

NYC Greenhouse Gas Inventory

Isabela Brown, Sylvie Binder

January 13th, 2025



Agenda



- Inventory Basics
- Inventory Updates
- High Level Findings
 - The Electricity Grid
 - Buildings
 - Transportation
- Takeaways
- Discussion



Inventory Basics

Inventory Basics

Purpose:

- Track the City's progress toward its carbon neutrality goals
- Identify opportunities to reduce emissions
- Support policy development and implementation
- Standardized methods allow for benchmarking against other cities, states, and countries

History:

- 18+ years of data: 2005 – 2023



Current GHG Inventories

City Government

Reports only activities associated with City government operations which benchmarks the City's progress towards net-zero and our compliance with LL97.

Citywide - GPC

Considers emissions from activity within the five boroughs plus imported electricity and waste shipped out of the city. Tracks citywide LL97 goals.

Per Local Law 22 of 2008 and Required to track Local Law 97 Goals

Integrated Citywide & Consumption

Supports Food Policy initiatives. Helps us understand the emissions impacts from our consumption of goods and services no matter where those emissions take place. No other MOCEJ inventory currently tracks food.

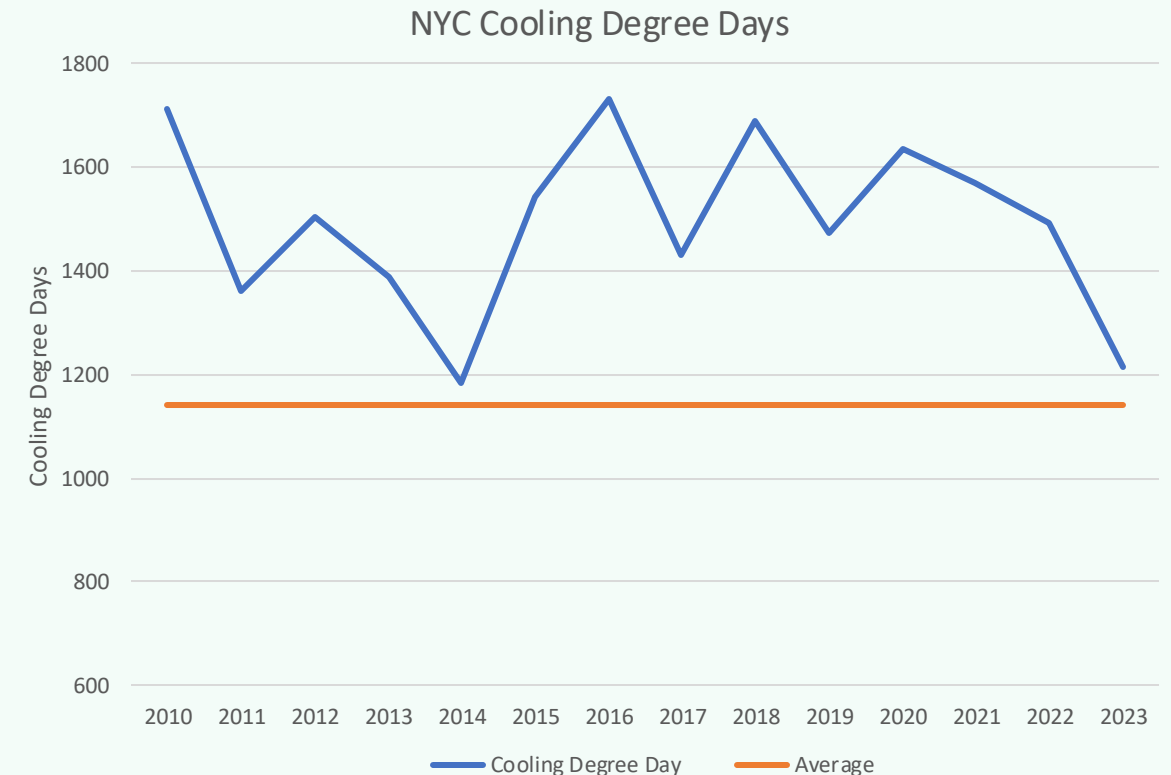
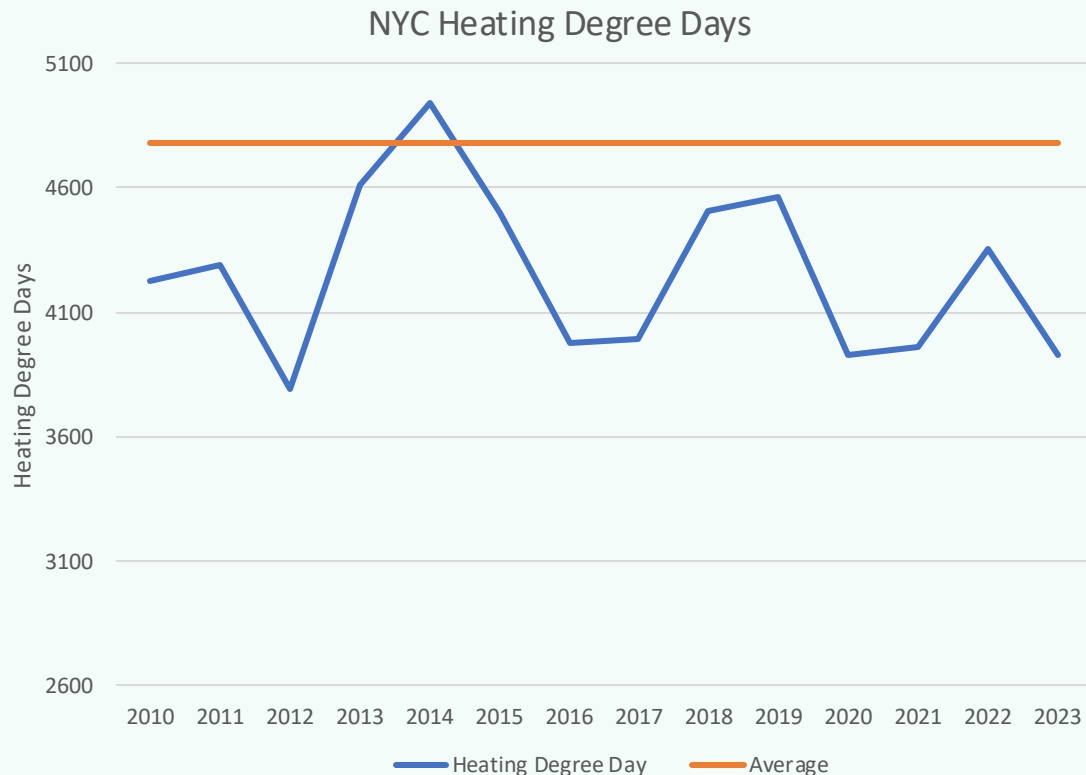
Citywide - CLCPA

Aligns NYC reporting with NY State methods. Covers all Citywide-GPC sources & fugitive energy-related emissions, while highlighting methane's near-term warming impacts.

New Findings & Not Mandated under Local Law

NYC Climatic Context

- 2023 was extremely mild.
 - **Heating Degree Day:** # of degrees that a day's average temperature is below 65°F, the temperature below which buildings need heating.
 - **Cooling Degree Day:** # of degrees that a day's average temperature is above 65°F, the temperature below which buildings need cooling.
- 2023 was one of the warmest winters in recent years.



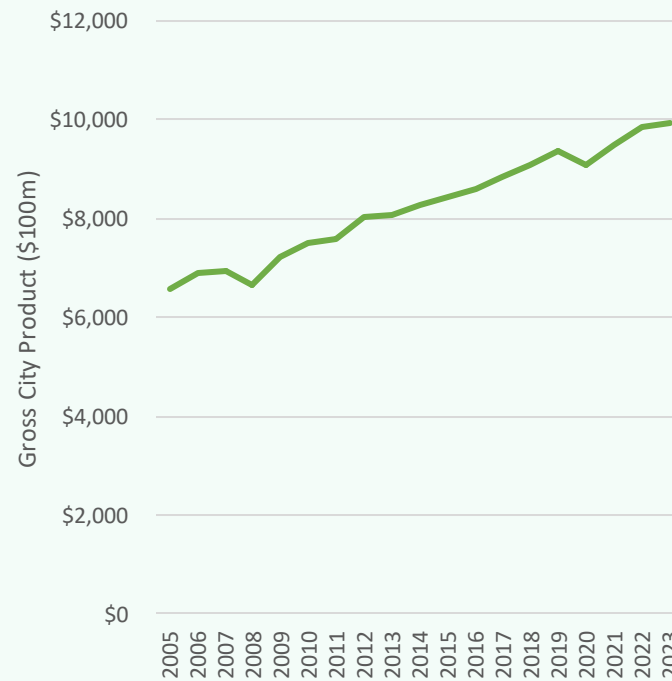
NYC Economic Context: A New “Normal”

- NYC population models show decline in population
- Gross City Product at all time highs
- City’s private sector employment is up 97,600 jobs from pre-pandemic levels

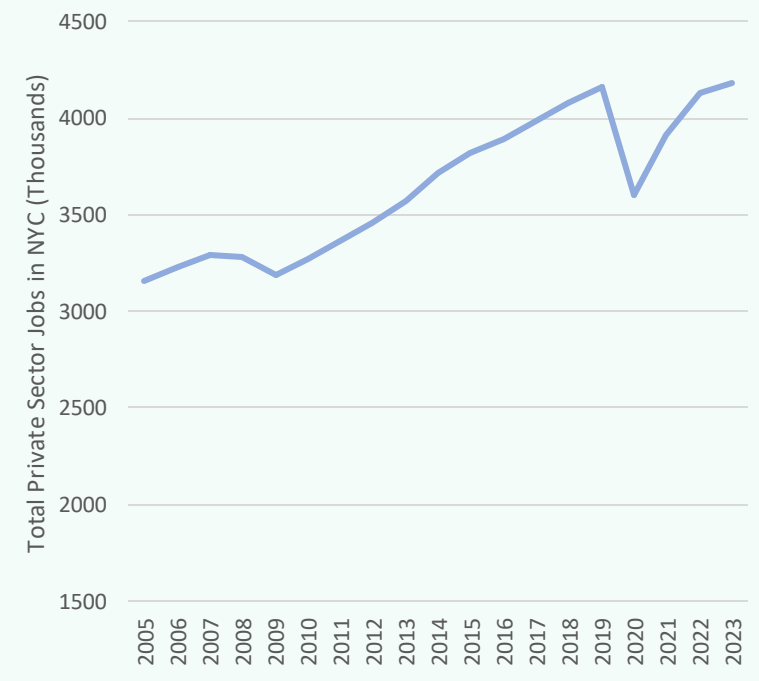
NYC Population Estimate



Gross City Product



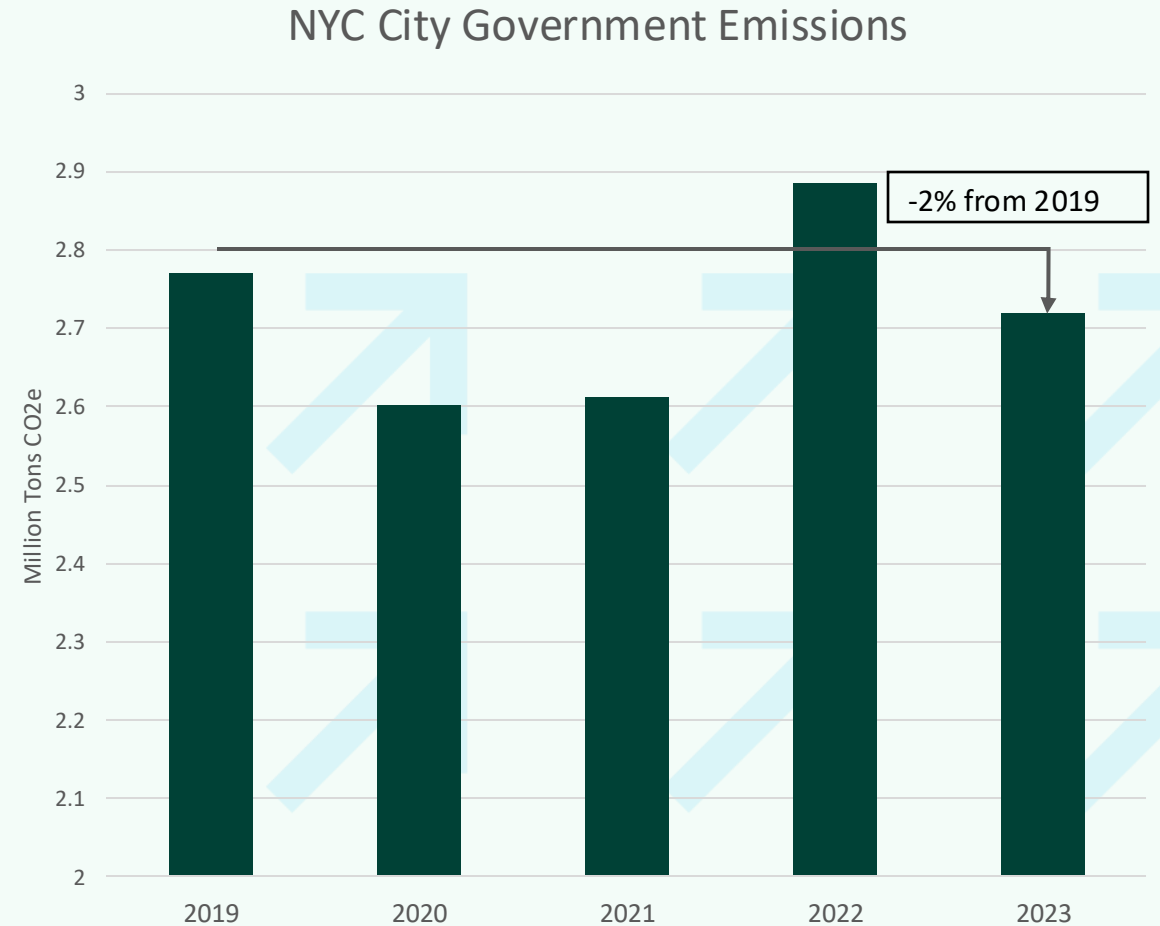
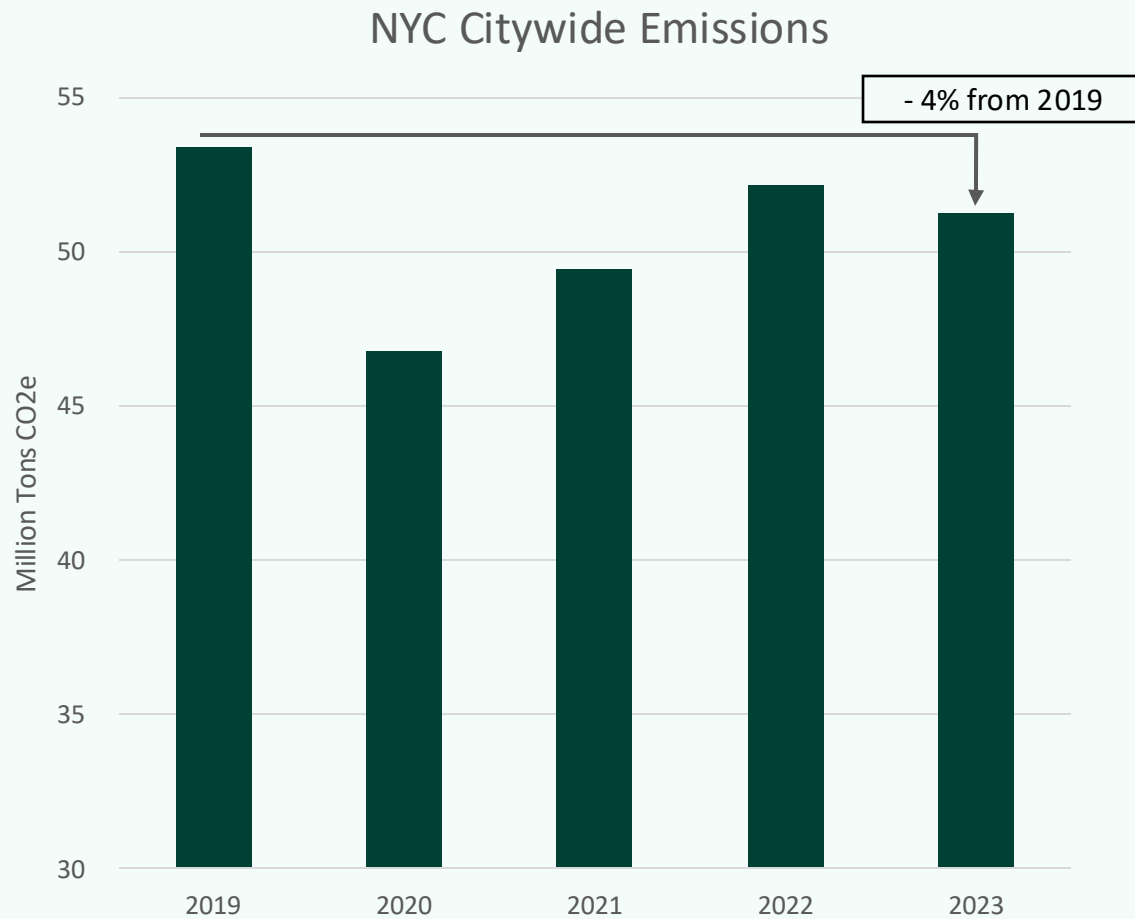
Total Private Sector Jobs





High Level Findings

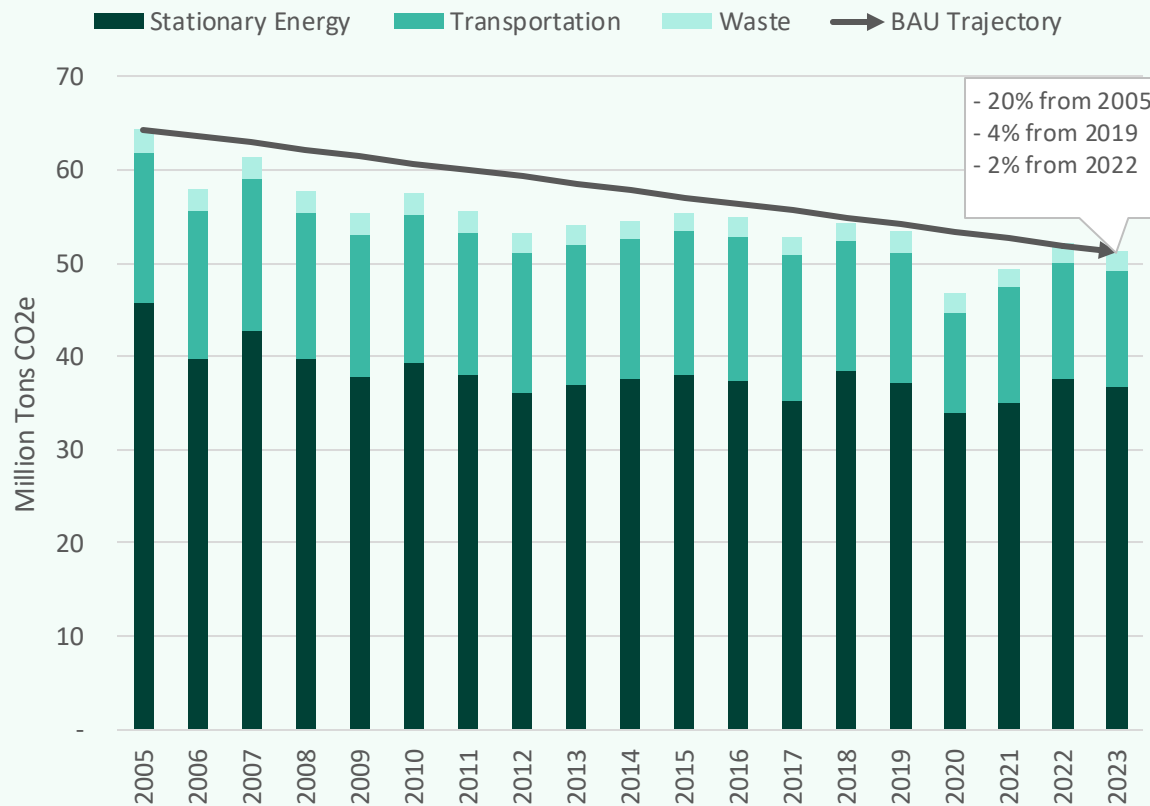
Emissions are Down: 2023 is the first post-pandemic year with emissions reductions



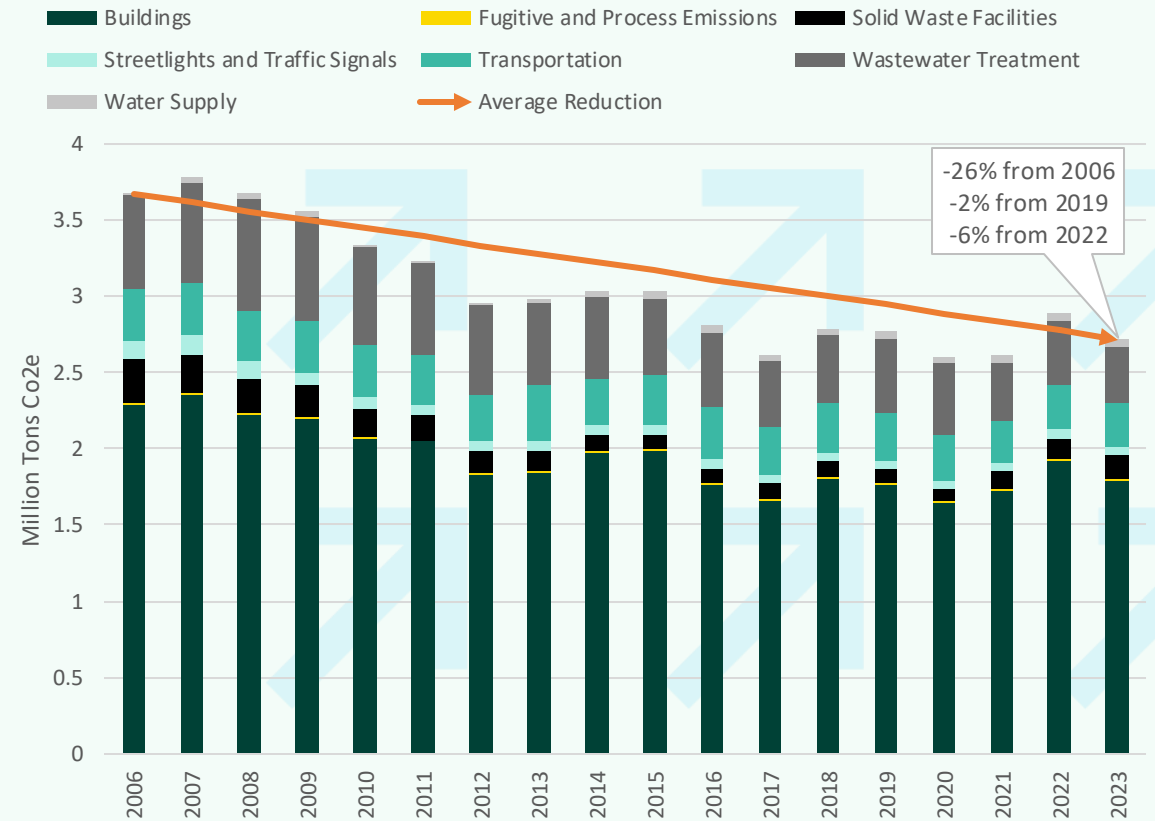
Leading by Example:

City government is trending better than citywide in relative emissions reductions

NYC Citywide Emissions



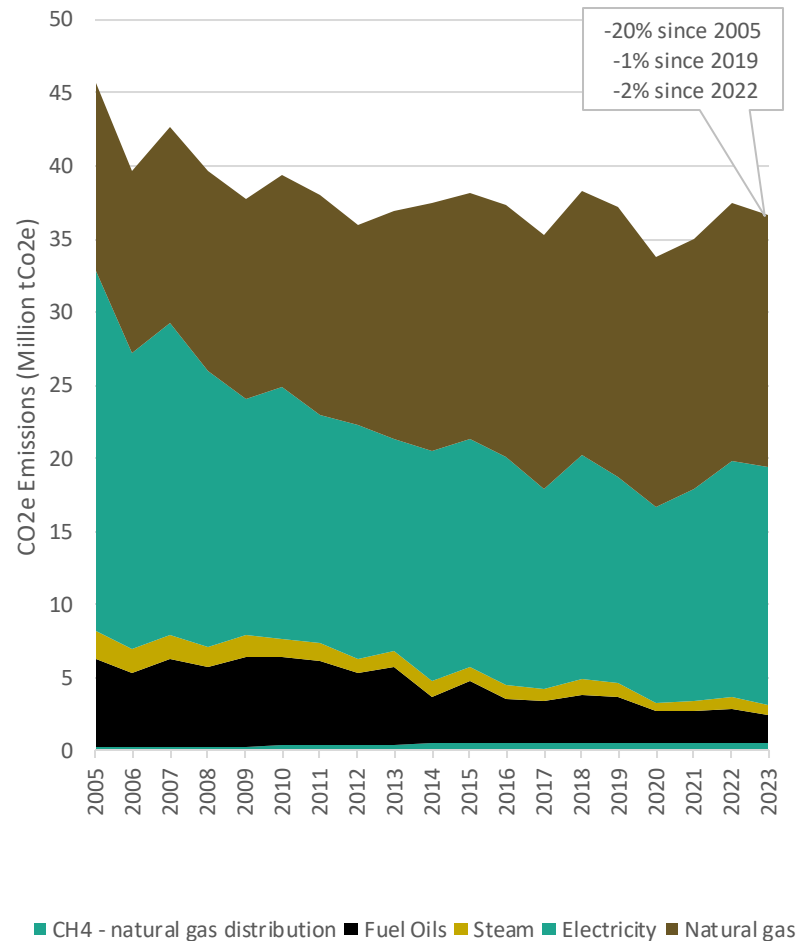
City Government Emissions by Sector



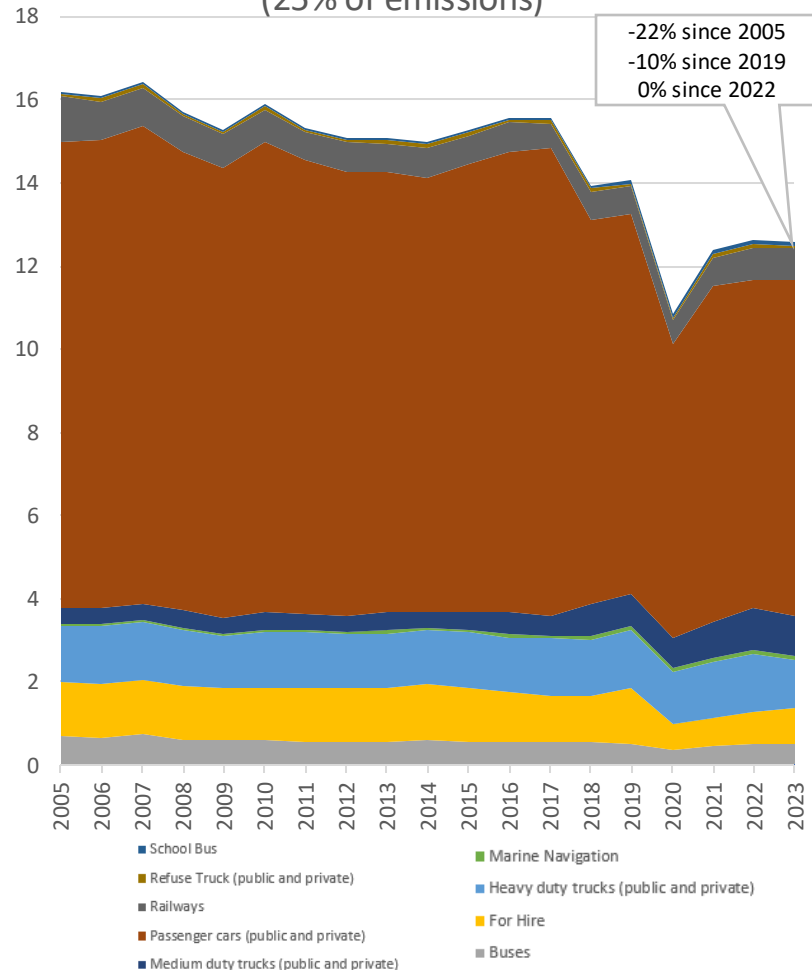
High Level Findings:

Buildings are the largest source of emissions *and* emission reductions

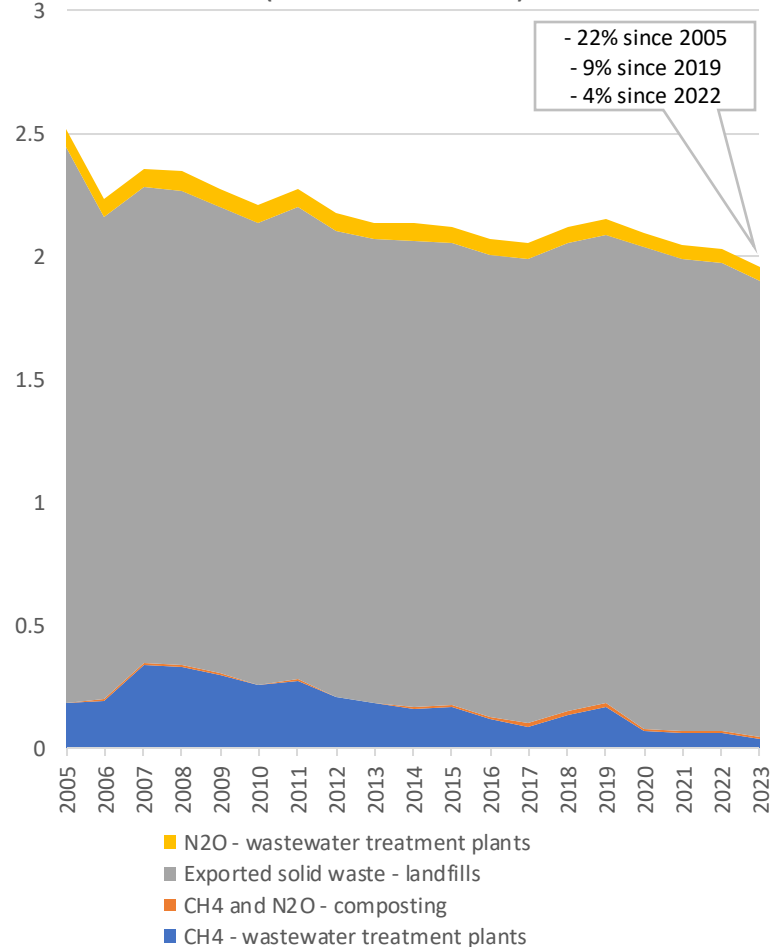
Building Emissions
(72% of emissions)



Transportation Emissions
(25% of emissions)



Waste Emissions
(4% of emissions)

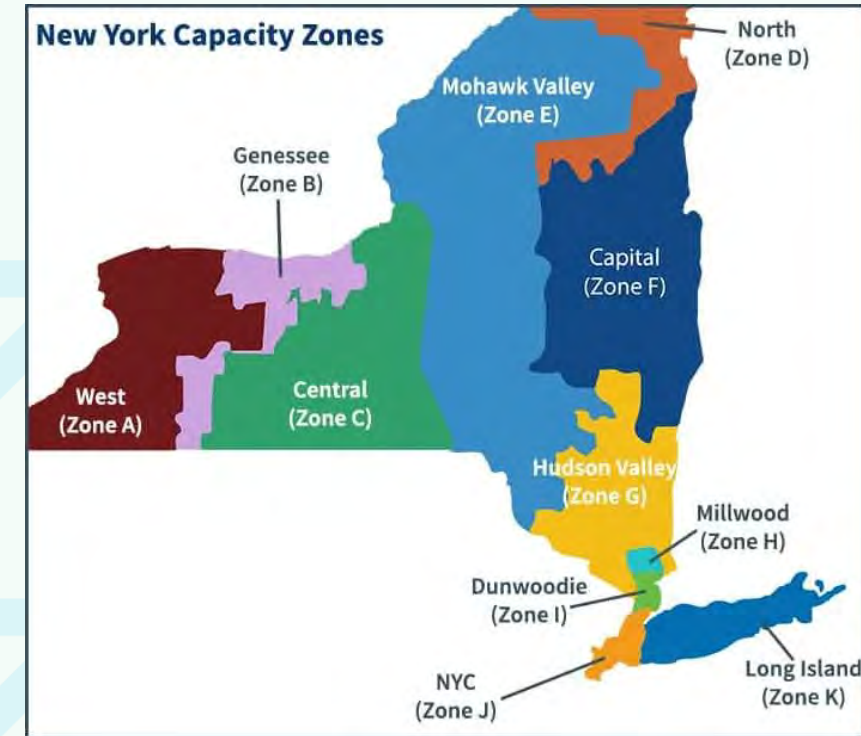




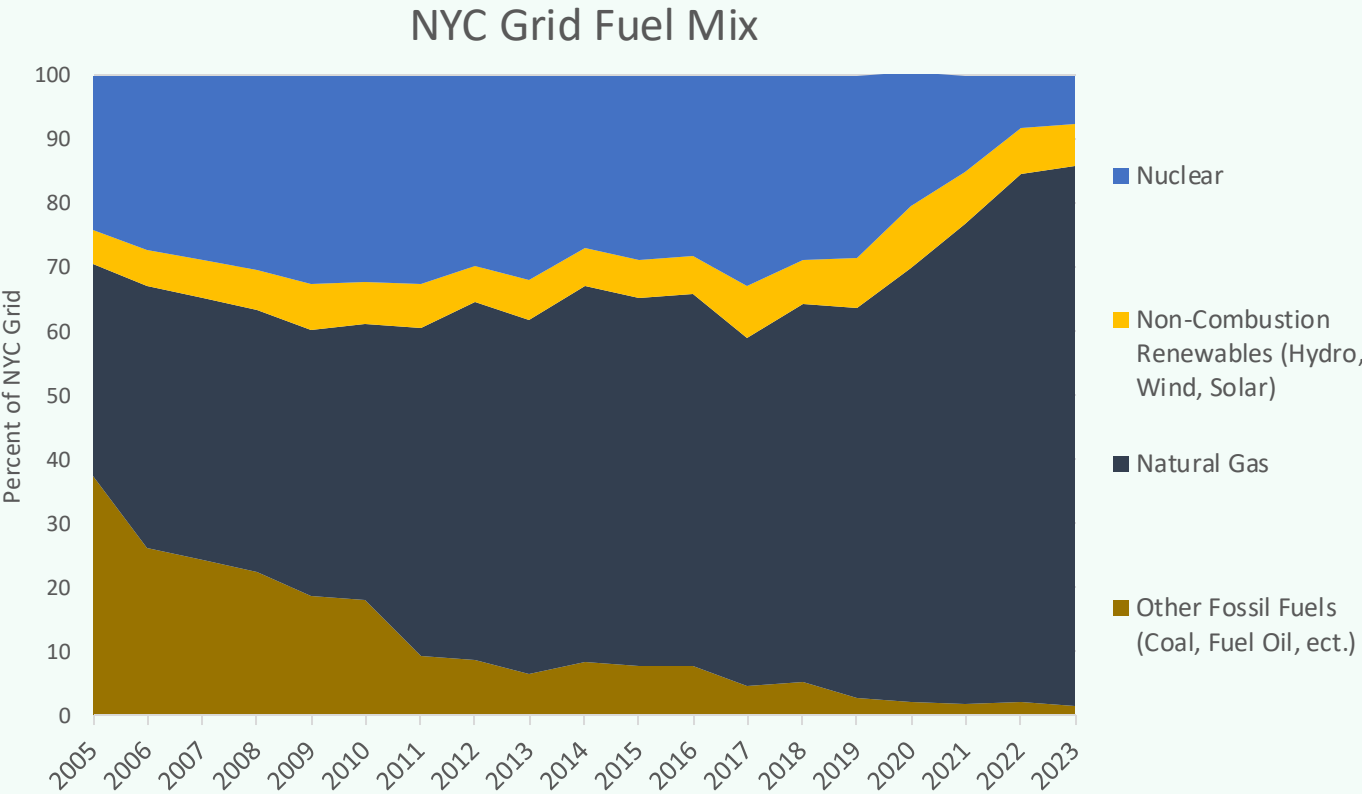
The Electricity Grid

How NYC Calculates its Own Grid Coefficient

- NYC is a net importer of electricity from power plants Upstate and in New Jersey
- MOCEJ develops a NYC-specific electricity grid coefficient by:
 - **Collecting Generation Data** from power plants in NY State and New Jersey
 - **Estimating Grid Mix:** the portion of each generator's output that serves NYC ("grid mix") by:
 - Tracking power imported to NYC from New Jersey
 - Assuming all the generators in NYC exclusively serve NYC
 - Assuming remaining electricity needs are served half by Westchester power plants and half by upstate power plants
 - **Calculating the Carbon Intensity**, or GHG emissions that result from power plant to generate this electricity output for NYC
 - **Calculating the Grid Coefficient** by dividing the total amount of estimated GHG emissions used to produce NYC's electricity by the amount of electricity used in NYC to get an average amount of carbon emissions per unit of electricity



Without Indian Point, NYC relies on fewer renewables and more on polluting in-city power plants



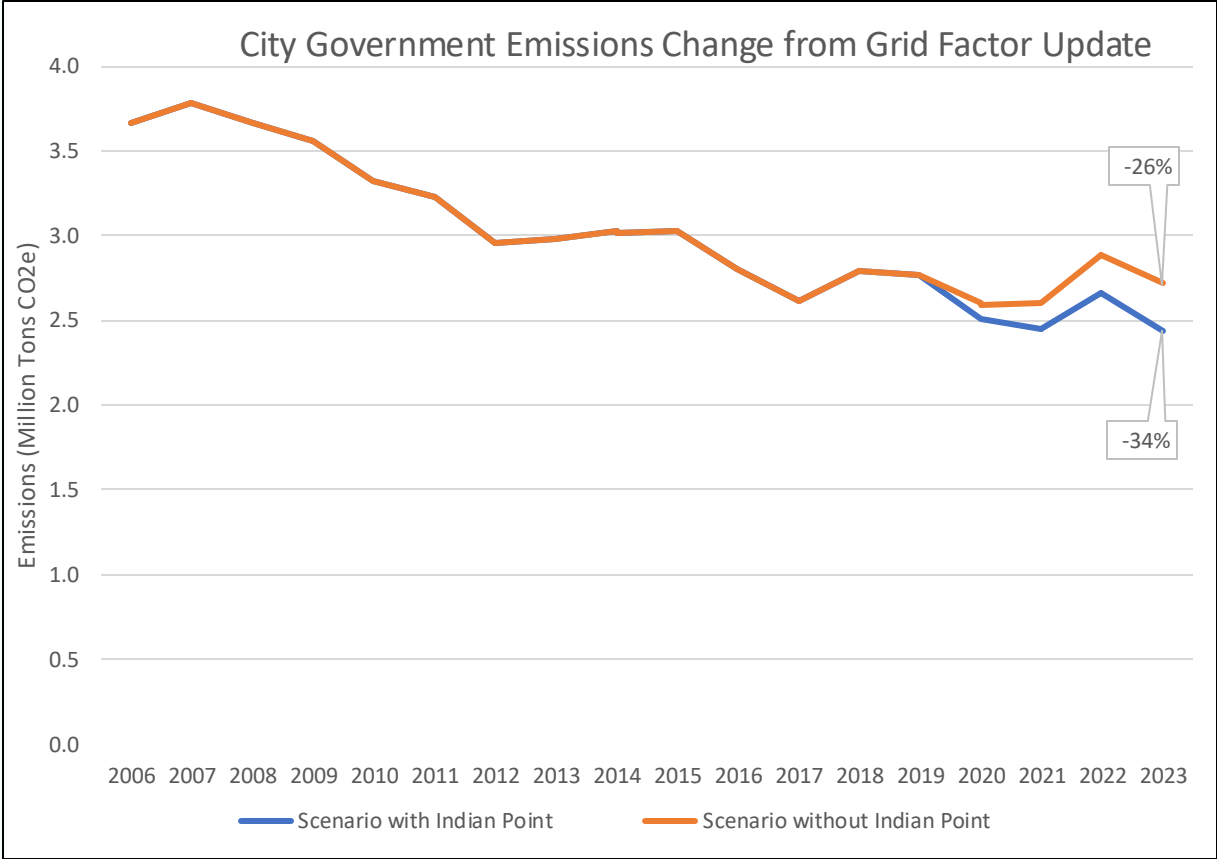
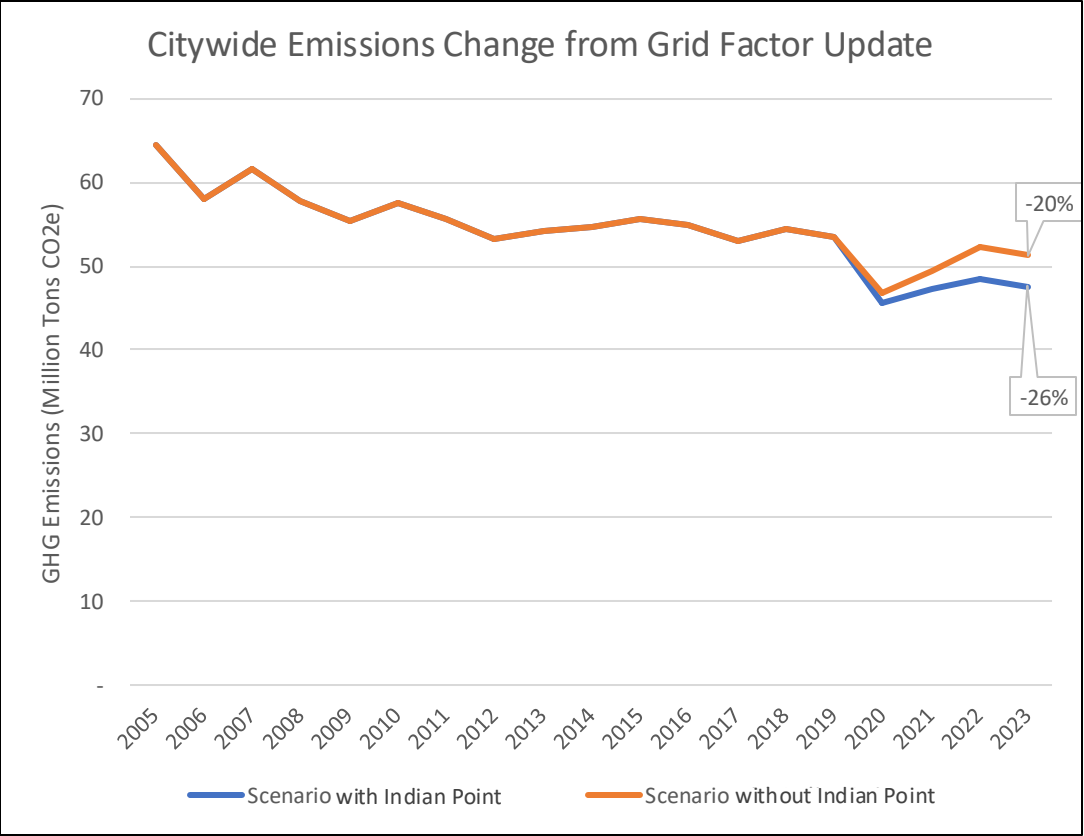
	2005	2019	2020	2021	2022	2023
Percent Grid Served by In City Power Plants	49%	47%	48%	51%	53%	59%
Renewables	29%	36%	30%	23%	16%	14%
Fossil Fuels	71%	64%	70%	77%	84%	86%
Grid Coefficient (kgs/Mwh)	498.5	289.6	315.5	337.8	369.7	369.9

Impact of Indian Point: Progress Toward Carbon Reduction Targets

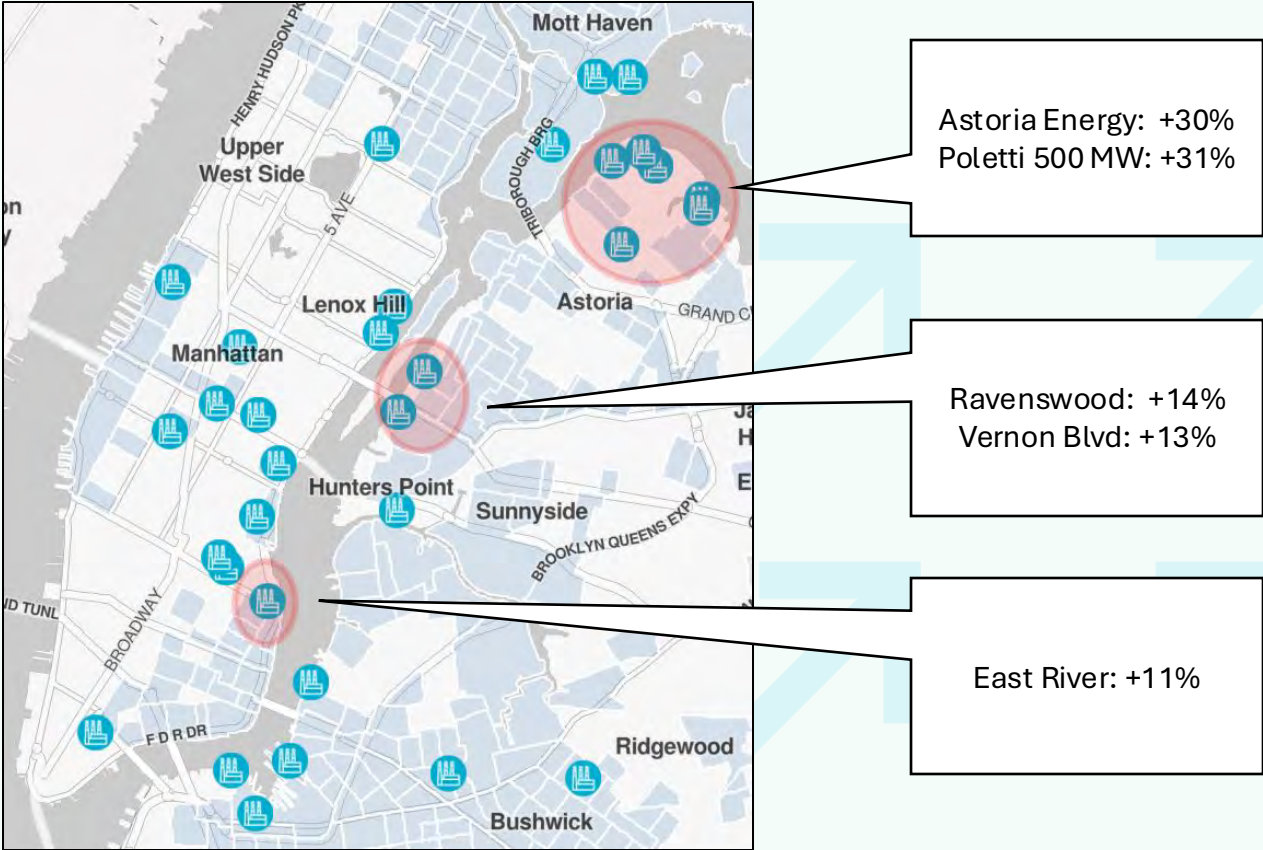
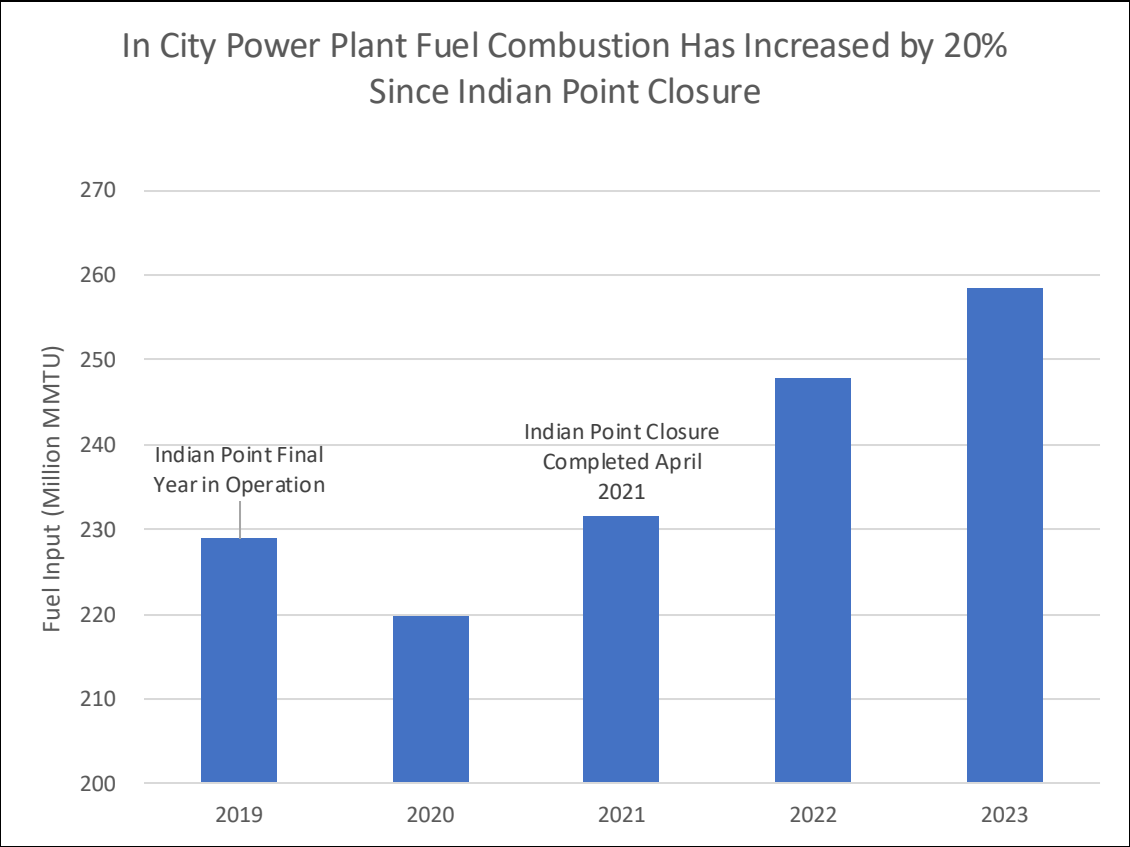
Carbon Reduction Targets:

Citywide:
40% by 2030

City Government:
40% by 2025
50% by 2030



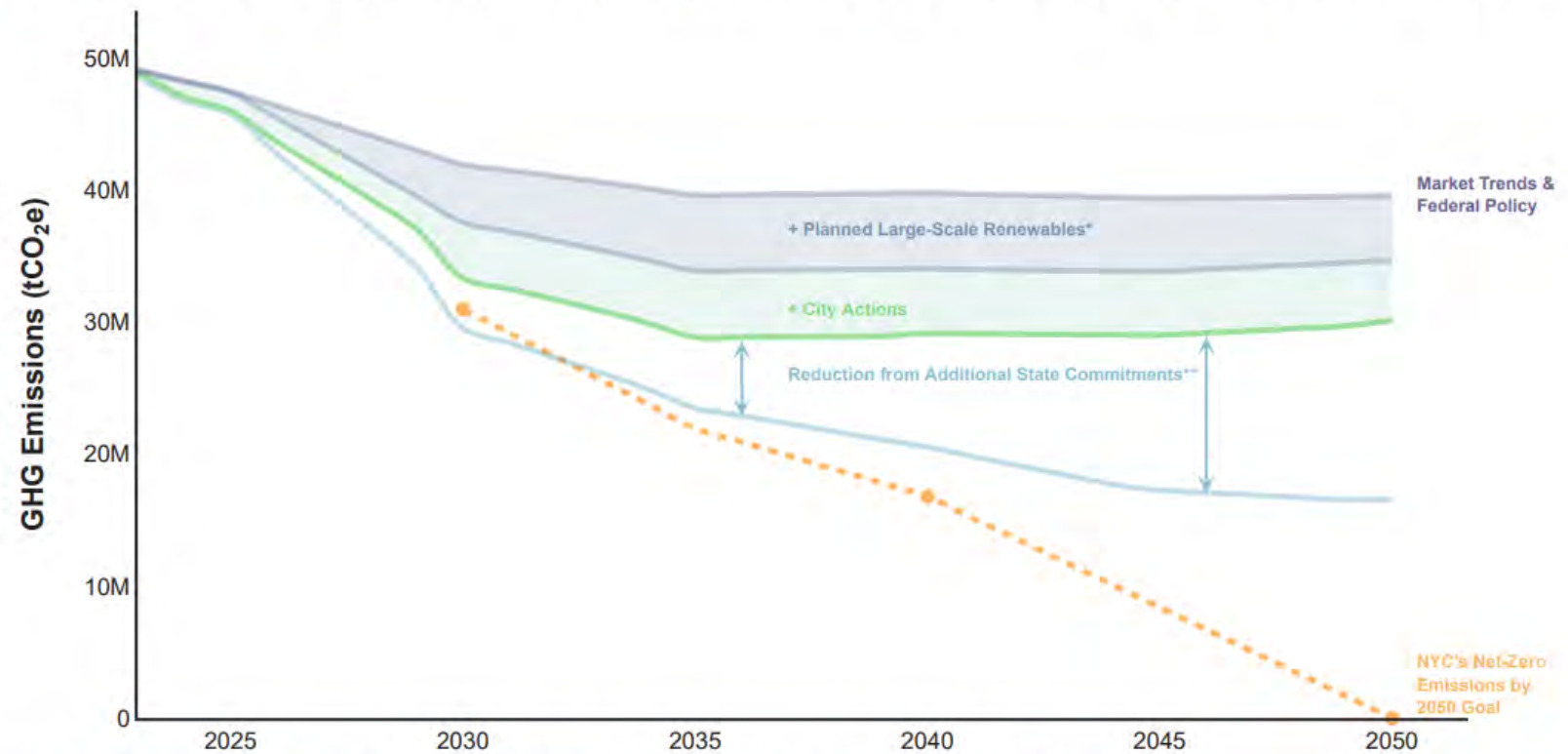
Impact of Indian Point: More In-City Generation and Pollution in Disadvantaged Communities



Looking Forward: Large Scale Renewables will Determine 2030 Mandate Success

- Large scale renewables account for 35% of our projected 2030 progress
- With some projected projects (i.e. Clean Path) going offline, increased need for large scale renewable project advocacy

EMISSIONS SCENARIOS WITHOUT FULL IMPLEMENTATION OF STATE COMMITMENTS



*Includes Champlain Hudson Power Express & Clean Path New York transmission lines and 9 gigawatts of offshore wind.

**Includes New York Clean Energy Standard, all electric passenger vehicle sales by 2035, congestion pricing, and Metropolitan Transportation Authority bus electrification.

The orange line shows interim science-based emissions targets aligned with 1.5°C trajectory.

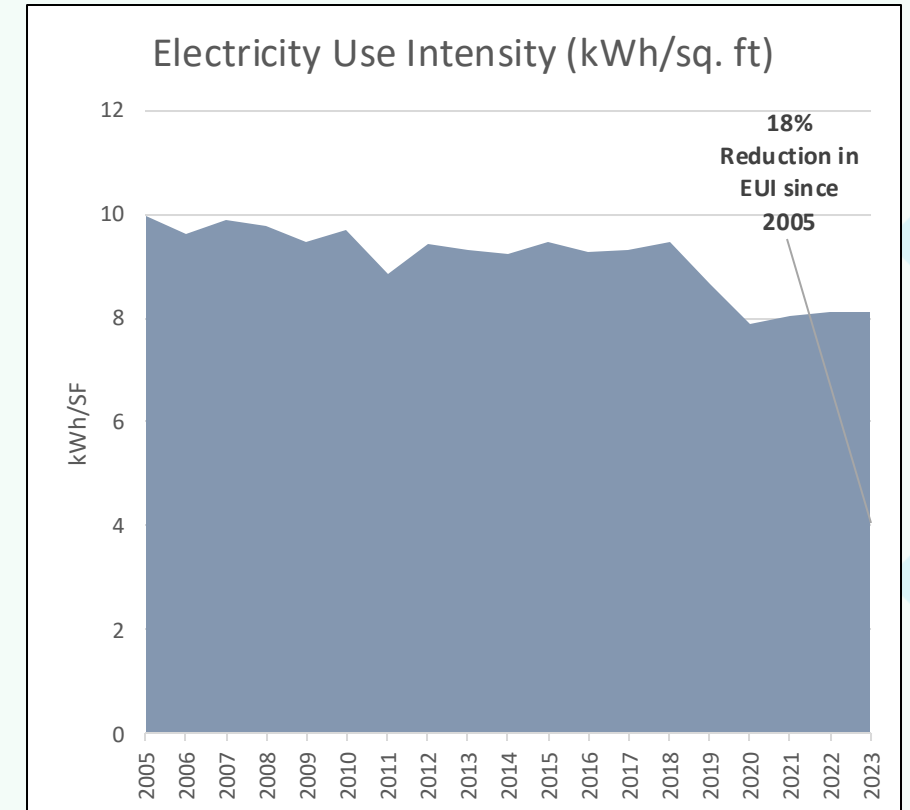
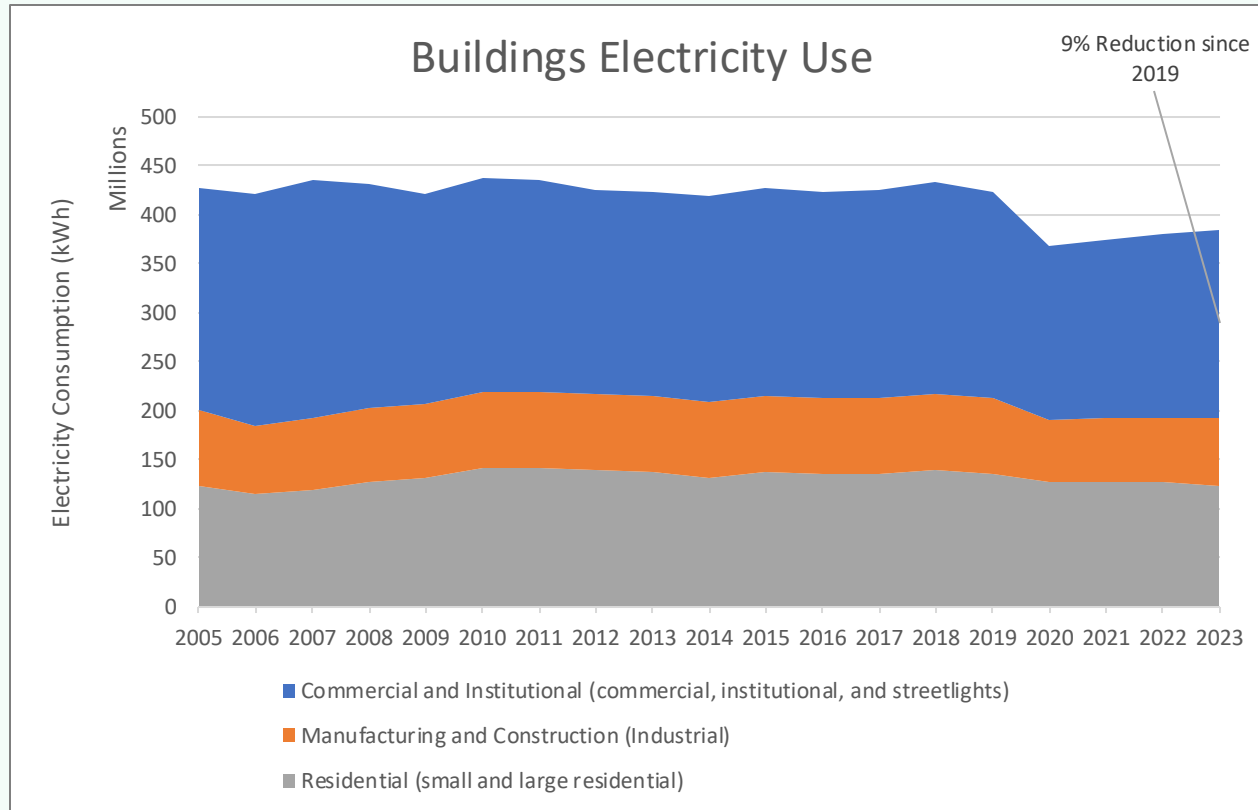
FIGURE 3.37 | SOURCE: NYC OMB, with U.S. EPA



Buildings

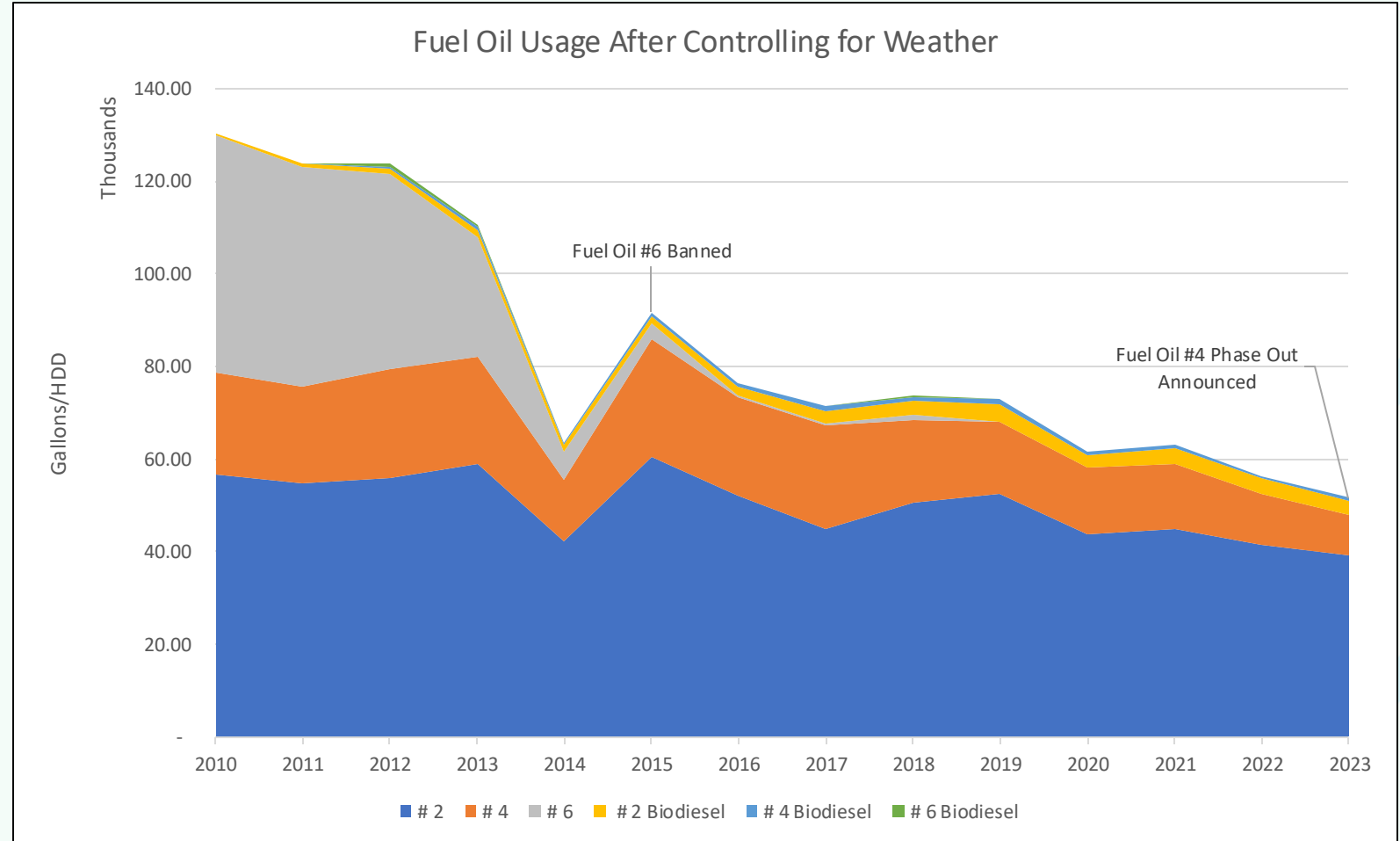
Buildings are Using Less Electricity Post-Pandemic Driven by Slow Return to Office

- Less electricity used in the city since 2019
- Electricity use intensity (EUI) down 18% since 2005



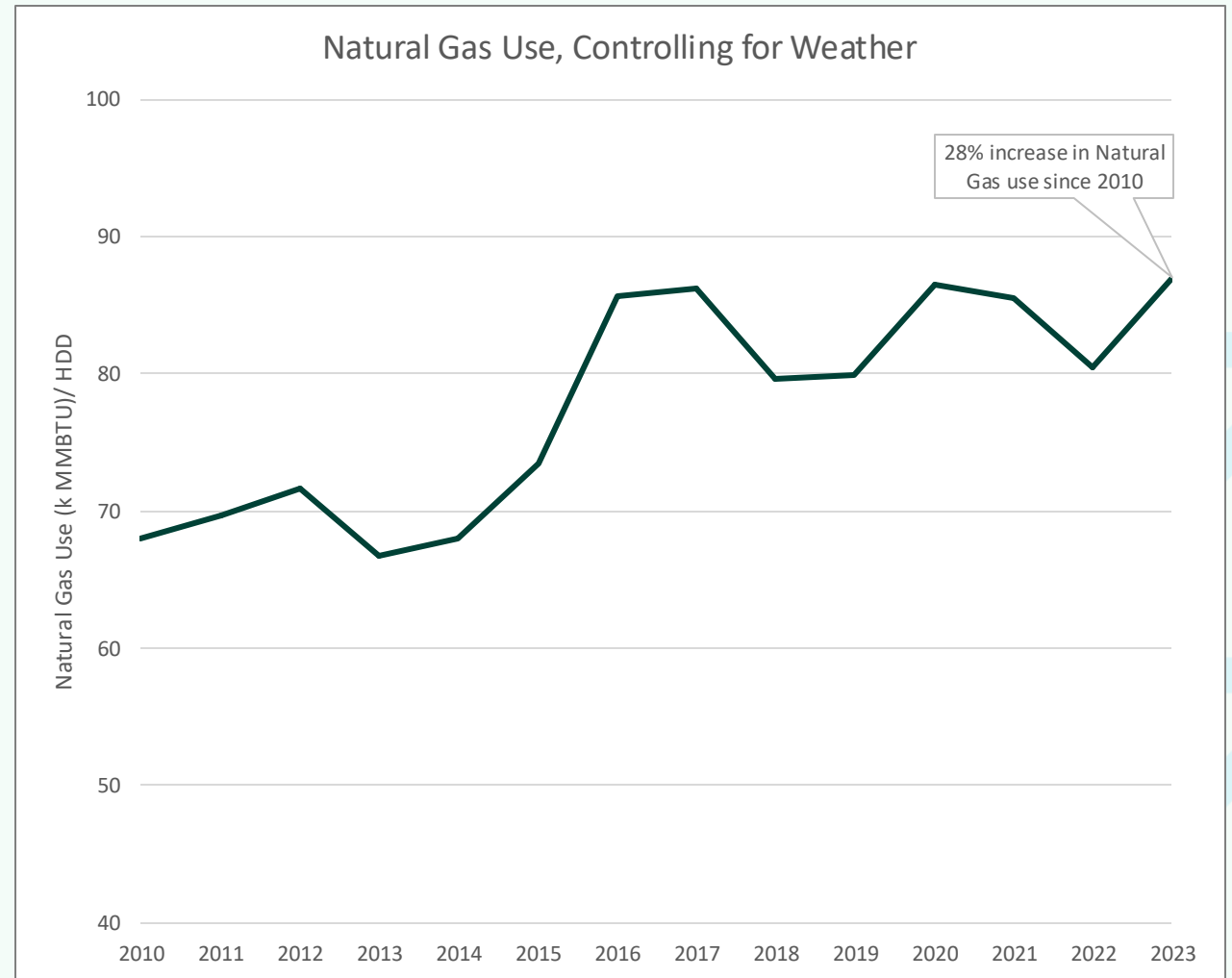
Buildings are getting off of fuel oil...

- Driven by City legislation to phaseout of fuel oil #6 and #4
- Fuel oil use citywide dropped 8% since 2022, after controlling for milder winters
- Increased uptake in biodiesel, driven by City policy
- Assumed switch to natural gas



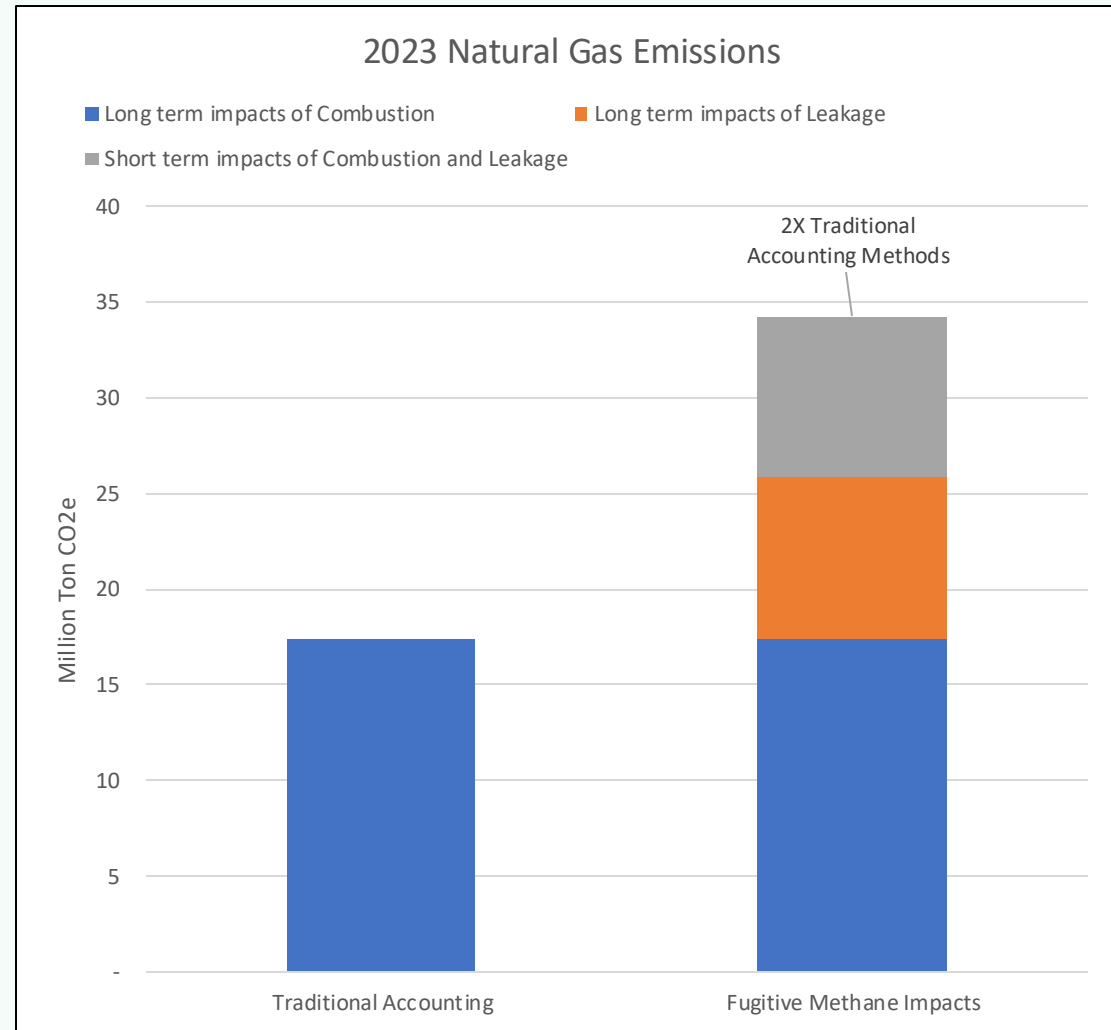
...but converting their systems to natural gas

- 28% increase in usage and emissions from natural gas since 2010, controlling for weather
- Despite mild winter, natural gas is the only heating source that increases in usage and emissions 2022-2023
- Increased # of natural gas customers in NYC
- Underscores importance of J51 tax credit for electrification projects to “leapfrog” electrification in LL97 buildings



Natural Gas Impacts in the Near- and Long-Term

- Traditional captures the long term (100 year) impacts of natural gas combustion
- Traditional accounting fails to capture:
 - Long-term (100 year) leakage emissions
 - Near-term (20 year) warming caused by combustion and leakage
- Natural gas emissions are doubled when considering leakage and short-term impacts
- City policy on natural gas has changed



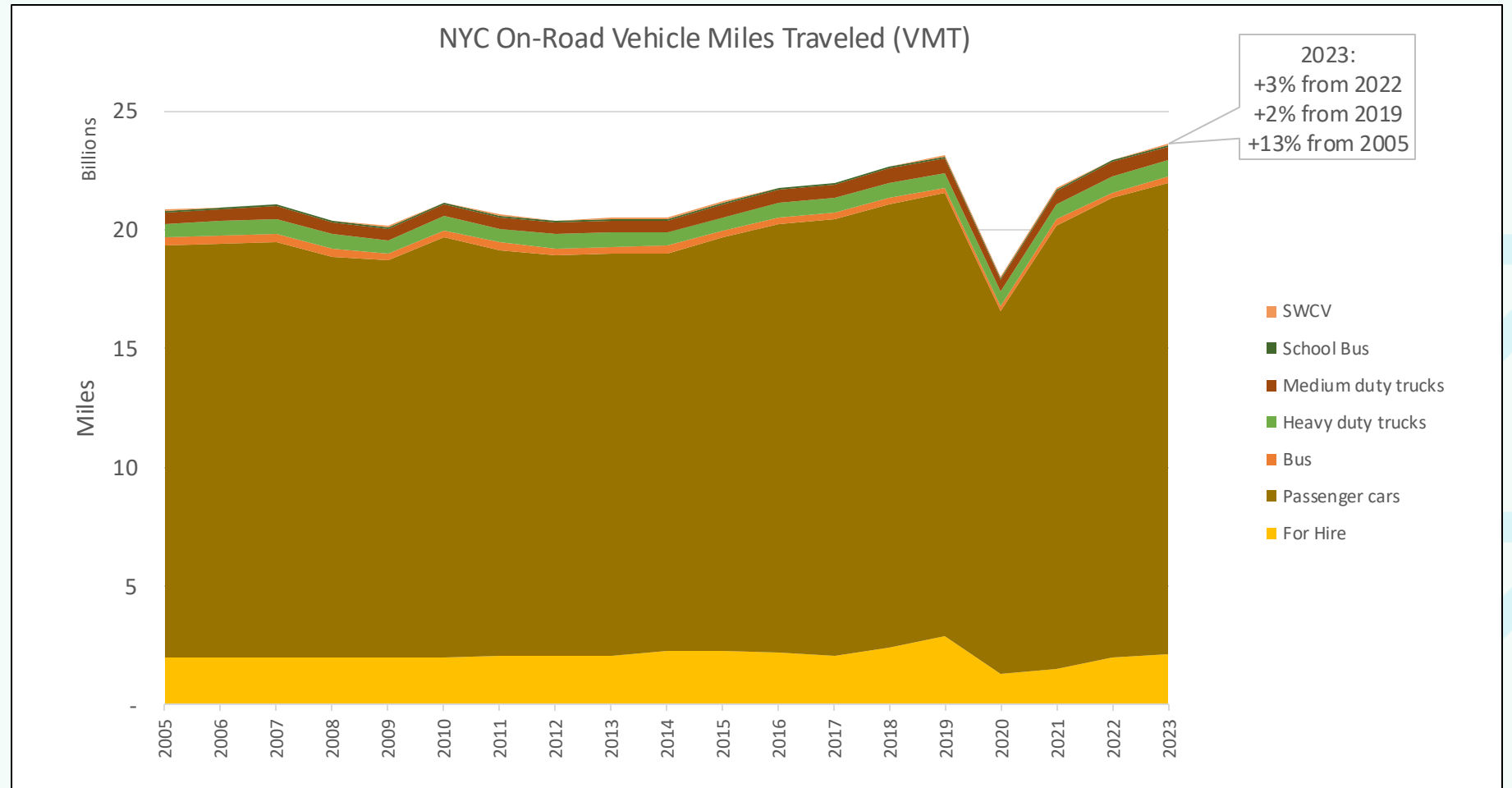


Transportation

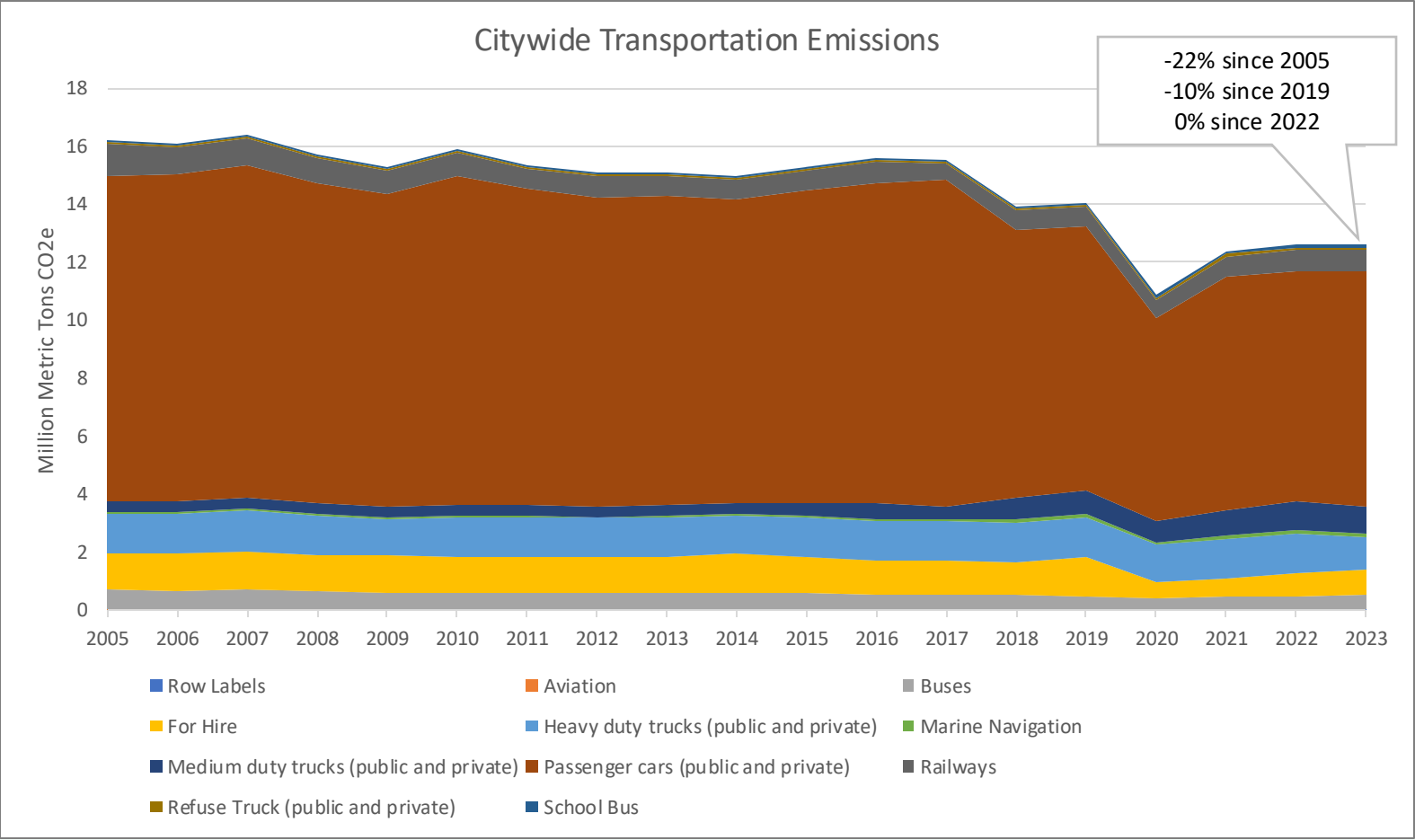
Congestion is at All-Time High

Passenger cars are largest driver of congestion, followed by for-hire

- Studies have found NYC has worst vehicle congestion worldwide
- Underscores importance of congestion pricing and improvements to public transit



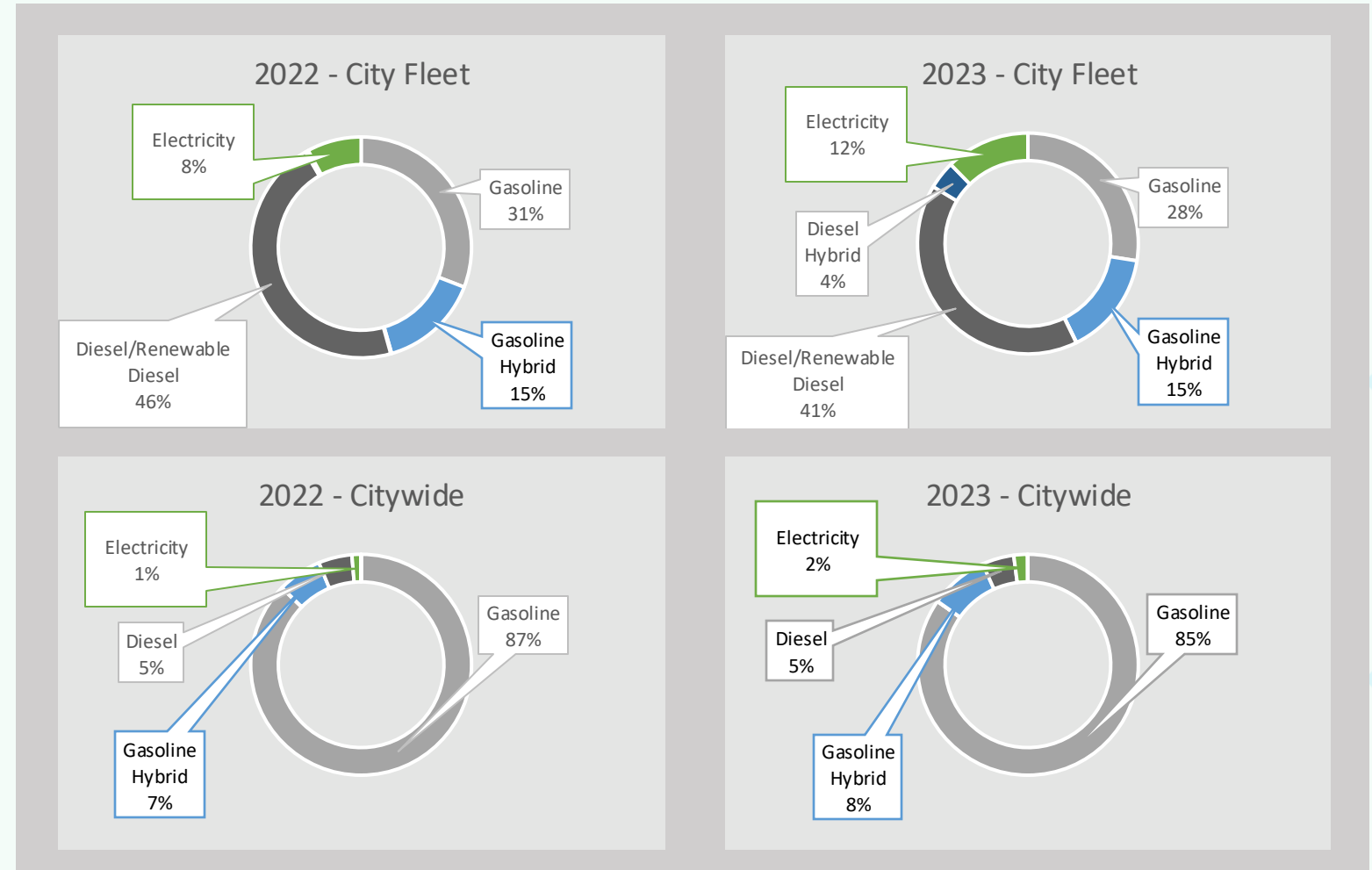
Despite Increase in Activity, Transportation Emissions are Level



Electric Vehicle Use Increasing, with City Government Leading the Way

Fleet Electrification Progress:

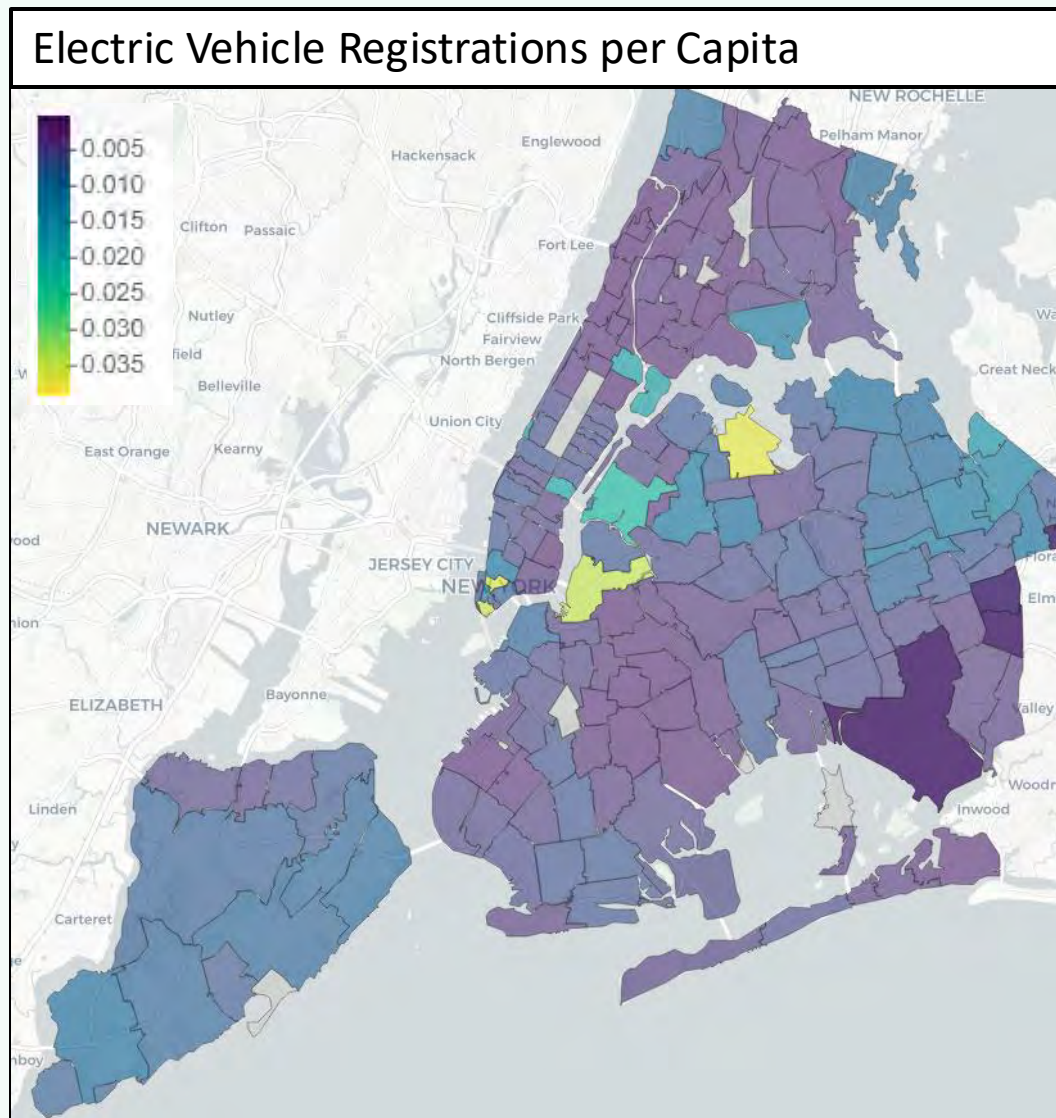
- City Fleet: Increased from 8% to 12%
- For-hire: Rose from 1% to 3%
- Citywide: 2% of all registered vehicles
- Underscores importance of charging infrastructure citywide



Electric Vehicle Use Increasing, with Need for More Chargers in Queens

Top Ranking EVs per Capita per Zip Code:

1. East Elmhurst
2. Williamsburg
3. Tribeca
4. Battery Park
5. Long Island City
6. Turtle Bay
7. East Harlem
8. Randall's Island



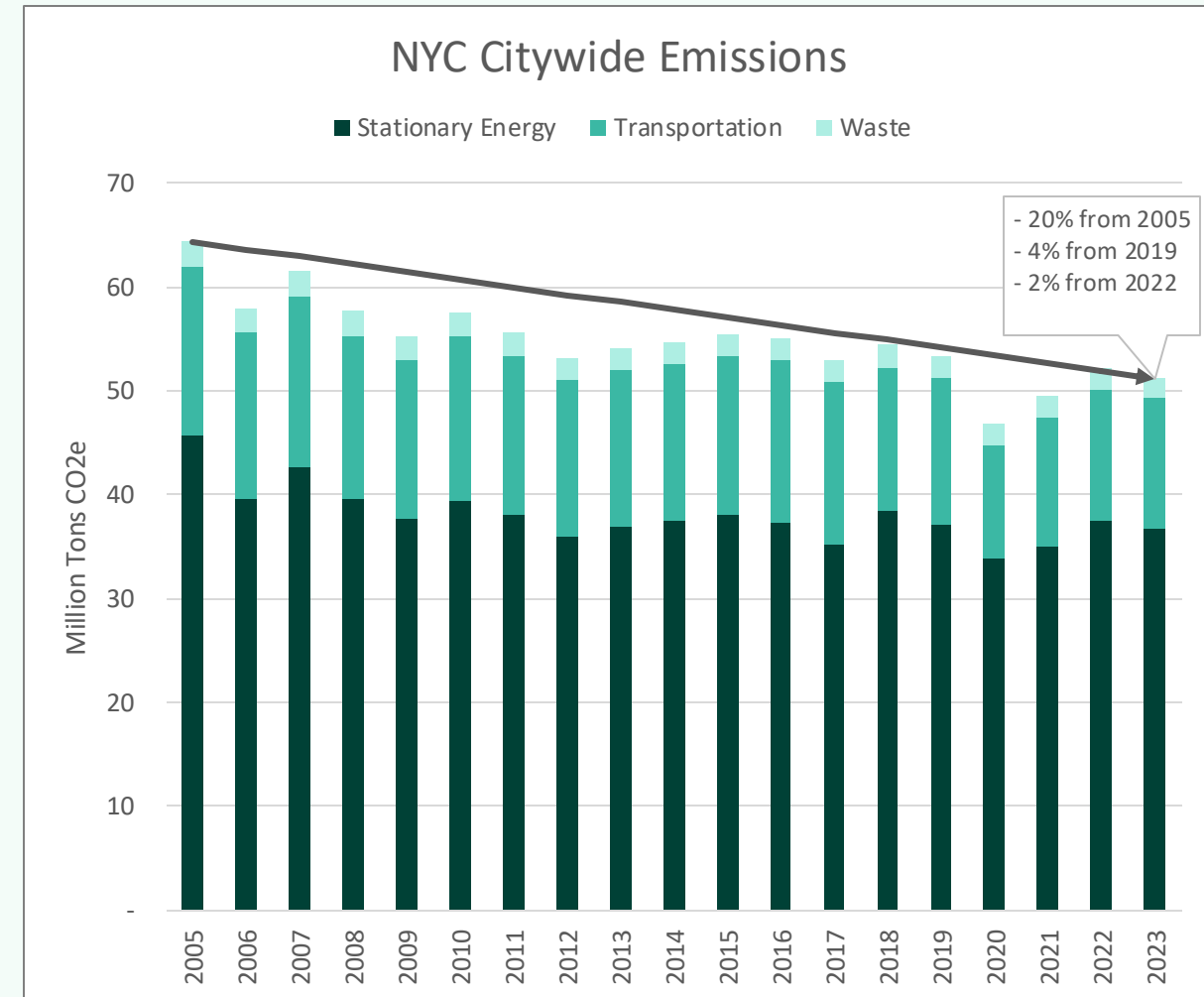


Take Aways

Take Aways

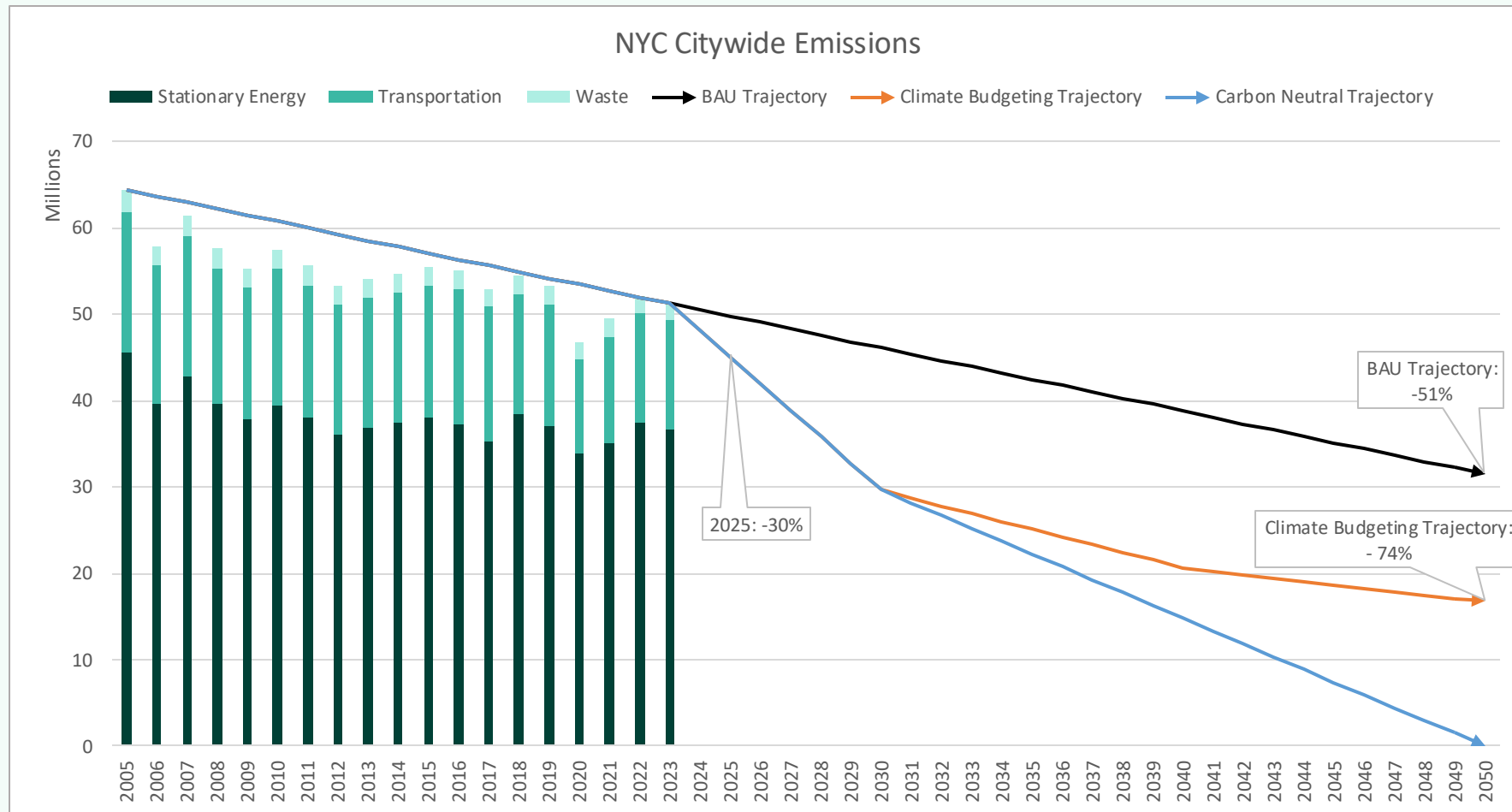
2023 Inventory: ~1M ton decrease in greenhouse gas emissions since 2022 driven by milder winter and fuel oil reductions.

Sector	Wins	Warnings	What We're Watching
Grid	Building Electricity Usage	Reliance on Polluting In City Power Plants	Large Scale Renewables – Development and Cancellations
Buildings	Fuel Oil Phase Out	Shifting to Natural Gas	Implementation of LL97 and J51 Tax Credit
Transportation	Vehicle Efficiency Standards	Vehicle Congestion	Congestion Pricing and Indirect Source Rule
Waste	Wastewater Treatment Efficiencies	Landfilled Waste Remains Constant	Curbside Compost



Urgent Action:

We must more than double year-over-year reductions to meet our goals





Questions + Discussion

Thank You

Isabela Brown

Sylvie Binder

January 2025





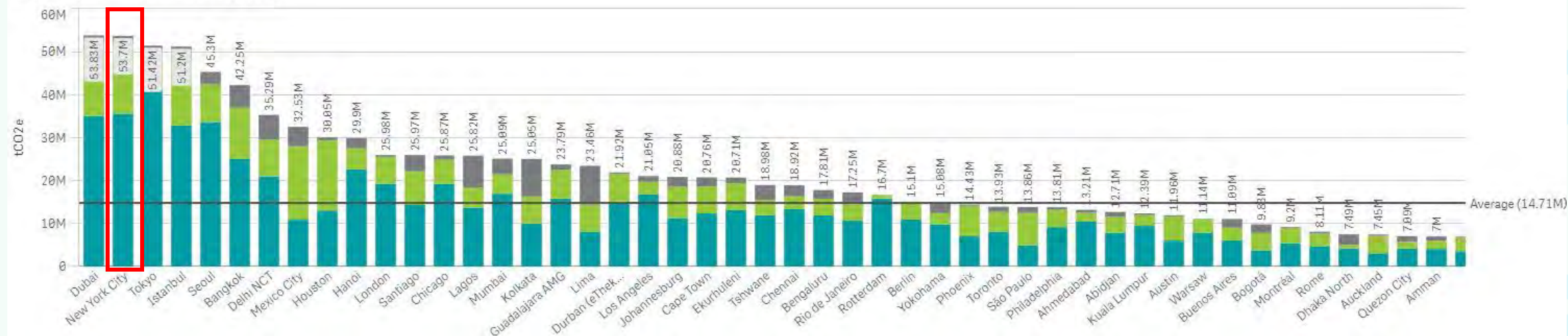
Appendix



Per Capita Emissions

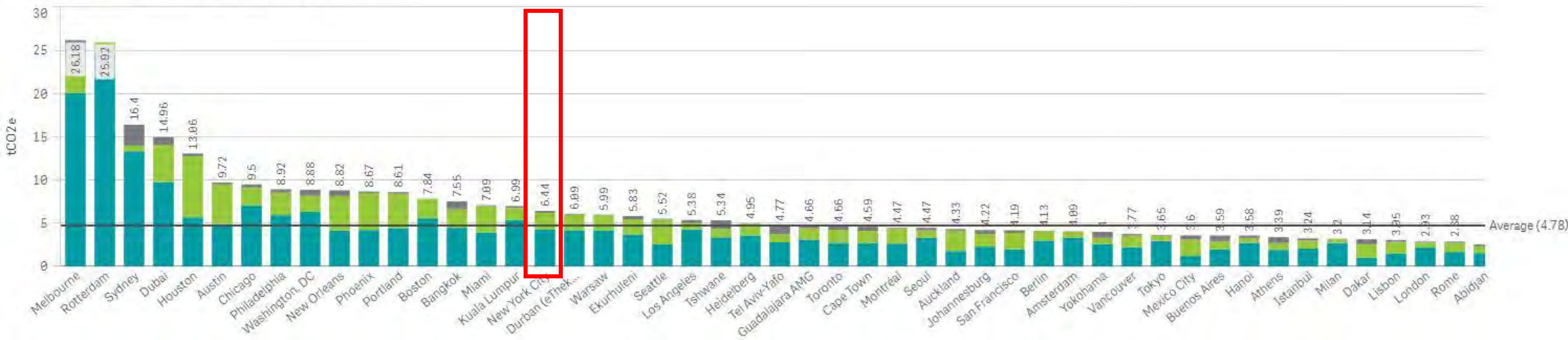
NYC is the second largest emitter among C40 cities

City comparison: emissions by sector



Yet our per capita emissions rank just above average

City comparison: emissions per capita by sector



NYC per capita emissions have reduced significantly since 2005, but are higher than pre-pandemic levels

