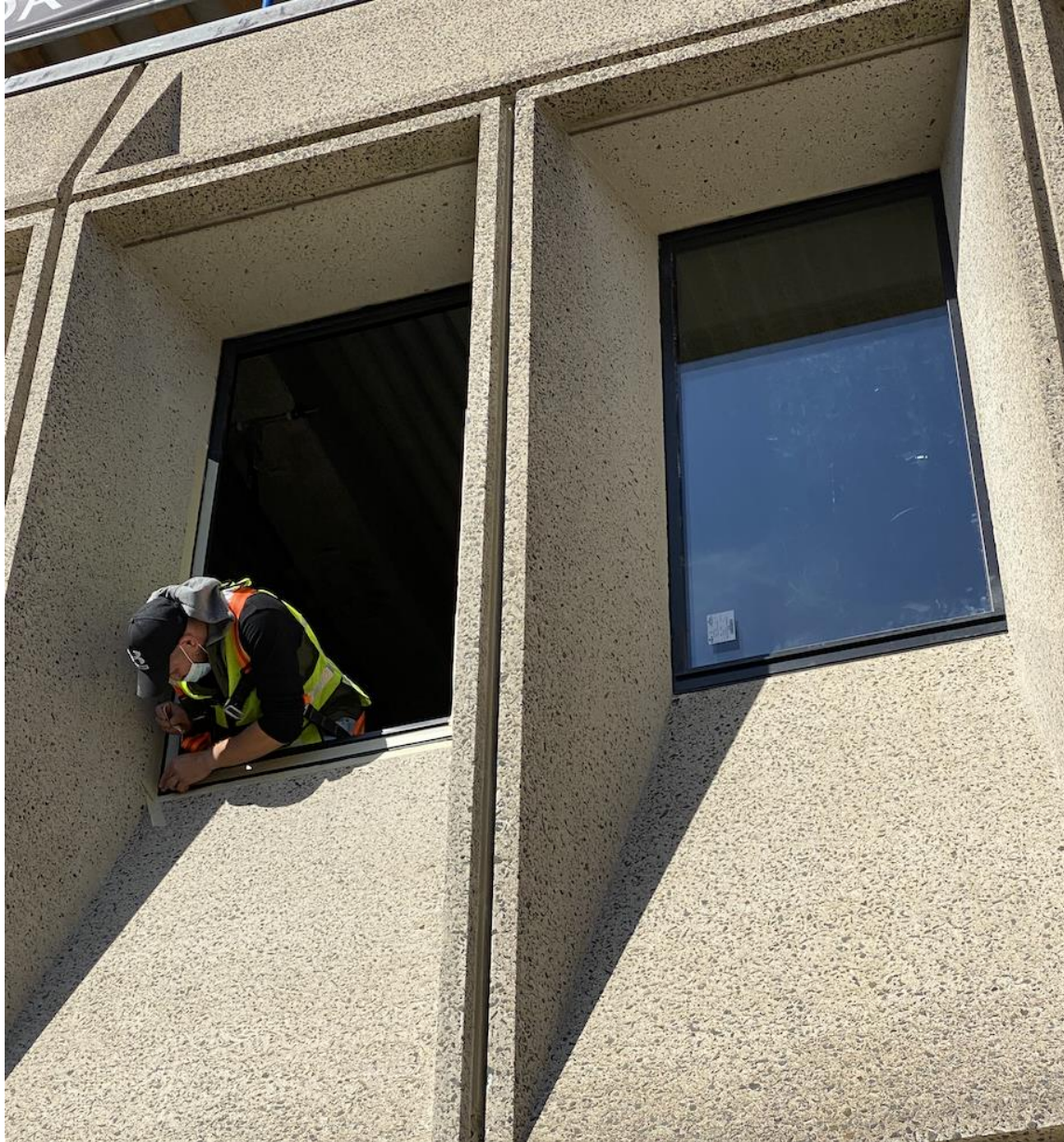






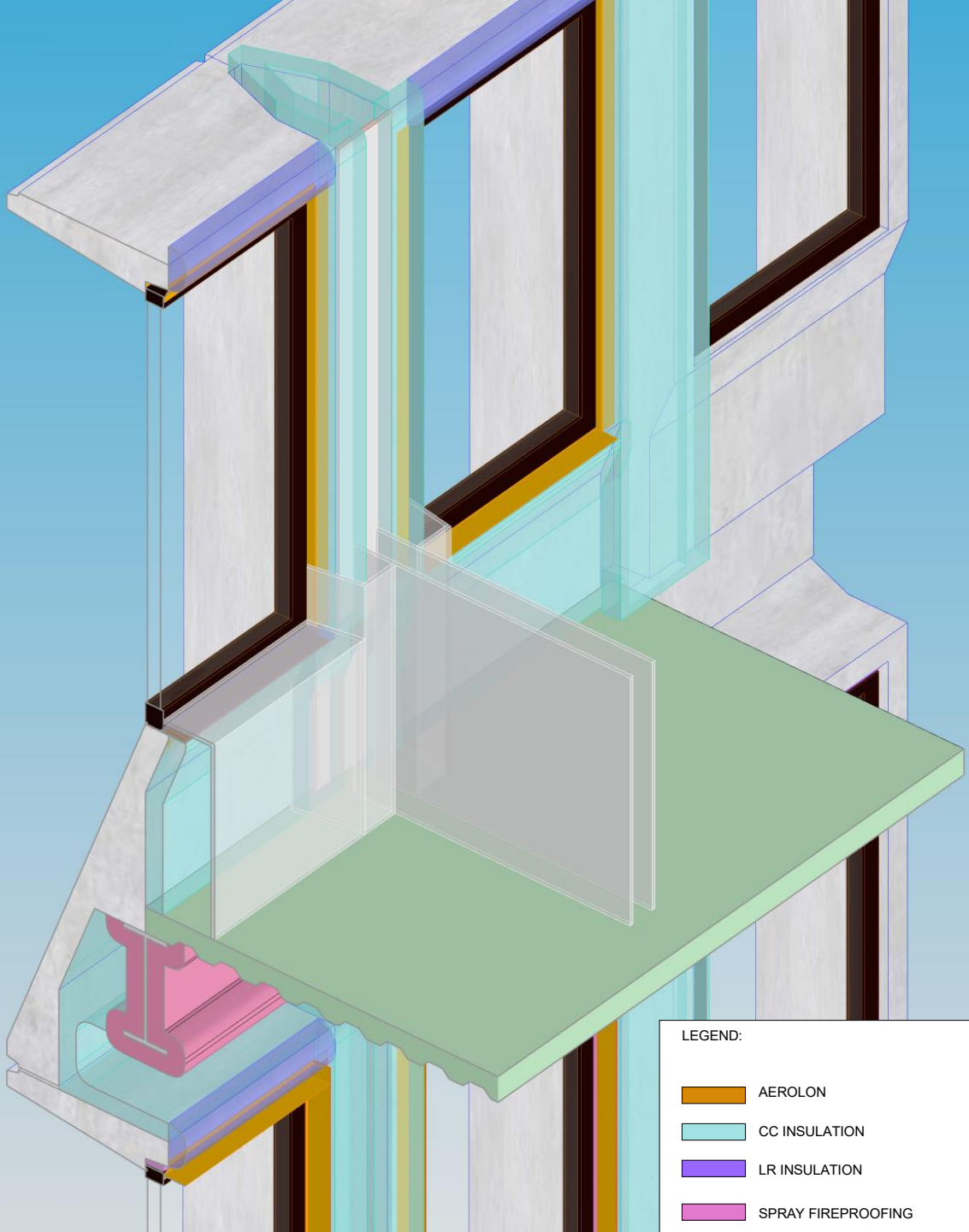


WINDOWS INSTALL



Probable Energy Use and Utility Cost:

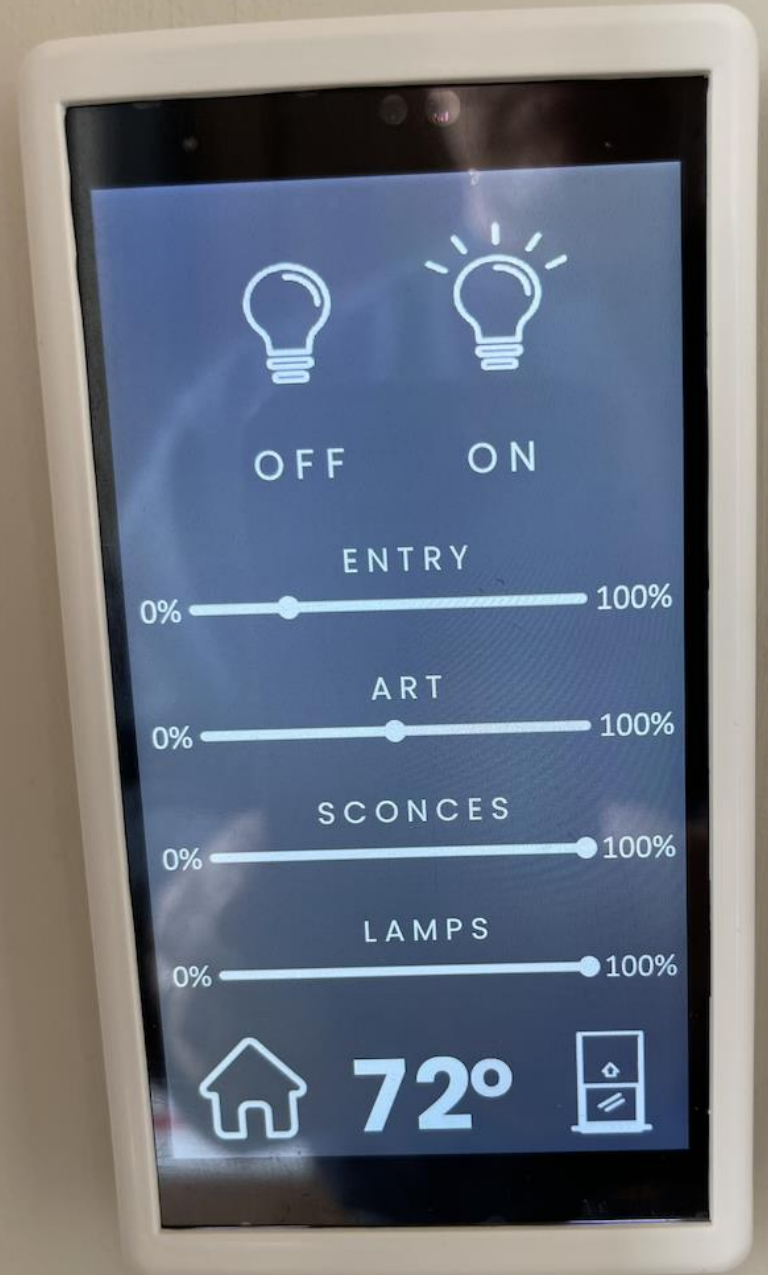
	1. Proposed Model	
	Electricity	Natural Gas
	(kWh)	Therm
Heating	73,467	-
Cooling	89,157	-
Interior Lighting	119,293	-
Exterior Lights	19,636	-
Interior Equipment	356,251	-
Exterior Equipment	-	-
Fans	94,023	-
Pumps	0	-
Heat Rejection	-	-
Humidification	-	-
Heat Recovery	-	-
Water Systems	49,195	-
Refrigeration	-	-
Generators	-	-
Total End Uses	801,023	-
Utility Cost	\$ 87,024	\$ -
Total		\$ 87,024















INV 1 kW	BMS 1.93 kW	PV 0 kW	UTIL 163 kW	LOAD 163 kW
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INV # 2	BMS # 4	PV # 8	UTIL # 1	LOAD # 3
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Energy Totals

Load		4046 kWh
Solar		2636 kWh
Battery Charge		91 kWh
Battery Discharge		45 kWh
Utility Import		1912 kWh
Utility Export		457 kWh

BUS Voltage 486 V	BUS Frequency 60.00 Hz	UTILITY Voltage 485 V	UTILITY Frequency 59.99 Hz	BMS Capacity 4.9 hrs	CO2 Offset (lifetime) 567 tons	SOC average 90.0 %	BMS Temp (max) 23.0 °C	BMS Temp (min) 19.0 °C
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powerCharge

This EV charger managed by
evconnect

To use this charging station:

- Download & launch the EV Connect app
- Scan the QR Code or type in Station ID
- Press Charge Now, then plug in vehicle

Or tap your access card

We're Here to Help!

If you are experiencing issues with this charging station,
please contact EVConnect Driver Support at:

(866) 816-7584



Tap EVConnect Card Here

STATION PORT ID



PC1853

powerCharge

This EV charger managed by
evconnect

To use this charging station:

- Download & launch the EV Connect app
- Scan the QR Code or type in Station ID
- Press Charge Now, then plug in vehicle

Or tap your access card

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Tap EVConnect Card Here

STATION PORT ID



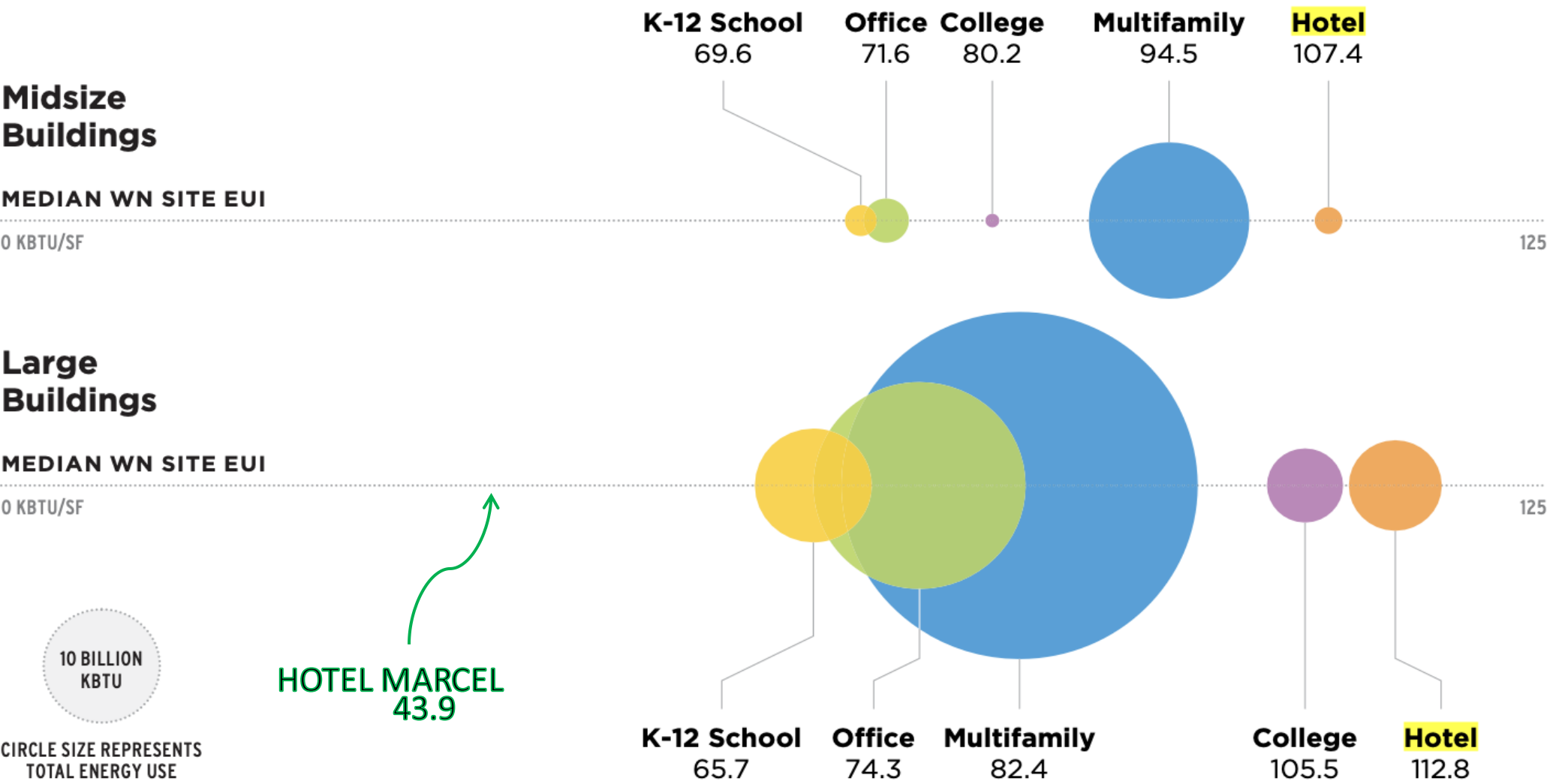
PC1857

Hotel Marcel's model for 3-step Solution to the Climate Crisis:

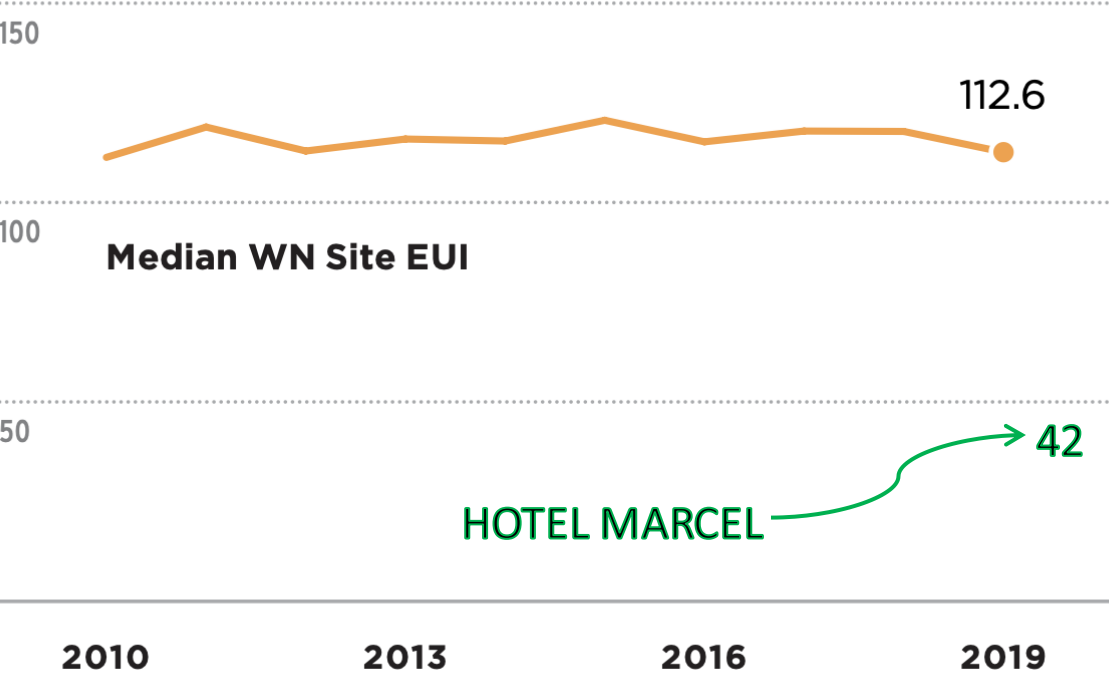
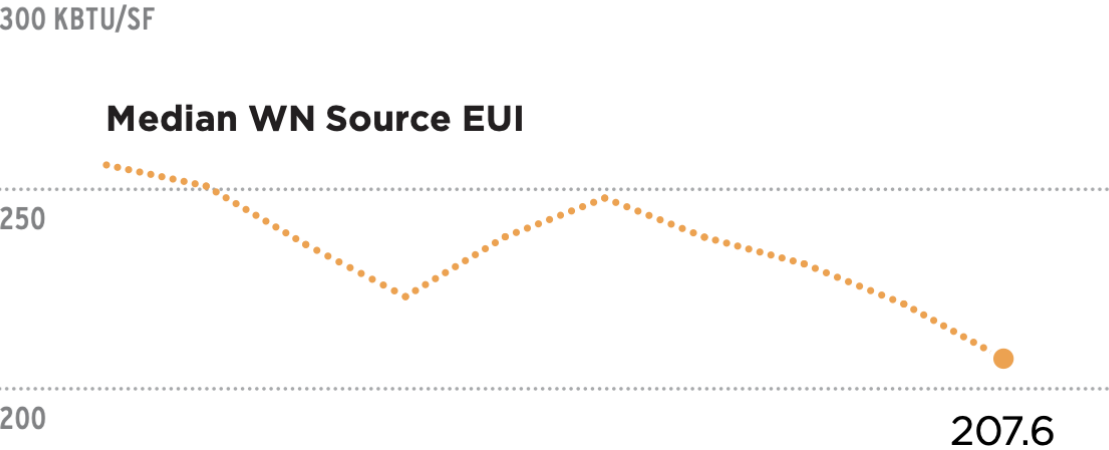
1. Reduce Energy Requirements as much as possible
 - Recycle entire buildings before building new
 - Super-insulate and seal building envelope (Passive House)
 - Use POE Lighting, highest efficiency HVAC, heat recovery, active shading, occupancy controls, and battery storage to reduce total and peak energy needs
2. Electrify Everything
 - Kitchen (induction ranges)
 - Laundry (electric dryers),
 - HVAC (VRF heat pumps)
 - Domestic hot water (high capacity air source heat pumps)
 - Transportation (12 Tesla superchargers and 12 destination chargers, plus EVs for hotel staff and shuttle)
3. Make all Electricity and Power from Renewable On-site Sources

FIGURE 5
Total Site Energy Use and Intensity by Building Sector, 2019

Data: LL84 2019 filtered for data quality, emissions, energy and property type; N = 18,039



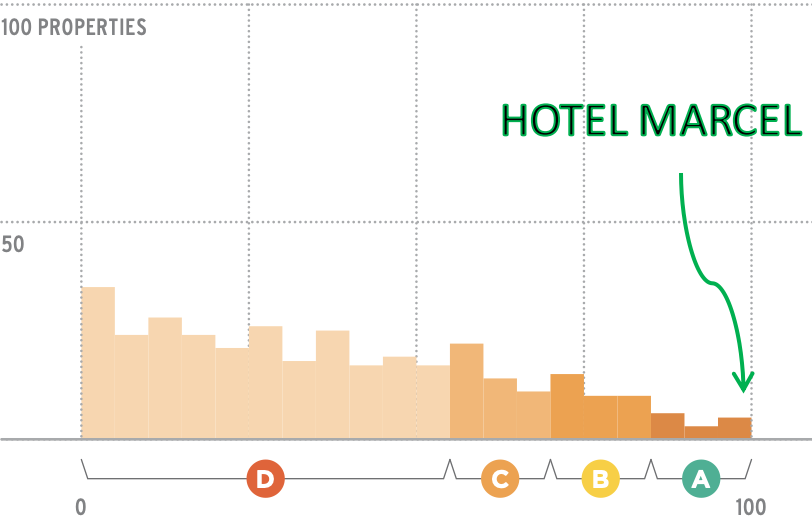
Hotel 260 PROPERTIES



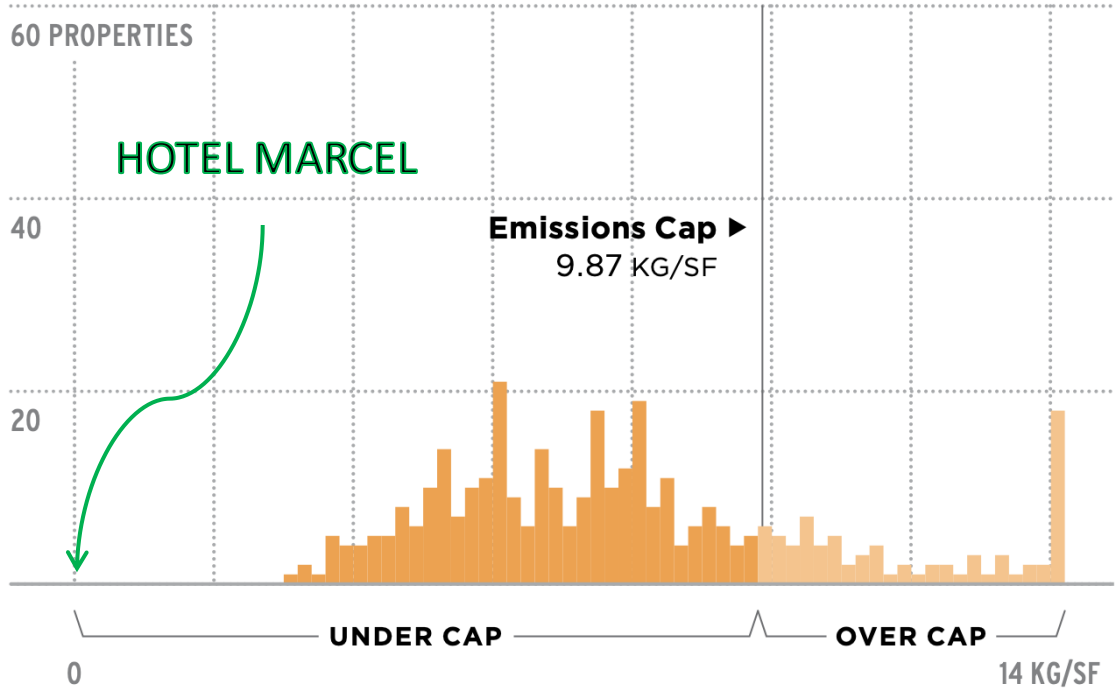
Energy Star Scores by Building Sector, 2019

Data: LL84 2019 filtered for data quality, emissions, energy and Energy Star reporting

Hotel 350 PROPERTIES

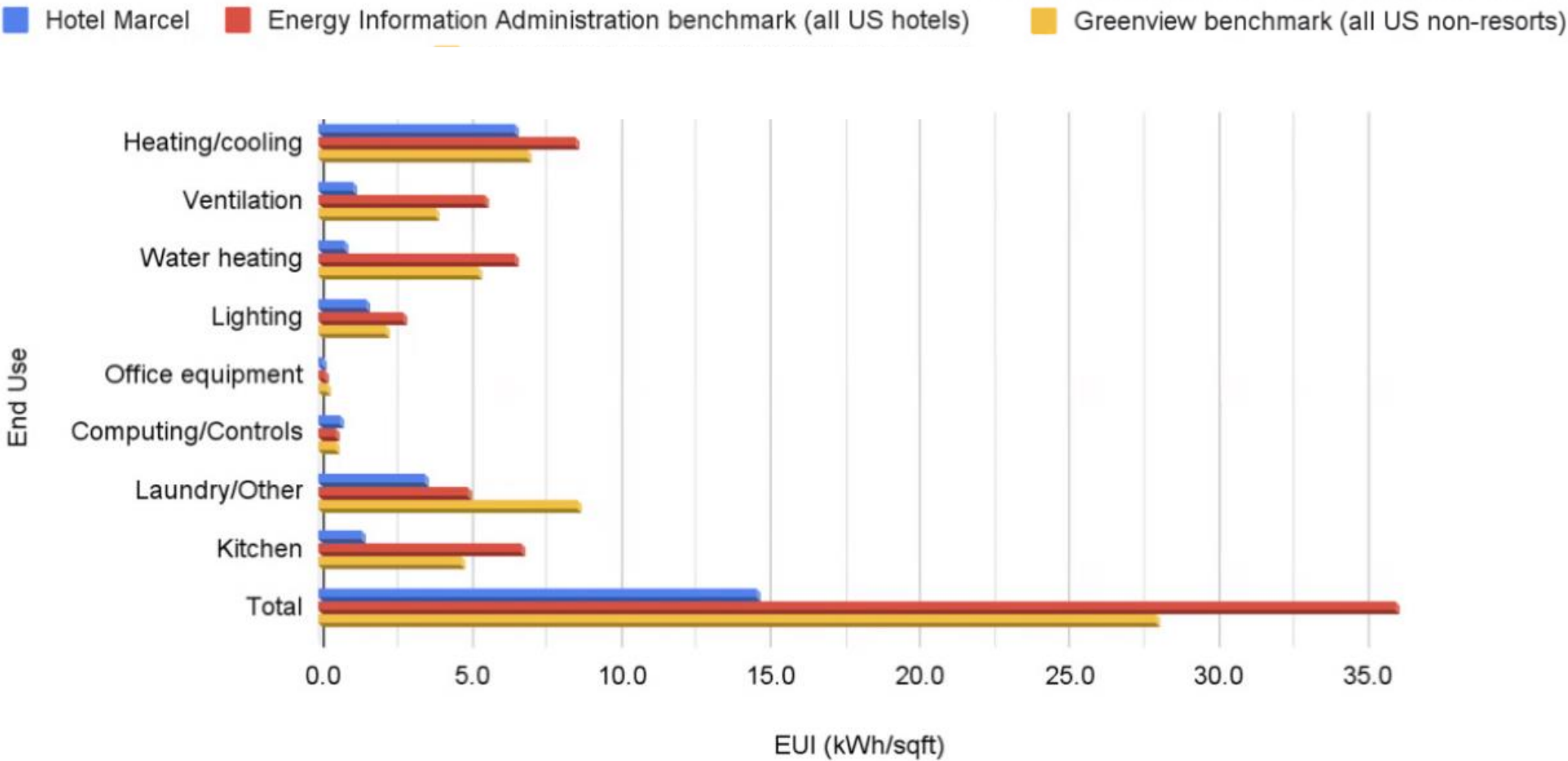


Carbon Emissions Intensities by Building Sector, 2019

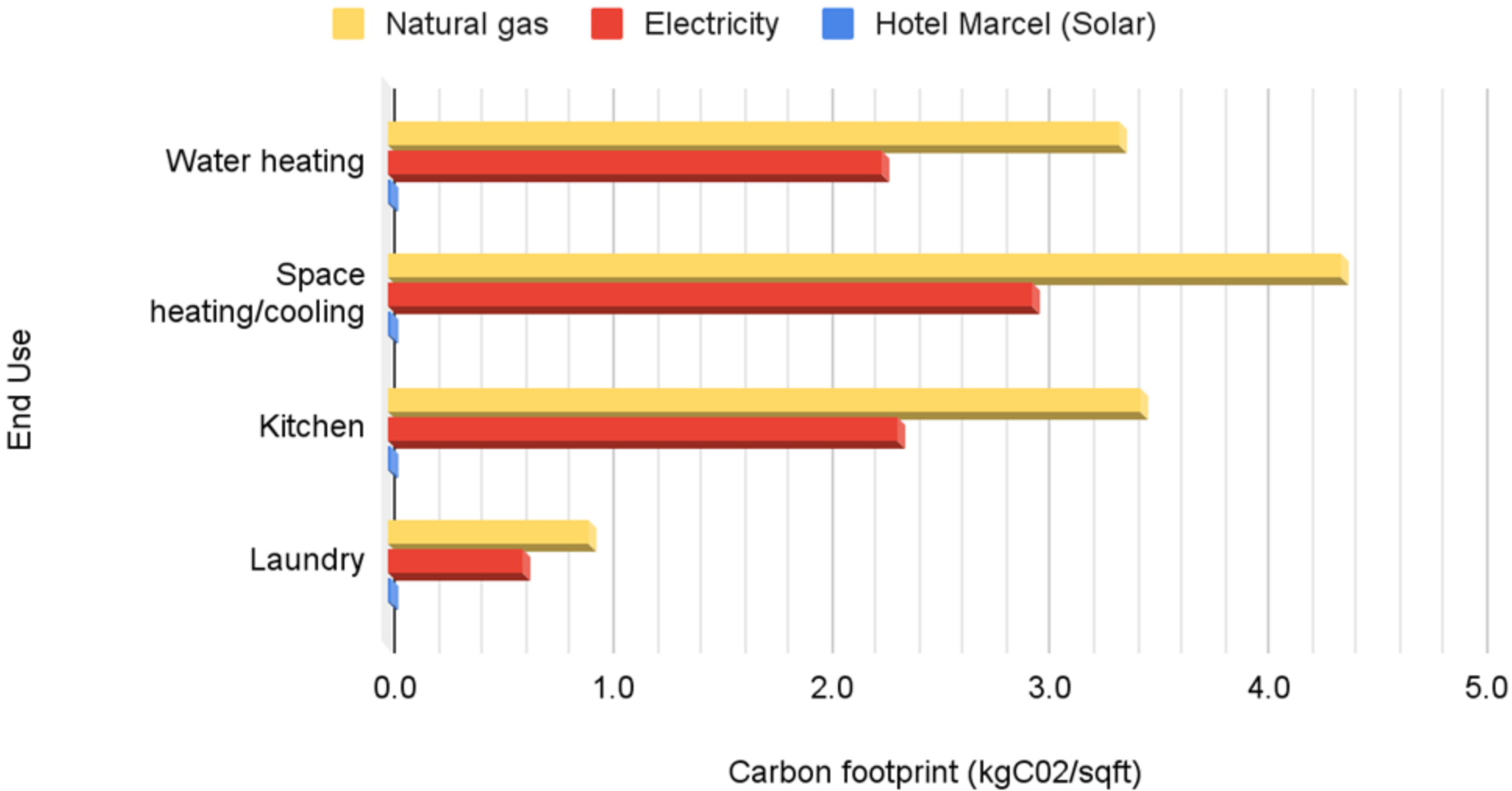


HOTEL MARCEL **USES LESS THAN HALF THE ENERGY** A TYPICAL HOTEL DOES FOR ITS BUILDING OPERATIONS.

MEAN SITE EUI BY END USE
HOTEL MARCEL VS INDUSTRY BENCHMARKS



Mean Operational Carbon Footprint by Fuel Type/End Use

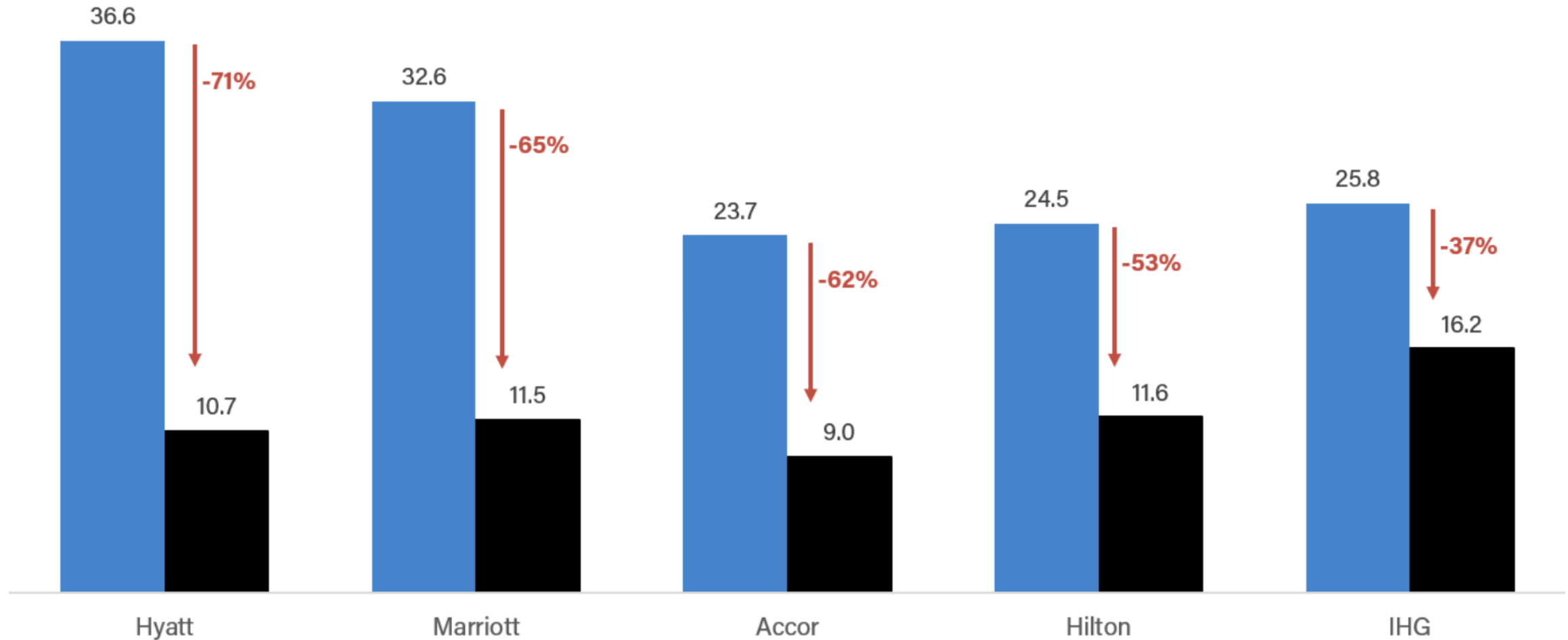


Source: EIA Commercial Buildings Energy Survey 2022
EPA Greenhouse Gas Equivalencies Calculator

Emissions (kg CO₂e) per Occupied Room in 2019 and 2030 Target

Systemwide, scope 1, 2, and 3 (Franchise only)

■ 2019 ■ 2030 continuation



Source: Skift Research from CDP, company filings and estimates, March 2023

HOTEL MARCEL'S DECARB TOOLKIT

Fuel Switching to Eliminate CO2 Emissions

1. Hot Water – HW heat pumps instead of gas/oil HW
2. HVAC– Heat Pumps instead of boilers
3. Kitchen – Induction ranges instead of gas ranges
4. Laundry – Heat pump dryers instead of gas dryers
5. Emergency Power - Batteries instead of generator
6. Shuttle – Electric van instead of gas shuttle

Solar Microgrid to Enhance NOI & Value

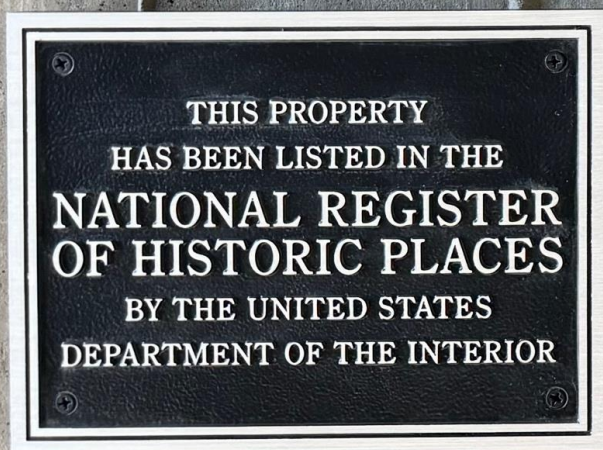
1. Solar Carports and Roof to reduce energy costs
2. Battery peak shaving, export & demand response
3. Community Solar to reach Net Zero Goal

Energy Savings to Enhance NOI & Value

1. Passive House Building Envelope
2. Energy Recovery Ventilation
3. Power of Ethernet/DC Lighting System
4. Regenerative Elevators
5. Building controls and monitoring

Incentives to Fund Capital Costs

1. 30-50% IRA tax credit for solar & batteries
2. Utility Incentives and State Agency Rebates
3. CPACE Financing paid for from energy savings





Passive House Principles:

1. Continuous Insulation – Wrapping buildings with a thermal barrier that keeps them warm in the winter and cool in the summer
2. No Thermal Bridges – Careful detailing to avoid building building elements that allow heat or cool to bypass the thermal barrier
3. Airtight Construction - Creating an airtight layer that stops air from penetrating to the inside.
4. High Performance Windows and Doors – Airtight, thermally broken and insulated and that manage solar gain
5. Fresh Air Ventilation with Heat Recovery –Providing fresh filter air for all spaces



GreenerGov CT Reporting Dashboard

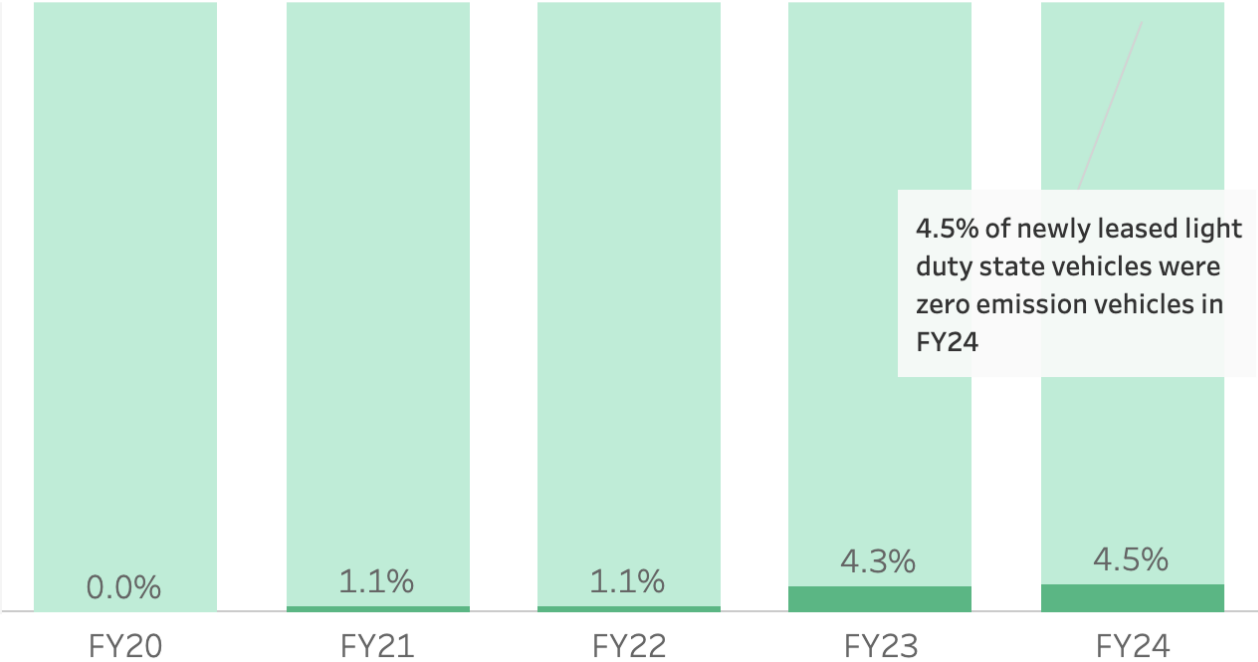
Data was collected to show how many light-duty vehicles, outside of the above categories, are leased by DAS. The total count of leased vehicles at executive agencies stands at 3,597. After removing vehicles that are part of leased state facilities and excluding those listed under C.G.S. Chapter 58, Sec. 4a-67d—such as Law Enforcement vehicles, Wheelchair vans, K-9 vehicles, SUV's, plow vehicles, and special utility vehicles—the estimated number of vehicles eligible for the EO 21-3 target is approximately 1,000. In Fiscal Year 2023, there were a total of 43 newly leased electric vehicles. This equates to 4.3% of the estimated 1,000 light-duty vehicles to be transitioned to EVs in the state fleet. For Fiscal Year 2022, the total number of newly leased electric vehicles was 11, yielding a percentage of 1.1% for that fiscal year.

Zero Emission Vehicles

By 2030, all newly leased light duty state vehicles shall be zero emission vehicles.

This goal is measured by the percentage of newly leased vehicles that are electric vehicles (EVs).

Percent of Newly Leased Vehicles that are EVs



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www.HotelMarcel.com



BECKER+BECKER



QUESTIONS?



PRELIMINARY DATA FY24



2. GREENERGOV E.O. 1 TARGETS



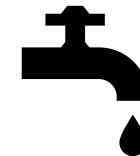
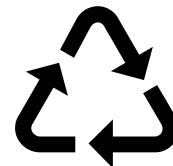
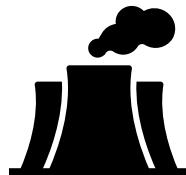
Targets

E.O.1: Goals for State Sustainability

**Reduce
GHGs by
45% below
2001 levels
by 2030**

**Reduce 25%
of waste by
2030 from a
2020
baseline**

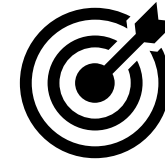
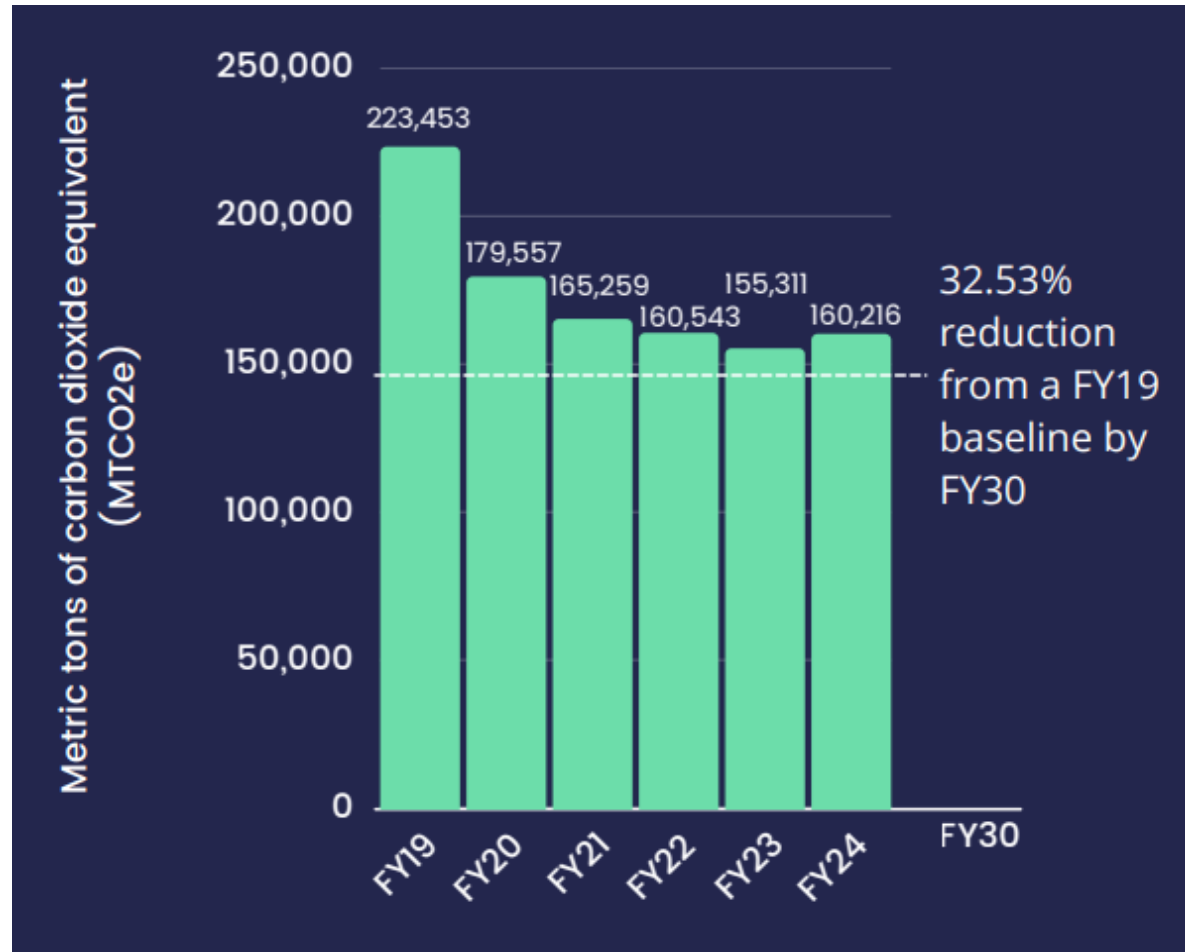
**Reduce 10%
of water
consumption
by 2030
from a 2020
baseline**



FY24 ANNUAL REPORT – E.O. 1 GOALS – GHG EMISSIONS



Total GHG Emissions: Executive Branch Agencies, FY19-
FY24



Reduce 32.53% from FY19 by
2030
(Reduce 45% from FY21 by 2030)



3% during FY 24



GHG down 28% since FY19

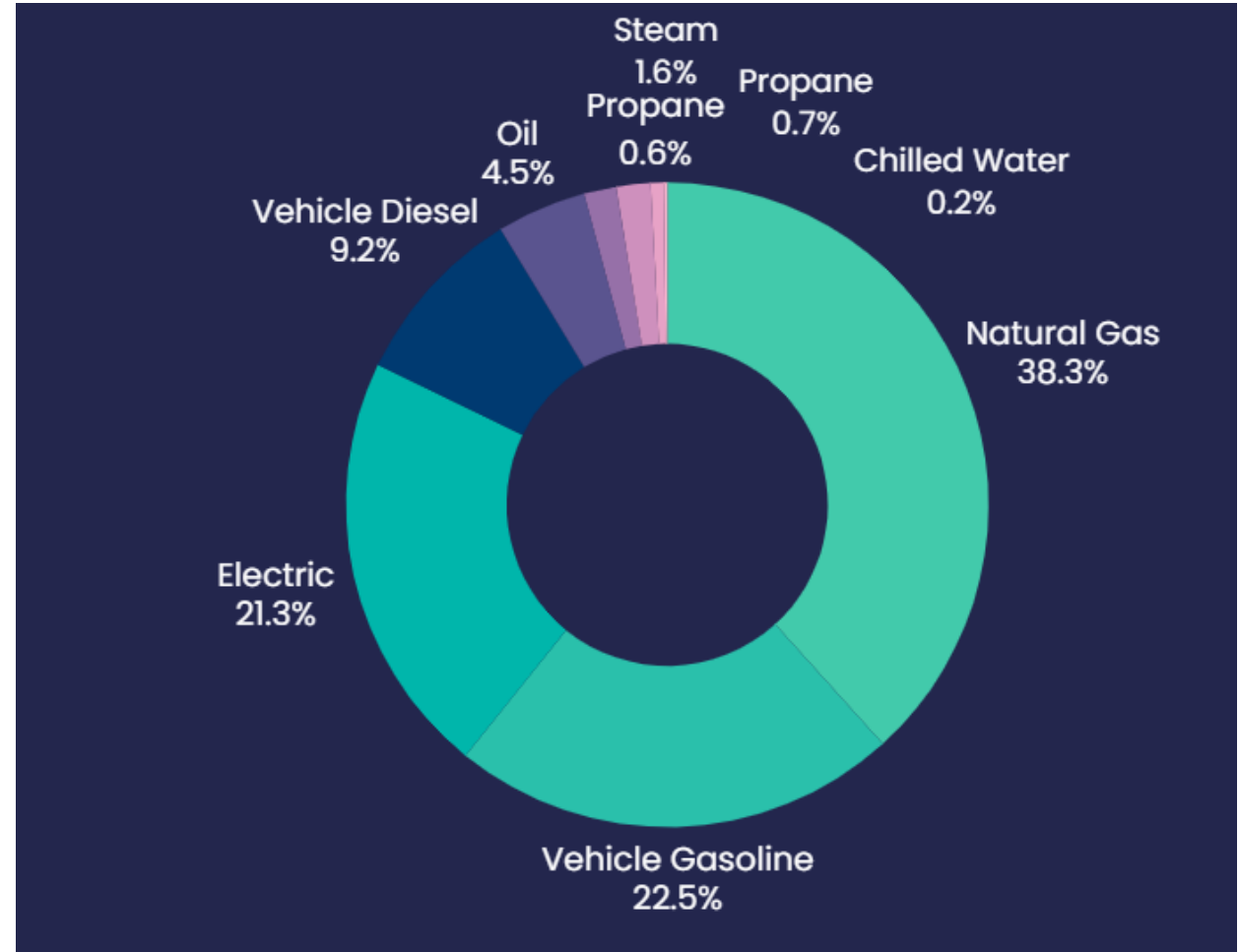
FY24 ANNUAL REPORT – GHG EMISSIONS CONTINUED



**Executive Branch Agencies,
FY24 ghg emissons by
commodity (MTCO2e)**



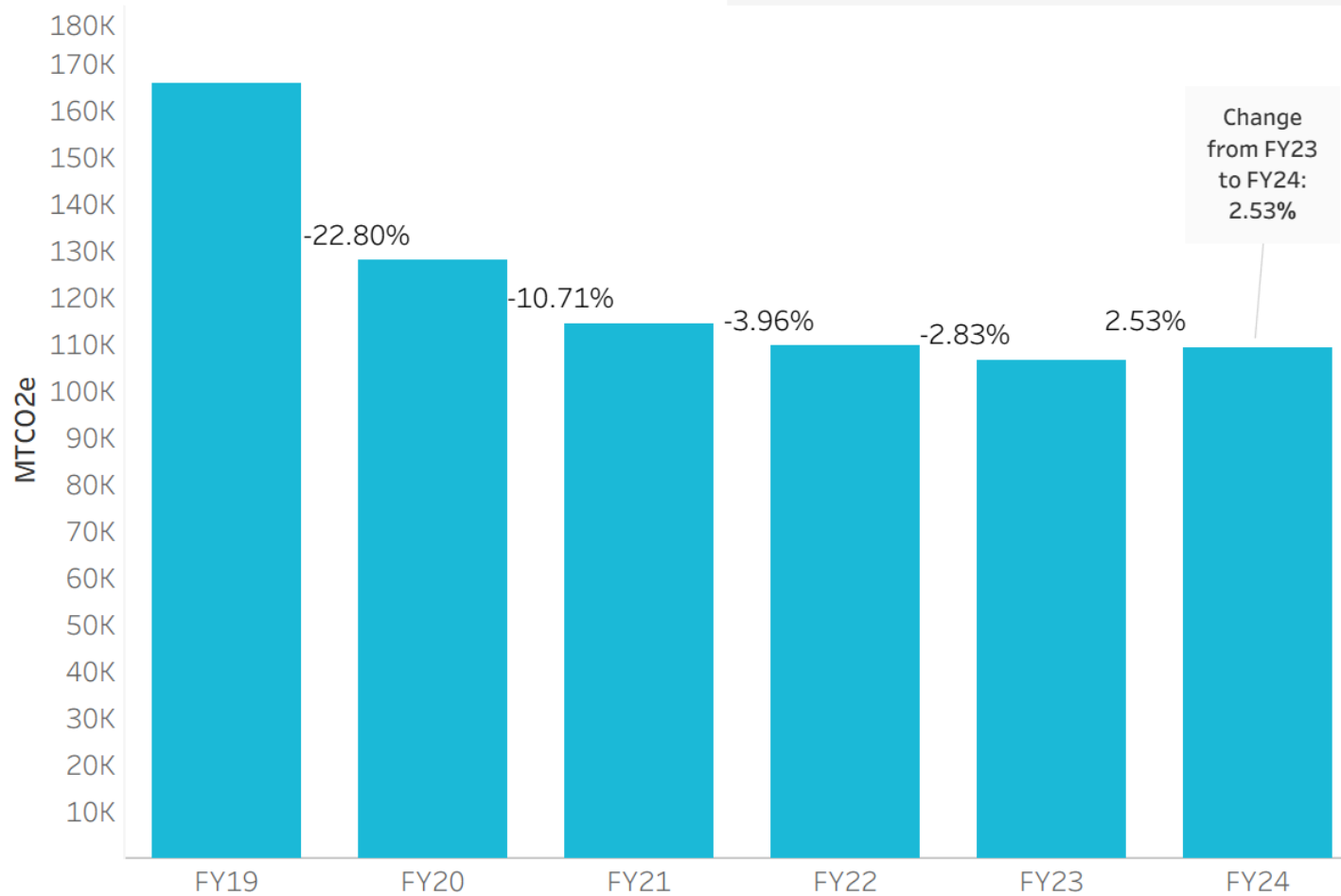
**Majority of state agency
emmissions are driven by
buildings and facilites**



KEY FINDINGS – E.O. 21-3 GOALS – BUILDING GHG EMISSIONS



Annual Change in GHG Emissions from Building Energy Use

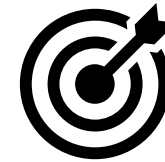
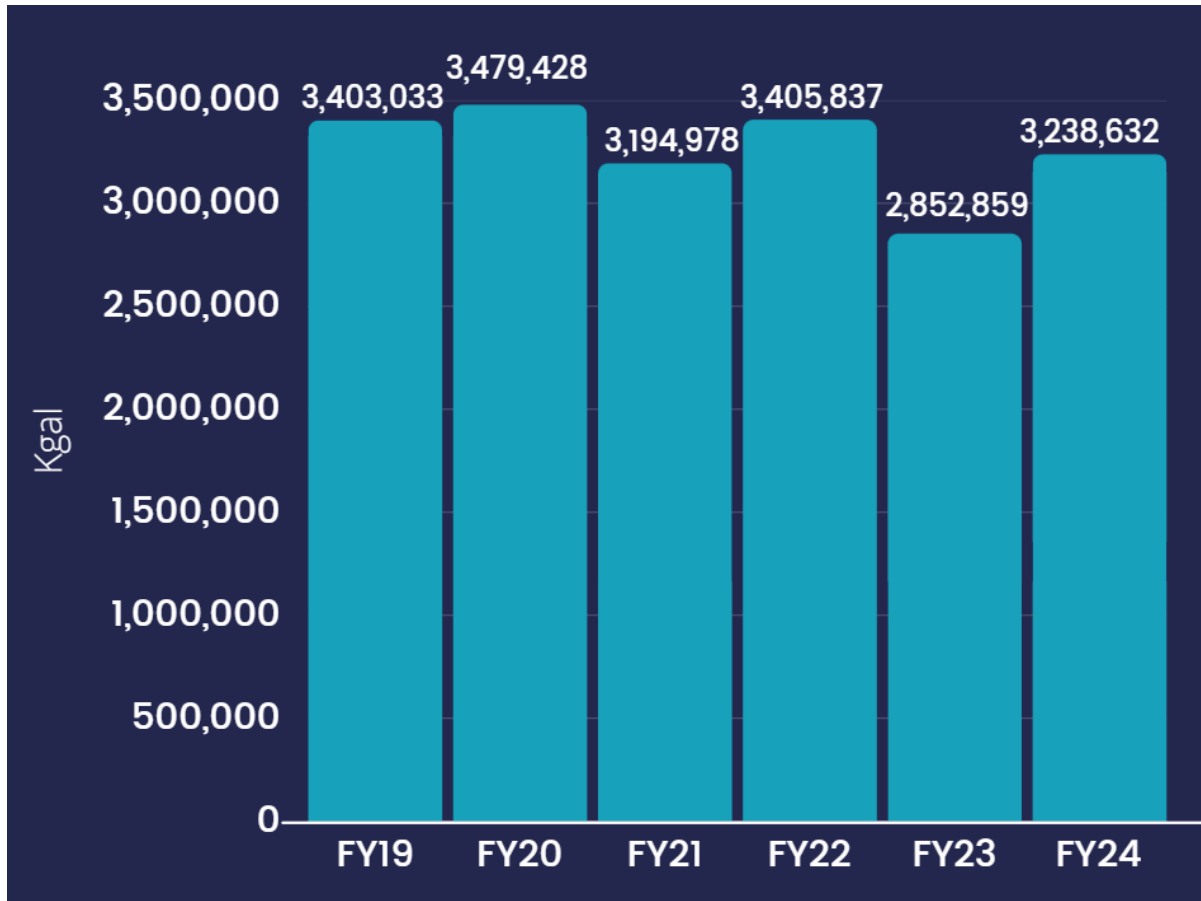


+ 2.53% from FY23 to FY24
Average Yearly Reductions
Since FY19 is 7.55%

FY24 ANNUAL REPORT – E.O. 1 GOALS – WATER & SEWER USAGE



Executive Branch Agencies, FY19-FY24



**Reduce 10% by 2030 from
2020 baseline**



13.5% during FY 24



7 % usage down since FY20

FY24 ANNUAL REPORT – E.O 1 GOALS – WASTE



Reduce waste disposal by 25% from a FY19 baseline by 2030.



No consistent data on waste disposal – mix of metered and unmetered waste disposal



New methodology - Waste disposed-per employee or occupant metric, by facility types

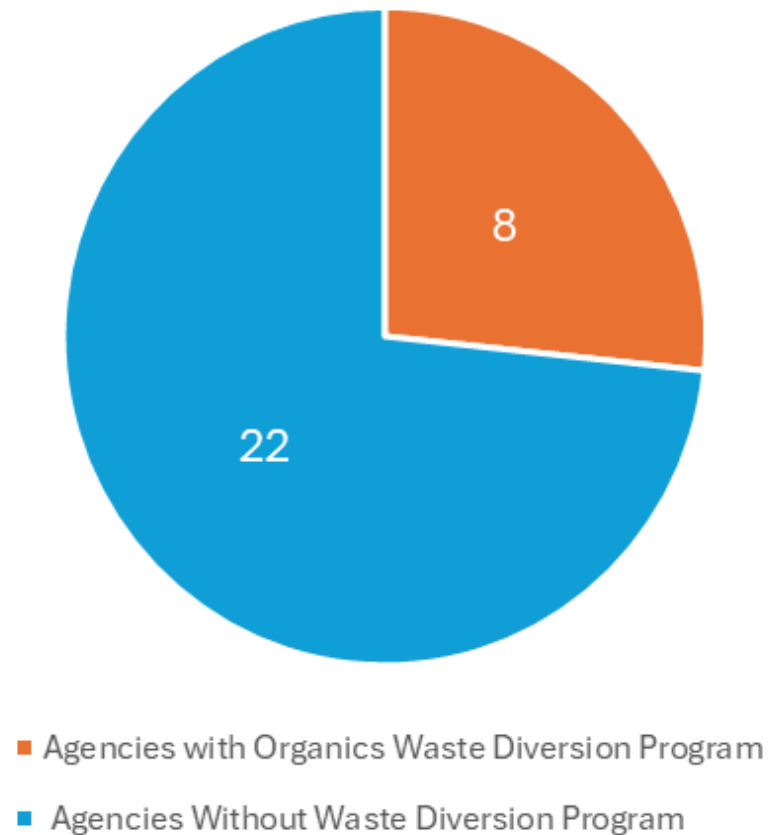


New Baseline - FY23 : post -COVID hybrid-work reality

KEY FINDINGS – FOOD SCRAP DIVERSION



State Office Facilities Offering Food Scrap Diversion



**8 of 30 state agencies
(26.67%)**

2. GREENERGOV E.O. 21-3 TARGETS

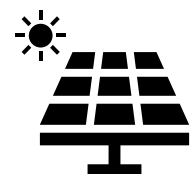


Strengthening interim targets by 2024

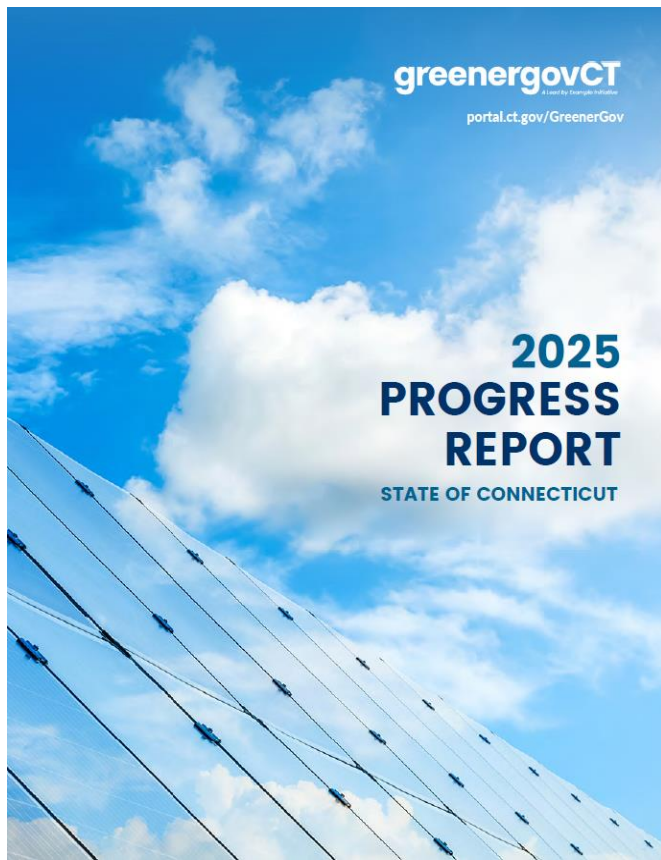
Organics & food waste programs	Plan for zero GHGs for new construction & renovations	1% divestment of state building sq ft.
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Strengthening interim targets by 2030

Electricity purchased and generated 100% zero carbon	All newly leased state vehicles - zero emissions	Plan for zero emission heating & cooling systems	Average solar capacity - annual increase of 10,000 kWDC
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GREENERGOV ANNUAL REPORT

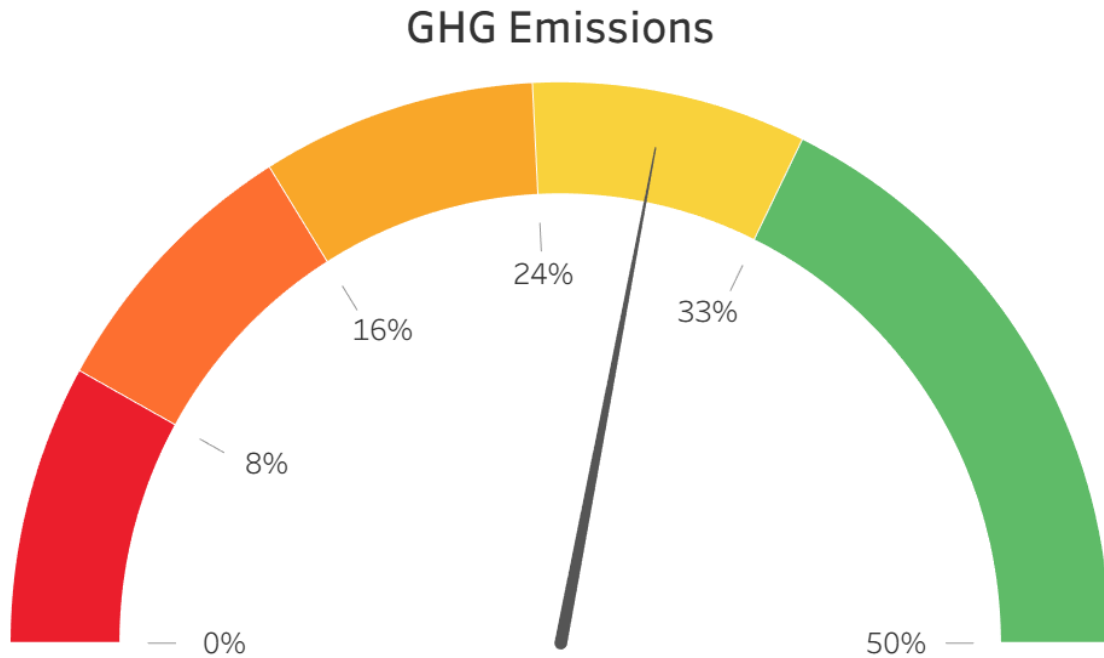


GREENERGOV DASHBOARD



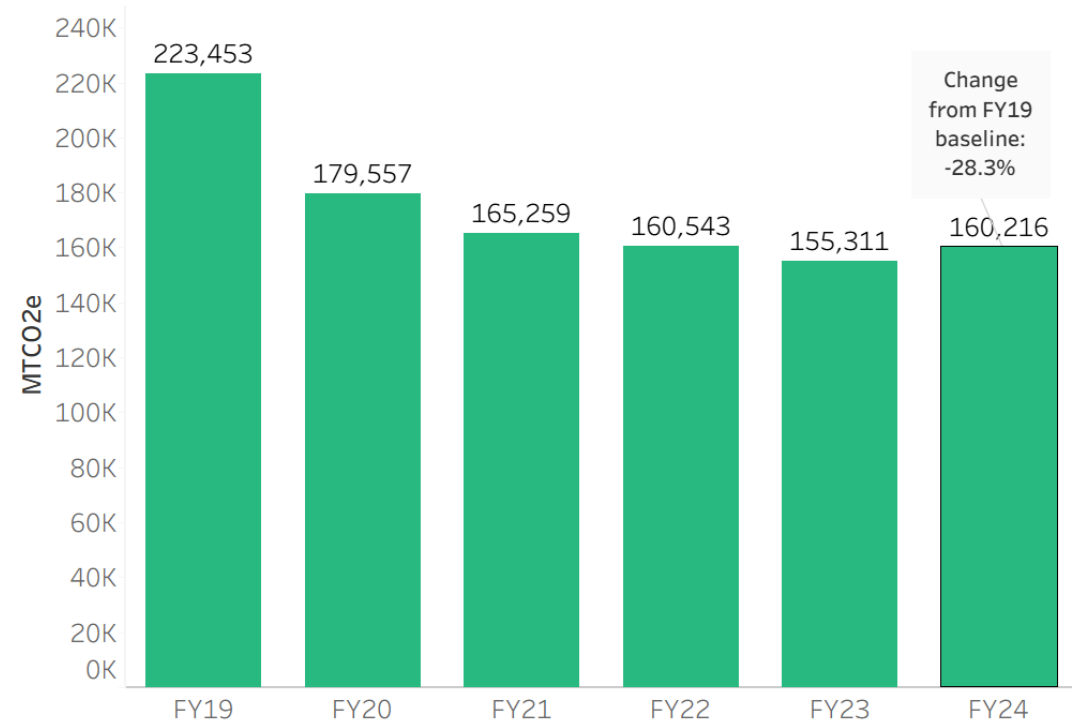
GHG Emissions

Reduce greenhouse gas emissions by 32.53% below FY19 levels.

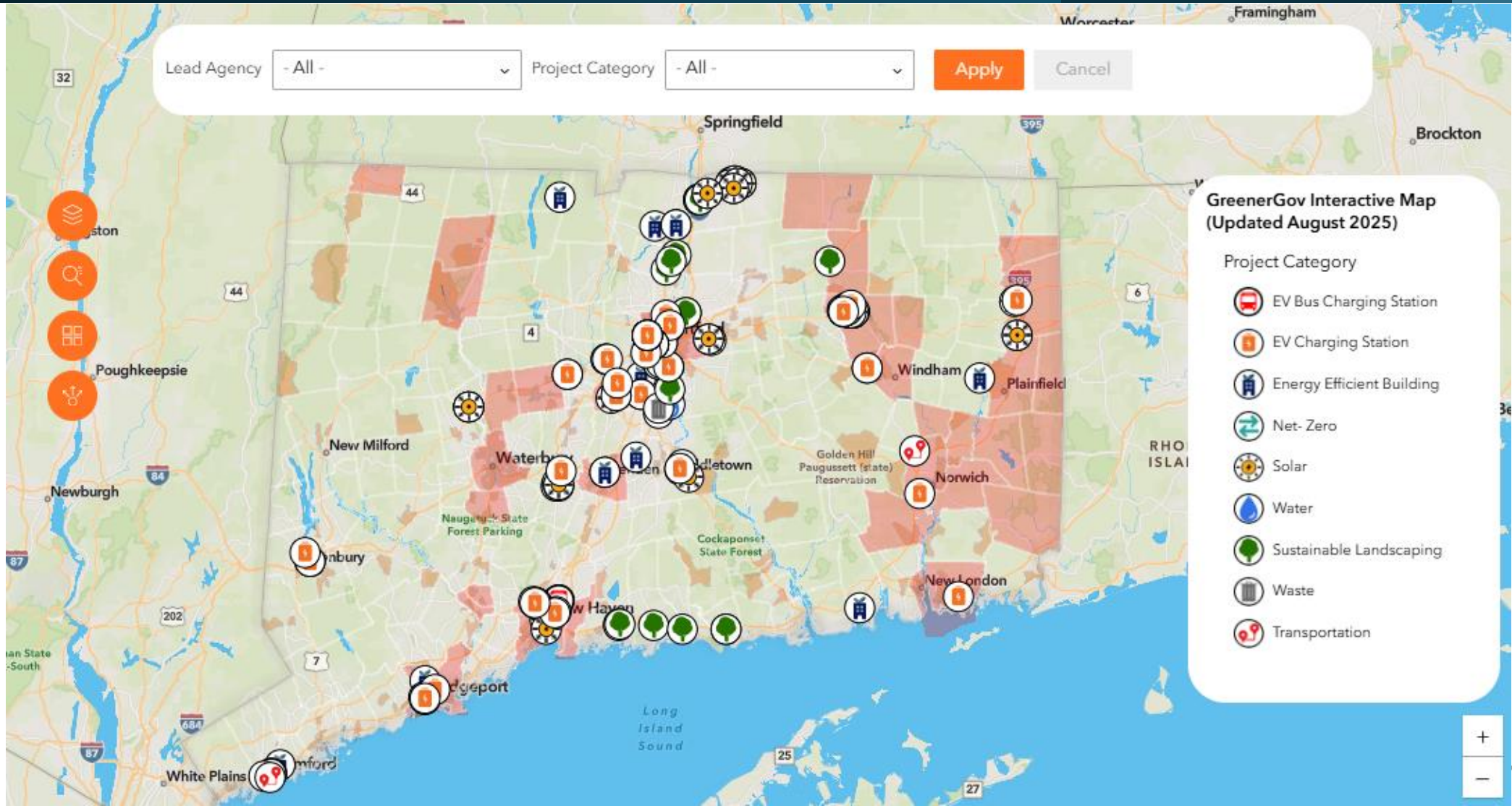


GreenerGov CT Dashboard | Connecticut Data

Total GHG Emissions



GREENERGOV INTERACTIVE MAP



RECENT EFFORTS TO MEET SUSTAINABILITY TARGETS

- Reducing Energy Use – CT Department of Labor (DOL)
- Reducing Water Use – CT Housing Finance Authority (CHFA)
- Heating/Cooling System Decarbonization Study – CT Department of Administrative Services (DAS)



DEPARTMENT OF LABOR (DOL)



DEPARTMENT OF LABOR (DOL)



- **Building Automation Optimization Success Story**

Challenges:

- No documented Sequence of Operations
- Systems running inefficiently (nearly 24/7)
- Limited visibility into historical issues

Approach:

- Reviewed service history and identified issues
- Conducted in-house Building Automation System analysis
- Trended equipment, verified schedules, and walked the building
- Performed mechanical repairs (dampers, actuators, sensors)

DEPARTMENT OF LABOR (DOL)



- **Building Automation Optimization Success Story Cont.**

Key Actions:

- Corrected system schedules and occupancy alignment
- Implemented proper start/stop times
- Restored temperature setbacks and control sequences

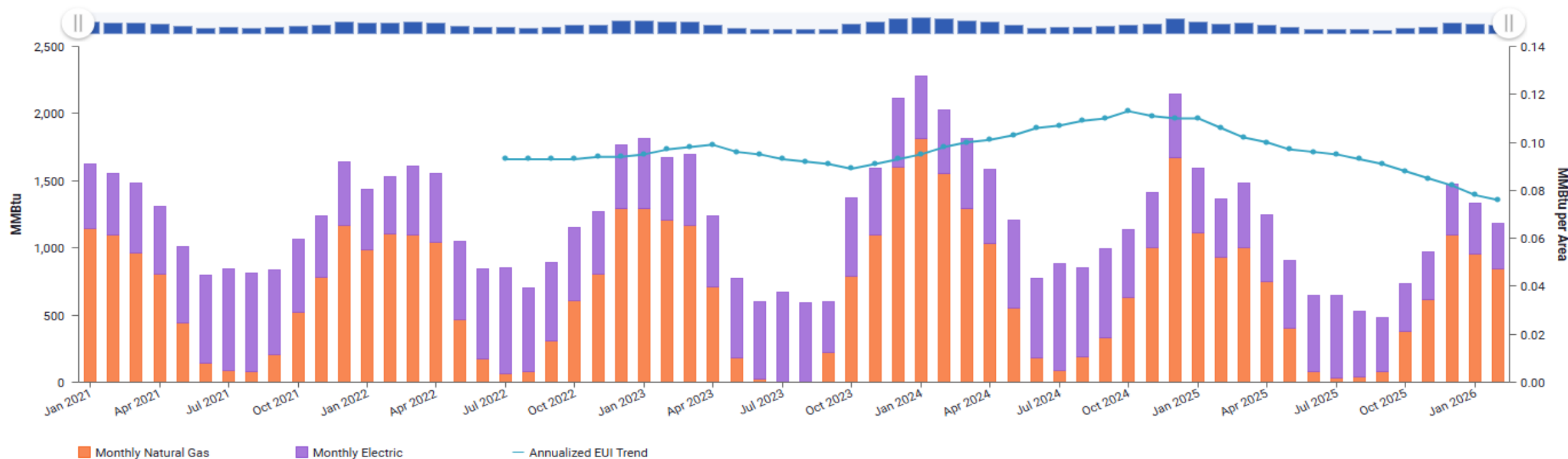
Results:

- **Reducing operating hours by 54 hours/week**
- Lower energy consumption (electricity and gas)
- Reducing equipment wear and maintenance needs

DEPARTMENT OF LABOR (DOL)



Energy Use Intensity



DEPARTMENT OF LABOR (DOL)



Portfolio Manager property
Department of Labor HQ

Gross Floor Area
154,835 ft²

Property Use Type
Office

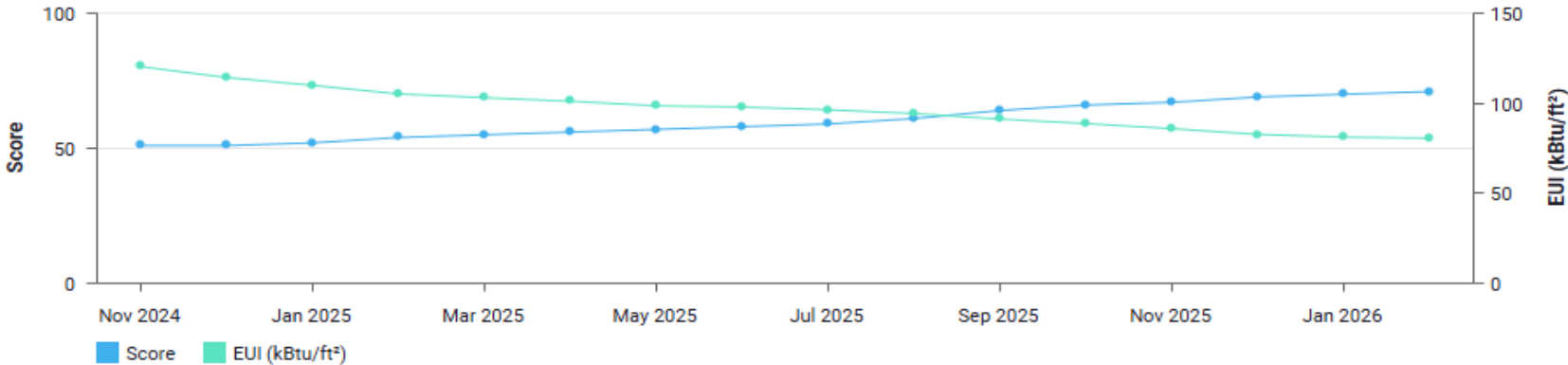
Submission Type
Automatic

More Actions

ENERGY STAR Scores and Metrics

71

Latest ENERGY STAR Score



Month	ENERGY STAR Score	ENERGY STAR EUI (kBtu/ft²)	12-Month Site Energy Use (kBtu)	National Median Score	National Median EUI (kBtu/ft²)	Diff. from National Median EUI(%)
Feb 2026	71	80.6	12,472,534.3	50	107.8	-26.0
Jan 2026	70	81.2	12,564,908.1	50	107.5	-25.1
Dec 2025	69	82.7	12,800,908.1	50	107.7	-23.6
Nov 2025	67	85.9	13,298,630.9	50	108.8	-21.3
Oct 2025	66	88.7	13,737,339.9	50	109.0	-19.8
Sep 2025	64	91.2	14,128,132.3	50	109.1	-17.6

All displayed values are from ENERGY STAR

CT HOUSING FINANCE AUTHORITY (CHFA)



Water Use Reduction Study and Project



UNDERSTANDING WATER AUDIT



- Performed State of CT Agency/Facility Water Audit, utilizing instructions from:
 - **GreenerGovCT-Sustainable Water Use**
 - South Florida Water Management District Water Supply Development Section. April 2012. **Water Efficiency and Self Conducted Water Audits at Commercial and institutional Facilities. Second Edition**
 - US Environmental Protection Agency. **WaterSense at Work Best Management Practices for Commercial and Institutional Facilities**
 - US Environmental Protection Agency. **WaterSense Simple Assessment Checklist for Commercial and Institution Facilities**
- Number of employees when water audit was conducted (130)
 - 38 male
 - 92 female
- Average number of days occupied in building per year (260)
- Public water supply, own building, irrigation system
- Calculate water consumption from utility bills
 - Measured in Centum Cubic Feet (CCFs)



Total Annual Water Consumption

Daily

3,642 gallons
4.9 CCFs

Monthly

79,000 gallons
106 CCFs

Annually

947,000 gallons
1,266 CCFs

one Centum Cubic Foot (CCF) = 748 gallons

Calculating Water Usage Restrooms

- Employees using women's restrooms (92)
 - Number of toilets
 - Number of faucets
- Employees using men's restrooms (38)
 - Number of toilets
 - Number of urinals
 - Number of faucets
- Women: 3 flushes per day
- 1.6 gallons per flush
- Men: 1 flush per day/urinal
- 1.5 gallons per flush



Gallons of water per day for toilets=# women and # men x average number of flushes x gallons per flush

Timed-Flow Testing-Faucets

- Total number of faucets in agency
- Calculate Flow Rate
- Estimated time for washing hands is .5 minutes

Box 6. Timed-Flow Test Using a Measure

1. Identify a container, such as a kitchen measuring cup.
2. Using a stopwatch, record the time each faucet requires to fill the container.
3. Refer to **Table 8** on page 63 to convert the time required to fill the container or perform the following calculation:

This example is for a 0.25 gallon (quart) container that filled in 12 seconds:

$$\frac{0.25 \text{ gallons}}{12 \text{ seconds}} \times 60 \text{ seconds} = 1.25 \text{ gallons/minute}$$

Total number of minutes per day = # of faucets X # of uses X .5 minutes

Estimated gallons per day = total number of minutes per day X flow rate

Fixture Replacement – Water Savings Calculations

- Determine the cost of replacing each fixture
- Determine the cost of installation for each fixture

(cost of fixtures + cost of installation x number of each fixture)

Total cost of replacement or retrofit:
toilets, urinals, and faucets \$12,000



Findings and Recommendations from CT Department of Public Health

Restroom Fixtures

- Low flow fixtures
- Flow rate for faucets = 1.88 gallons per minute versus WaterSense faucet recommendations of 1.4 gallons per minute

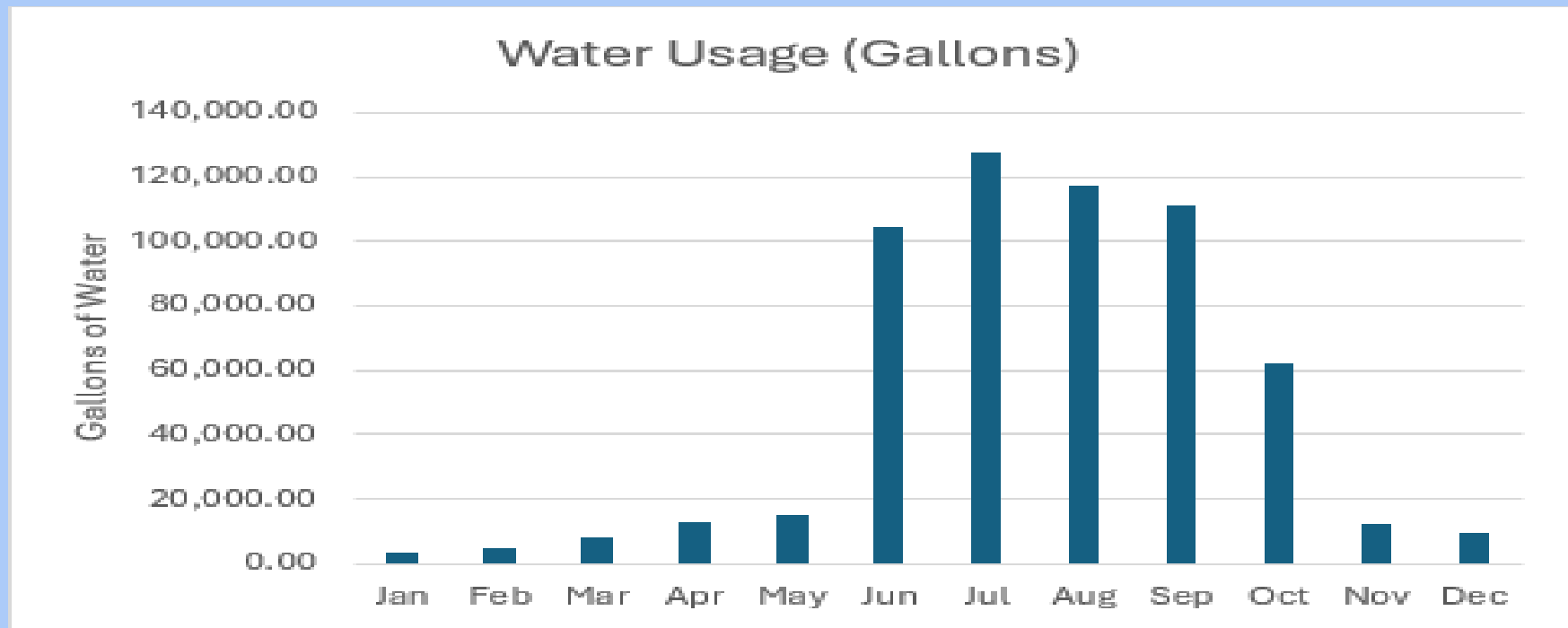
Not recommended for fixture replacement/retrofit project

Leak Detection Signs in Place for Staff



April through October

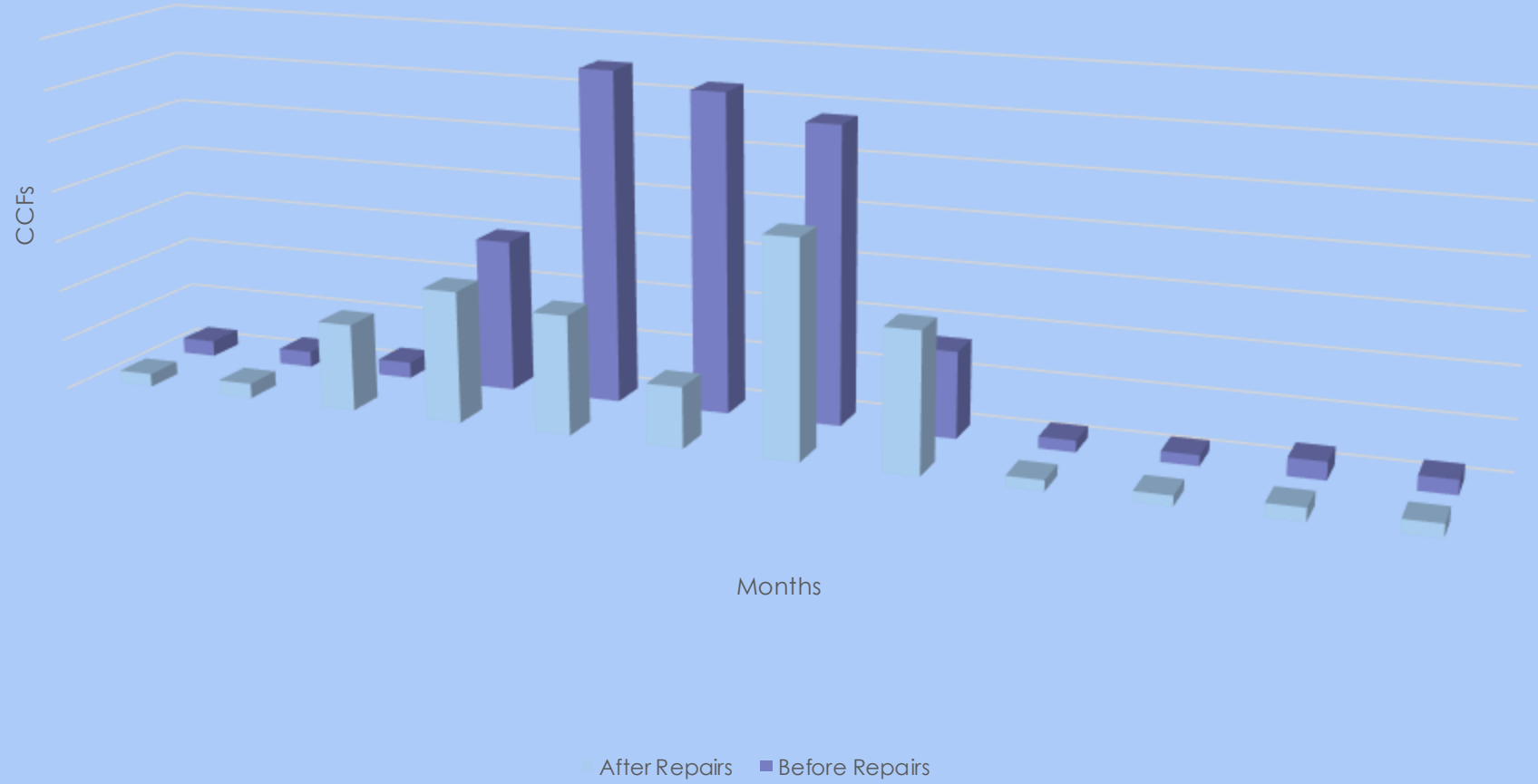
- Significant water consumption



Check for Leaks



CHFA Water Consumption





What's next?

Planted Native Drought Resistant Species:

- Aster
- Black Eyed Susan
- Coreopsis
- Echinacea
- Wild Geranium
- Cardinal flower (Lobelia Cardinalis)
- Iris
- Wild Blue Phlox (Phlox Divaricata)
- Karl Foerster Grasses



Planted Native Drought Resistant Species:

- Aster
- Black Eyed Susan
- Coreopsis
- Echinacea
- Wild Geranium
- Cardinal flower (Lobelia Cardinalis)
- Iris
- Wild Blue Phlox (Phlox Divaricata)
- Karl Foerster Grasses



QUESTIONS?





EO 21-3 HVAC Decarbonization Study – Purpose

Retrofit existing fossil-fuel based HVAC systems to those capable of operating without carbon emitting fuels.

- Mandated by EO #21-3, Part 3-D, now PA 25-125
- 3,833 Executive Branch facilities
- DAS & DEEP engaged Arup

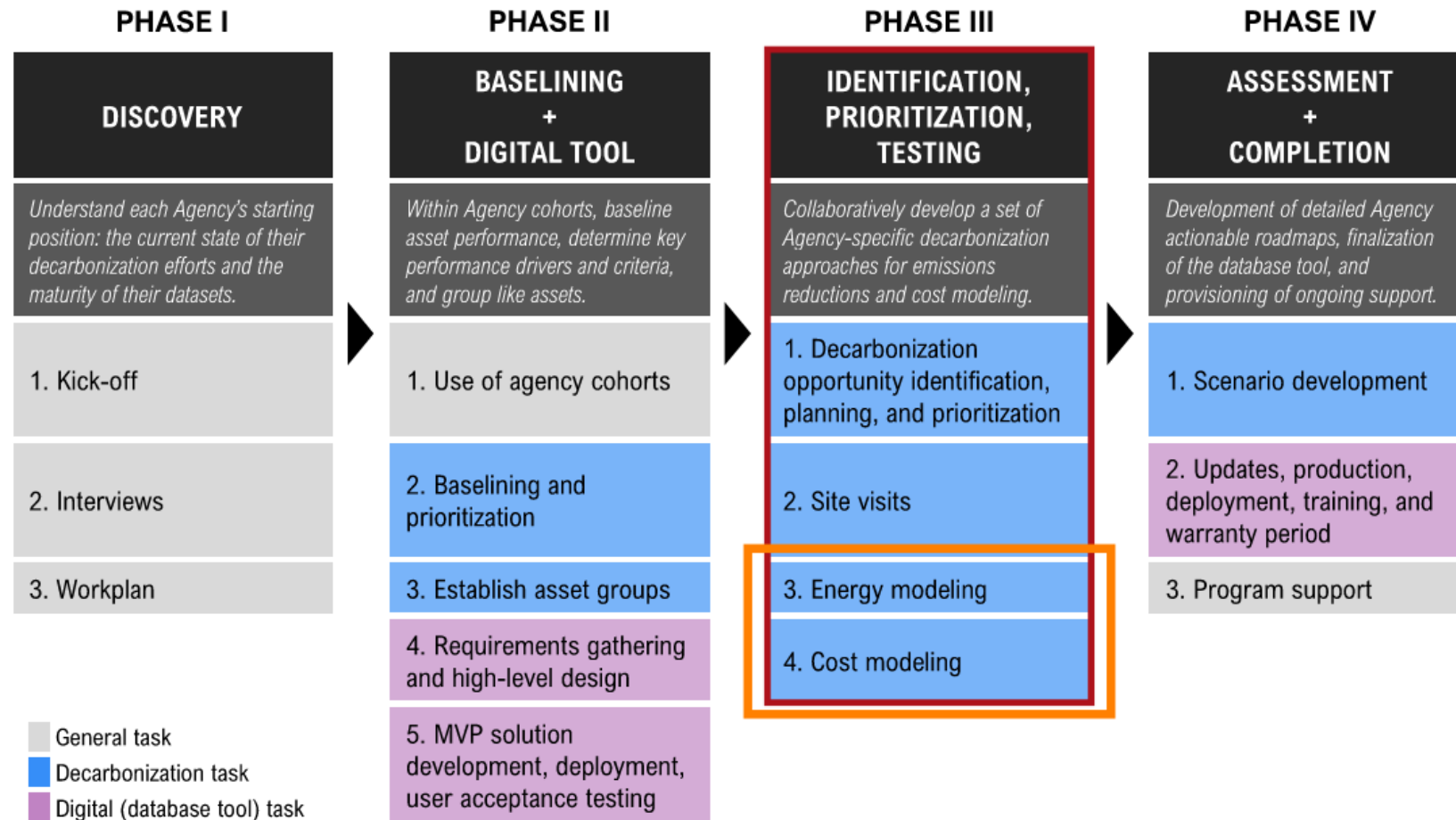


Decarbonization Study Final Deliverables

- Action Plan
 - Facility-specific, prioritized decarbonization solutions
 - Cost Analyses
- Comprehensive Database Tool
 - Support HVAC decarbonization planning
 - Track progress
 - Portfolio of baseline systems information, energy use, emissions
 - Comparisons to business-as-usual case



Status



Heating Systems			
How is the building heated? Select the most appropriate system type from the dropdown below.	Please select the primary heating system fuel type from the dropdown below.	Select the approximate year of installation of the building's main heating system from the dropdown below.	If known, indicate the estimated end of useful life of the main heating system accounting for known performance and maintenance issues. If unknown, we will assume this based on the installation year.
Primary Heating System Type	Primary Heating Fuel Source	Primary Heating System Year of Installation	Primary Heating System Estimate Remaining Useful Life
Boiler	Natural Gas	1996-2000	Unknown
Boiler	Natural Gas	2006-2010	Unknown
None	Natural Gas	Before 1991	Unknown
Boiler	Natural Gas	2016-2020	10+
Boiler	Natural Gas	2016-2020	10+
Unit or Baseboard Heaters	Natural Gas	Before 1991	4-9
Unit or Baseboard Heaters	Natural Gas	2021-2025	10+
Boiler	Natural Gas	2006-2010	10+
Unit or Baseboard Heaters	Natural Gas	2006-2010	4-9
Boiler	Natural Gas	Before 1991	4-9
Unit or Baseboard Heaters	Natural Gas	Before 1991	4-9

DECARBONIZATION STUDY – DAS



Decarbonization Measures – Categories

Measure ID	Measure Category	Electrify	Decarb	Description
K.1	ELECTRIFY COOKING EQUIPMENT	X		This measure replaces fossil fuel-based commercial cooking equipment with electric equipment where applicable.
K.2	UPGRADE ELECTRIC COOKING EQUIPMENT		X	This measure replaces electric commercial cooking equipment with induction equipment where applicable.
D.1	ELECTRIFY BUILDING DOMESTIC HOT WATER EQUIPMENT	X		This measure replaces the building's fossil fuel-based domestic hot water heater with a heat pump water heater.
D.2	UPGRADE ELECTRIC DOMESTIC HOT WATER EQUIPMENT		X	This measure replaces the building's electric boiler with a heat pump water heater.
H.1	ELECTRIFY BUILDING HVAC EQUIPMENT	X		This measure replaces a fossil fuel-based space heating system with a heat pump.
H.2	UPGRADE ELECTRIC BUILDING HVAC EQUIPMENT		X	This measure replaces an electric resistance space heating system with a heat pump.
E.1	IMPROVE EXTERIOR WALL INSULATION		X	This measure applies extruded polystyrene foam insulation to applicable building models.
E.2	IMPROVE ROOF INSULATION		X	This measure adds additional roof insulation to meet the R-values specified in the Advanced Energy Design Guide (AEDG) by climate zone."
E.3	ADD WINDOW FILM		X	This measure applies new performance of the overall glazing system reflecting a scenario when an applicable window film is attached to the original ("baseline") window."
E.4	WINDOW REPLACEMENT		X	This measure replaces existing windows with new windows that align with the properties proposed in the Advanced Energy Design Guide (AEDG) for each climate zone."
E.5	AIR SEALING	X		This measure improves the air-tightness of the building.
L.1	LED LIGHTING		X	This measure replaces model interior lighting with ComStock Generation 5 LED lighting, where applicable."
L.2	LIGHTING CONTROLS		X	

DECARBONIZATION STUDY – DAS



Decarbonization Measures – Sample of Full List

PARENT ID	MEASURE TYPE	ID	MEASURE NAME	END USE	BASELINE SYSTEM	BASELINE FUEL	COP/EFFICIENCY	PERFORMANCE METRIC
K.1	ELECTRIFY COOKING EQUIPMENT	K.1.1	Replace natural gas cooking equipment with electric equipment.	Kitchen	Stove	Natural Gas	0.32	Efficiency
K.1	ELECTRIFY COOKING EQUIPMENT	K.1.2	Replace propane cooking equipment with electric equipment.	Kitchen	Stove	Propane		
K.2	UPGRADE ELECTRIC COOKING EQUIPMENT	K.2.1	Replace electric resistance stoves with induction stoves.	Kitchen	Stove	Electricity	0.65	Efficiency
D.1	ELECTRIFY BUILDING DOMESTIC HOT WATER EQUIPMENT	D.1.1	Replace DHW natural gas boiler with unitary heat pump water heater	Domestic Hot Water	Boiler	Natural Gas		
D.1	ELECTRIFY BUILDING DOMESTIC HOT WATER EQUIPMENT	D.1.2	Replace DHW natural gas boiler with central heat pump water heater	Domestic Hot Water	Boiler	Natural Gas		
D.1	ELECTRIFY BUILDING DOMESTIC HOT WATER EQUIPMENT	D.1.3	Replace DHW Oil #2 boiler with unitary heat pump water heater	Domestic Hot Water	Boiler	Oil #2		
D.1	ELECTRIFY BUILDING DOMESTIC HOT WATER EQUIPMENT	D.1.4	Replace DHW Oil #2 boiler with central heat pump water heater	Domestic Hot Water	Boiler	Oil #2		
D.1	ELECTRIFY BUILDING DOMESTIC HOT WATER EQUIPMENT	D.1.5	Replace DHW propane boiler with unitary heat pump water heater	Domestic Hot Water	Boiler	Propane	0.8	Efficiency
D.1	ELECTRIFY BUILDING DOMESTIC HOT WATER EQUIPMENT	D.1.6	Replace DHW propane boiler with central heat pump water heater	Domestic Hot Water	Boiler	Propane	0.8	Efficiency
D.1	ELECTRIFY BUILDING DOMESTIC HOT WATER EQUIPMENT	D.1.7	Replace DHW natural gas instantaneous WH with unitary heat pump water heater	Domestic Hot Water	Instantaneous/Tankless Wa	Natural Gas	0.82	Efficiency
D.1	ELECTRIFY BUILDING DOMESTIC HOT WATER EQUIPMENT	D.1.8	Replace DHW natural gas instantaneous WH with central heat pump water heater	Domestic Hot Water	Instantaneous/Tankless Wa	Natural Gas	0.82	Efficiency
D.1	ELECTRIFY BUILDING DOMESTIC HOT WATER EQUIPMENT	D.1.9	Replace DHW Oil #2 instantaneous WH with unitary heat pump water heater	Domestic Hot Water	Instantaneous/Tankless Wa	Oil #2		
D.1	ELECTRIFY BUILDING DOMESTIC HOT WATER EQUIPMENT	D.1.10	Replace DHW Oil #2 instantaneous WH with central heat pump water heater	Domestic Hot Water	Instantaneous/Tankless Wa	Oil #2		
D.1	ELECTRIFY BUILDING DOMESTIC HOT WATER EQUIPMENT	D.1.11	Replace DHW propane instantaneous WH with unitary heat pump water heater	Domestic Hot Water	Instantaneous/Tankless Wa	Propane		
D.1	ELECTRIFY BUILDING DOMESTIC HOT WATER EQUIPMENT	D.1.12	Replace DHW propane instantaneous WH with central heat pump water heater	Domestic Hot Water	Instantaneous/Tankless Wa	Propane		
D.2	UPGRADE ELECTRIC DOMESTIC HOT WATER EQUIPMENT	D.2.1	Replace electric Boiler with unitary heat pump water heater	Domestic Hot Water	Boiler	Electricity	0.95	Efficiency
D.2	UPGRADE ELECTRIC DOMESTIC HOT WATER EQUIPMENT	D.2.2	Replace electric Boiler with central heat pump water heater	Domestic Hot Water	Boiler	Electricity	0.95	Efficiency
D.2	UPGRADE ELECTRIC DOMESTIC HOT WATER EQUIPMENT	D.2.3	Replace electric instantaneous WH with unitary heat pump water heater	Domestic Hot Water	Instantaneous/Tankless Wa	Electricity	0.99	Efficiency
D.2	UPGRADE ELECTRIC DOMESTIC HOT WATER EQUIPMENT	D.2.4	Replace electric instantaneous WH with central heat pump water heater	Domestic Hot Water	Instantaneous/Tankless Wa	Electricity	0.99	Efficiency
D.2	UPGRADE ELECTRIC DOMESTIC HOT WATER EQUIPMENT	N/A		Domestic Hot Water	Solar Water Heater	Electricity	0.7	Efficiency
D.3	ELECTRIFY CUP-CONNECTED DOMESTIC HOT WATER SYSTEMS	D.3.1	Replace DHW heating source at CUP	Domestic Hot Water	Tube Hx	CUP Steam		
D.3	ELECTRIFY CUP-CONNECTED DOMESTIC HOT WATER SYSTEMS	D.3.2	Disconnect from CUP and add HPWH to building	Domestic Hot Water	Tube Hx	CUP Steam		
D.3	ELECTRIFY CUP-CONNECTED DOMESTIC HOT WATER SYSTEMS	D.3.3	Replace DHW heating source at CUP	Domestic Hot Water	CUP Hot Water	CUP Hot Water		
D.3	ELECTRIFY CUP-CONNECTED DOMESTIC HOT WATER SYSTEMS	D.3.4	Disconnect from CUP and add HPWH to building	Domestic Hot Water	CUP Hot Water	CUP Hot Water		
D.3	ELECTRIFY CUP-CONNECTED DOMESTIC HOT WATER SYSTEMS	D.3.5	Replace DHW heating source at CUP	Domestic Hot Water	CUP Steam	CUP Steam		
H.1	ELECTRIFY BUILDING HVAC EQUIPMENT	H.1.1	Replace Natural Gas Boiler with HP RTU (Cooling: Chiller)	Heating	Boiler	Natural Gas		Efficiency
H.1	ELECTRIFY BUILDING HVAC EQUIPMENT	H.1.2	Replace Natural Gas Boiler with HP RTU (Cooling: CUP Chilled Water)	Heating	Boiler	Natural Gas		Efficiency
H.1	ELECTRIFY BUILDING HVAC EQUIPMENT	H.1.3	Replace Natural Gas Boiler with HP RTU (Cooling: DX Packaged Unit (e.g. RTU))	Heating	Boiler	Natural Gas		Efficiency
H.1	ELECTRIFY BUILDING HVAC EQUIPMENT	H.1.4	Replace Natural Gas Boiler with HP RTU (Cooling: DX Split Unit)	Heating	Boiler	Natural Gas		Efficiency
H.1	ELECTRIFY BUILDING HVAC EQUIPMENT	H.1.5	Replace Natural Gas Boiler with HP RTU (Cooling: Window/Wall ACs)	Heating	Boiler	Natural Gas		Efficiency

DECARBONIZATION STUDY – DAS



Decarbonization Project Packages

Electrification-Only* (with cost-effective energy efficiency measures)				
KITCHEN	DHW	HVAC	ENVELOPE	LIGHTING
K.1	D.1	H.1	E.5	L.1
ELECTRIFY COOKING EQUIPMENT	ELECTRIFY BUILDING DOMESTIC HOT WATER EQUIPMENT	ELECTRIFY BUILDING HVAC EQUIPMENT	AIR SEALING	LED LIGHTING

Deep Decarbonization (In Addition to Electrification-Only Measures)								
KITCHEN	DHW	HVAC	ENVELOPE				LIGHTING	CONTROLS
K.2	D.2	H.2	E.1	E.2	E.3	E.4	L.2	C.1
UPGRADE ELECTRIC COOKING EQUIPMENT	UPGRADE ELECTRIC DOMESTIC HOT WATER EQUIPMENT	UPGRADE ELECTRIC BUILDING HVAC EQUIPMENT	IMPROVE EXTERIOR WALL INSULATION	IMPROVE ROOF INSULATION	ADD WINDOW FILM	WINDOW REPLACEMENT	LIGHTING CONTROLS	DEMAND CONTROL VENTILATION

[illegible]

DECARBONIZATION STUDY – DAS



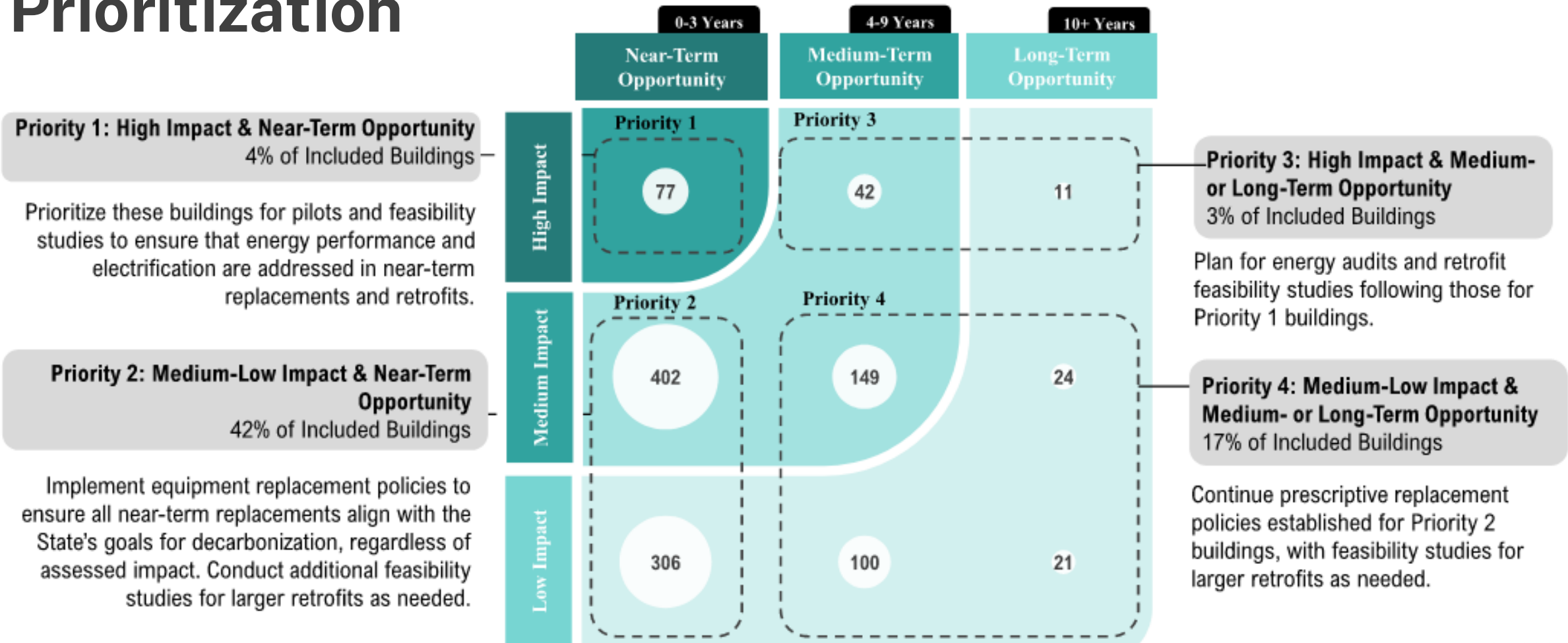
Project Prioritization - Metrics

Measuring Impact		High Impact	Medium Impact	Low Impact
Energy Use Intensity (kBtu/sf/yr) <i>How energy efficient is the building?</i>		101-500	51-100	16-50
Scope 1 GHG Emissions (kgCO2e/yr) <i>How significant are the building's Scope 1 emissions within the Portfolio?</i>		>250k	50k-250k	<50k
Measuring Opportunity		Near-Term Opportunity	Medium-Term Opportunity	Long-Term Opportunity
Year of Construction or Last Renovation <i>How out-of-date is the building's envelope?</i>		Before 1995	1995 - 2010	2010 - Present
Years Until System Replacement <i>How soon will a major system need to be replaced?</i>		0 – 3 Years	4 – 9 Years	10+ Years

DECARBONIZATION STUDY – DAS



Prioritization



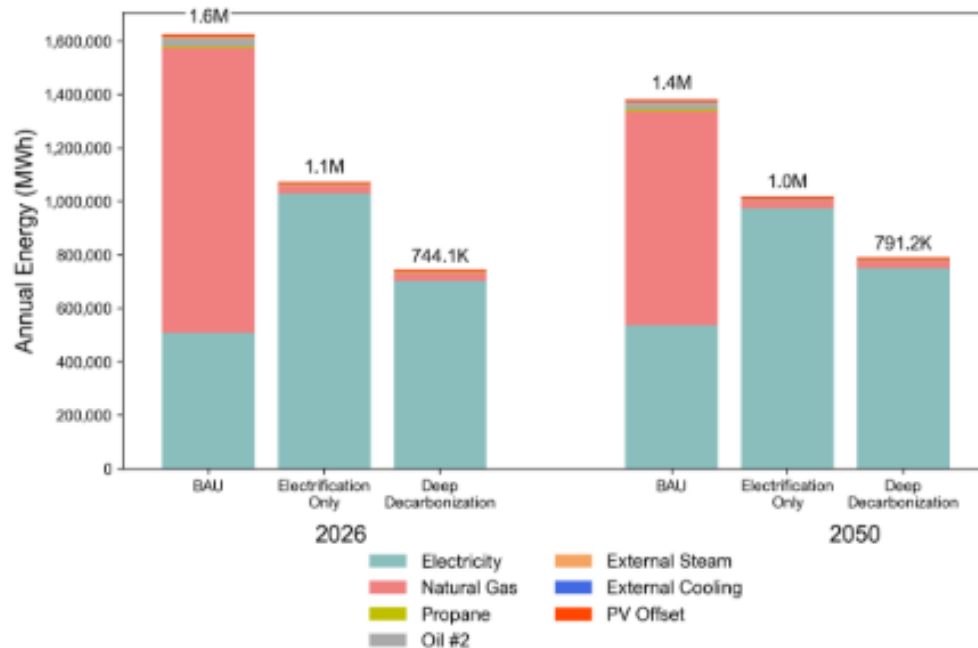
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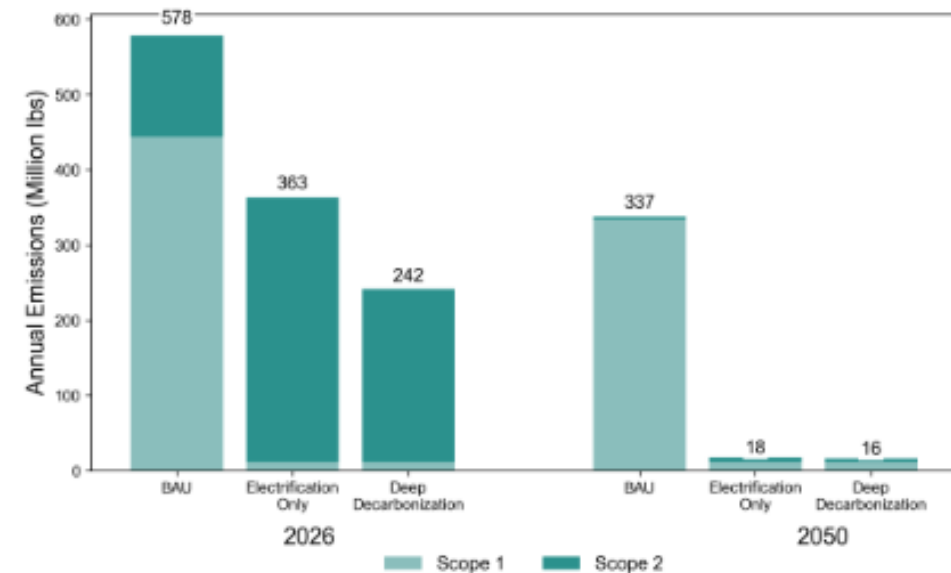
Next Steps:

- Energy and cost modeling results
- Final road map and database tool

Portfolio-Wide Summary: Annual Building Energy Consumption
1,995 buildings



Portfolio-Wide Summary: Annual Building Emissions
1,995 buildings



DECARBONIZATION STUDY – DAS

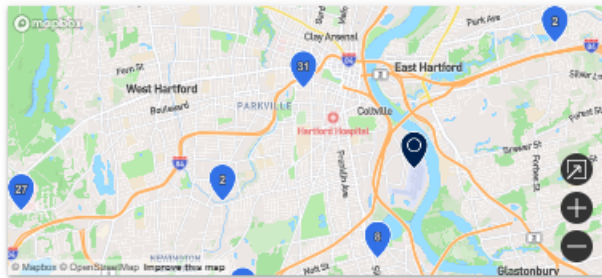


Database Tool - Example

Decarbonization Database Tool Overview Agency Building Central Utilities Solutions Library Decarb Report



Statewide Overview



↑ 0.00% Total Energy Cost - Last 12 Months
Compared to 2019
\$37,516,538.67

↑ 0.00% Total Energy Use - Last 12 Months
Compared to 2019
1,283,722,884.25 kBTU

↓ 73.6% Total GHG Emissions - Last 12 Months
Compared to 2019
72,719.23 t CO₂e

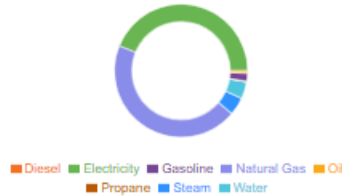
↑ 0.00% Average Energy Use Intensity - Last 12 Months
Compared to 2019
1,158.1 kBTU / sq ft

24 Number of Agencies

3,929 Number of Buildings in Study

42 Number of CUPs

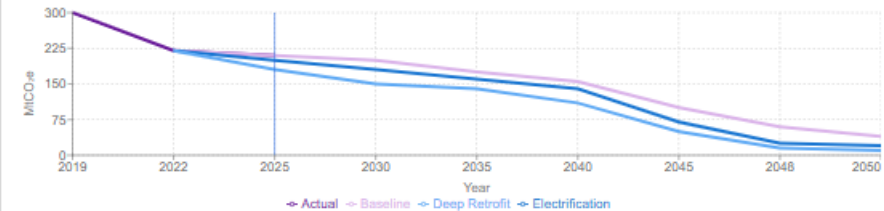
Energy use by Source



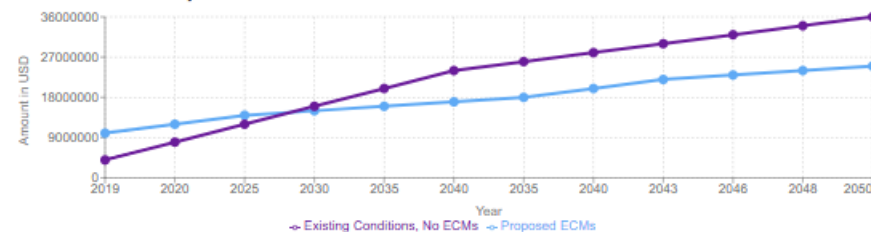
Implementation Status



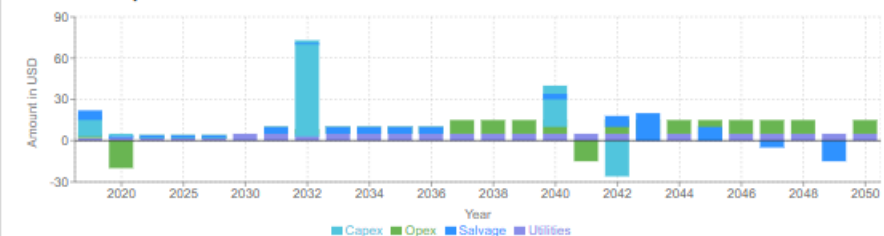
Decarbonization Impact Timeline



Cumulative Life Cycle Cost



LCCA Example, ECM Investments



QUESTIONS?



PUBLIC COMMENT



**THANK YOU FOR
PARTICIPATING IN THE
STEERING COMMITTEE
MEETING!**



POST –MEETING TABLES



Waste

Electric
Vehicles

Energy
Efficiency
&
Decarbon-
ization

Solar





GREENERGOV CT

STEERING COMMITTEE MEETING

April 21, 2026

79 Elm Street, Hartford, CT 06106

Gina McCarthy Auditorium

