CITY OF LOS ANGELES

2024 MUNICIPAL GREENHOUSE GAS INVENTORY REPORT

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Executive Summary

This report outlines efforts of the City of Los Angeles (City) in managing its municipal greenhouse gas (GHG) emissions, detailing the municipal GHG inventory from the baseline year of 2008 and from 2017 through 2024. This inventory serves as a crucial tool in quantifying the emissions generated from city operations, offering insights into the effectiveness of the City's environmental policies and initiatives in reducing GHG emissions.

In a landmark achievement in 2019, LA Sanitation & Environment (LASAN) unveiled the inaugural Municipal Greenhouse Gas Emissions Inventory Report. This report revealed a significant milestone: Los Angeles had surpassed its target, reducing municipal GHG emissions to 35% below the 2008 levels by 2025–a commendable achievement attained eight years ahead of the scheduled target. In the same breath of progress, the City embraced the Green New Deal, setting forth ambitious, yet crucial, updated targets for municipal emissions reduction:

- A 55% reduction by 2025
- A 65% reduction by 2035
- Achieving carbon neutrality by 2045

These goals were developed based on the municipal inventory methodology and the values and trends in use at that time. However, as of 2023, changes have been made to the values reported for municipal emissions, which caused a recalculation of all old values (See 3.1 Power Generation for more details on methodological changes). The City's percentage-based goals were established using data derived from legacy methodologies; as a result, direct comparisons between values generated under the new methods and existing goals may not be accurate. While updated methodologies produce revised values, the legacy methods are still maintained for continuity and long-term goal tracking. This report includes information presenting both sets of numbers and graphics to provide as much information as possible for the City to use.

As illustrated in Figure 1, using the updated methodology and totals that strictly follow the Local Government Operations Protocol, emissions have declined significantly over the years. However, recent trends indicate a slower pace of progress. As of 2024, with the changed methodology, the City achieved a 44% reduction in emissions compared to the 2008 baseline, which is a substantial achievement but not enough compared to previous goals. This trend signals a need for recalibrated and intensified efforts to ensure alignment with the City's environmental commitments.

In comparison, Figure 2, shows the prior methodology and goal tracking for all values through 2024. It demonstrates that the City would now be ahead of its 2025 municipal emissions target with a 61% reduction from the baseline calculated with that data. This indicates that when looking at City departmental efforts beyond the common standard, the City's efforts are making a significant impact. These values reflect the context of the time when the GND goals were established and the municipal inventory's role as a tool to show the big picture of the City's emissions.

The City stands at a pivotal juncture. To continue on this path of environmental stewardship and meet its ambitious goals, Los Angeles must adopt and implement additional, sustainable practices. This commitment will not only steer the City toward its 2025 targets but will also guide discussion and new goal setting toward further reductions.

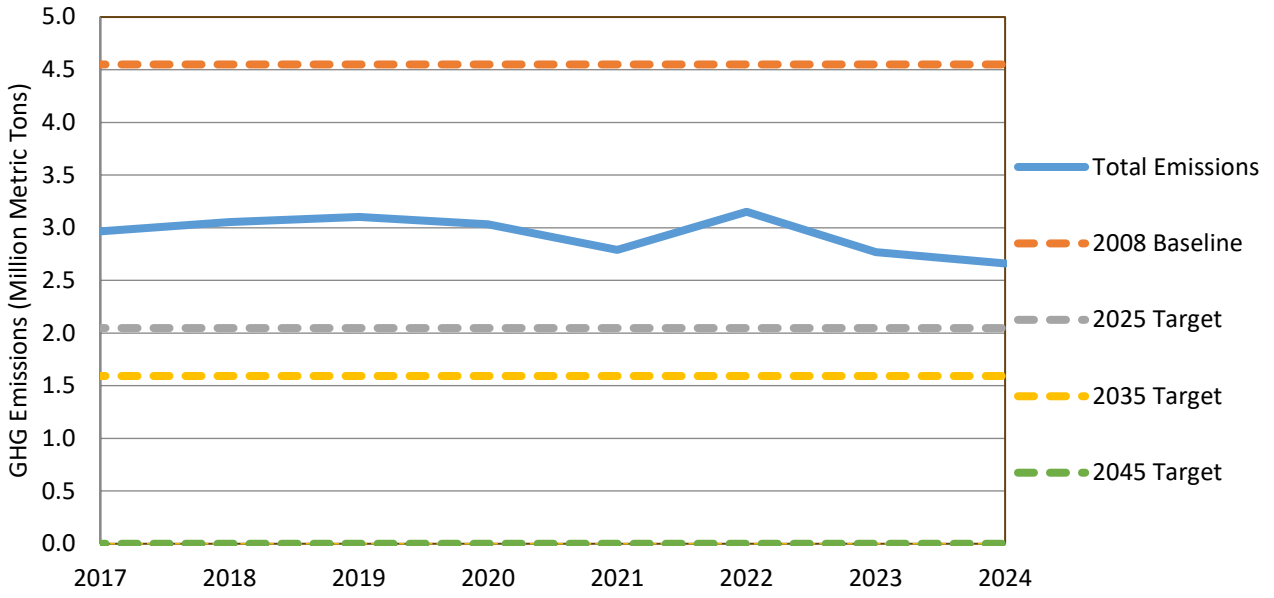

Figure 1. Municipal Emissions Progress Compared to Green New Deal Targets (New Totals and Method)

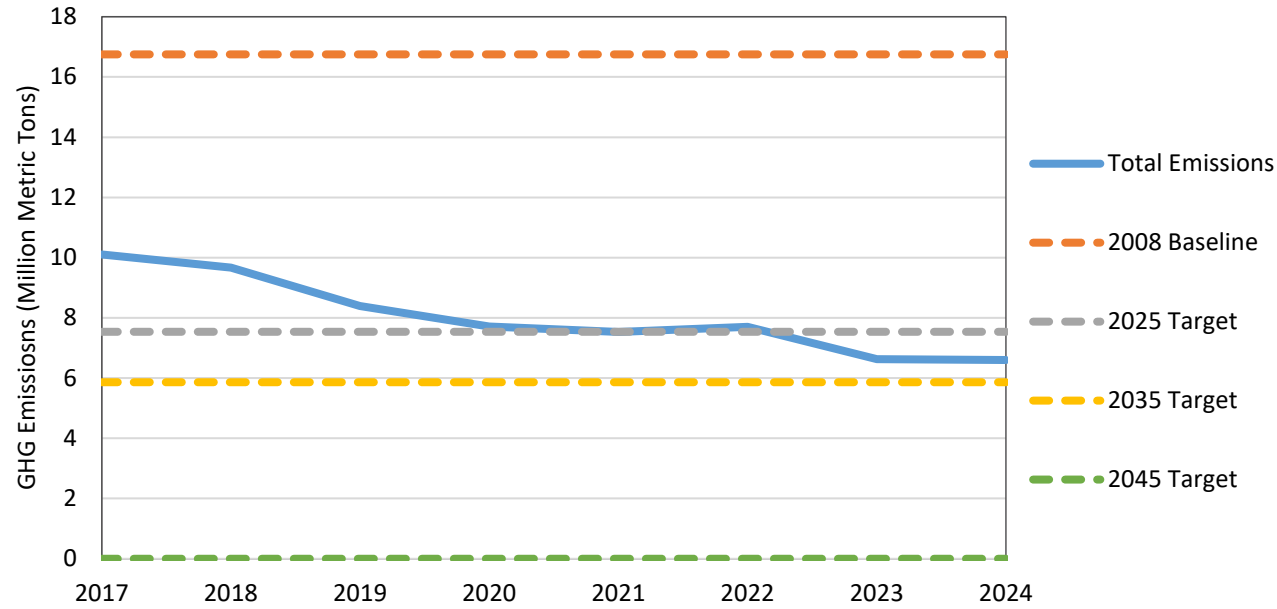

Figure 2. Municipal Emissions Compared to Green New Deal Targets (Old Values and Method)

1. Introduction

LA Sanitation & Environment (LASAN) is at the heart of the City's efforts to create a healthier, more sustainable city. Tasked in 2014 by the Mayor's Office of Energy and Sustainability (MOES), LASAN has been pivotal in tracking the city's greenhouse gas (GHG) emissions. This work is crucial for understanding and reducing our environmental impact, as highlighted in the City of Los Angeles's first Municipal report, the 2017 Municipal Greenhouse Gas Inventory Report, and the annual reports since then.

Our journey towards a greener future, especially as we aim for municipal operation carbon neutrality by 2045 as part of the 2019 Green New Deal, is guided by these detailed reports. They help us understand where we're making progress and where we need to focus more effort. In a city facing increasing heatwaves, droughts, and wildfires, LASAN's role in the City's climate action is more important than ever.

Our commitment to regular GHG emissions reporting, following a detailed and organized approach, helps shape key city plans like the Sustainable City pLAn and LA's Green New Deal. These plans set specific goals for reducing emissions and making Los Angeles a leader in urban sustainability.

Together, we're working towards a future where Los Angeles is not only a great place to live, but also a leader in environmental responsibility.

2. Methodology

2.1 Greenhouse Gases and Global Warming Potential

In our efforts to understand and manage the City's impact on climate change, we focus on the three primary greenhouse gases (GHGs) recognized internationally:

- Carbon dioxide (CO_2)
- Methane (CH_4)
- Nitrous Oxide (N_2O)

We calculate the emissions of each of these gases separately. To understand their combined impact, we convert them into a common unit, metric tons of CO_2 equivalent (CO_2e), using Global Warming Potential (GWP) values. GWP measures a gas's heat-trapping ability relative to CO_2. For a consistent assessment, emissions of these gases are converted to CO_2 equivalents (CO_2e) throughout this report. The GWP coefficients the City is using are measured on the 100-year timescale of the listed gases' impact to the environment when compared to carbon dioxide. These values are currently sourced from the Intergovernmental Panel on Climate Change's Fourth Assessment Report (AR4) and help us compare the impact of different gases on global warming (see Table 1 below). Using AR4 values, our approach aligns with the California Air Resources Board's (CARB) standards and the GWPs they use for the statewide California Greenhouse Gas Emissions Inventory, ensuring consistency and comparability even though newer GWP values exist.

Table 1. IPCC AR4 Global Warming Potential Values

Greenhouse Gas	Formula	GWP (100-year values)
Carbon Dioxide	CO_2	1
Methane	CH_4	25
Nitrous Oxide	N_2O	298

2.2 Local Government Operations Protocol Methodology

To guarantee accuracy and consistency, our inventory adheres to the Local Government Operations Protocol (LGO Protocol), a widely recognized framework for GHG emissions accounting. This protocol, published by ICLEI-Local Governments for Sustainability, California Air Resources Board, the California Climate Action Registry, and the Climate Registry, is popular among municipalities, allowing us to compare our progress with other cities.

2.2.1 Inventory Boundaries and Operational Control

Our inventory aims to capture GHG emissions over which the City of Los Angeles has operational control. This primarily is delineated by the City's geographic boundary but also includes Los Angeles' owned and operated facilities located outside of the City limit. This includes emissions from various city departments, bureaus, and agencies responsible for buildings, vehicle fleets, waste facilities, water supply, power generation, and water reclamation. As additional data becomes

available and is reported to us, we update previous calculations and develop new calculations in order to maintain a comprehensive and accurate inventory.

2.2.2 Scopes

In our efforts to comprehensively track and manage greenhouse gas emissions, the City classifies these emissions into types based on the LGO Protocol definitions: direct (Scope 1) and indirect (Scope 2) emissions. Currently, our municipal inventories focus on these two scopes and do not include indirect Scope 3 emissions in total emissions figures.

Scope 1 direct emissions are emissions that occur right at the source within the City's control. They can come from stationary sources like buildings or mobile sources like city-operated vehicles, as well as from various industrial processes. Essentially, if something is part of the City's operations and emits greenhouse gases directly, it falls under Scope 1.

Scope 2 indirect emissions result from the City's consumption of electricity, heating, cooling, or steam that we purchase or acquire. While these emissions don't occur directly within our operations, they are a byproduct of the energy we use. They happen offsite, away from where they're physically generated and emitted but are still a result of our activities.

Scope 3 covers all other indirect emissions not included in Scope 2. This could include emissions from transportation using vehicles the City doesn't own or control, like for employee commutes. While important, these emissions and sources are incredibly varied, and most are not currently included in our reports due to limited data and tracking difficulties. However, we aim to incorporate them in the future as we gather more information.

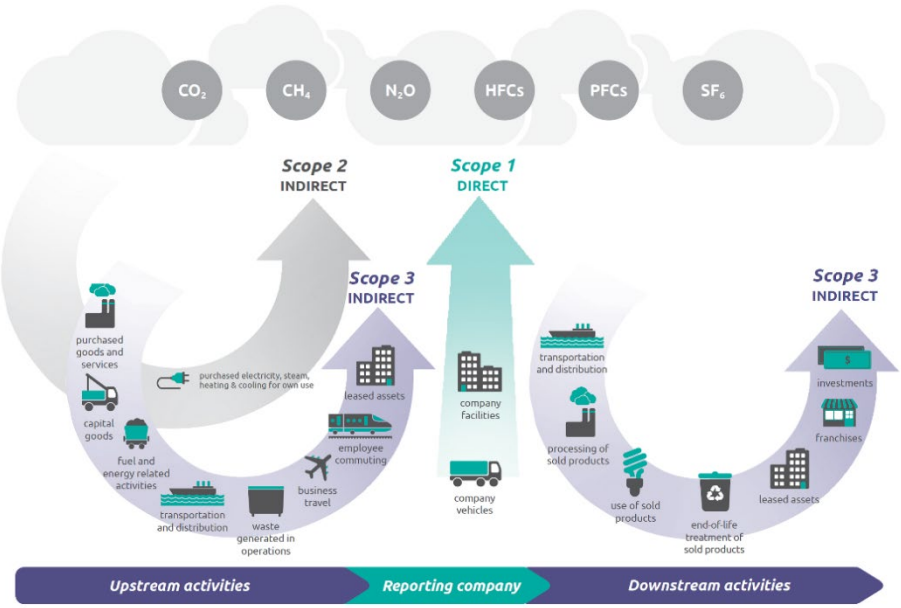

Figure 3. Overview of GHG Emission Scopes[1]

From these definitions, a municipality can generate Scope 1 emissions at one of its owned facilities and consume that power at its other facilities as Scope 2 emissions. When this occurs, efforts should be made to ensure that emissions are not being double counted, usually by only counting the emissions at the source.

[1] Source: Scope 1 and Scope 2 Inventory Guidance | US EPA, www.epa.gov/climateleadership/scope-1-and-scope-2-inventory-guidance. Accessed 27 Nov. 2023.

The City of Los Angeles' Municipal Inventory needs to account for this because we own and operate some of our utilities through the Los Angeles Department of Water and Power (LADWP). In the City's case, Scope 2 emissions where the power was purchased from City plants are still calculated for each sector but are not included in the summation of total municipal emissions because they're accounted for in the power generation sector as Scope 1 emissions already.

By categorizing emissions in this way, we can better understand and manage our impact on the environment, ensuring that our strategies are as effective as possible in reducing the City's carbon footprint.

2.2.3 Sectors

Under the LGO Protocol, emissions are categorized into local government sectors. The local government sectors identified in the LGO Protocol are:

- Power Generation Facilities
- Building and Other Facilities
- Streetlights and Traffic Signals
- Water Delivery Facilities
- Water Reclamation Facilities
- Port Facilities
- Airport Facilities
- Vehicle Fleet
- Transit Fleet
- Solid Waste Facilities

These sectors create a framework that is relevant to local government activities and allow them to communicate inventory information clearly.

2.2.4 Updated Methodology

In the 2023 Municipal Inventory, updates were made, resulting in changes from prior years' reports. The Municipal Inventory was originally developed as a tool for Los Angeles to evaluate its emissions. In the development of the inventory, the LGO Protocol served as the guidance for the calculation methodology. However, for the power generation sector, a decision was made to include emissions beyond those that would be included with the LGO Protocol in order to convey a bigger-picture view of emissions. Further explanation is in Section 3.1 Power Generation.

The new changes make the Municipal Inventory more closely adhere to the LGO Protocol, as instructed by City of Los Angeles Council File 22-1402. Emissions in the inventory have been adjusted to be accurate for the 2008 baseline year values and annual values presented in the 2024 Municipal Inventory Report.

2.3 Data Collection and Providers

Through cooperation and collaboration with a variety of departments and agencies, LASAN has established a data collection process for the preparation of the annual inventories. Table 2 below is a summary of the activity data providers that LASAN contacts annually.

Table 2. Municipal Inventory Data Providers

Data Provider	Data
City Departments	
Bureau of Street Services	Asphalt plant natural gas usage
General Services Department	Vehicle fuel usage
	Street Services' asphalt plant natural gas usage (from Building Maintenance Division)
LA Department of Transportation	Department vehicle fuel usage
LA Department of Water & Power	Department electricity usage
	Department natural gas usage
	Department vehicle fuel usage
	Power generation
LA Fire Department	Department vehicle fuel usage
LA Police Department	Department vehicle fuel usage
LA Sanitation & Environment	Wastewater process data
	Digester gas data
	Landfill gas data
Los Angeles World Airports	Department electricity usage
	Department natural gas usage
	Department vehicle fuel usage
Port of Los Angeles	Department electricity usage
	Department natural gas usage
	Department vehicle fuel usage
Utilities	
LA Department of Water & Power	Electricity usage
SoCal Gas	Natural gas usage

3. Findings by Sector

This section highlights the key findings from the City of Los Angeles' municipal GHG inventories spanning from 2017 to 2024, in comparison with the 2008 baseline year. Each year, LASAN diligently updates these inventories. This process involves not only incorporating revised protocols, but also enhancing data collection methods, refining emission factors, and strengthening quality assurance measures. To ensure accuracy and consistency over time, previous years' inventories are also revised accordingly, aligning with the Intergovernmental Panel on Climate Change (IPCC) recommendations for developing GHG inventories.

Table 3 and Table 4 offer a detailed breakdown of total emissions by sector, alongside a comprehensive view of overall municipal emissions for the years 2008, and 2017-2024. As of 2024, the data indicates that power generation remains the largest contributor to municipal emissions, followed by emissions from solid waste facilities[2], and then emissions from buildings and other facilities. This information is crucial in guiding the City's efforts to target and reduce emissions effectively across different sectors. Currently, as shown in Figure 4, 2024 saw a total GHG emissions reduction of 44% compared to the 2008 baseline. Power generation is the largest source of emissions, generally accounting for over 83% of overall emissions; as such, reductions there are the biggest contributor to overall reductions. In Table 3 and Table 4, each sector's Scope 2 emissions from electricity consumption are reported in the individual sectors but are not counted a second time toward the emissions total because they are already included in the Scope 1 power generation emissions[3].

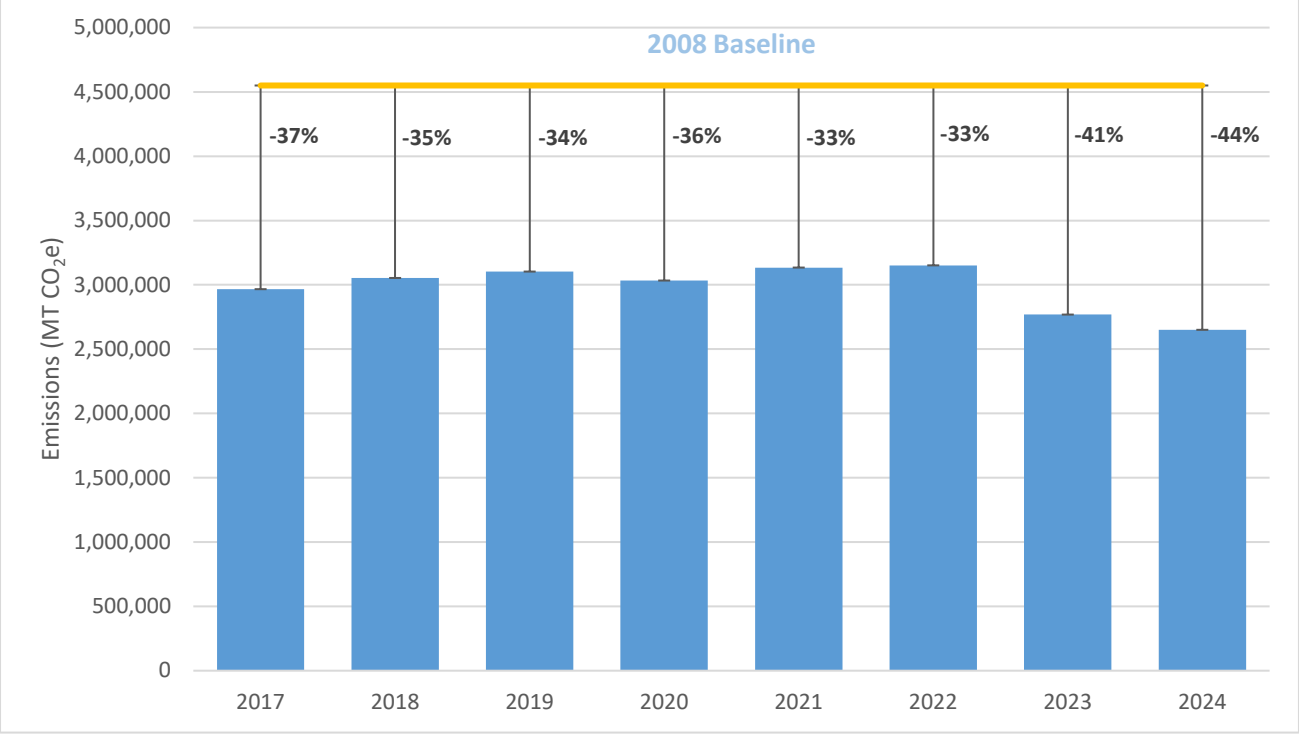

Figure 4. Overall Emissions Reductions

[2] Solid waste emissions quantities are based on models rather than measurements. See Solid Waste section.

[3] The City functions as both an electricity generator and consumer, which can lead to double counting if Scope 1 and Scope 2 emissions are combined into a single total. To address this, Scope 1 emissions, including those from LADWP's in-basin power generation facilities, are aggregated to calculate the City-wide municipal total. Separately, each sector's Scope 1 and Scope 2 emissions are reported to provide a comprehensive view of the emissions attributable to each sector's annual electrical energy consumption.

Table 3. Total Emissions by Sector (MT CO_2e) for 2017-2020

Municipal Inventory Emissions					
Scope 1 Emissions					
	2008	2017	2018	2019	2020
Building & Other Facilities	26,400	25,803	29,921	31,244	34,575
Streetlights and Traffic Signals					
Water Delivery Facilities	105	57	61	66	61
Water Reclamation Facilities	49,256	77,842	79,967	78,458	74,548
Port Facilities	409	346	362	473	287
Airport Facilities	44,457	25,102	27,013	29,159	29,762
Vehicle Fleet	191,292	171,349	161,986	145,038	132,047
Transit Fleet	35,263	24,463	29,370	20,420	19,980
Solid Waste Facilities	196,470	164,080	160,861	157,692	154,531
Power Generation	4,167,393	2,477,206	2,557,170	2,639,482	2,586,980
Scope 2 Emissions					
	2008	2017	2018	2019	2020
Building & Other Facilities	240,252	133,908	140,848	124,038	102,183
Streetlights and Traffic Signals	154,092	36,793	45,203	38,865	30,654
Water Delivery Facilities	67,890	38,988	41,518	34,863	28,634
Water Reclamation Facilities	139,881	40,537	22,437	19,694	18,157
Port Facilities	7,245	6,120	6,460	5,907	4,726
Airport Facilities	90,931	61,788	63,788	62,447	48,619
Vehicle Fleet					
Transit Fleet			22	45	41
Solid Waste Facilities					
Power Generation					
Total Emissions					
Total	**4,711,046**	**2,966,247**	**3,046,711**	**3,102,032**	**3,032,772**

Table 4. Total Emissions by Sector (MT CO_2e) for 2021-2024

Municipal Inventory Emissions					
Scope 1 Emissions					
	2008	2021	2022	2023	2024
Building & Other Facilities	26,400	32,624	34,171	38,053	33,638
Streetlights and Traffic Signals					
Water Delivery Facilities	105	39	41	45	47
Water Reclamation Facilities	49,256	74,704	89,620	89,218	86,636
Port Facilities	409	280	361	565	433
Airport Facilities	44,457	30,204	31,083	33,763	34,702
Vehicle Fleet	191,292	137,959	143,982	136,816	127,833
Transit Fleet	35,263	24,122	21,200	19,932	18,927
Solid Waste Facilities	196,470	151,485	148,486	147,243	144,327
Power Generation	4,167,393	2,339,219	2,682,510	2,303,240	2,203,099
Scope 2 Emissions					
	2008	2021	2022	2023	2024
Building & Other Facilities	240,252	108,598	108,139	93,008	95,846
Streetlights and Traffic Signals	154,092	32,453	31,801	31,645	30,226
Water Delivery Facilities	67,890	34,757	24,261	21,413	17,919
Water Reclamation Facilities	139,881	26,501	19,282	20,001	19,384
Port Facilities	7,245	4,425	4,949	3,448	4,254
Airport Facilities	90,931	48,886	52,603	51,090	55,113
Vehicle Fleet					
Transit Fleet		125	130	446	587
Solid Waste Facilities					
Power Generation					
Total Emissions					
Total	**4,711,046**	**2,790,636**	**3,151,453**	**2,768,875**	**2,649,643**

3.1 Power Generation

The City of Los Angeles Municipal Inventory includes emissions from LADWP, a publicly owned water and electric utility serving the City. Emissions from generating electricity to serve the city are a major source of emissions in the Municipal Inventory. The LGO Protocol prescribes that all emissions under operational control are included in the municipal emissions accounting. For LADWP, in the power generation sector, this means the City's four in-basin power plants are included, as well as renewable generation, which doesn't produce emissions. In the 2023 Inventory, updates were made to this section to reflect two different emissions values. This has resulted in a recalculation of historic numbers that have been reported in the Municipal Inventory because those past values included both in-basin emissions and emissions that were not under LADWP's operational control from purchased power.

3.1.1 LADWP Operational Emissions (Scope 1 and Scope 2)

LADWP operates four municipally-owned generating stations within the Los Angeles region. These are referred to as: Harbor, Haynes, Scattergood and Valley Generating Stations. Emissions produced by burning natural gas, biogas, and diesel[4] to generate electricity within LADWP's operational control are included as Scope 1 (direct emissions) in the City's Municipal Inventory. Scope 2 emissions are associated with the electricity consumed by LADWP's operations but generated by external sources outside of LADWP's operational control. These Scope 1 and 2 emissions will be the official values used in the Municipal Inventory total emissions going forward in accordance with the LGO Protocol.

3.1.2 Total Owned and Purchased Power Emissions

LADWP's electricity portfolio also includes power purchased from out-of-basin facilities through joint power authority (JPA) agreements and power purchase agreements (PPAs). In accordance with the LGO Protocol, these purchased power emissions fall under Scope 3, as they are indirect emissions from electricity generation not under LADWP's direct operational control. The proportion of power generated at in-basin versus out-of-basin stations changes from year to year and can result in large year-over-year fluctuations in the inventory's overall emissions.

LADWP's electricity supply is dynamic to meet the changing demands of the community that LADWP serves while also pursuing long-term renewable energy and emission reduction goals. Additional information on emissions from the overall electricity supply (combination of owned and purchased power) is provided to understand the full scope of emissions associated with community-wide demand for electricity. As LADWP expands its renewable energy supply to meet the State's Renewable Portfolio Standard target and the City's emission reduction goals, the full extent of the reduction in greenhouse gas emissions within the overall electricity supply may not be reflected in the Scope 1 emissions from the in-basin generating stations.

In order to reflect the overall reductions in emissions from power generation for the community, emissions from purchased power will be included as supplemental information. Reporting the Scope 1 and Scope 3 emissions in separate tables distinguishes LADWP's operational control emissions from its broader carbon footprint. This additional information highlights the reductions in emissions from purchased power due to LADWP's transition toward renewable energy sources and demonstrate its progress toward the City's Green New Deal goals in a wider context.

[4] Biogas hasn't been used since 2018, and diesel is only used rarely as an emergency backup.

Table 5. In-Basin Power Generation Facilities GHG Emissions (MT CO_2e)

In Basin Power Generation Facilities GHG Emissions (MT CO_2e)		
Year	Scope 1: Stationary Combustion Emissions	Total Emissions
2008 Baseline	4,167,393	4,167,393
2017	2,477,206	2,477,206
2018	2,557,170	2,562,849
2019	2,639,482	2,639,482
2020	2,586,980	2,586,980
2021	2,339,219	2,339,219
2022	2,682,510	2,682,510
2023	2,303,240	2,303,240
2024	2,203,099	2,203,099

Table 6. Total Owned and Purchased Power Generation Facilities GHG Emissions (MT CO_2e)

Total Owned and Purchased Power Generation Facilities GHG Emissions (MT CO_2e)			
Year	Scope 1: Stationary Combustion Emissions	Scope 3: Purchased Power Emissions	Total Emissions
2008 Baseline	4,167,393	12,114,611	16,282,004
2017	2,477,206	7,079,137	9,556,343
2018	2,557,170	6,492,234	9,049,404
2019	2,639,482	5,628,139	8,267,621
2020	2,586,980	4,970,722	7,557,702
2021	2,339,219	5,221,377	7,560,596
2022	2,682,510	4,579,169	7,261,679
2023	2,303,240	3,862,033	6,165,273
2024	2,203,099	3,939,677	6,142,776

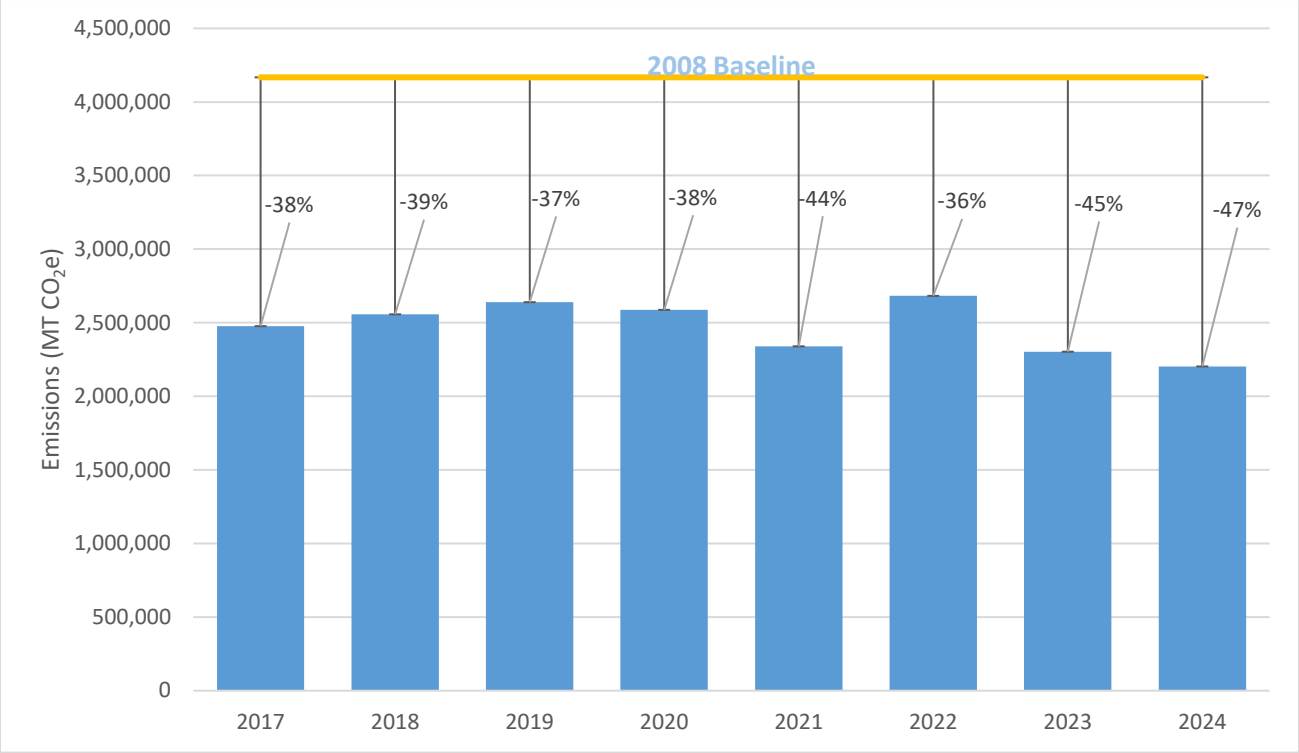

Figure 5. Power Generation Emissions Reduction from Baseline

In 2024, power generation Scope 1 emissions have decreased by 47% compared to the 2008 baseline, as illustrated by Table 5 and Figure 5.

The City is actively reducing its GHG emissions, a significant part of which is due to LADWP shifting to cleaner and renewable energy sources. This transition away from carbon-heavy fuels such as coal means our electricity is now being generated with substantially fewer GHGs.

Looking ahead, LADWP is progressing towards its goal of supplying 100% carbon-free energy by 2035, as outlined in the LA100 Plan. The City remains steadfast in advancing its ambitious clean energy targets. While significant progress has been made, reaching these goals will require further action to decarbonize buildings, improve energy efficiency across all sectors, and reduce fuel combustion in industrial activities.

3.2 Buildings and Facilities

The building and facilities sector covers emissions associated with natural gas and electricity consumption from all City facilities that are used for municipal operations. This sector excludes facility energy used at landfills, seaports, airports, power generation facilities, potable water plants, and water reclamation plants, as those emissions are covered in their respective sectors.

Electricity consumption, the primary contributor to this sector's emissions, have overall decreased since 2008 as a result of continued improvements in the power generation sector.

Table 7. Building and Facilities Emissions (MT CO_2e)

Buildings and Other Facilities GHG Emissions (MT CO_2e)			
Year	Scope 1: Stationary Combustion Emissions	Scope 2: Purchased Electricity Emissions	Total Emissions
2008 Baseline	26,400	240,252	266,652
2017	25,803	133,908	159,711
2018	29,921	140,848	170,769
2019	31,244	124,038	155,282
2020	34,575	102,183	136,758
2021	32,624	108,598	141,222
2022	34,171	108,139	142,310
2023	38,053	93,008	131,061
2024	33,638	95,846	129,484

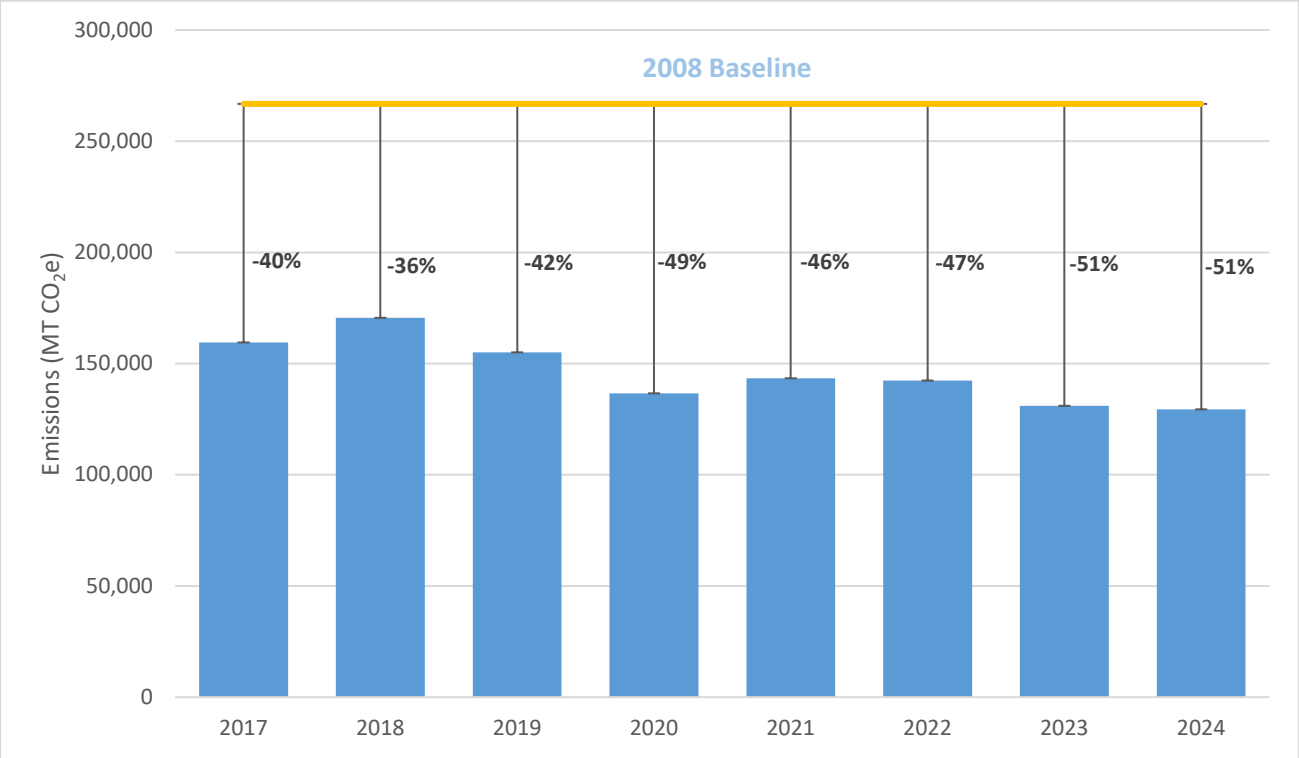

Figure 6. Building and Facilities Emissions Reductions from Baseline

The Bureau of Engineering's (BOE) Decarbonization Plan for municipal buildings is a pivotal step in reducing the City of Los Angeles' GHG emissions. The plan emphasizes how prioritizing capital investments in electrification and targeting high natural gas demand sites would maximize impacts to emissions in this sector. By implementing measures such as building electrification, energy efficiency upgrades, and renewable energy adoption, the plan would cut emissions while improving infrastructure resilience. This planning effort ensures the City's desire to achieve its climate goals, but also address urgent infrastructure needs in an equitable and impactful manner.

Aligned with L.A.'s Green New Deal, a primary goal of the decarbonization plan is to ensure all new municipally owned buildings and major renovations are fully electric. While this initiative may initially increase electricity consumption, it is expected to lead to an overall decrease in building emissions due to the reduced carbon intensity of LADWP's electricity supply. This comprehensive effort underscores the City's commitment to sustainability by driving equitable investment, creating green jobs, and setting a powerful example for the private sector to follow. By improving infrastructure resilience and advancing leadership in sustainable practices, the plan positions Los Angeles as a model for how urban centers can meet the challenges of climate change while delivering significant community benefits.

3.3 Streetlights and Traffic Signals

Emissions reported in the streetlights and traffic signals sector consist of only Scope 2 purchased electricity emissions related to the operations of streetlights and traffic signals.

On average, about 85% of emissions in this subsector are from streetlights. In 2018, electricity consumption associated with streetlights increased by approximately 25% that year; however, consumption has been decreasing in the years since.

Table 8. Streetlights and Traffic Signals Emissions (MT CO_2e)

Streetlights and Traffic Signals GHG Emissions (MT CO_2e)			
Year	Scope 1: Stationary Combustion Emissions	Scope 2: Purchased Electricity Emissions	Total Emissions
2008 Baseline	-	154,092	154,092
2017	-	36,793	36,793
2018	-	45,203	45,203
2019	-	38,865	38,865
2020	-	30,654	30,654
2021	-	32,453	32,453
2022	-	31,801	31,801
2023	-	31,645	31,645
2024	-	30,226	30,226

This decrease is likely attributed to the Bureau of Street Services' efforts to convert all streetlights and LA tunnel lights to 100% LED lights and integrate smart nodes to enhance energy efficiency.

In 2024, overall emissions for this sector were 80% below the 2008 baseline, as seen in Figure 7.

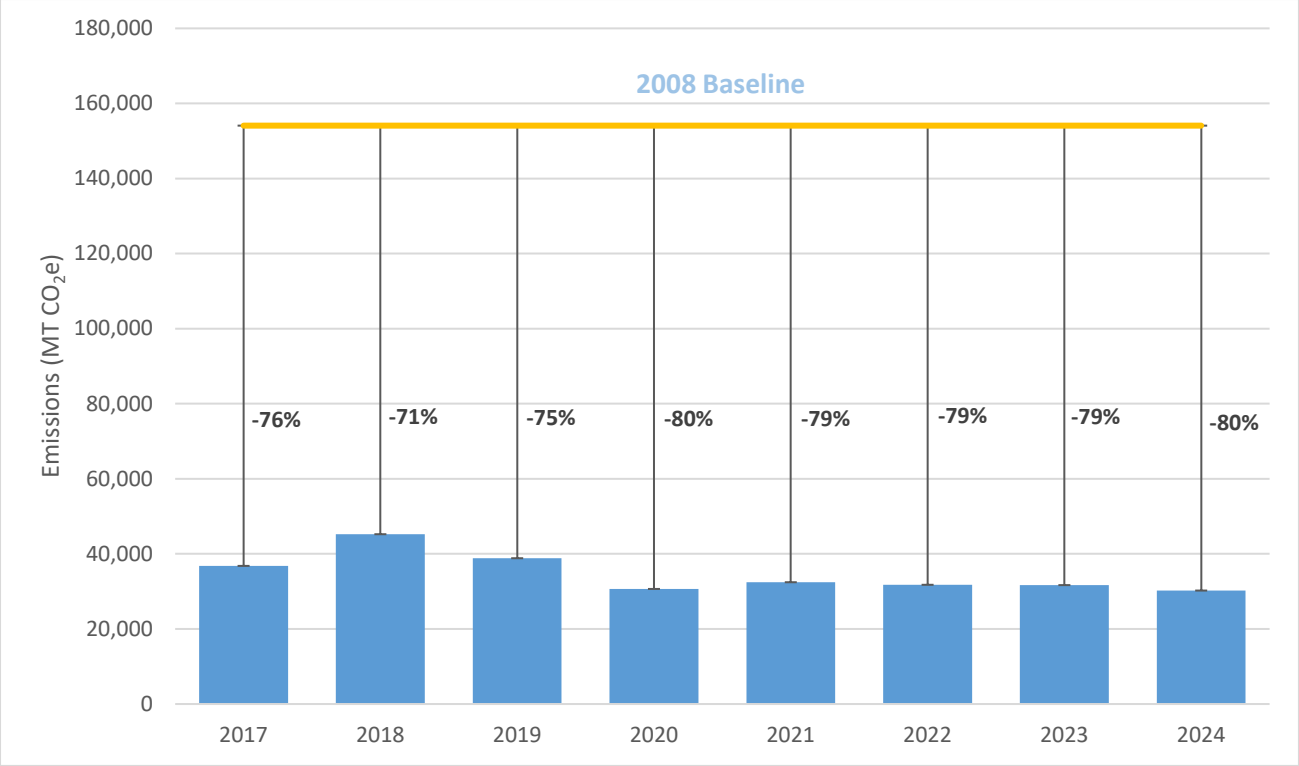

Figure 7. Streetlights and Traffic Signals Emissions Reductions from Baseline

3.4 Water Delivery

The water delivery sector contributes to GHG emissions through the activities of LADWP's potable water operations in providing water services to the residents and businesses in the City. This encompasses the emissions resulting from sourcing, conveyance, treatment, storage, pumping, and distribution of potable water to the customers within the City. The emissions herein only include water supply sourced from the Los Angeles Aqueduct and local groundwater, which are both managed by LADWP. The emissions also include the treatment and distribution of imported water by LADWP to the customers. Water Delivery sector emissions exclude emissions from imported water supplies from the Colorado River Aqueduct and the State Water Project, as these are operated by others beyond the City's control. Instead, the emissions from these imported sources' suppliers contribute to emission totals in the City of Los Angeles' annual Community Greenhouse Gas inventory based on available data from these suppliers.

In 2024, in discussion with LADWP, additional analysis of the facilities in this sector led to the conclusion that many of the facilities Scope 1 emissions were not associated with water delivery, and those emissions were moved from this sector to the Buildings and Other Facilities sector for all reported years. These changes have been incorporated into Figure 8 and Table 9. Scope 1 emissions in this sector now represent emissions associated with the treatment of transported water at the Los Angeles Aqueduct Filtration Plant to bring it to potable standards.

In 2024, sector emissions were down 74% compared to the 2008 baseline, as shown in Table 9 and Figure 8. This decrease reflects greener electricity reducing emissions from power consumption as well as fluctuations in quantity of water sourced from the Los Angeles Aqueduct compared to other aqueducts, groundwater, or other sources.

Between LASAN and LADWP, the City is committed to meeting water demands and diversifying the water supply portfolio. By implementing new conservation, recycling, and water efficiency

measures, the City improves local water reliability and reduces reliance on imported supply purchases in order to reduce emissions in the long-term.

Table 9. Water Delivery Facilities Emissions (MT CO_2e)

Water Delivery Facilities GHG Emissions (MT CO_2e)			
Year	Scope 1: Stationary Combustion Emissions	Scope 2: Purchased Electricity Emissions	Total Emissions
2008 Baseline	105	67,890	67,995
2017	57	38,988	39,045
2018	61	41,518	41,579
2019	66	34,863	34,929
2020	61	28,634	28,695
2021	39	34,757	34,796
2022	41	24,261	24,302
2023	45	21,413	21,458
2024	47	17,919	17,966

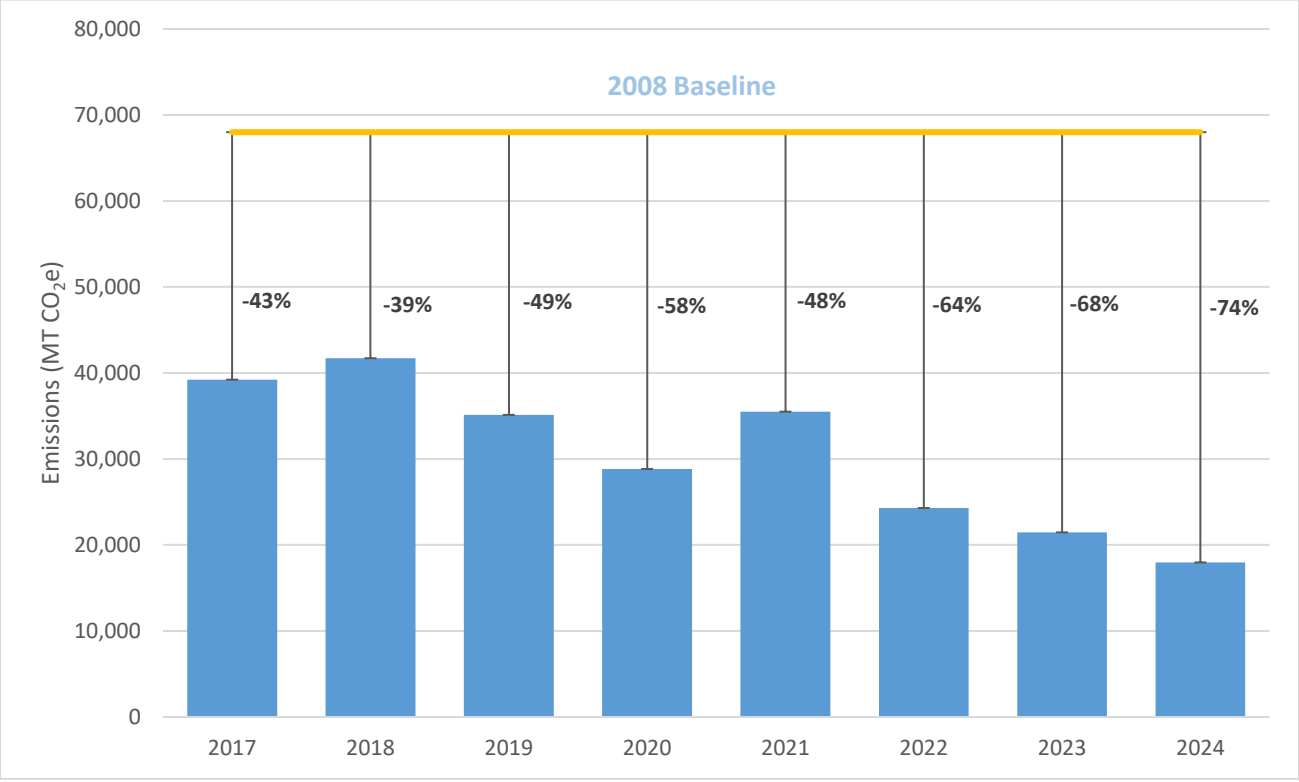

Figure 8. Water Delivery Emissions Reductions from Baseline

3.5 Water Reclamation

The water reclamation sector, a significant contributor to the City's GHG emissions, encompasses the operations of four key water reclamation facilities: Hyperion Water Reclamation Plant (HWRP), Terminal Island Water Reclamation Plant (TIWRP), Donald C. Tillman Water Reclamation Plant (DCTWRP), and Los Angeles-Glendale Water Reclamation Plant (LAGWRP). These facilities are responsible for emissions stemming from various wastewater processes and effluent discharge, as well as the energy consumption required for plant operations.

Notably, the sector's emissions include CH_4 and N_2O released during the combustion of digester gas, categorized under stationary combustion. However, in alignment with the LGO Protocol descriptions, CO_2 emissions resulting from digester gas combustion are deemed biogenic and thus excluded from the City's emissions inventory.

A significant reduction in emissions from this sector, amounting to 44% compared to the 2008 baseline, is evident as illustrated in Figure 9. However, it is noteworthy that energy consumption in these facilities has fluctuated the last few years, likely due to variances in operations. This trend highlights the importance of balancing efficiency gains with the growing energy demands driven by the City's ambitious Green New Deal, which aims for 100% water recycling. While this initiative is expected to increase reliance on grid-supplied electricity, ongoing efforts to decarbonize the electricity grid are anticipated to offset the emissions associated with this increased energy use, ensuring alignment with the City's long-term sustainability goals.

Table 10. Water Reclamation Facilities Emissions (MT CO_2e)

Water Reclamation Facilities GHG Emissions (MT CO_2e)					
Year	Scope 1: Stationary Combustion Emissions	Scope 1: Process Emissions	Scope 2: Purchased Electricity Emissions	Total Emissions	Biogenic Emissions
2008 Baseline	1,605[5]	42,050	139,881	183,536	3,062
2017	33,786	44,056	40,537	118,379	62,676
2018	35,289	44,678	22,437	102,404	74,673
2019	32,233	46,225	78,458	156,916	78,605
2020	31,823	42,725	28,634	103,182	70,025
2021	32,054	42,650	27,040	101,744	64,183
2022	45,423	44,165	19,282	108,870	63,000
2023	44,916	44,302	20,001	109,219	61,647
2024	41,118	45,518	19,384	106,020	65,282

[5] Prior reports did not differentiate stationary combustion and process emissions for scope 1 emissions in this sector. The data is being reviewed to determine why 2008 has a significant difference from later years.

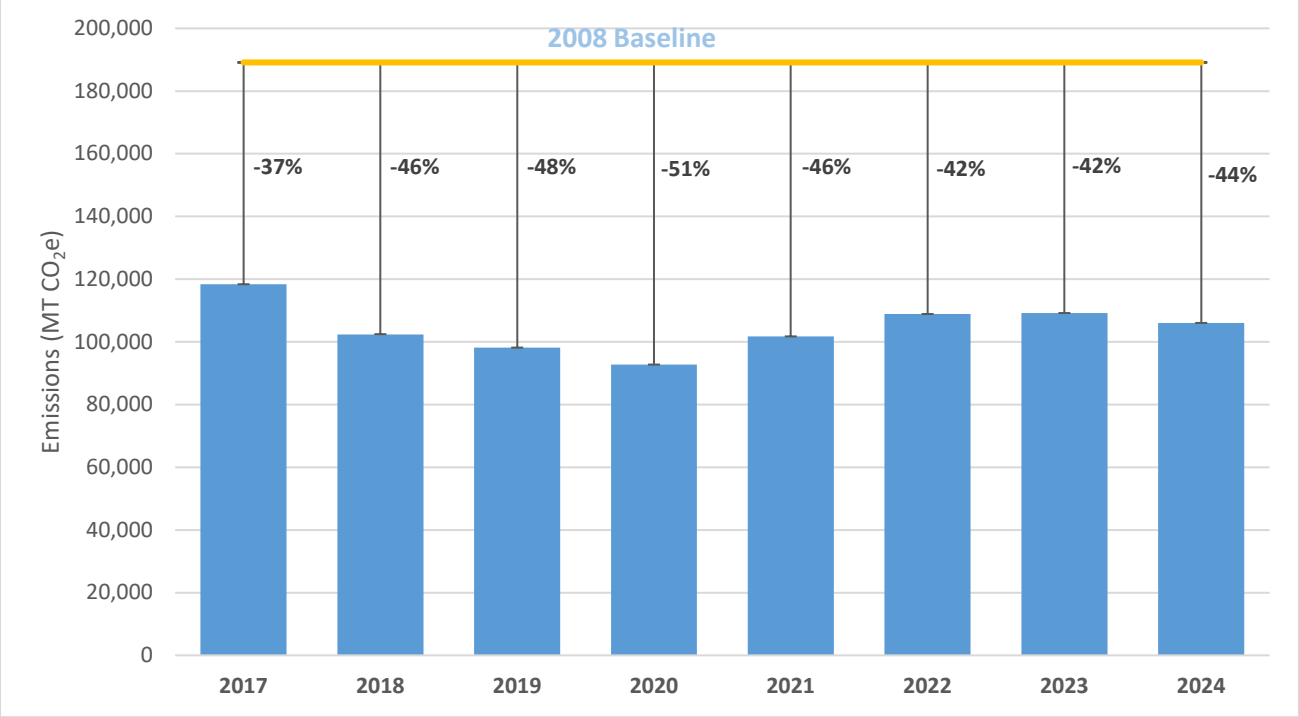

Figure 9. Water Reclamation Facilities Emissions Reductions from Baseline

3.6 Port

The port sector, specifically focusing on the Port of Los Angeles (POLA), is responsible for emissions generated by energy consumption in port-operated facilities. It's important to note that emissions from vehicles operated by the port are accounted for in the vehicle fleet sector (refer to section 3.8 Vehicle Fleet). Additionally, this sector excludes emissions from ships, vehicles, or facilities operated by third parties at POLA, which are included in the City's Community Greenhouse Gas Inventory.

Table 11. Port Facilities Emissions (MT CO_2e)

Water Delivery Facilities GHG Emissions (MT CO_2e)			
Year	Scope 1: Stationary Combustion Emissions	Scope 2: Purchased Electricity Emissions	Total Emissions
2008 Baseline	409	7,245	7,654
2017	346	6,120	6,466
2018	362	6,460	6,822
2019	473	5,907	6,380
2020	287	4,726	5,013
2021	280	4,515	4,795
2022	361	4,949	5,310
2023	565	3,448	4,013
2024	433	4,254	4,687

The Port of Los Angeles saw a rise in emissions in 2024 compared to 2023 due to an increase in activity to meet the demand of a historically high amount of shipping container throughput. Total emissions have still declined compared to the 2008 baseline, as indicated in Table 11. Overall, emissions in this sector are currently 39% below the 2008 baseline, as depicted in Figure 10.

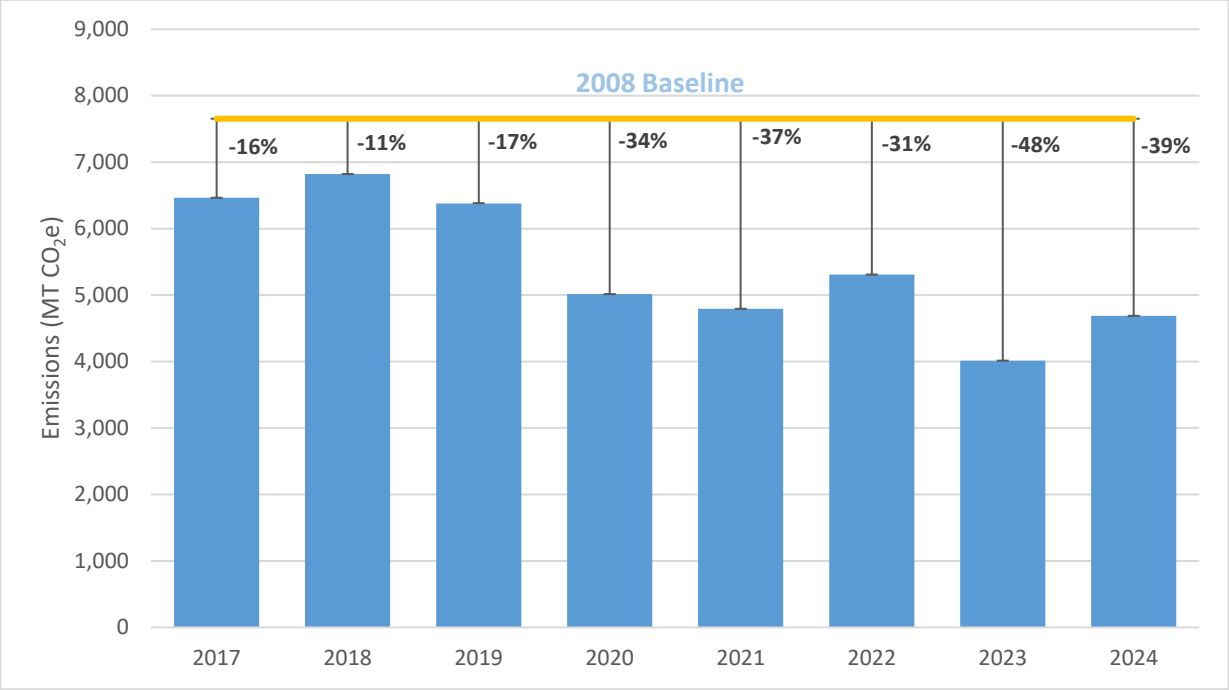

Figure 10. Port Facilities Emissions Reductions from Baseline

3.7 Airport

The airport sector encompasses emissions from Los Angeles International Airport (LAX) and Van Nuys Airport (VNY), focusing specifically on energy consumption at facilities operated by these airports. It's important to note that emissions from vehicles operated by the airports are accounted for in the vehicle fleet sector (refer to section 3.8 Vehicle Fleet). However, this sector does not include emissions from aircraft operated by third parties, which are instead included in the City's Community Greenhouse Gas Inventory.

In 2024, the airport sector continued its recent trend of slight increases in greenhouse gas (GHG) emissions compared to the prior year. Despite this uptick, emissions remained significantly lower than historical levels, sustaining a reduction of approximately 34% compared to the 2008 baseline, as shown in Figure 11.

Figure 11 emphasizes the ongoing efforts to mitigate the environmental impact of airport operations. Despite the challenges posed by ever increasing demands that require expansions in operations and facilities, sustained emissions reductions demonstrate the effectiveness of initiatives aimed at enhancing energy efficiency and reducing the sector's carbon footprint to counteract that demand.

The airport sector's commitment to environmental sustainability is evident in its continued efforts to balance growing operational demands with ambitious sustainability goals.

Table 12. Airport Facilities Emissions (MT CO_2e)

Airport Facilities GHG Emissions (MT CO_2e)			
Year	Scope 1: Stationary Combustion Emissions	Scope 2: Purchased Electricity Emissions	Total Emissions
2008 Baseline	44,457	90,931	135,388
2017	25,102	61,788	86,890
2018	27,013	63,788	90,801
2019	29,159	62,447	91,606
2020	29,762	48,619	78,381
2021	30,204	49,881	80,085
2022	31,083	52,603	83,686
2023	33,763	51,090	84,853
2024	34,702	55,113	89,815

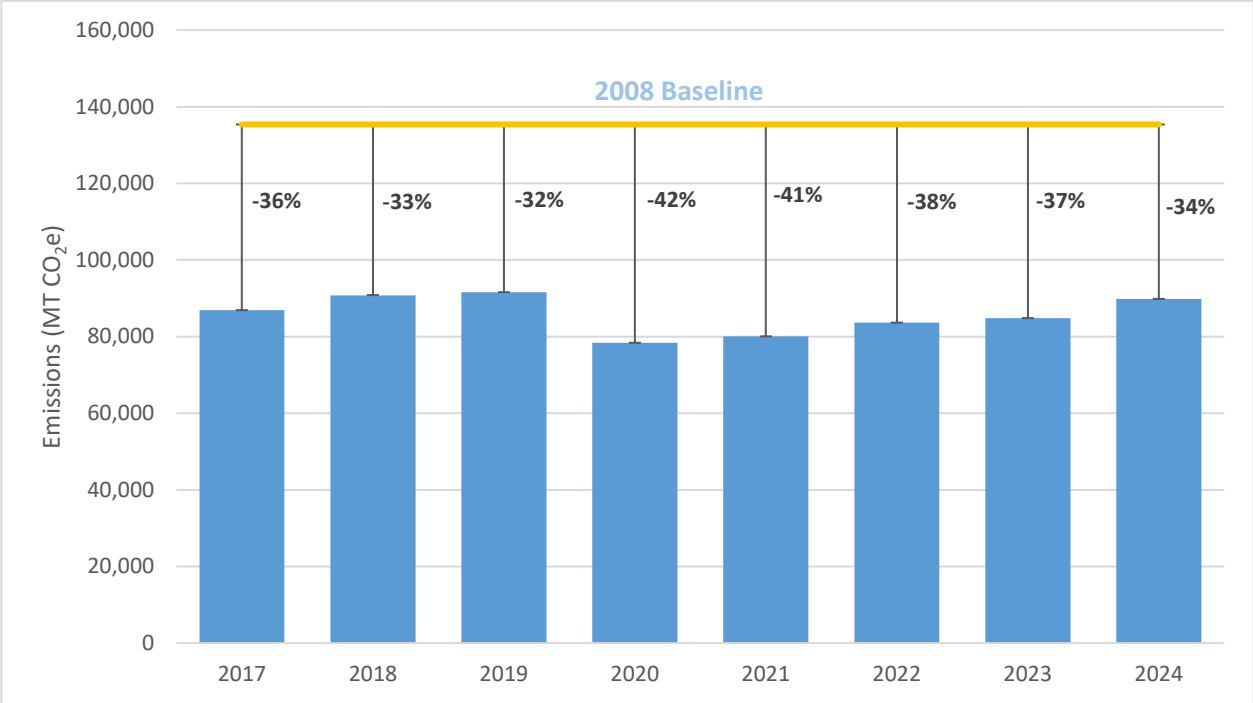

Figure 11. Airport Facilities Emissions Reductions from Baseline

3.8 Vehicle Fleet

The vehicle fleet sector accounts for emissions from on-road and off-road vehicles operated by the City, excluding the Los Angeles Department of Transportation's (LADOT) public transit fleet. Public transit fleet emissions are accounted for in their own sector (see section 3.9 Transit Fleet).

Table 13 showcases the City's ongoing commitment to lowering emissions from its vehicle fleet. Significant reductions have been achieved primarily through reducing the use of conventional fuels like gasoline and diesel, and increasingly adopting lower-carbon alternatives, such as compressed natural gas and electric vehicles. Notably, the city has also incorporated renewable natural gas (RNG), as detailed in Figure 12.

In 2024, the vehicle fleet sector's emissions were 33% lower than the City's 2008 baseline, as illustrated in Figure 13. Reductions in Compressed Natural Gas (CNG) and Liquefied Natural Gas (LNG) usage in favor of renewable varieties is a major driver in sector emissions reductions. The City has continued efforts to adopt cleaner and more efficient fuel options for all available fuels. Discussions with the General Services Department identified that renewable diesel is in use in the City's vehicles; however, our data do not currently reveal how much of the reported diesel is renewable diesel since 2020. Diesel emissions account for up to 27% of vehicle fleet emissions, some of which may be attributable to vehicles using a renewable alternative such as renewable diesel. A continued decline in emissions is anticipated as the City progresses towards its Green New Deal objective of transitioning all City fleet vehicles to zero emissions by 2028, where technically feasible.

Table 13. Vehicle Fleet Emissions (MT CO_2e)

Vehicle Fleet GHG Emissions (MT CO_2e)				
Year	Scope 1: On and Off-Road Vehicle Emissions	Scope 2: Purchased Electricity Emissions	Total Emissions	Biogenic CO_2 Emissions
2008 Baseline	191,292	-	191,292	
2017	171,349	-	171,349	13,678
2018	161,985	-	161,985	13,754
2019	145,038	-	145,038	13,741
2020	132,047	-	132,047	11,865
2021	137,959	-	137,959	8,736
2022	143,982	-	143,982	7,095
2023	136,816	-	136,816	6,335
2024	127,833	-	127,833	6,446

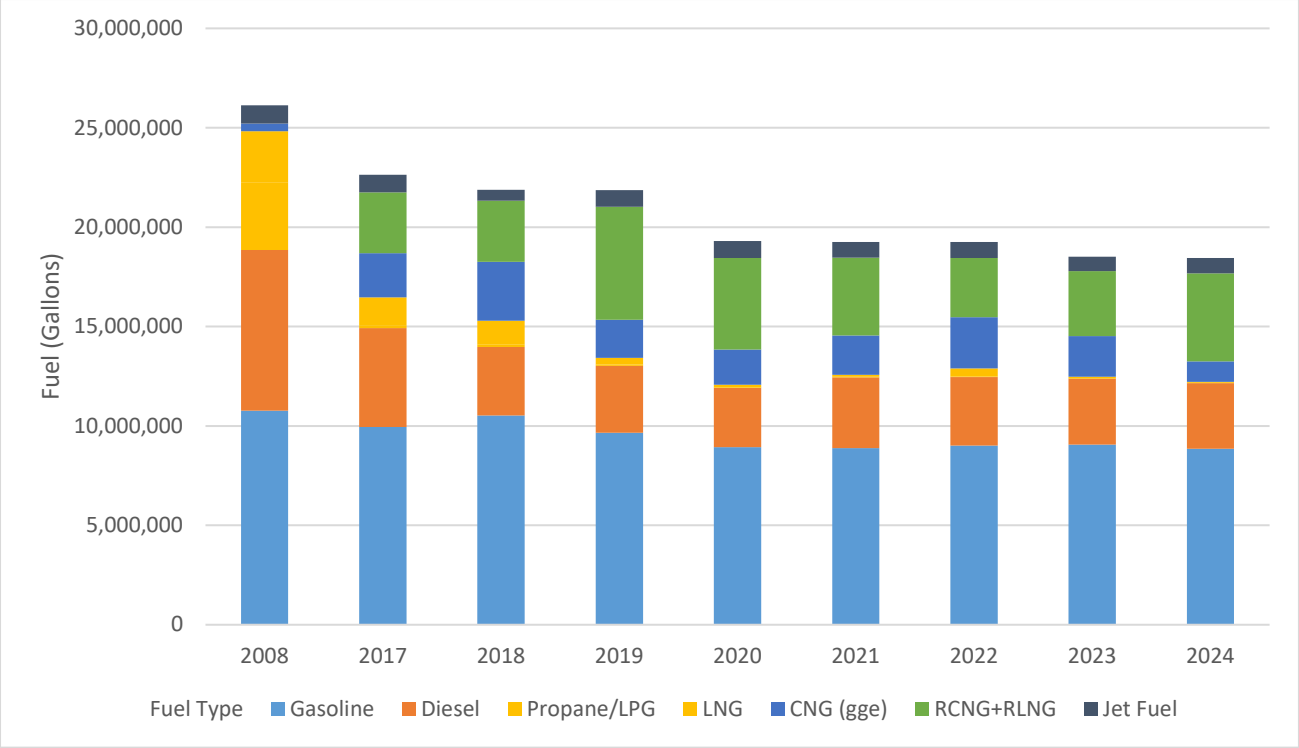

Figure 12. Fleet Fuel Consumption

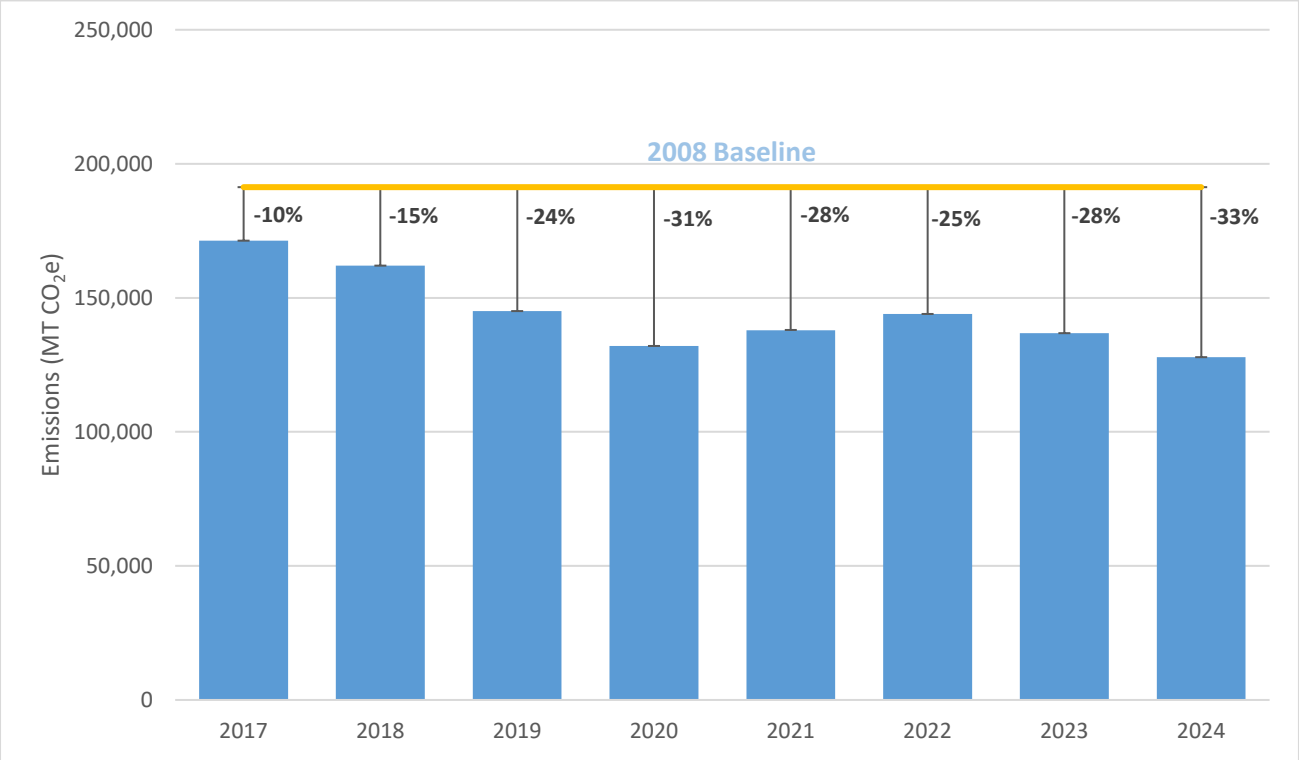

Figure 13. Vehicle Fleet Emissions Reductions from Baseline

3.9 Transit Fleet

The transit fleet sector accounts for emissions from Los Angeles' public transit fleet. This includes the City's DASH, Commuter Express, and Cityride services. This does not include emissions from the public transit fleet operated by the Los Angeles County Metropolitan Transportation Authority (Metro), which is outside the City's jurisdiction.

Table 14.Transit Fleet Emissions (MT CO_2e)

Transit Fleet GHG Emissions (MT CO_2e)			
Year	Scope 1: Stationary Combustion Emissions	Scope 2: Purchased Electricity Emissions	Total Emissions
2008 Baseline	35,263	-	35,263
2017	24,463	-	24,463
2018	29,370	22	29,392
2019	20,420	45	20,465
2020	19,980	41	20,021
2021	24,499	128	24,627
2022	21,200	130	21,330
2023	19,932	446	20,378
2024	18,927	587	19,514

Table 14 presents a downward trend in emissions over the past four years. This reduction is largely attributed to the City's initiative to shift from traditional, high-carbon fuels (like gasoline and diesel) to lower-carbon alternatives, namely electricity, CNG, and LNG. The City had a few remaining propane fueled buses, but in 2024, the last of these were taken out of service at LADOT. As of 2024, the City's transit fleet emissions are reported to be 45% below the 2008 baseline.

The City is actively working towards electrifying its transit fleet. A core goal of the L.A. Green New Deal is to achieve 100% fleet electrification by 2028. City electric buses are already travelling over a million miles per year, and this number continues to grow. As the transit fleet moves towards electrification and the carbon intensity of electricity continues to decrease, a further reduction in emissions is anticipated.

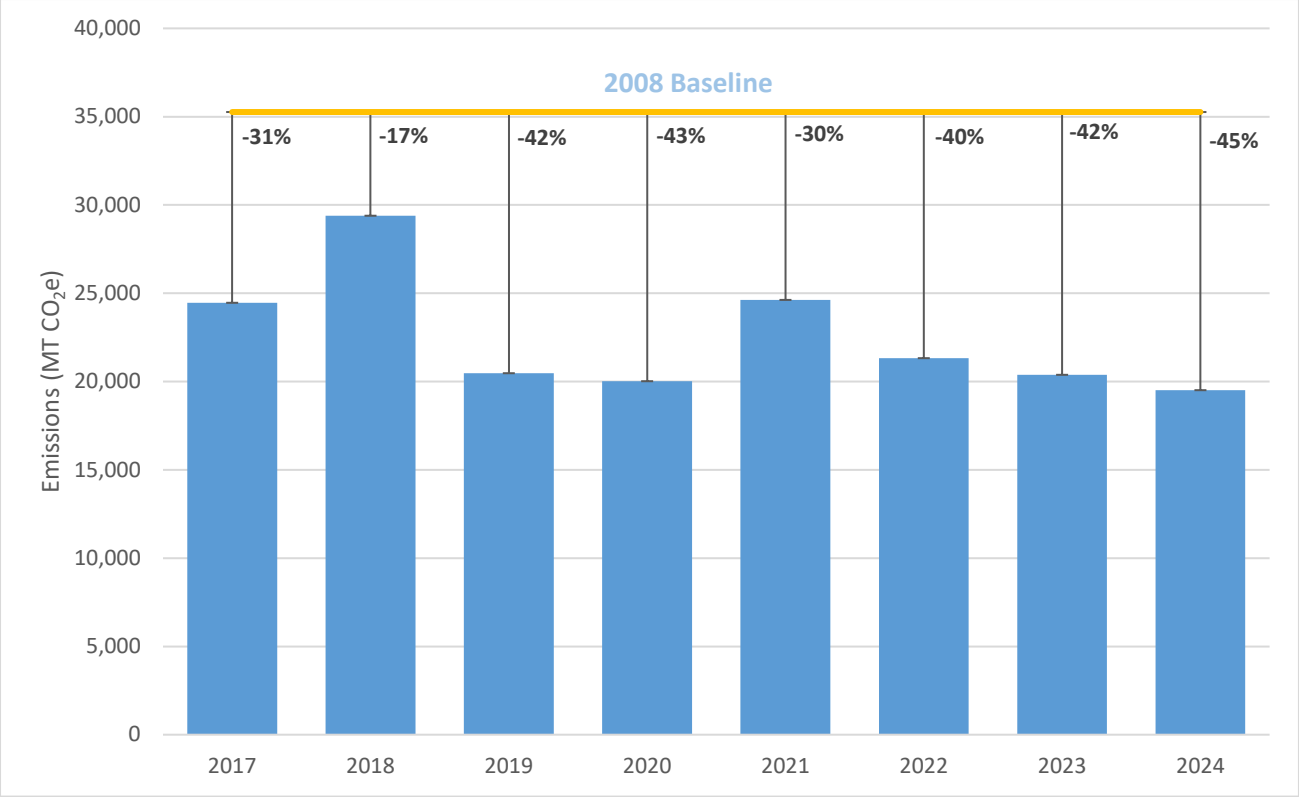

Figure 14. Transit Facilities Emissions Reductions from Baseline

3.10 Solid Waste Facilities

The solid waste sector encompasses emissions from five closed landfills: Bishop Canyon, Gaffey Street, Lopez Canyon, Sheldon-Arleta, and Toyon Canyon, which are all under the management of the City. Although these facilities have ceased accepting solid waste, they continue to produce fugitive emissions from landfill gas collection systems and stationary combustion emissions from the burning of captured landfill gas.

Table 15 demonstrates emissions calculated in accordance with the LGO Protocol methodologies. According to the protocol, emissions for this sector should be calculated via a first order decay model with a variety of fixed or limited ranges of inputs. More refined calculations are possible, but due to numerous variables in gathering data for these emissions, standards for further reporting are not available in the latest edition of the LGO Protocol. In 2024, emissions calculated via the methodologies in the LGO Protocol for this sector were 27% below 2008 baseline levels, as illustrated by Figure 15.

As we continue to monitor and manage emissions from our closed landfills, our facilities have provided the following additional data, offering deeper insights into our emission control measures and techniques that go beyond the techniques the LGO Protocol describes. In discussion with LASAN's Solid Resources staff (Solid Resources), the following information has been described for these landfills' gas collection technologies and measurements. All landfills, except for Bishop Canyon, are equipped with gas collection and treatment systems. The precision in measuring methane composition is ensured by using a Landtec GEM5000 gas analyzer, which boasts an accuracy of ±0.5%. Furthermore, destruction rates are verified annually through EPA Method 3C gas chromatography, capable of detecting concentrations down to parts per billion (ppb). For flow measurements, Lopez Canyon employs an FCI GF90 mass flow meter, and other sites use devices

with similar accuracy (±1% of reading plus 0.5% of scale) and repeatability (±0.5% of reading or better).

In addition to these advanced monitoring technologies, all collected landfill gas is directed to high-efficiency flares or energy recovery systems to maximize methane destruction and minimize greenhouse gas emissions. Regular calibration and maintenance of equipment ensure consistent accuracy and reliability of the data collected. These measures underscore our commitment to maintaining high standards of environmental stewardship and accuracy and result in significantly lower total emissions for the sector. Based on the data provided by Solid Resources in 2022, the emissions for this sector from the measured quantities from landfill sampling in 2022 would be calculated at 105,924 MT CO_2e. We have kept the modeled values as the official numbers in accordance with the LGO Protocol's methodologies; however, the actual quantities, as indicated by measured data from Solid Resources, may differ and potentially be significantly lower. This measured data reflects the effectiveness of our enhanced gas collection systems and ongoing operational improvements aimed at reducing the environmental impact of our landfills.

Table 15. Solid Waste Facilities Emissions (MT CO_2e)

Solid Waste Facilities GHG Emissions (MT CO_2e)				
Year	Scope 1: Modeled Landfill Gas Collection Combustion and Fugitive Emissions	Scope 2: Purchased Electricity Emissions	Total Emissions	Biogenic CO_2 Emissions
2008 Baseline	196,470	-	196,470	55,029
2017	164,080	-	164,080	45,955
2018	160,861	-	160,861	45,056
2019	157,692	-	157,692	44,168
2020	154,531	-	154,531	43,282
2021	151,485	-	151,485	42,430
2022	148,486	-	148,486	41,589
2023	147,243	-	147,243	40,766
2024	144,327	-	144,327	39,959

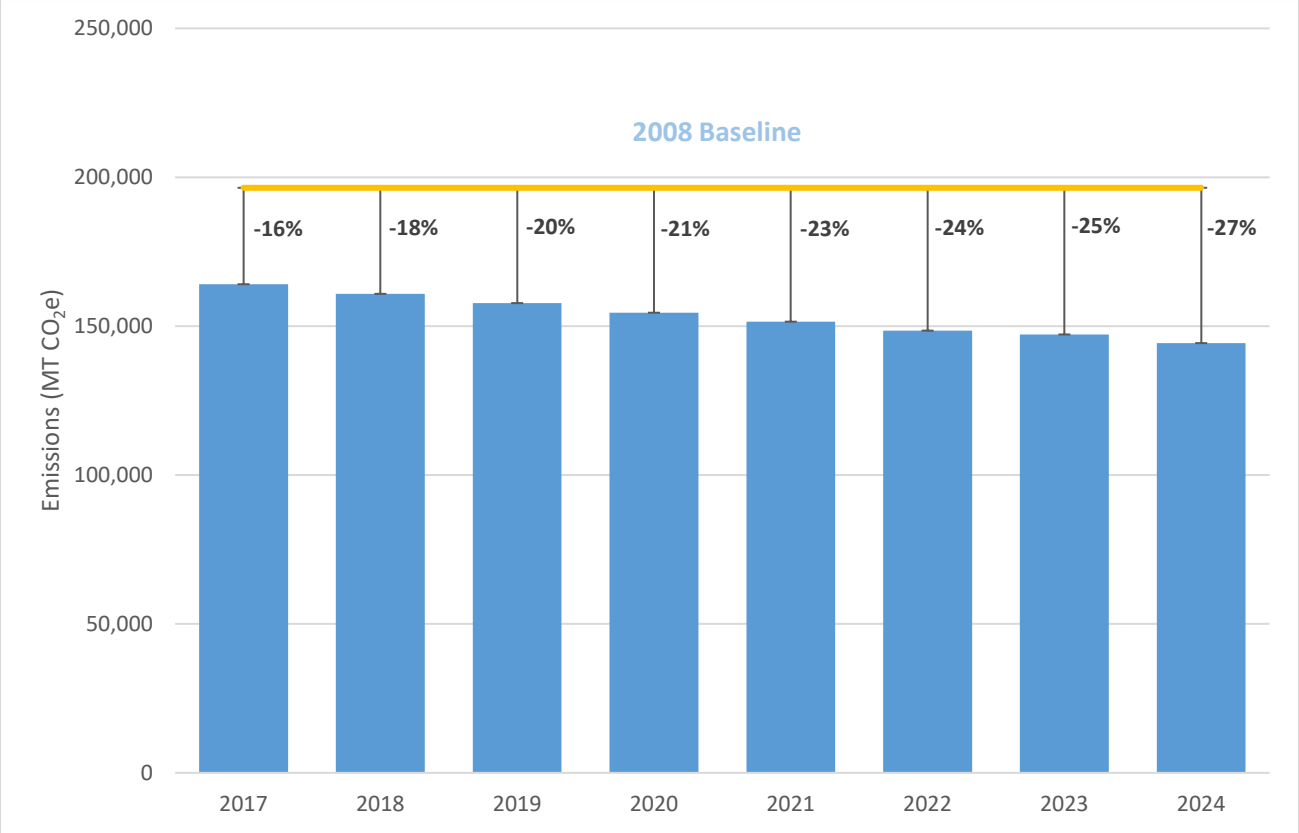

Figure 15. Solid Waste Facilities Emissions Reductions from Baseline

4. Conclusion

In the heart of Los Angeles, our collective endeavors to diminish greenhouse gas emissions transcend mere statistics–they embody our unwavering dedication to fostering a healthier, more sustainable city. Our stride towards carbon neutrality by 2045 is not merely a theoretical ambition; it's a dynamic, communal mission that we breathe life into every single day. Our achievements thus far are noteworthy, having already realized a significant 42% reduction in emissions from our 2008 levels by 2024. However, this amount is not enough, and our journey to reduce municipal emissions is far from over. Beyond the City, the global trend in emissions means we will need to build in climate adaptations and resiliency to address expected changes and serve all Angelenos.

At this pivotal juncture, Los Angeles is not just poised to continue its environmental stewardship but is also committed to amplifying these efforts. Our approach extends beyond governmental policies, permeating the very fabric of our daily existence. It's about each individual embracing sustainable choices–be it through energy conservation at home, opting for public transit, or supporting local eco-initiatives.

Our collective power for change has been evident in actions like transitioning to renewable energy sources, electrifying our municipal fleet, and implementing water conservation strategies. Yet, we face ongoing challenges, such as the increased energy demands of our water facilities and the task of managing emissions from our ports and airports. However, these obstacles additionally represent opportunities for us to collectively innovate and devise groundbreaking solutions.

As we forge ahead, let us hold fast to the conviction that Los Angeles is resolute in its pledge to protect our environment. Reducing our carbon footprint is a shared journey, and the strategies outlined in LA’s Green New Deal are our compass. Equally crucial is the role each one of us plays in this collective endeavor. By altering our habits and fostering a culture steeped in sustainability, we are both affecting change for the present and sculpting a vibrant, resilient Los Angeles for generations to come. Through accurate, transparent, and consistent tracking of the City’s greenhouse gas emissions, this report serves as a long-standing tool to underscore the City’s commitment to reducing emissions while building a more resilient and sustainable future for Angelenos.

5. Preparers

LA Sanitation & Environment (LASAN), recognized as a national leader in environmental services and programs, is a critical partner in the City's climate action and response and in advancing the path towards the City's climate goals. LASAN is committed to proactively addressing climate change and supporting climate action in line with our mission to protect public health and the environment.

Building on nearly a decade of experience, LASAN's Climate Action Program supports the City's path towards carbon neutrality as outlined by the Sustainable City pLAn. This program collaborates with City departments, policymakers, and outside agencies on climate-related reports and activities.

For more information about the Climate Action Program, please contact us at san.climateaction@lacity.org or visit us at www.lacitysan.org/climateaction.

Last updated: February 2026

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