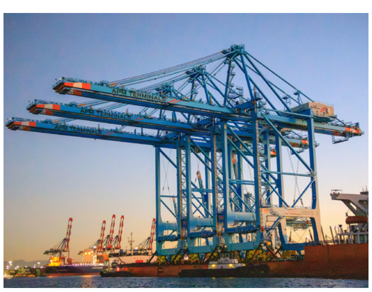
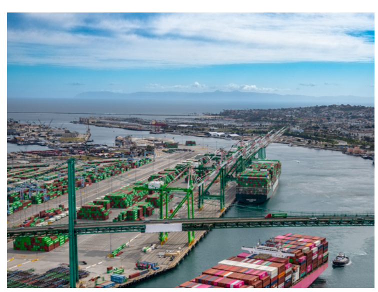
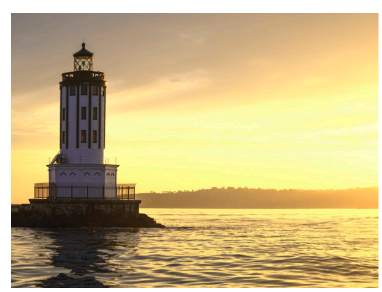
PORT OF LOS ANGELES

Inventory Of Air Emissions 2024

Technical Report | September 2025







THE PORT OF LOS ANGELES

STARCREST CONSULTING GROUP, LLC
ENVIRONMENTAL MANAGEMENT · AIR QUALITY · CLIMATE · SUSTAINABILITY

INVENTORY OF AIR EMISSIONS FOR CALENDAR YEAR 2024

Prepared for:

THE PORT OF LOS ANGELES

September 2025

Prepared by:

STARCREST CONSULTING GROUP, LLC
ENVIRONMENTAL MANAGEMENT
AIR QUALITY • CLIMATE • SUSTAINABILITY

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Please note that there may be minor numerical inconsistencies between the various sections, tables, and figures of this report, due to rounding associated with emission estimates, percent contribution, and other calculated numbers. Estimates are calculated using more significant figures than presented in the various tables. A detailed San Pedro Bay Ports Emissions Inventory Methodology Report is available on the Port's website.[1] *This 2024 Air Emissions Inventory correlates with Version 5 of the Methodology Report.*

EXECUTIVE SUMMARY

The Port of Los Angeles (Port or POLA) annual activity-based emissions inventories serve as the primary tool to track the Port's efforts to reduce air emissions from maritime industry-related sources through implementation of measures identified in the San Pedro Bay Ports (SPBP) Clean Air Action Plan (CAAP) and regulations promulgated at the state and federal levels. Development of the annual air emissions estimates is coordinated with a technical working group (TWG) comprised of representatives from the Port, the Port of Long Beach (POLB), and the following air regulatory agencies: U.S. Environmental Protection Agency, Region 9 (EPA), California Air Resources Board (CARB), and the South Coast Air Quality Management District (South Coast AQMD). Emissions estimated in this report are consistent with CARB and US EPA published methodologies.

Summary of 2024 Activity and Emission Estimates

The Port of Los Angeles (Port or POLA) 2024 Inventory of Air Emissions study presents maritime industry-related emission estimates based on calendar year 2024 activity levels. The Port of Los Angeles reported a record of 10.3 million twenty-foot equivalent units (TEUs) in 2024, which is 19% higher than the prior year and 38% higher than the 2005 baseline year. Table ES.1 presents the number of vessel arrivals and the container cargo throughput for calendar years 2024, 2023, 2017 and 2005.

Table ES.1: Container Throughput and Vessel Arrivals Comparison

Year	TEUs	All Arrivals	Containership Arrivals	Average TEUs/Call
2024	10,297,352	1,548	971	10,605
2023	8,629,681	1,476	874	9,874
2017	9,343,193	1,801	1,154	8,096
2005	7,484,625	2,458	1,479	5,061
Previous Year	**19%**	**5%**	**11%**	**7%**
2024 vs 2017	**10%**	**-14%**	**-16%**	**31%**
2024 vs 2005	**38%**	**-37%**	**-34%**	**110%**

[1] POLA, *www.portoflosangeles.org/environment/air-quality/air-emissions-inventory*

Table ES.2 summarizes the Port's 2024 maritime industry-related mobile source emissions of air pollutants in the South Coast Air Basin (SoCAB) by the following categories: ocean-going vessels (OGVs), harbor craft, cargo handling equipment (CHE), locomotives, and heavy-duty vehicles (HDV). The pollutants included in the inventory include particulate matter 10-microns (PM_{10}), particulate matter 2.5-microns ($PM_{2.5}$), diesel particulate matter (DPM), oxides of nitrogen (NO_x), oxides of sulfur (SO_x), carbon monoxide (CO), hydrocarbons (HC), and carbon dioxide equivalents (CO_2e). In 2024, approximately 42% of the Port's total $PM_{2.5}$ and 53% of the Port's total NO_x emissions are attributed to OGVs.

Table ES.2: 2024 Maritime Industry-Related Emissions by Category

Category	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e tonnes
Ocean-going vessels	40	36	25	2,148	79	196	98	162,042
Harbor craft	11	10	11	483	1	103	26	55,604
Cargo handling equipment	10	9	9	256	2	502	52	145,423
Locomotives	31	29	31	834	1	197	49	69,105
Heavy-duty vehicles	5	4	5	378	4	302	38	404,016
Total	**96**	**89**	**80**	**4,098**	**86**	**1,300**	**263**	**836,190**

DB ID457

The NO_x and DPM trend charts shown in Figures ES.1 and ES.2 reflect the 2005 to 2024 emissions trend by source category. Figure ES.1 shows 2024 NO_x emissions are virtually unchanged from 2023 and at the lowest levels since the baseline year.

Figure ES.1: NO_x Emissions Trend by Source Category

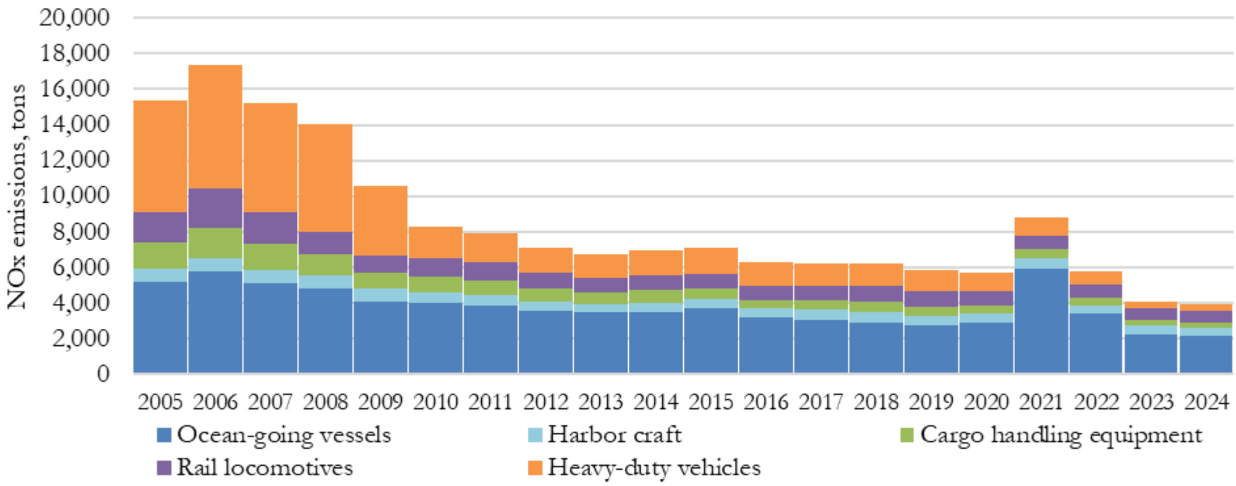
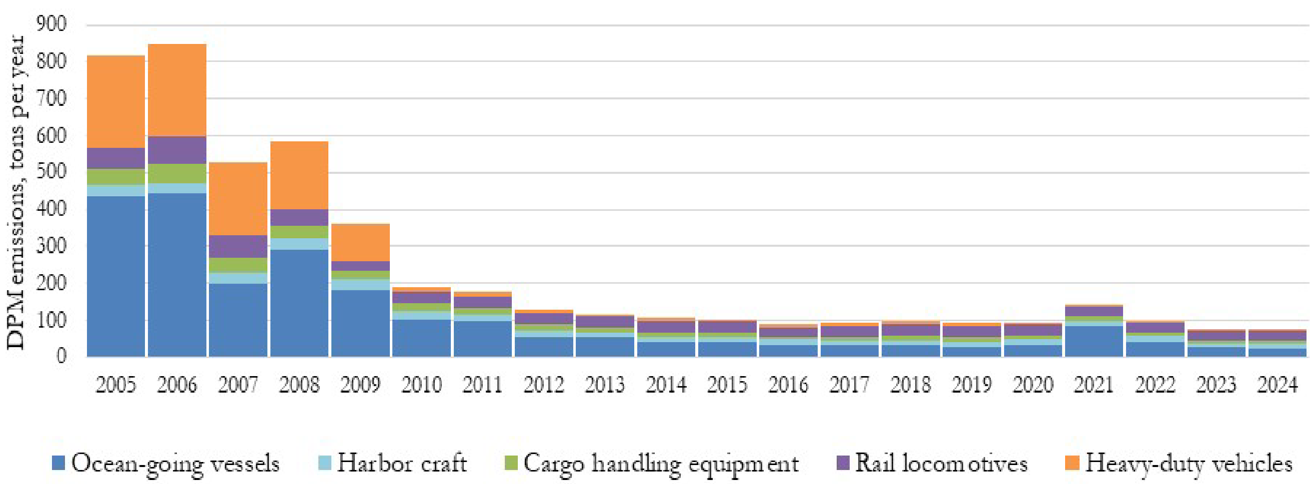


Figure ES.2 shows 2024 DPM emissions slightly higher than 2023 which is when DPM emissions were at the lowest level.

Figure ES.2: DPM Emissions Trend by Source Category



In order to put the maritime industry-related emissions into context, the following figures compare the Port's contributions to the total emissions in the South Coast Air Basin (SoCAB) by major emission source category. The pie charts reflect the latest SoCAB emissions from the 2022 Air Quality Management Plan (AQMP)[2].

Figure ES.3: 2024 PM_{10} Emissions in the South Coast Air Basin

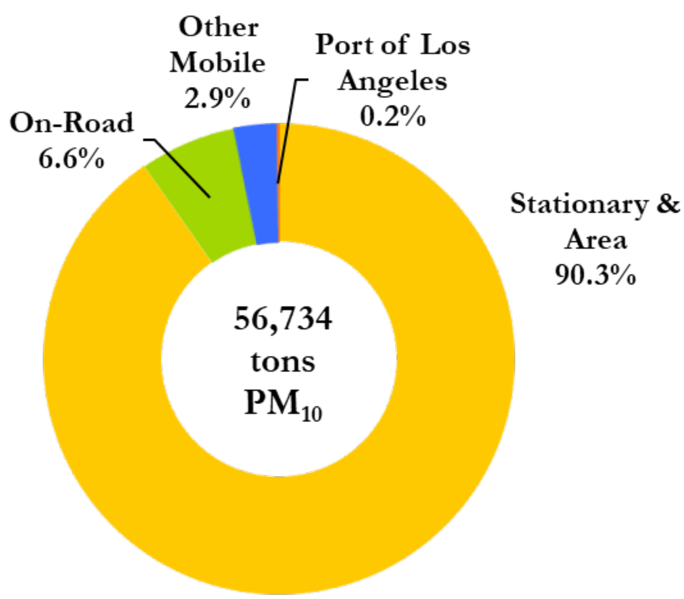
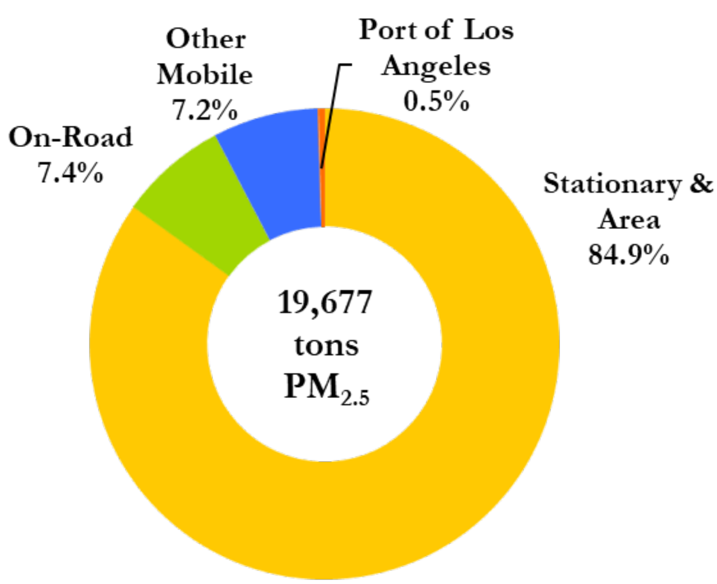


Figure ES.4: 2024 $PM_{2.5}$ Emissions in the South Coast Air Basin



[2] See South Coast AQMD webpage for AQMP: *www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan*

Figure ES.5: 2024 DPM Emissions in the South Coast Air Basin

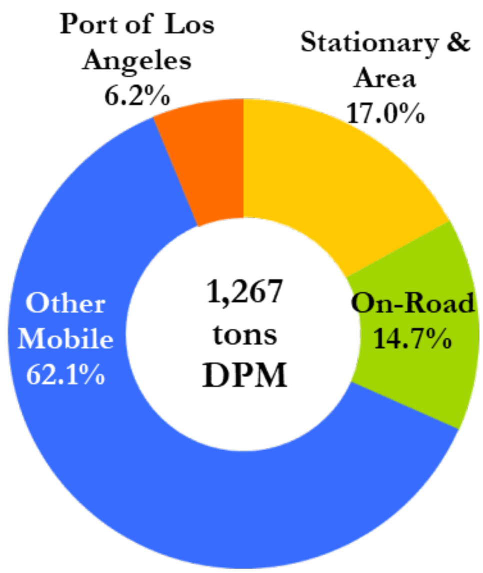


Figure ES.6: 2024 NO_x Emissions in the South Coast Air Basin

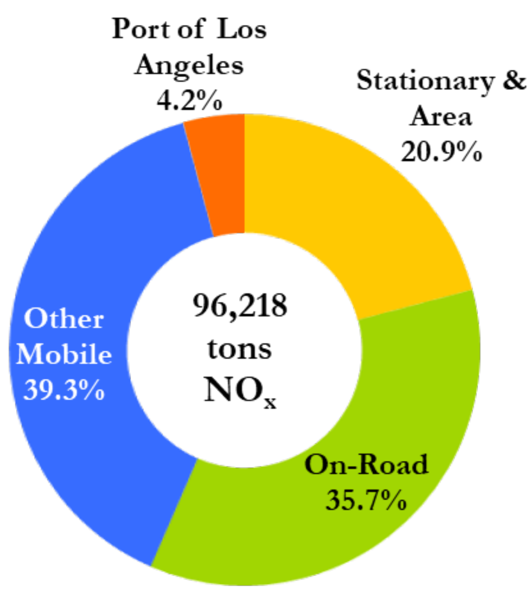
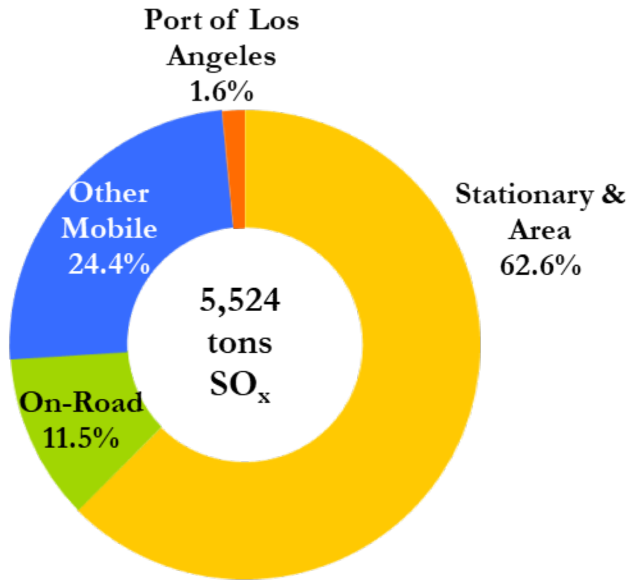


Figure ES.7: 2024 SO_x Emissions in the South Coast Air Basin



Comparison of 2024 Emissions to 2023, 2017, and 2005

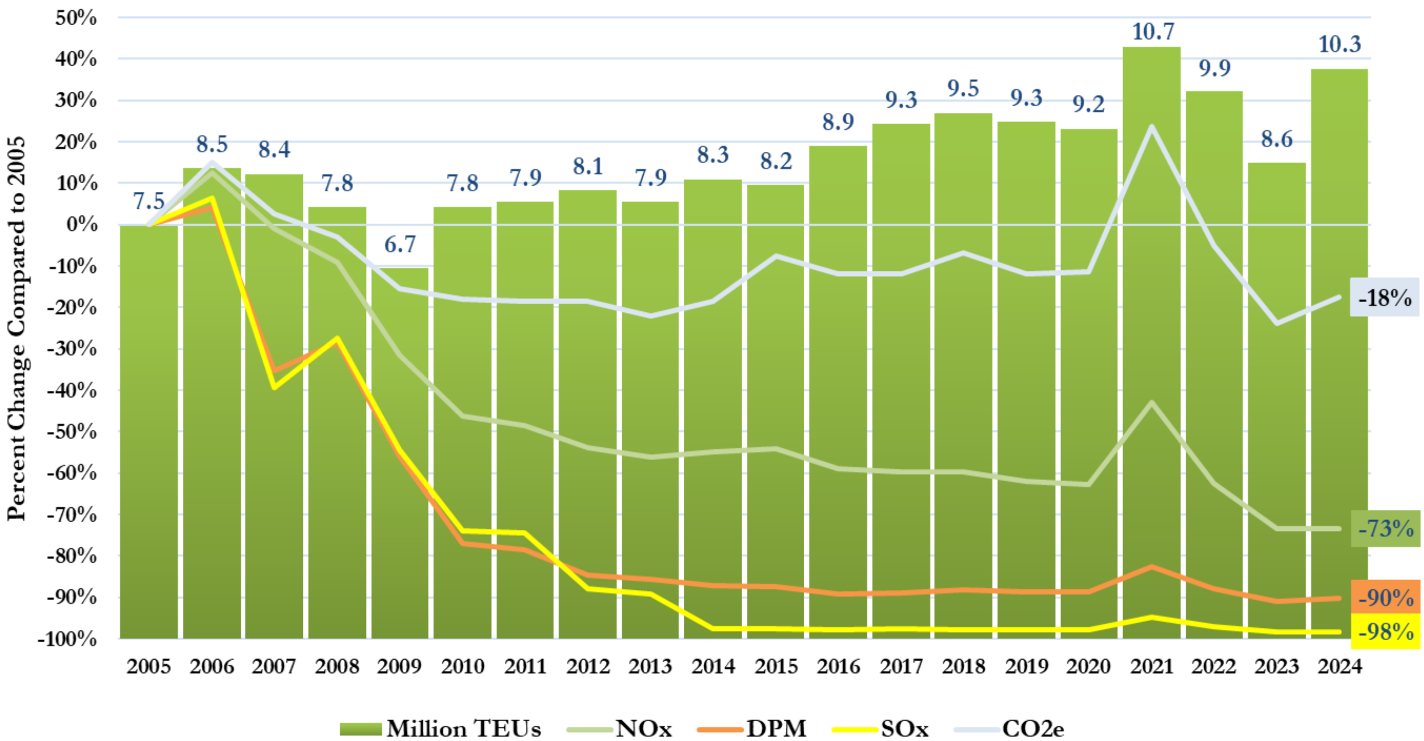
Table ES.3 presents the total net change in emissions from all source categories in 2024 as compared to prior years, all using the latest methodology. To maintain consistency between the years compared, the emissions for the previous years are recalculated whenever new estimation methodologies are introduced. Calendar year 2017 is included for comparison because the Port of Los Angeles and Port of Long Beach updated their landmark Clean Air Action Plan with new emission reduction strategies that year. The comparison of current inventory year to 2017 allows the Port and its stakeholders to better understand the progress made since the adoption of the Clean Air Action Plan update.

Table ES.3: Maritime Industry-related Emissions Comparison

EI Year	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e tonnes
2024	96	89	81	4,098	86	1,300	263	836,190
2023	90	83	75	4,078	82	1,376	285	771,102
2017	113	104	91	6,222	113	1,597	343	893,350
2005	982	845	816	15,394	4,830	3,532	819	1,013,709
2024 vs 2023	**7%**	**7%**	**8%**	**0%**	**5%**	**-6%**	**-8%**	**8%**
2024 vs 2017	**-15%**	**-14%**	**-12%**	**-34%**	**-24%**	**-19%**	**-23%**	**-6%**
2024 vs 2005	**-90%**	**-89%**	**-90%**	**-73%**	**-98%**	**-63%**	**-68%**	**-18%**

Figure ES.8 depicts the maritime industry-related emissions trend for NO_x, DPM, SO_x, and CO_2e. The green bars depict the TEU cargo throughput for each calendar year. NO_x, DPM and SO_x have all decreased significantly since 2005.

Figure ES.8: Emissions Trend



Comparison of 2024 Emissions by Source Category to 2023

Table ES.4 presents the 2024 and 2023 emissions comparison by source category. Emissions decreased for OGV in 2024 as compared to 2023, except for SO_x. Emissions decreased for harbor craft, except for SO_x, CO and CO_2e. CHE emissions decreased, except for DPM and SO_x. The decreases are due to newer and cleaner equipment/vehicles/vessels, including the latest engines used by vessels, higher shore power use, alternative fuel use, and more electric and hybrid equipment. Locomotive and heavy-duty vehicle emissions are higher due to increased activity and lack of significant fleet turnover that could overcome the activity increase due to the 19% increase in throughput. The overall port-wide emissions are higher for PM, DPM, SOx and CO_2e while NOx remained unchanged.

Table ES.4: Maritime Industry-related 2024-2023 Emissions Comparison by Source Category

	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e tonnes
2024								
Ocean-going vessels	40	36	25	2,148	79	196	98	162,042
Harbor craft	11	10	11	483	1	103	26	55,604
Cargo handling equipment	10	9	9	256	2	502	52	145,423
Locomotives	31	29	31	834	1	197	49	69,105
Heavy-duty vehicles	5	4	5	378	4	302	38	404,016
Total	**96**	**89**	**81**	**4,098**	**86**	**1,300**	**263**	**836,190**
2023								
Ocean-going vessels	41	38	27	2,258	76	213	106	163,737
Harbor craft	11	10	11	482	1	96	27	51,746
Cargo handling equipment	10	9	9	329	2	624	79	145,385
Locomotives	24	22	24	659	1	158	38	55,373
Heavy-duty vehicles	3	3	3	350	3	285	35	354,861
Total	**90**	**83**	**75**	**4,078**	**82**	**1,376**	**285**	**771,102**
Change between 2023 and 2024 (percent)								
Ocean-going vessels	-3%	-3%	-9%	-5%	4%	-8%	-8%	-1%
Harbor craft	-2%	-2%	-2%	0%	7%	7%	-3%	7%
Cargo handling equipment	-2%	-2%	3%	-22%	4%	-20%	-35%	0%
Locomotives	29%	29%	29%	27%	25%	25%	30%	25%
Heavy-duty vehicles	38%	38%	38%	8%	14%	6%	9%	14%
Total	**7%**	**7%**	**8%**	**0.5%**	**5%**	**-6%**	**-8%**	**8%**

Calendar year 2024 was the second year the Port reached cargo throughput of over 10 million TEUs (the first was calendar year 2021, with calendar years 2022 and 2023 being 9.9 and 8.6 million TEUs respectively). The increased cargo throughput for 2024 was fueled by a positive economy, high consumer demand and towards the end of the year, by initial discussion of tariff increases beginning Q1 2025. Section 9 provides more information about energy consumption and includes a comparison by source category with factors that contributed to the emission changes. Major highlights by source category include:

- For OGVs, the 2024 emissions are lower compared to 2023, except for SO_x despite a 19% increase in TEU throughput. The emission reductions are due to increased shore power use and more vessels calling the Port with Tier III[3] engines. The SO_x increase is due to increase in vessel activity including at berth activity and lack of emissions control of boiler emissions during shore power usage.

- For harbor craft, PM, NO_x and hydrocarbon emissions are slightly lower or similar in 2024 compared to 2023 due to a combination of increased activity and fleet turnover to cleaner engines. An increase in SO_x, carbon monoxide (CO), and CO_2e is the result of increased harbor craft activity and a lack of more stringent engine emission standards for CO and CO_2.

- For CHE, the 2024 PM, NOx, CO and HC emissions are lower, while DPM and SO_x emissions are higher compared to 2023. The lower emissions are due to increased use of Tier 4 equipment and removal of older propane and gasoline equipment. CO_2e tailpipe emissions did not increase and remained unchanged compared to 2023 as there was no significant increase in activity reflecting CHE operating efficiencies and increased use of electric equipment.

- For locomotives, 2024 emissions are higher compared to 2023 due to higher on-dock throughput to accommodate the 19% TEU throughput increase. The switching locomotives continued to use renewable diesel.

- For heavy-duty vehicles, the 2024 emissions are higher compared to 2023 due to increased truck activity because of 19% more TEU cargo throughput. The share of mileage driven by 2014 and newer model year trucks continued to increase from 86% in 2023 to 92% in 2024. The increased use of newer trucks was not enough to counteract the effects of increased throughput, activity, higher weighted average speed, and more idling.

[3] International Maritime Organization (IMO) established three progressively more stringent tiers of diesel engine NO_x limits under International Convention for the Prevention of Pollution from ships (MARPOL) Annex VI Regulation 13: Tier I, Tier II and Tier III. Tier III is a 75% NO_x reduction over Tier II.

Comparison of 2024 Emissions by Source Category to 2005

Table ES.5 presents the 2024 and 2005 emissions comparison by source category. Despite a 38% increase in TEU throughput in 2024 as compared to 2005, emission reductions occurred for all pollutants in each source category, except for higher CO_2e emissions for harbor craft and CHE. Please note that emissions are shown as whole numbers in this summary table. The PM and SO_x emissions are displayed in decimal notation in the source category sections.

Table ES.5: Maritime Industry-related 2024-2005 Emissions Comparison by Source Category

	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e tonnes
2024								
Ocean-going vessels	40	36	25	2,148	79	196	98	162,042
Harbor craft	11	10	11	483	1	103	26	55,604
Cargo handling equipment	10	9	9	256	2	502	52	145,423
Locomotives	31	29	31	834	1	197	49	69,105
Heavy-duty vehicles	5	4	5	378	4	302	38	404,016
Total	**96**	**89**	**81**	**4,098**	**86**	**1,300**	**263**	**836,190**
2005								
Ocean-going vessels	601	482	435	5,220	4,673	424	209	279,873
Harbor craft	33	32	33	706	4	209	49	44,947
Cargo handling equipment	44	40	43	1,449	9	797	104	134,542
Locomotives	57	53	57	1,712	98	237	89	79,470
Heavy-duty vehicles	248	238	248	6,307	45	1,865	368	474,877
Total	**982**	**845**	**816**	**15,394**	**4,830**	**3,532**	**819**	**1,013,709**
Change between 2005 and 2024 (percent)								
Ocean-going vessels	-93%	-92%	-94%	-59%	-98%	-54%	-53%	-42%
Harbor craft	-68%	-68%	-68%	-32%	-87%	-51%	-46%	24%
Cargo handling equipment	-77%	-77%	-79%	-82%	-82%	-37%	-50%	8%
Locomotives	-44%	-45%	-44%	-51%	-99%	-17%	-44%	-13%
Heavy-duty vehicles	-98%	-98%	-98%	-94%	-91%	-84%	-90%	-15%
Total	**-90%**	**-89%**	**-90%**	**-73%**	**-98%**	**-63%**	**-68%**	**-18%**

Several factors contributed to lower emissions in 2024 compared to 2005, the CAAP baseline year. The major highlights by source category include:

- For OGVs, the 2024 emissions are lower compared to 2005 due to fewer vessel calls, fuel switching, shore power, the Port's Environmental Ship Index (ESI) Incentive Program, Vessel Speed Reduction (VSR) compliance, and newer vessels. In 2024, except for the few alternatively fueled vessels, all engines for OGVs continued to use diesel fuel with 0.1% sulfur or lower. The CARB At-Berth Regulation continued to require control of at berth emissions from container, refrigerated cargo, and passenger vessels. The remarkable 42% decrease in CO_2e emissions is primarily due to fewer vessel calls (i.e., larger ships with increased container capacity), VSR and the use of shore power at berth.

- For harbor craft, the 2024 emissions are lower than 2005 emissions due to using renewable diesel by all harbor craft, the repowers that occurred in the last few years as required by the CARB In-Use Harbor Craft Regulation or funding incentives, removal of older vessels due to attrition, and more efficient operations. There are no carbon dioxide (CO_2) standards for engines or control measures for harbor craft, therefore, the CO_2e emissions typically change along with activity trend. Due to operational efficiencies to reduce fuel consumed, CO_2e emissions are only 24% higher despite the 32% increase in activity (i.e., kWh).

- For CHE, equipment at container terminals continued using renewable diesel which has a lower carbon intensity than conventional diesel when taking into consideration life cycle analysis. The 2024 emissions are lower compared to 2005, except for CO_2e, due to implementation of CAAP measures and CARB's Cargo Handling Equipment Regulation, and funding incentives. These measures resulted in replacement of older equipment with cleaner units, retrofits, and repowers. The increased use of hybrid equipment, such as hybrid RTG cranes and straddle carriers, has also helped lower emissions. The increase in CO_2e reflects the lack of more stringent engine emission standards or emission control measures for CO_2 and increased activity. Due to the use of electric and hybrid equipment, CO_2e emissions are only 8% higher compared to 2005 and did not trend with the 38% increase in TEU throughput trend.

- For locomotives, 2024 emissions are lower compared to 2005 due to decreases in fleet-wide emissions from line haul locomotives meeting the terms of the memorandum of understanding (MOU) with CARB, voluntary use of renewable diesel, and the replacement of older switching locomotives with new low-emission and ultra-low emission switchers. The CO_2e emissions are lower due to lower fuel consumption because of anti-idling technology and more fuel-efficient locomotives.

- For HDV, 2024 emissions are lower compared to 2005 due to the Port's Clean Truck Program (CTP) which resulted in significant turnover of older trucks to newer and cleaner trucks as compared to 2005. Currently, all the trucks are 2010 and newer. More recently, as part of a Port Tariff amendment in 2018, all new trucks that register in the Ports' Drayage Truck Registry are required to be 2014 model year or newer.

The share of mileage driven by 2014 and newer model year trucks increased to 92% in 2024 which shows the impact of the Port Tariff on the drayage trucks working at the Port. The CO_2e emissions are lower due to alternative fueled and battery electric trucks, in addition to more fuel-efficient newer trucks.

Comparison of 2024 Emissions by Source Category to 2017

Table ES.6 presents the 2024 and 2017 emissions comparison by source category. TEU throughput is 10% higher in 2024 compared to 2017. Total emissions decreased across all pollutants in 2024 as compared to 2017 despite the increased activity due to higher TEU throughput. This is a direct result of the continued emission reduction strategies set by the Port through the 2017 SPBP CAAP Update. While overall emissions decreased, there were source category increases for specific pollutants across three source categories: harbor craft emissions (SO_x, CO, HC and CO_2e), locomotives (PM and HC) and truck emissions (SO_x, CO, and CO_2e).

Table ES.6: Maritime Industry-related 2024-2017 Emissions Comparison by Source Category

	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e tonnes
2024								
Ocean-going vessels	40	36	25	2,148	79	196	98	162,042
Harbor craft	11	10	11	483	1	103	26	55,604
Cargo handling equipment	10	9	9	256	2	502	52	145,423
Locomotives	31	29	31	834	1	197	49	69,105
Heavy-duty vehicles	5	4	5	378	4	302	38	404,016
Total	**96**	**89**	**81**	**4,098**	**86**	**1,300**	**263**	**836,190**
2017								
Ocean-going vessels	52	48	33	3,083	106	256	126	212,074
Harbor craft	11	10	11	521	0	91	21	49,837
Cargo handling equipment	13	12	11	543	2	783	87	172,882
Locomotives	30	27	30	839	1	208	45	73,301
Heavy-duty vehicles	7	7	7	1,236	4	260	64	385,255
Total	**113**	**104**	**91**	**6,222**	**113**	**1,597**	**343**	**893,350**
Change between 2017 and 2024 (percent)								
Ocean-going vessels	-24%	-24%	-24%	-30%	-26%	-23%	-22%	-24%
Harbor craft	-3%	-1%	-3%	-7%	17%	13%	24%	12%
Cargo handling equipment	-23%	-24%	-19%	-53%	-10%	-36%	-41%	-16%
Locomotives	6%	8%	6%	-1%	-4%	-5%	10%	-6%
Heavy-duty vehicles	-34%	-34%	-35%	-69%	4%	16%	-41%	5%
Total	**-15%**	**-14%**	**-12%**	**-34%**	**-24%**	**-19%**	**-23%**	**-6%**

Several factors contributed to the lower emissions in 2024 compared to 2017 and the major highlights by source category include:

- For OGVs, the 2024 emissions are lower compared to 2017 due to fewer vessel calls, increase in shore power use, Port's Environmental Ship Index (ESI) Incentive Program, VSR compliance, and newer vessels with Tier III engines.

- For harbor craft, the 2024 NO_x and PM emissions are slightly lower compared to 2017 due to use of renewable diesel by all harbor craft, and cleaner vessels. Emissions are higher for the other pollutants due to increased activity (kWhr) in 2024 as compared to 2017. Since 2017, barges and dredge operations vessels have been added to the inventory as new information is collected to be consistent with CARB's latest CHC Regulation. The added engines and activity have contributed to the increased SO_x and CO_2e emissions.

- For CHE, the 2024 emissions are lower compared to 2017 due to lower activity and cleaner equipment because of implementation of CAAP measures, the increased use of electric and hybrid equipment, and increased funding incentives in recent past to replace older equipment with cleaner units, retrofits, and repowers. The increased use of hybrid equipment, such as hybrid RTG cranes and straddle carriers, also helped lower the CO_2e emissions.

- For locomotives, the 2024 emissions are lower compared to 2017 due to the decreases in fleet-wide emissions from line haul locomotives meeting the terms of the memorandum of understanding (MOU) with CARB, use of renewable diesel, and the replacement of older switching locomotives with new low-emission and ultra-low emission switchers.

- For HDV, the 2024 PM, NO_x, SO_x and HC emissions are lower compared to 2017 due to the Port Tariff amendment in 2018 which stipulated all new trucks that register in the Ports' Drayage Truck Registry are required to be 2014 model year or newer. As a result, the share of mileage driven by 2014 and newer model year trucks is 92% in 2024 and all the trucks driven are essentially 2010 model year and newer. CO, SO_x, and CO_2e emission are higher due to increase in VMT and for CO, it is due to more alternatively fueled trucks in 2024 than 2017. Alternatively fueled trucks have higher CO emissions.

Comparison of Emissions Efficiency

Table ES.7 summarizes the annualized emissions efficiencies for all five source categories. The overall emissions efficiency in 2024 improved for all pollutants as compared to 2023, 2017 and 2005. In Table ES.7, a positive percentage means an increase in emissions efficiency.

Table ES.7: Emissions Efficiency Metric Comparison, tons/10,000 TEUs

EI Year	PM_{10}	$PM_{2.5}$	DPM	NO_x	SO_x	CO	HC	CO_2e
2024	0.093	0.086	0.078	3.98	0.08	1.26	0.26	813
2023	0.104	0.096	0.086	4.73	0.09	1.59	0.33	894
2017	0.121	0.111	0.098	6.66	0.12	1.71	0.37	956
2005	1.313	1.129	1.090	20.57	6.45	4.72	1.09	1,354
2024 vs 2023	**11%**	**10%**	**9%**	**16%**	**11%**	**21%**	**21%**	**9%**
2024 vs 2017	**23%**	**23%**	**20%**	**40%**	**33%**	**26%**	**30%**	**15%**
2024 vs 2005	**93%**	**92%**	**93%**	**81%**	**99%**	**73%**	**76%**	**40%**

CAAP Standards and Emission Reduction Progress

One of the main purposes of the annual inventories is to provide a progress update on achieving the San Pedro Bay CAAP Standards. These standards consist of the following emission reduction goals, using the 2005 published inventories as a baseline.

- Emission Reduction Standard:
  - By 2014, reduce emissions by 72% for DPM, 22% for NO_x, and 93% for SO_x
  - By 2023, reduce emissions by 77% for DPM, 59% for NO_x, and 93% for SO_x

- Health Risk Reduction Standard: 85% reduction by 2020

Due to the many emission reduction measures undertaken by the Port and Port operators, as well as statewide and federal regulations and standards, the 2023 emission reduction standards were met for DPM, NO_x, and SO_x, despite the increase in activity due to the TEU cargo increase (38%) since 2005. Table ES.8 summarizes DPM, NO_x, and SO_x percent reductions as compared to the 2023 emission reduction standards.

Table ES.8: Reductions as Compared to 2023 Emission Reduction Standards

Pollutant	2024 Actual Reductions	2023 Emission Reduction Standard
DPM	-90%	77%
NO_x	-73%	59%
SO_x	-98%	93%

Figures ES.9 through ES.12 present the 2005 baseline emissions and the year-to-year percent change in emissions with respect to the 2005 baseline emissions. The 2023 San Pedro Bay standards are also provided as a snapshot of progress to-date. The pink line in the figures represents the percentage of TEU throughput as compared to 2005 TEU throughput. These figures provide context for the relative correlation between cargo throughput and emissions. The TEU throughput was 38% higher in 2024 as compared to 2005.

Figure ES.9: DPM Reductions to Date

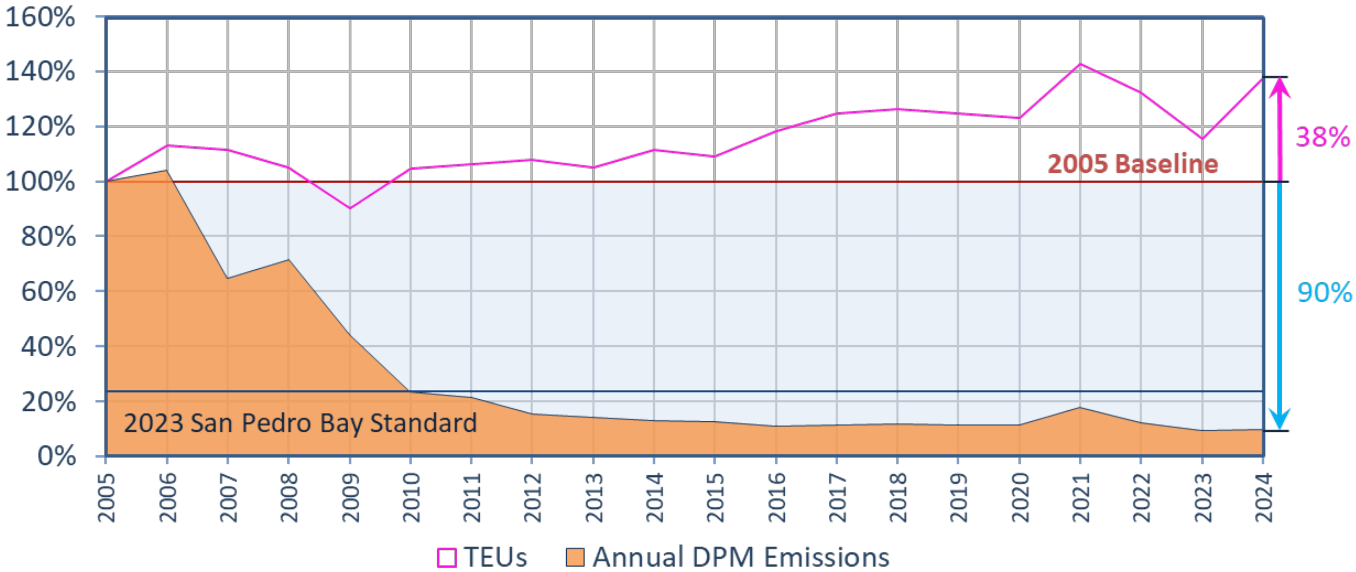


Figure ES.10: NO_x Reductions to Date

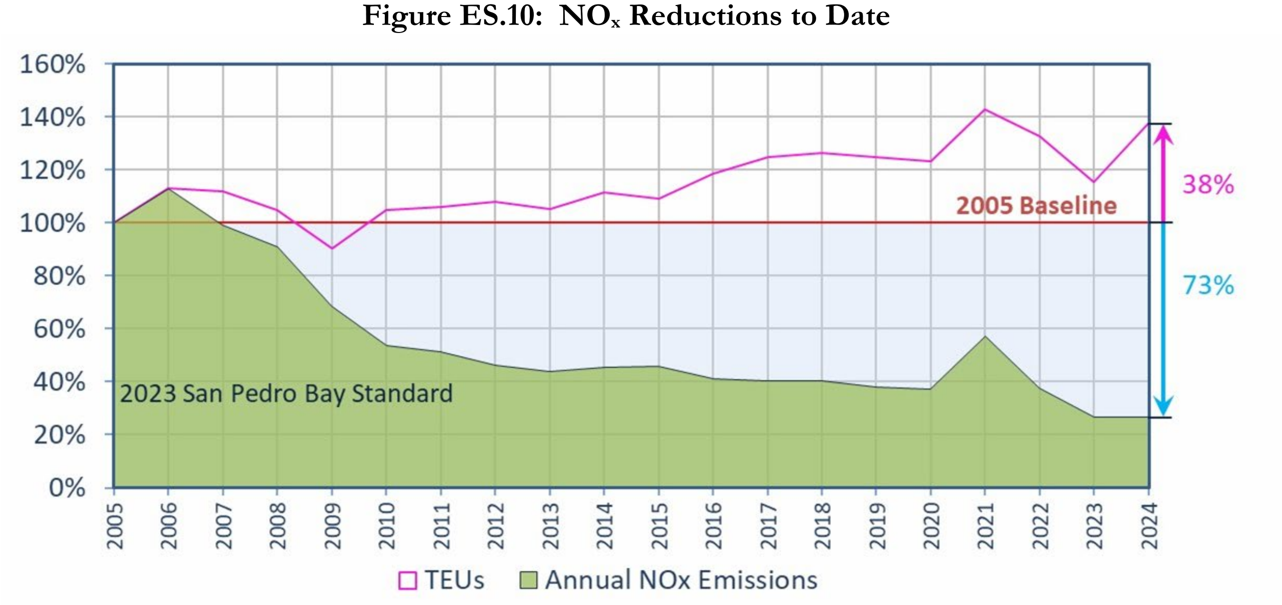
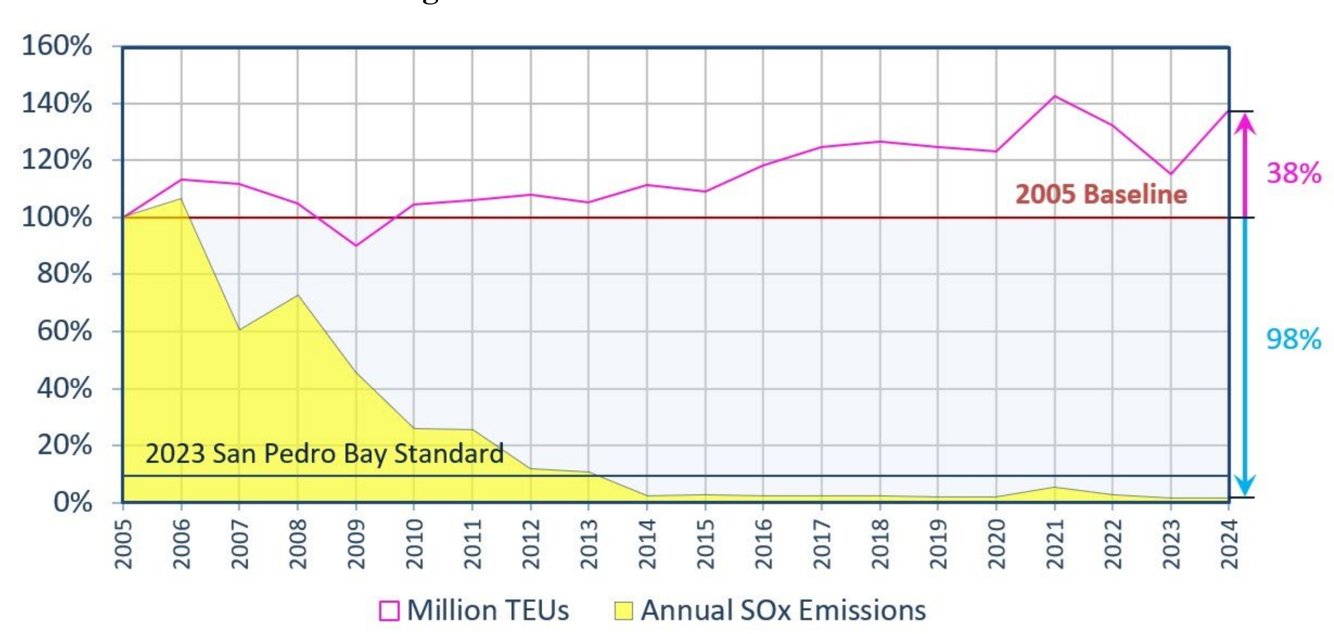


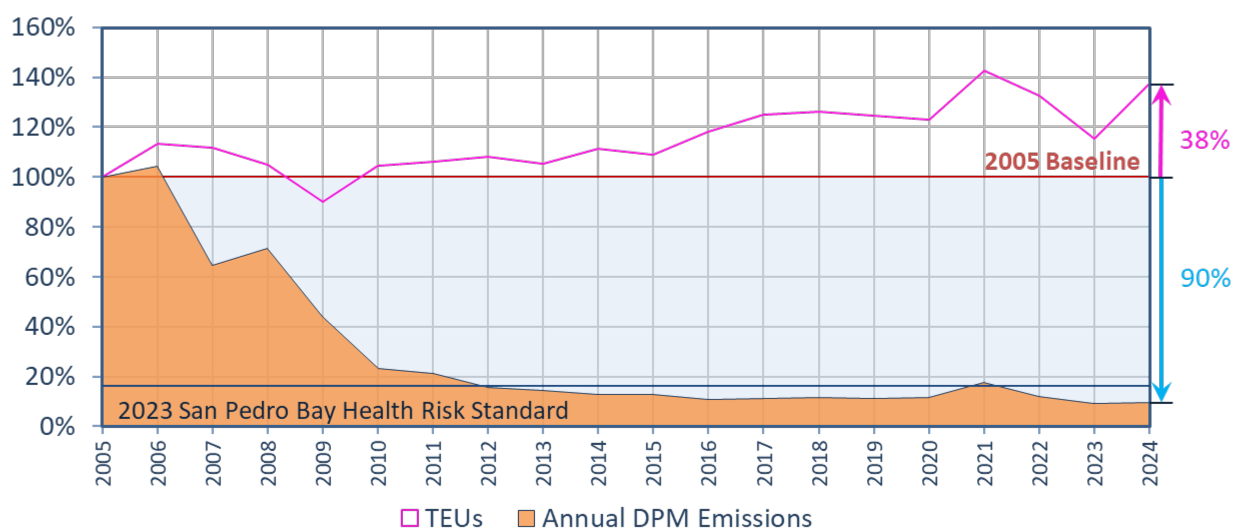
Figure ES.11: SO_x Reductions to Date



Health Risk Reduction Progress

Progress to-date on health risk reduction was determined by comparing the change in DPM mass emissions to the 2005 baseline. Figure ES.12 presents the progress of achieving the health risk reduction standard to date. In 2024, with a 90% reduction, the Port met and exceeded the 2020 Health Risk Reduction Standard (85%). The TEU throughput was 38% higher in 2024 as compared to 2005.

Figure ES.12: Health Risk Reduction Benefits to Date



As summarized in Table ES.4 and Section 2 (Regulatory and CAAP Measures), the major factors contributing to the lower emissions over the years for the various pollutants include:

- Fuel Switching in all source categories reduced emissions, but was a major contributor to OGV which originally used residual diesel fuel with an average 2.7% sulfur content. OGV switched to marine gas oil (MGO) or marine diesel oil (MDO) fuel with 1% sulfur in 2012 and 0.1% sulfur in 2015. For harbor craft, CHE, HDV, and locomotives, ultra-low sulfur diesel (ULSD) has been used since 2006 and 2007 timeframe. Most recently, renewable diesel fuel has been used by harbor craft, switcher locomotives and CHE. In the last couple of years, alternative fueled vessels have started calling the Port.

- Various OGV programs and regulations that further reduced emissions are the use of at-berth shore power, CARB approved alternative emissions control strategy (CAECS), and the VSR and ESI incentive programs that occurred in a phased approach. The introduction of Tier III vessels as well as use of alternative fuel (LNG) also contributed to the lower emissions.

- CARB Harbor Craft Regulation and funding incentives led to vessel repowers which lowered emissions for harbor craft as did vessel attrition over the course of the past 20 years. The use of renewable diesel fuel per CARB's latest Commercial Harbor Craft (CHC) regulation also contributed to lower emissions.

- Cleaner CHE fleet over the years due to both CAAP measures and CARB's CHE Regulation which occurred mainly between 2007 and 2015 contributed to lower emissions. CARB's Large Spark Ignition (LSI) Regulation impacted the propane forklifts between 2007 and 2010. Most recently, the introduction and increased use of hybrid and zero emission (ZE) equipment in the fleet is contributing to lower emissions. The Port and tenants have received $411 million in grant funding to continue the transition to ZE equipment.

- For locomotives, EPA regulations that started in 2010 and phased in through 2015, in addition to CARB's statewide MOU and SPBP CAAP Pacific Harbor Line (PHL) Rail Switch Engine Modernization measure in 2010, decreased the locomotive emissions between 2010 to present.

- For HDV, emission reductions have occurred in a phased approach starting with EPA/CARB emission standards for new 2007+ trucks in 2007 and 2010 and CARB's Drayage Truck Regulation which started in 2009 in a phased approach. The SPBP CAAP phased measures started in 2008 including the 2012 implementation of the Port's CTP, which stipulated trucks operating at SPBP must have 2007 or newer engines. Most recently, as part of a Port Tariff amendment in 2018, all new trucks that register in the Ports' Drayage Truck Registry are required to be 2014 model year or newer.

SECTION 1 INTRODUCTION

The Port of Los Angeles (Port or POLA) 2024 Inventory of Air Emissions study presents maritime industry-related emission estimates based on calendar year 2024 activity levels. The report also includes a comparison of the estimated 2024 emissions with the prior year, 2017, and 2005 baseline year emission estimates to track the Port's emission reduction progress under the San Pedro Bay Ports (SPBP) Clean Air Action Plan (CAAP). As in previous inventories, the following five source categories were included:

- Ocean-going vessels (OGV)
- Harbor craft
- Cargo handling equipment (CHE)
- Locomotives
- Heavy-duty vehicles (HDV)

Exhaust emissions of the following pollutants that can cause regional and local air quality impacts were estimated:

- Particulate matter (PM) (10-micron, 2.5-micron)
- Diesel particulate matter (DPM)
- Oxides of nitrogen (NO_x)
- Oxides of sulfur (SO_x)
- Hydrocarbons (HC)
- Carbon monoxide (CO)

Greenhouse gas (GHG) emissions are presented in units of metric tons (MT) of carbon dioxide equivalents, which weight each gas by its global warming potential (GWP) value relative to CO_2. To normalize these values into a single greenhouse gas value, CO_2e, the GHG emission estimates are multiplied by the following values and summed.[4]

- CO_2 – 1
- CH_4 – 28
- N_2O – 265

[4]U.S. EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2022*, April 2024.

Geographical Domain

The geographical extent of the inventory includes emissions from the maritime industry-related emission sources operating within the harbor district. For rail locomotives and on-road trucks, the domain extends from the Port to the cargo's first point of rest within the South Coast Air Basin (SoCAB) or up to the SoCAB boundary, whichever comes first.

For commercial marine vessels, the domain or overwater boundary includes the berths and waterways in the Port proper and all vessel movements within the 40-nautical mile (nm) arc from Point Fermin as shown in Figure 1.1. The northern boundary is the Ventura County line, and the southern boundary is the Orange County line. It should be noted that although the overwater boundary for the South Coast air quality modeling domain extends further off the coast, most of the vessel movements occur within the 40 nm arc. Vessels that pass through the domain, but do not call on the Port are excluded from the inventory.

The Hawaiian, western, and southern routes extend beyond the 40 nm arc into the outer part of the South Coast air quality modeling domain. For the western and southern routes, this emissions inventory covers most of the emissions as most of the vessel movements occur within the 40-nm arc. For the Hawaiian route, this emissions inventory includes the additional SoCAB over-water boundary emissions that extends past the 40 nm mile arc.

Figure 1.1: Emissions Inventory Geographical Extent

Figure 1.2 shows the location of the anchorage areas for San Pedro Bay Ports. The orange shading shows the POLA terminals. The green areas are the recognized anchorage areas. Vessel emissions at anchorage are included in the air emissions inventory report as part of the OGV emissions. The precautionary area, labeled as precautionary zone, is an area where ships must navigate with caution. The northern and southern shipping lanes include a Separation Zone to separate opposing traffic lanes one (1) to two (2) miles wide within each sector.

Figure 1.2: Anchorage Areas

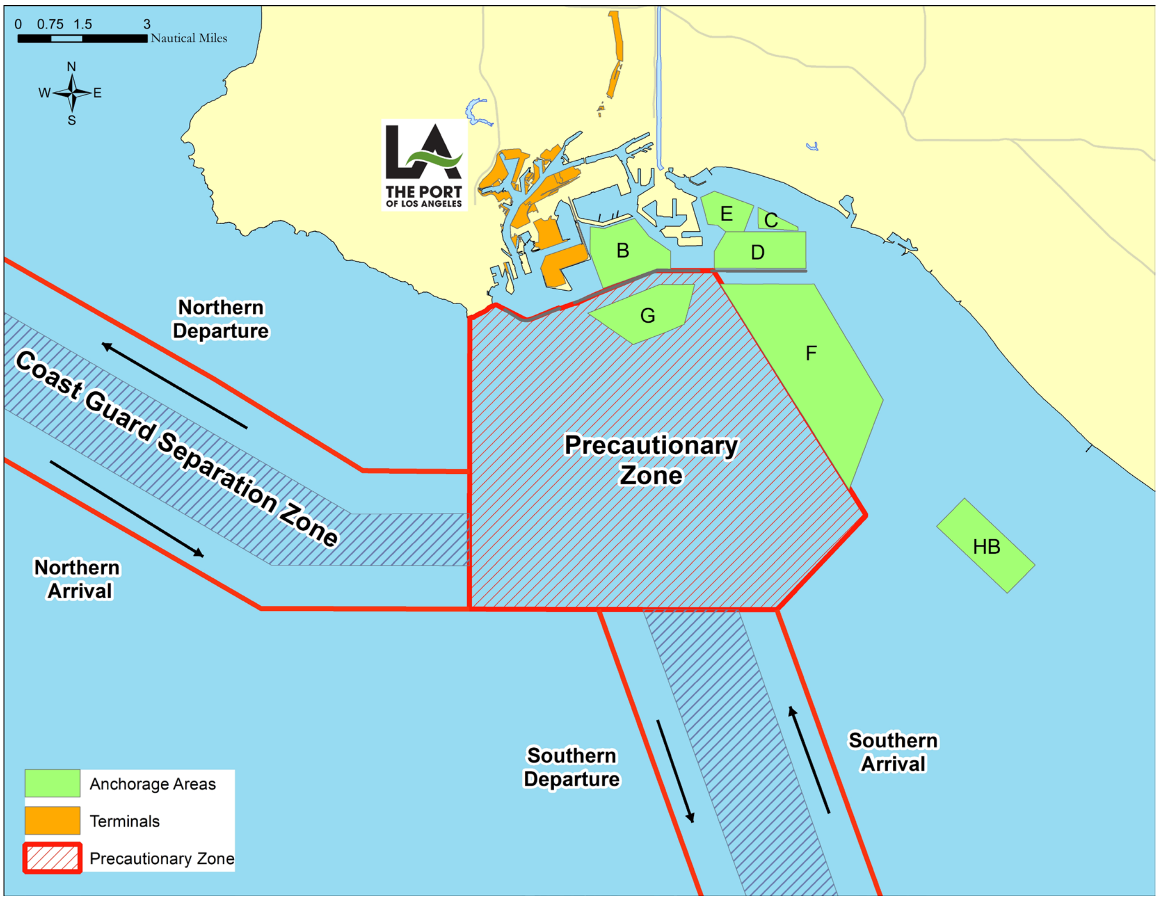
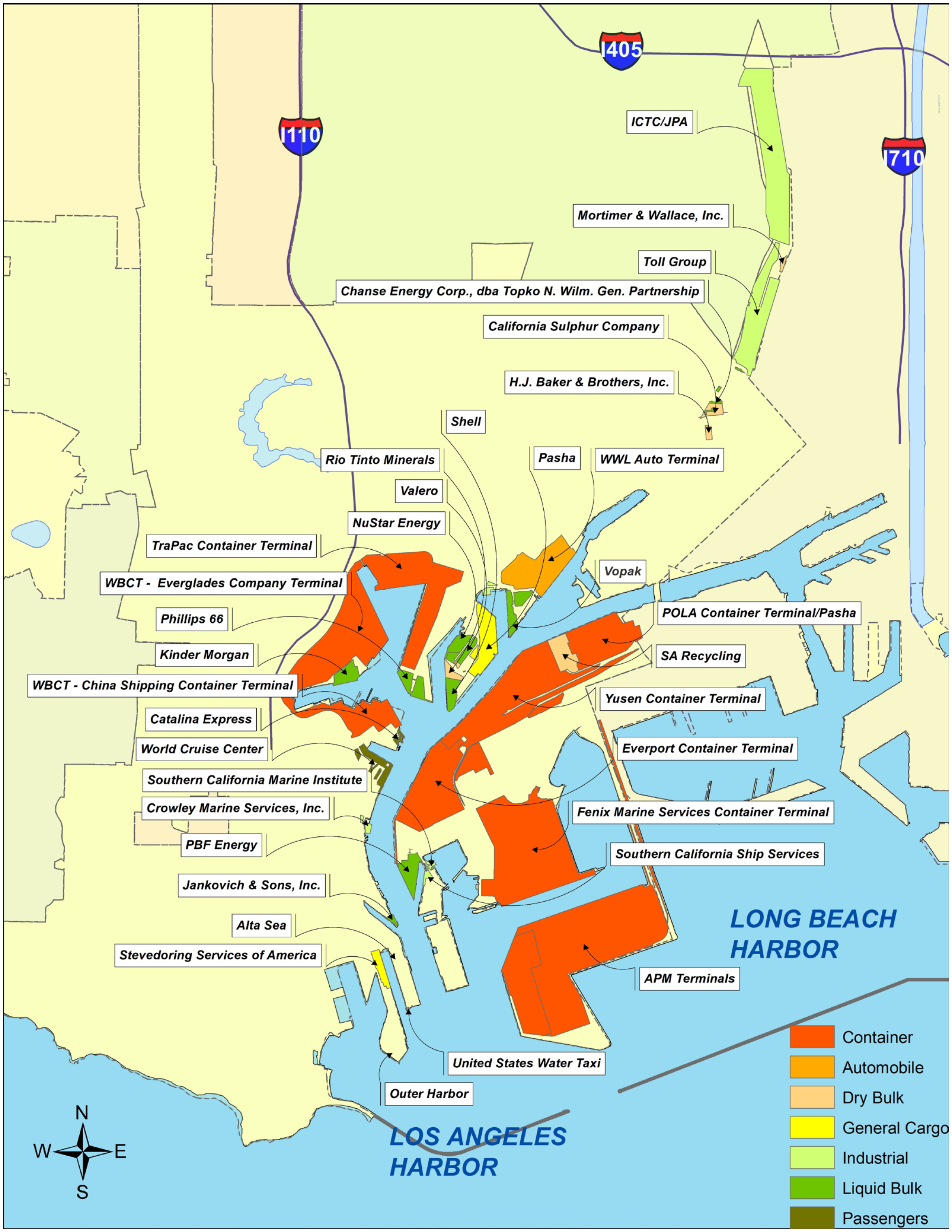


Figure 1.3 shows the land area of active Port terminals in 2024. The geographical scope for cargo handling equipment is the terminals and facilities on which they operate.

Figure 1.3: Port Boundary Area of Study



SECTION 2 REGULATORY AND CAAP MEASURES

This section summarizes the regulatory initiatives and Port measures related to port activity. Almost all maritime industry-related emissions come from five emission source categories: OGVs, harbor craft, CHE, locomotives, and HDVs. The responsibility for the regulation of emissions from the majority of these sources falls under the jurisdiction of local (South Coast Air Quality Management District [South Coast AQMD]), state (California Air Resources Board [CARB]), or federal (U.S. Environmental Protection Agency [EPA]) agencies.

CAAP Strategies

At the end of 2017, the ports of Los Angeles and Long Beach (Ports) released the final CAAP 2017 Update.[5] The CAAP 2017 Update contains new strategies for all sources that move cargo through the ports, including the deployment of zero and near-zero emission trucks and cargo handling equipment and the expansion of programs that reduce ship emissions. The focus of the CAAP 2017 Update is to work in collaboration with industry stakeholders, regulatory agencies, local communities, and environmental groups for the next 20 years to reduce emissions and combat climate change. The CAAP 2017 strategies that affect emission reductions for the Ports include, but are not limited to:

- Advancing the Clean Trucks Program to phase out older trucks and transition to near-zero emissions in the early years and zero-emissions by 2035. The collection of a Clean Truck Fund (CTF) Rate which charges $10 per loaded TEU moved by trucks in and out of port terminals to benefit cargo owners or their agents. Collection of CTF rate began April 2022. The Clean Truck Fund rates provide funds to incentivize the transition to near-zero and zero-emission trucks through a Truck Voucher Incentive Program and Infrastructure Funding Program. In November 2023, the Ports made $60 million in Clean Truck Fund rate funding available through the California Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP) for vouchers toward the purchase of zero-emissions class 8 drayage trucks that operate in SPBP.

- Requiring terminal operators to purchase zero-emissions equipment, if feasible, or near-zero or the cleanest technology available when procuring new equipment.

- Submitting grant applications on behalf of the tenants to support their efforts for zero emissions equipment, harbor craft, and vessel shore power projects. The Port submitted an EPA Clean Ports Program grant application on behalf of the tenants to support their efforts and was awarded $411 million at the end of 2024.

- Further reducing emissions from ships at-berth, vessels in transit, and transitioning the oldest, most polluting ships out of the San Pedro Bay fleet through vessel incentives.

- Accelerating the deployment of cleaner engines and operational strategies to reduce harbor craft emissions.

[5] CAAP, *https://cleanairactionplan.org/2017-clean-air-action-plan-update/*

- Expanding the use of on-dock rail to shift more cargo leaving the port to go by rail.

San Pedro Bay Emissions Reduction Standards

The 2017 CAAP Update did not alter the 2010 CAAP Update goals that set health risk and emission reduction standards but did incorporate two new emission targets to reduce GHGs from port-related sources as described below. The 2020 health risk standard and 2023 emission reduction standard have been met and continue to be met and exceeded year after year.

Health Risk Reduction Standard

To complement the CARB's Air Pollution Reduction Programs, including the Diesel Risk Reduction Plan, the Ports developed the following standard for reducing overall maritime industry-related health risk impacts, relative to 2005 emission levels:

- By 2020, reduce the population-weighted cancer risk of maritime industry-related DPM emissions by 85% in highly impacted communities located proximately to Port sources and throughout the residential areas in the Port region.

Emission Reduction Standard

The Ports developed the following standards for reducing air pollutant emissions from maritime industry-related activities, relative to 2005 emission levels:

- By 2023, reduce emissions of NO_x by 59%, SO_x by 93%, and DPM by 77% to support attainment of the federal 8-hour ozone standards and NAAQS fine particulate matter ($PM_{2.5}$) standards.

2017 CAAP Update New Emission Reduction Targets

- Reduce GHGs from port-related sources to 40% below 1990 levels by 2030

- Reduce GHGs from port-related sources to 80% below 1990 levels by 2050

Regulatory Programs by Source Category

The following section presents a list of currently adopted regulatory programs and CAAP measures by each major source category that influenced the progress towards the SPBP emission reduction targets from the maritime industry in and around the Port. Some of these measures will also impact emissions in the near future.

Table 2.1: OGV Emission Regulations, Standards and Policies

Agency	Regulation/Standard/Policy	Targeted Pollutants	Years Effective	Impact
International Maritime Organization (IMO)	NO_x Emission Standard for Marine Engines[6]	NO_x	2011 – Tier II 2016 – Tier III for ECA only	Sets NO_x emission standard for auxiliary and propulsion engines over 130 kW output power on newly built vessels
IMO	Emissions Control Area, Low Sulfur Fuel Requirements for Marine Engines[7]	DPM, PM, and SO_x	2012 ECA – 1% Sulfur 2015 ECA – 0.1% Sulfur	Significantly reduces emissions due to low sulfur content in fuel by creating Emissions Control Area (ECA)
IMO	2023 IMO Strategy on reduction of GHG emissions from ships – MEPC 377 (80)[8]	CO_2	2050 – 100%	Phase out GHGs completely by 2050 from 2008 level. Intermediate GHG reduction checkpoints in 2030 and 2040.
IMO	Energy Efficiency Design Index (EEDI) for International Shipping[9]	CO_2 and other pollutants	2013	Increases the design efficiencies of ships relating to energy and emissions
IMO	Carbon Intensity Indicator (CII) - MEPC 328 (76)	CO_2	2030 – 40% reduction from 2008 baseline	Increases the transport work efficiency of ships relating to emissions; reduce the carbon intensity of all ships.

[6] IMO, *www.imo.org/en/OurWork/Environment/Pages/Nitrogen-oxides-(NOx)-%E2%80%93-Regulation-13.aspx*
[7] IMO, *www.imo.org/en/OurWork/Environment/Pages/Sulphur-oxides-(SOx)-%E2%80%93-Regulation-14.aspx*
[8] IMO, *www.imo.org/en/ourwork/environment/pages/improving%20the%20energy%20efficiency%20of%20ships.aspx*
[9] IMO, *www.imo.org/en/OurWork/Environment/Pages/Improving%20the%20energy%20efficiency%20of%20ships.aspx*

Table 2.1: OGV Emission Regulations, Standards and Policies (cont'd)

Agency	Regulation/Standard/Policy	Targeted Pollutants	Years Effective	Impact
EPA	Emission Standards for Marine Diesel Engines above 30 Liters per Cylinder (Category 3 Engines); Aligns with IMO Annex VI marine engine NO_x standards and low sulfur requirement[10]	DPM, PM, NO_x, and SO_x	2011 – Tier 2 2016 – Tier 3	Auxiliary and propulsion category 3 engines on US flagged new built vessels and requires use of low sulfur fuel
CARB	Regulation to Reduce Emissions from Diesel Auxiliary Engines on Ocean-Going Vessels While At-Berth at a California Port[11]	DPM, PM, NO_x, SO_x, CO_2	2014 – 50% 2017 – 70% 2020 – 80%	Shore power (or equivalent) requirements. Vessel operators based on fleet percentage visiting the ports.
CARB	2020 At-Berth Regulation[12] *Note this regulation supersedes the previous regulation.*	All	2023 – 100% container, reefer, and cruise 2025 – Ro-Ro and LALB tankers	All container, reefer, cruise, Ro-Ro, and tanker vessel and regulated terminal operator will have to control emissions at berth
CARB	Ocean-going Ship Onboard Incineration[13]	DPM, PM, and HC	2007	All vessels cannot incinerate within 3 nm of the California coast
CAAP	CAAP Measure – Vessel Speed Reduction (VSR) Program[14]	All	2008	Vessel operators within 20 nm and 40 nm of Point Fermin
CAAP	CAAP Measure – Reduction of At-Berth OGV Emissions[15]	All	2014	Vessel operators and terminals comply with shore power requirements through leases
CAAP	CAAP Measure – Cleaner OGV Engines and OGV Engine Emissions Reduction Technology Improvements and Environmental Ship Index (ESI) Program[16]	DPM, PM, and NO_x	2012	Vessel operators who choose to participate in ESI and/or technology demonstrations.

[10] EPA, *www.epa.gov/regulations-emissions-vehicles-and-engines/domestic-regulations-emissions-marine-compression*
[11] CARB, *www.arb.ca.gov/regact/2007/shorepwr07/shorepwr07.htm,* and *www.arb.ca.gov/ports/shorepower/forms/regulatoryadvisory/regulatoryadvisory12232013.pdf*
[12] CARB, *ww2.arb.ca.gov/our-work/programs/ocean-going-vessels-berth-regulation*
[13] CARB, *www.arb.ca.gov/ports/shipincin/shipincin.htm*
[14] CAAP, *www.cleanairactionplan.org/strategies/ships/*
[15] CAAP, *www.portoflosangeles.org/environment/ogv.asp*
[16] CAAP, *www.cleanairactionplan.org/strategies/ships/*

Table 2.2: Harbor Craft Emission Regulations, Standards and Policies

Agency	Regulation/Standard/Policy	Targeted Pollutants	Years Effective	Impact
EPA	Emission Standards for Harbor Craft Engines[17]	All	2009 – Tier 3 2014 – Tier 4 for 800 hp or greater	Commercial marine diesel engines with displacement less than 30 liters per cylinder
CARB	Low Sulfur Fuel Requirement for Harbor Craft[18]	DPM, PM, NO_x, and SO_x	2006 – 15 ppm in SCAQMD area	Use of low sulfur diesel fuel in commercial harbor craft operating in SCAQMD
CARB	Regulation to Reduce Emissions from Diesel Engines on Commercial Harbor Craft[19]	DPM, PM, and NO_x	2009 to 2020 - schedule varies depending on engine model year	This regulation was fully implemented by 2022
CARB	2022 Commercial Harbor Craft Regulation Amendments[20]	All	2023 to 2032 – schedule varies on engine MY and vessel type	New requirements for harbor craft in a phased approach. Renewable diesel from Jan 2023 on.
CAAP	CAAP Measure – HC 1 Performance Standards for Harbor Craft[21]	All	Varies	Modernization of harbor craft operating at POLA upon lease renewal

[17] EPA, *www.epa.gov/regulations-emissions-vehicles-and-engines/domestic-regulations-emissions-marine-compression*
[18] CARB, *www.arb.ca.gov/regact/carblohc/carblohc.htm*
[19] CARB, *www.arb.ca.gov/regact/2010/chc10/chc10.htm*
[20] CARB, *www.arb.ca.gov/our-work/programs/commercial-harbor-craft*
[21] CAAP, *www.portoflosangeles.org/environment/air-quality/san-pedro-bay-ports-clean-air-action-plan*

Table 2.3: Cargo Handling Equipment Emission Regulations, Standards and Policies

Agency	Regulation/Standard/Policy	Targeted Pollutants	Years Effective	Impact
EPA	Emission Standards for Non-Road Diesel Powered Equipment[22]	All	2008 through 2015	All non-road equipment
CARB	Cargo Handling Equipment Regulation[23]	All	2007 through 2017; Opacity test compliance starting in 2016	Regulation fully implemented
CARB	New Emission Standards, Test Procedures, for Large Spark Ignition (LSI) Engine Forklifts and Other Industrial Equipment[24]	All	2007 – first phase 2010 – second phase	Emission standards for large spark-ignition engines with 25 hp or greater
CARB	Fleet Requirements for Large Spark Ignition Engines[25]	All	2009 through 2013	More stringent emissions requirements for fleets of large spark-ignition engines equipment
CAAP	CAAP Measure – Performance Standards for CHE[26]	All	2007 through 2014	Turnover to Tier 4 cargo handling equipment per lease renewal agreement
CAAP	CAAP Measure – Transition to Cleaner Equipment[27]	All	2020 through 2030	Turnover to zero emissions CHE, if feasible, or near zero emissions or cleanest available if ZE/NZE not yest feasible

[22] EPA, *www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-emissions-nonroad-vehicles-and-engines*
[23] CARB, *www.arb.ca.gov/regact/2011/cargo11/cargo11.htm*
[24] CARB, *www.arb.ca.gov/regact/2008/lsi2008/lsi2008.htm*
[25] CARB, *www.arb.ca.gov/regact/2010/offroadlsi10/lsifinalreg.pdf*
[26] CAAP, *www.portoflosangeles.org/environment/air-quality/san-pedro-bay-ports-clean-air-action-plan*
[27] CAAP, *www.cleanairactionplan.org/about-the-plan/*

Table 2.4: Locomotives Emission Regulations, Standards and Policies

Agency	Regulation/Standard/Policy	Targeted Pollutants	Years Effective	Impact
EPA	Emission Standards for New and Remanufactured Locomotives and Locomotive Engines- Latest Regulation[28]	DPM and NO_x	2011 through 2013 – Tier 3 2015 – Tier 4	All new and remanufactured locomotive engines
EPA	Control of Emissions of Air Pollution from Nonroad Diesel Engines and Fuel[29]	SO_x and PM	2010	All locomotive engines
CARB	Low Sulfur Fuel Requirement for Intrastate Locomotives[30]	SO_x, NO_x, and PM	2007	Intrastate locomotives, mainly switchers
CARB	Statewide 1998 and 2005 Memorandum of Understanding (MOUs)[31]	NO_x	2010	Union Pacific and BNSF locomotives
CARB	New In-Use Locomotive Regulation[32]	All	2024	All locomotive engines in CA
CAAP	CAAP Measure – Pacific Harbor Line (PHL) Rail Switch Engine Modernization[33]	PM	2010	Pacific Harbor Line switcher engines transitioned to cleaner engines
CAAP	CAAP Measure – Class 1 Line-haul and Switcher Fleet Modernization[34]	All	2023 – Tier 3	Class 1 locomotives at ports
CAAP	CAAP Measure – New and Redeveloped Near-Dock Rail Yards[35]	All	2020 – Tier 4	New near-dock rail yards

[28] EPA, *www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-emissions-locomotives*
[29] EPA, *www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-emissions-nonroad-vehicles-and-engines*
[30] CARB, *www.arb.ca.gov/msprog/offroad/loco/loco.htm#intrastate*
[31] CARB, *www.arb.ca.gov/msprog/offroad/loco/loco.htm#intrastate*
[32] CARB, *ww2.arb.ca.gov/our-work/programs/reducing-rail-emissions-california/locomotive-fact-sheets*
[33] CAAP, *www.portoflosangeles.org/environment/air-quality/san-pedro-bay-ports-clean-air-action-plan*
[34] CAAP, *www.portoflosangeles.org/environment/air-quality/san-pedro-bay-ports-clean-air-action-plan*
[35] CAAP, *www.portoflosangeles.org/environment/air-quality/san-pedro-bay-ports-clean-air-action-plan*

Table 2.5: Heavy-Duty Vehicles Emission Regulations, Standards and Policies

Agency	Regulation/Standard/Policy	Targeted Pollutants	Years Effective	Impact
CARB/ EPA	Emission Standards for New 2007+ On-Road Heavy-Duty Vehicles[36]	NO_x and PM	2007 2010	All new on-road diesel heavy-duty vehicles
CARB	Heavy-Duty Vehicle On-Board Diagnostics (OBD and OBDII) Requirement[37]	NO_x and PM	2010 +	All new on-road heavy-duty vehicles
CARB	ULSD Fuel Requirement[38]	All	2006 - ULSD	All on-road heavy-duty vehicles
CARB	Drayage Truck and Bus Regulation (amended in 2011 and 2014)[39]	All	Phase-in started in 2009	All drayage trucks operating at California ports
CARB	Heavy-Duty Vehicle Greenhouse Gas Emission Reduction Regulation[40]	CO_2	Phase 1 started in 2012	Heavy-duty tractors that pull 53-foot+ trailers in California
CARB	Assembly Bill 32 requiring GHG reductions targets and Governor's Executive Order B – 30-15[41]	CO_2	GHG emissions reduction goals in 2020	All operations in California
CARB	Advanced Clean Fleets Regulation[42] *EPA waiver for ACF was rescinded by CARB and rule is not presently in effect. It may have had some effect for 2024 EI as fleets were making purchases in anticipation of ACF.*	All	Requires ZEV trucks when adding trucks to drayage fleets in 2024. All must be ZEV by 2035	All medium and heavy-duty trucks. The ACF drayage truck registration is by December 31, 2023.
CAAP	CAAP Measure – Clean Truck Fund Rate[43]	NO_x	2022	Rate collection for trucks; low NOx and ZE trucks exempt. Rate dollars invested in ZE truck related projects.

[36] CARB, *ww2.arb.ca.gov/road-heavy-duty-regulations-certification-programs*
[37] CARB, *www.arb.ca.gov/our-work/programs/obd*
[38] CARB, *www.arb.ca.gov/regact/ulsd2003/ulsd2003.htm*
[39] CARB, *www.arb.ca.gov/msprog/onroad/porttruck/drayagevtruckbus.pdf*
[40] CARB, *www.arb.ca.gov/our-work/programs/ghg-std-md-hd-eng-veh*
[41] CARB, *www.arb.ca.gov/cc/ab32/ab32.htm*
[42] CARB, *www.arb.ca.gov/our-work/programs/truckstop-resources/zev-truckstop/regulations*
[43] CAAP, *www.cleanairactionplan.org/strategies/trucks/*

SECTION 3 OCEAN-GOING VESSELS

Source Description

Based on activity data obtained from the Marine Exchange of Southern California, there was a total of 1,548 ocean-going vessels (OGVs, ships, or vessels) arrival calls to the Port in 2024. These vessels were grouped by the type of cargo they are designed to carry and fall into one of the following vessel categories or types:

- Auto carrier
- Bulk carrier
- Containership
- Cruise vessel
- General cargo
- Miscellaneous vessel
- Refrigerated vessel (Reefer)
- Tanker

From an emissions contribution perspective, the three predominant vessel types calling at the Port are: containerships, tankers, and cruise ships, with containerships being the most significant vessel category. Emission sources on all vessel categories include main engines (propulsion), auxiliary engines (generators), and auxiliary boilers (boilers).

Geographical Domain

The geographical domain or overwater boundary for OGVs includes the berths and waterways in the Port proper and all vessel movements within the 40-nautical mile (nm) arc from Point Fermin as shown previously in Figure 1.1. The northern boundary is the Ventura County line, and the southern boundary is the Orange County line. It should be noted that although the overwater boundary for the South Coast air quality modeling domain extends further off the coast, most of the vessel movements occur within the 40 nm arc. Vessels that pass through the domain, but do not call on the Port are excluded from the inventory.

The Hawaiian, western and southern routes extend beyond the 40 nm arc into outer part of the South Coast air quality modeling domain. For the western and southern routes, this emissions inventory covers the majority of the emissions as most of the vessel movements occur within the 40-nm arc. For the Hawaiian route, this emissions inventory includes the additional SoCAB over-water boundary emissions that extends past the 40 nm mile arc.

Table 3.1 presents the numbers of arrivals, departures, and shifts associated with vessels at the Port in 2024. An arrival is from sea to a berth or an anchorage (prior to shifting to a berth). A departure is from berth to sea. A shift is a vessel move from anchorage to berth, berth to another berth, or berth to anchorage. Arrival and departure totals will not necessarily be equal, as a few vessels arrive or depart across two different calendar years.

Table 3.1: 2024 Total OGV Activities

Vessel Type	Arrival	Departure	Shift	Total
Auto Carrier	124	129	39	292
Bulk	64	56	62	182
Bulk - Heavy Load	1	2	2	5
Container - 1000	21	21	12	54
Container - 2000	65	63	13	141
Container - 3000	41	41	9	91
Container - 4000	89	90	16	195
Container - 5000	95	94	24	213
Container - 6000	27	27	4	58
Container - 7000	26	26	2	54
Container - 8000	196	195	44	435
Container - 9000	88	87	24	199
Container - 10000	53	53	5	111
Container - 11000	118	116	18	252
Container - 12000	30	29	1	60
Container - 13000	50	48	5	103
Container - 14000	33	34	3	70
Container - 15000	38	37	0	75
Container - 16000	1	1	1	3
Cruise	194	194	4	392
General Cargo	35	33	28	96
Miscellaneous	1	1	0	2
Reefer	15	15	31	61
Tanker - Chemical	104	130	201	435
Tanker - Handysize	24	27	39	90
Tanker - Panamax	15	15	31	61
Total	**1,548**	**1,564**	**618**	**3,730**

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Data and Information Acquisition

Various sources of data and operational knowledge about the Port's marine activities were used to compile the data necessary to estimate emissions from OGVs:

- Marine Exchange of Southern California (SoCal MarEx)
- Vessel Speed Reduction Program speed data
- Los Angeles Pilot Service
- S&P Global Lloyd's Register of Ships[44]
- Vessel Boarding Program (VBP) data
- Environmental Ship Index (ESI) fuel and engine data[45]
- Port Wharfinger data, including tanker load and discharge activity data
- Port and terminal shore power activity data, including usage of CARB Approved Emissions Control Technologies (CAECS)[46]
- Direct communication with vessel operators of LNG and methanol fueled vessels

The 'maximum speed' from IHS Markit Maritime data was used and if not available for a particular vessel, 'service speed' (the most populated speed field within the IHS data) was used instead.

Operational Profiles

Auxiliary engines provide electricity for equipment used in the operation of ocean-going vessels. Actual VBP data, if available, were used to estimate emissions from auxiliary engines. For at-berth hotelling emissions, if the vessel was connected to shore power, actual shore power records were used. If actual VBP data or shore power data is not available, default values were used to determine auxiliary engine load for the duration the vessel was not using shore power.

Starting with the 2024 emissions inventory, the boiler default tables include values equal to zero, collected during vessel boardings, in the averages used to produce the default tables. Prior to that, zeros were not averaged in but were considered null values. The impact was seen primarily in cruise ship transit and maneuvering mode defaults as some cruise ships can operate without an oil-fired boiler in these modes unless there is a high demand for heat or steam, such as making water with evaporators. The impact on the emissions was minimal as

[44] *www.spglobal.com/market-intelligence/en/solutions/products/maritime-ships-register*
[45] IAPH, WPSP, *www.sustainableworldports.org/environmental-ship-index-esi/*
[46] *ww2.arb.ca.gov/sites/default/files/barcu/regact/2019/ogvatberth2019/fro.pdf*

most cruise ships use VBP values directly, including zero values. Other vessel types generally have a very low demand for boiler use in these modes, so even with zeros, the change had minimal impact on the default averages.

Table 3.2 presents the auxiliary engine load defaults by vessel type and by mode, used in the emissions calculations. These default values were produced by calculating the call-weighted average of the VBP data points for each vessel type and mode of operation. For vessel types with no VBP data available, a suitable default was estimated by interpolating VBP data from the closest vessel type.

Table 3.2: Average Auxiliary Engine Load Defaults, kW

Vessel Type	Transit	Maneuvering	Berth Hotelling	Anchorage Hotelling
Auto Carrier	527	839	803	494
Bulk	222	235	544	250
Bulk - Heavy Load	255	675	150	253
Container - 1000	913	1,106	571	1,000
Container - 2000	1,287	1,887	694	528
Container - 3000	920	1,673	758	559
Container - 4000	1,419	2,526	1,073	1,056
Container - 5000	1,594	2,504	1,047	900
Container - 6000	1,558	2,477	1,083	1,266
Container - 7000	1,580	2,530	1,024	826
Container - 8000	1,635	2,519	1,161	1,052
Container - 9000	1,634	3,335	1,071	1,174
Container - 10000	1,634	2,003	1,130	1,181
Container - 11000	1,625	2,249	881	1,003
Container - 12000	1,661	2,146	1,216	1,212
Container - 13000	1,589	2,136	1,346	1,319
Container - 14000	1,553	2,042	1,152	1,155
Container - 15000	1,850	2,200	850	1,100
Container - 16000	1,793	2,179	1,150	1,271
General Cargo	489	1,273	826	180
Miscellaneous	284	379	230	233
Reefer	1,416	1,231	1,067	1,427
RoRo	434	1,301	751	434
Tanker - Chemical	515	575	1,187	402
Tanker - Handysize	572	682	1,084	560
Tanker - Panamax	485	550	884	401

Table 3.3 presents the load defaults for the auxiliary boilers by vessel type and by mode. These default values were produced by calculating the call-weighted average of VBP data points. Since loading and discharging data were available for the tankers that visited the Port, a lower boiler load of 875 kW was used for tankers known to be loading cargo while at berth, while the higher at-berth hoteling boiler load listed in the table (2,925 and 4,197 kW) was used as a default for the tanker calls that were discharging cargo.

Table 3.3: Auxiliary Boiler Load Defaults by Mode, kW

Vessel Type	Transit	Maneuvering	Berth Hotelling	Anchorage Hotelling
Auto Carrier	82	159	269	259
Bulk	63	154	184	184
Bulk - Heavy Load	35	94	125	125
Container - 1000	90	181	437	230
Container - 2000	188	359	444	441
Container - 3000	203	408	552	517
Container - 4000	180	351	457	453
Container - 5000	266	496	606	601
Container - 6000	248	471	616	612
Container - 7000	345	549	596	594
Container - 8000	210	446	561	588
Container - 9000	448	559	737	722
Container - 10000	368	473	656	656
Container - 11000	195	322	442	440
Container - 12000	108	236	374	374
Container - 13000	241	306	559	558
Container - 14000	266	481	402	532
Container - 15000	259	395	402	402
Container - 16000	206	290	470	470
General Cargo	77	177	227	227
Miscellaneous	54	85	144	144
Reefer	89	171	234	234
RoRo	67	148	259	251
Tanker - Chemical	117	135	398	213
Tanker - Handysize	259	344	2,925	322
Tanker - Panamax	223	330	4,197	512

Table 3.4 lists the auxiliary engine defaults for all cruise ships (diesel electric and non-diesel electric). These auxiliary engine defaults values were produced by calculating the average of VBP data by mode of operation for each cruise vessel size group up to 5,500 passengers.

Table 3.4: Cruise Ship Average Auxiliary Engine Load Defaults, kW

Passenger Range	Transit	Maneuvering	Berth Hotelling	Anchorage Hotelling
<200	332	585	293	351
200 < 1,500	2,768	3,875	2,950	3,038
1,500 < 2,000	6,883	8,100	5,624	6,397
2,000 < 2,500	8,033	9,000	7,680	8,736
2,500 < 3,000	8,052	8,577	6,436	7,820
3,000 < 3,500	7,899	9,511	6,920	8,036
3,500 < 4,000	8,957	9,235	7,317	8,572
4,000 < 4,500	8,864	9,086	7,720	8,100
4,500 < 5,000	7,600	7,600	6,500	7,394
5,000 < 5,500	8,353	7,515	6,726	7,651

Table 3.5 presents the load defaults for the auxiliary boilers for all cruise ships.

Table 3.5: Cruise Ship Auxiliary Boiler Load Defaults by Mode, kW

Passenger Range	Transit	Maneuvering	Berth Hotelling	Anchorage Hotelling
<200	37	37	37	37
200 < 1,500	83	80	1,426	498
1,500 < 2,000	535	573	1,951	976
2,000 < 2,500	461	591	3,005	1,506
2,500 < 3,000	332	407	1,371	597
3,000 < 3,500	168	317	1,285	938
3,500 < 4,000	12	55	963	782
4,000 < 4,500	0	10	551	335
4,500 < 5,000	0	0	575	0
5,000 < 5,500	0	0	431	0
Non- diesel electric	282	361	612	306

Hotelling

Table 3.6 summarizes the hotelling times in hours at berth. Hotelling time is the entire duration of time that a ship spends at berth for each visit. In general, vessels spent more time at berth in 2024 than they did in 2023, specifically the larger containerships.

Table 3.6: 2024 Hotelling Times at Berth, hours

Vessel Type	Min Hours	Max Hours	Avg Hours	Avg Days
Auto Carrier	7.3	55.6	13.7	0.6
Bulk	13.8	284.2	87.3	3.6
Bulk - Heavy Load	124.0	994.3	559.2	23.3
Container - 1000	13.6	47.6	27.0	1.1
Container - 2000	12.8	88.8	35.9	1.5
Container - 3000	11.5	130.7	45.4	1.9
Container - 4000	15.1	122.8	53.3	2.2
Container - 5000	17.3	121.8	53.6	2.2
Container - 6000	30.0	147.8	79.2	3.3
Container - 7000	33.5	124.8	87.1	3.6
Container - 8000	11.8	190.2	80.7	3.4
Container - 9000	13.1	167.0	88.1	3.7
Container - 10000	72.7	179.2	122.4	5.1
Container - 11000	14.0	213.6	118.1	4.9
Container - 12000	22.2	180.1	95.8	4.0
Container - 13000	69.1	208.4	150.5	6.3
Container - 14000	20.2	204.4	146.8	6.1
Container - 15000	95.5	191.0	125.7	5.2
Container - 16000	66.7	141.0	103.8	4.3
Cruise	5.5	319.7	13.0	0.5
General Cargo	10.0	189.9	63.0	2.6
Miscellaneous	48.8	48.8	48.8	2.0
Reefer	5.5	99.3	36.0	1.5
RoRo	22.4	22.4	22.4	0.9
Tanker - Chemical	9.8	133.1	32.8	1.4
Tanker - Handysize	4.9	90.4	41.7	1.7
Tanker - Panamax	14.1	76.6	47.5	2.0

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Table 3.7 summarizes the hotelling times in hours spent at anchorage. In 2024, there were 4% fewer vessels at anchorage than the previous year, and thus less overall time spent at anchorage due to fewer vessels.

Table 3.7: 2024 Hotelling Times at Anchorage, hours

Vessel Type	Min Hours	Max Hours	Avg Hours	Avg Days	Vessel Count
Auto Carrier	5.1	134.3	46.2	1.9	25
Bulk	4.7	353.8	51.2	2.1	44
Bulk - Heavy Load	21.6	21.6	21.6	0.9	1
Container - 1000	4.5	71.2	17.1	0.7	6
Container - 2000	5.4	60.0	19.2	0.8	7
Container - 3000	2.3	80.8	17.1	0.7	5
Container - 4000	2.2	156.3	32.9	1.4	9
Container - 5000	5.2	97.1	33.2	1.4	11
Container - 6000	7.2	64.3	26.6	1.1	3
Container - 7000	27.8	27.8	27.8	1.2	1
Container - 8000	1.7	126.7	54.0	2.3	15
Container - 9000	2.9	87.4	32.1	1.3	10
Container - 10000	4.5	176.0	47.3	2.0	4
Container - 11000	0.2	73.6	19.0	0.8	7
Container - 12000	0.0	0.0	0.0	0.0	0
Container - 13000	5.4	114.0	40.4	1.7	2
Container - 14000	2.7	98.4	50.5	2.1	2
Container - 15000	0.0	0.0	0.0	0.0	0
Container - 16000	0.0	0.0	0.0	0.0	0
Cruise	5.9	120.6	42.8	1.8	3
General Cargo	2.8	155.4	31.7	1.3	20
Miscellaneous	0.0	0.0	0.0	0.0	0
Reefer	10.5	99.9	48.9	2.0	5
Tanker - Chemical	1.3	362.6	34.9	1.5	58
Tanker - Handysize	4.3	173.1	29.0	1.2	9
Tanker - Panamax	0.1	129.9	28.0	1.2	8
Total					**255**

DB ID705

Frequent Callers

Table 3.8 provides the percentage of frequent callers. For this EI, a frequent caller was defined as a vessel that made six or more calls in one calendar year. Table 3.8 shows that only 8% of vessels that called the Port in 2024 were frequent callers.

Table 3.8: 2024 Percentage of Frequent Callers

Vessel Type	Frequent Vessels	Total Vessels	Percent Frequent Vessels
Auto Carrier	2	88	2%
Bulk	0	2	0%
Bulk - Heavy Load	0	63	0%
Container - 1000	1	7	14%
Container - 2000	6	16	38%
Container - 3000	3	9	33%
Container - 4000	1	32	3%
Container - 5000	7	25	28%
Container - 6000	1	11	9%
Container - 7000	1	12	8%
Container - 8000	15	51	29%
Container - 9000	3	30	10%
Container - 10000	1	18	6%
Container - 11000	4	36	11%
Container - 12000	1	12	8%
Container - 13000	0	21	0%
Container - 14000	0	18	0%
Container - 15000	0	22	0%
Container - 16000	0	1	0%
Cruise	4	36	11%
General Cargo	0	34	0%
Miscellaneous	0	1	0%
Reefer	0	10	0%
Tanker - Chemical	2	82	2%
Tanker - Handysize	2	10	20%
Tanker - Panamax	0	8	0%
Total	**54**	**655**	
Average			**8%**

Vessel Characteristics

Averages by vessel type characteristics for the fleet calling the Port were based on the S&P Global Lloyd's Register of Ships data and are summarized in Table 3.9. Vessel type characteristics include averages of year built, age, deadweight (DWT), maximum rated speed (Max Speed), and main installed engine power ratings for the specific vessels that called the Port in 2024.

Table 3.9: 2024 Vessel Type Characteristics

Vessel Type	Average Year Built	Age (Years)	DWT (tonnes)	Max Speed (knots)	Main Eng (kW)
Auto Carrier	2010	14	19,648	21.1	13,750
Bulk	2017	7	48,408	14.7	7,216
Bulk - Heavy Load	1996	29	51,541	15.1	11,437
Container - 1000	2019	5	22,757	19.8	12,371
Container - 2000	2013	11	36,176	20.9	17,888
Container - 3000	2021	3	47,551	20.1	20,246
Container - 4000	2008	16	59,204	25.6	42,932
Container - 5000	2014	10	65,510	23.4	39,918
Container - 6000	2010	14	78,957	27.1	59,648
Container - 7000	2018	6	84,018	23.5	39,328
Container - 8000	2011	13	102,460	25.4	59,852
Container - 9000	2012	12	109,604	25.1	55,279
Container - 10000	2016	9	120,499	23.4	49,792
Container - 11000	2015	9	126,523	23.9	52,996
Container - 12000	2018	6	131,262	23.7	50,128
Container - 13000	2018	6	143,601	23.4	50,933
Container - 14000	2017	7	147,883	23.6	50,164
Container - 15000	2022	2	158,217	22.7	48,293
Container - 16000	2024	0	189,508	21.0	44,187
Cruise	2010	14	7,232	20.8	46,152
General Cargo	2010	14	37,933	15.2	7,862
Miscellaneous	1989	35	6,974	20.0	18,390
Reefer	1996	28	13,659	21.6	12,064
RoRo	2014	10	24,485	20.5	18,160
Tanker - Chemical	2014	10	45,438	15.2	7,833
Tanker - Handysize	2008	16	47,224	15.2	8,900
Tanker - Panamax	2009	15	68,594	15.1	11,270

DB ID695

Table 3.10 presents the percentages of each IMO Engine Tier (Tier) by vessel type for calls (arrivals/shifts) at the Port. NO_x emissions for Tier III vessels are 75% cleaner than Tier II vessels when operating at or above 25% main engine load. The "No Tier" column includes cruise ships with gas turbines that called the Port in 2024.

Table 3.10: 2024 Percent of OGV Activity by Main Engine Tier and Vessel Type

Vessel Type	IMO Tier 0	IMO Tier I	IMO Tier II	IMO Tier III	No Tier	Calls Count
Auto Carrier	7%	69%	15%	9%	0%	128
Bulk	50%	50%	0%	0%	0%	2
Bulk - Heavy Load	0%	17%	70%	13%	0%	64
Container - 1000	0%	0%	52%	48%	0%	21
Container - 2000	2%	68%	12%	19%	0%	65
Container - 3000	0%	20%	10%	71%	0%	41
Container - 4000	0%	97%	3%	0%	0%	90
Container - 5000	0%	72%	3%	25%	0%	95
Container - 6000	0%	63%	37%	0%	0%	27
Container - 7000	0%	54%	0%	46%	0%	26
Container - 8000	0%	39%	61%	0%	0%	196
Container - 9000	0%	34%	66%	0%	0%	88
Container - 10000	0%	0%	100%	0%	0%	53
Container - 11000	0%	52%	48%	0%	0%	118
Container - 12000	0%	7%	10%	83%	0%	30
Container - 13000	0%	18%	12%	70%	0%	50
Container - 14000	0%	3%	85%	12%	0%	34
Container - 15000	0%	0%	0%	100%	0%	38
Container - 16000	0%	0%	0%	100%	0%	1
Cruise	7%	50%	36%	5%	3%	194
General Cargo	17%	29%	51%	3%	0%	35
Miscellaneous	100%	0%	0%	0%	0%	1
Reefer	81%	19%	0%	0%	0%	16
RoRo	0%	0%	100%	0%	0%	1
Tanker - Chemical	1%	32%	59%	7%	0%	148
Tanker - Handysize	70%	26%	0%	4%	0%	27
Tanker - Panamax	0%	31%	69%	0%	0%	16
Total	**4%**	**43%**	**38%**	**15%**	**0.4%**	**1,605**

DB ID1789

Emissions Estimation Methodology

The methodology to estimate 2024 emissions from OGV activity is described in Section 2 of the San Pedro Bay Ports Emissions Inventory Methodology Report Version 5. The following improvements were made in estimating 2024 OGV emissions:

- Updated liquefied natural gas (LNG) emission factors for vessels that switched to LNG fuel by incorporating effect of use of pilot MGO fuel (3.6%).
- Updated auxiliary engine and auxiliary boiler default loads with VBP data collected since the completion of the 2023 EI.

The emission factors for both diesel and LNG fuel are obtained from EPA's Ports Emissions Inventory Guidance: Methodologies for Estimating Port-Related and Goods Movement Mobile Source Emissions (April 2022)[47]. Table 3.11 lists the emission factors for propulsion engines using 0.1% sulfur MGO fuel. As in previous inventories, when Tier III main engines operated below 25% within the emissions inventory domain, the default Tier II NO_x emission factor or, if available, Tier II Engine International Air Pollution Prevention (EIAPP) NO_x factors were used in emission calculations.

Table 3.11: OGV Emission Factors for Propulsion Engines using 0.1% S, g/kWh

Engine Category	Tier	Model Year Range	PM_{10}	$PM_{2.5}$	DPM	NO_x	SOx	CO	HC	CO_2	N_2O	CH_4
Slow speed propulsion	Tier 0	1999 and older	0.184	0.169	0.184	17.0	0.362	1.4	0.6	593	0.029	0.012
Slow speed propulsion	Tier I	2000 to 2011	0.184	0.169	0.184	16.0	0.362	1.4	0.6	593	0.029	0.012
Slow speed propulsion	Tier II	2011 to 2016	0.184	0.169	0.184	14.4	0.362	1.4	0.6	593	0.029	0.012
Slow speed propulsion	Tier III	2016 and newer	0.184	0.169	0.184	3.4	0.362	1.4	0.6	593	0.029	0.012
Medium speed propulsion	Tier 0	1999 and older	0.187	0.172	0.187	13.2	0.401	1.1	0.5	657	0.029	0.010
Medium speed propulsion	Tier I	2000 to 2011	0.187	0.172	0.187	12.2	0.401	1.1	0.5	657	0.029	0.010
Medium speed propulsion	Tier II	2011 to 2016	0.187	0.172	0.187	10.5	0.401	1.1	0.5	657	0.029	0.010
Medium speed propulsion	Tier III	2016 and newer	0.187	0.172	0.187	2.6	0.401	1.1	0.5	657	0.029	0.010
Gas turbine	na	All	0.010	0.009	0.000	5.7	0.587	0.2	0.1	962	0.075	0.002
Steam propulsion	na	All	0.160	0.147	0.000	2.0	0.587	0.2	0.1	962	0.075	0.002

Table 3.12 lists the emission factors for auxiliary boilers using 0.1% sulfur fuel.

Table 3.12: OGV Emission Factors for Auxiliary Boilers using 0.1% S, g/kWh

Engine Category	PM_{10}	$PM_{2.5}$	DPM	NO_x	SOx	CO	HC	CO_2	N_2O	CH_4
Steam boilers	0.202	0.186	0	1.97	0.5865	0.2	0.1	962	0.0752	0.002

[47] EPA, *www.epa.gov/state-and-local-transportation/port-emissions-inventory-guidance*

Table 3.13 lists the emission factors for auxiliary engines using 0.1% sulfur fuel.

Table 3.13: Emission Factors for Auxiliary Engines using 0.1% S, g/kWh

Engine Category	Tier	Model Year Range	PM_{10}	$PM_{2.5}$	DPM	NO_x	SOx	CO	HC	CO_2	N_2O	CH_4
Medium speed Auxiliary	Tier 0	1999 and older	0.19	0.17	0.19	13.8	0.42	1.1	0.4	696	0.029	0.008
Medium speed Auxiliary	Tier I	2000 to 2011	0.19	0.17	0.19	12.2	0.42	1.1	0.4	696	0.029	0.008
Medium speed Auxiliary	Tier II	2011 to 2016	0.19	0.17	0.19	10.5	0.42	1.1	0.4	696	0.029	0.008
Medium speed Auxiliary	Tier III	2016 and newer	0.19	0.17	0.19	2.6	0.42	1.1	0.4	696	0.029	0.008
High speed Auxiliary	Tier 0	1999 and older	0.19	0.17	0.19	10.9	0.42	0.9	0.4	696	0.029	0.008
High speed Auxiliary	Tier I	2000 to 2011	0.19	0.17	0.19	9.8	0.42	0.9	0.4	696	0.029	0.008
High speed Auxiliary	Tier II	2011 to 2016	0.19	0.17	0.19	7.7	0.42	0.9	0.4	696	0.029	0.008
High speed Auxiliary	Tier III	2016 and newer	0.19	0.17	0.19	2.0	0.42	0.9	0.4	696	0.029	0.008

In 2024, there were four vessels (one auto carrier and 3 containerships) that used LNG as fuel and comprised of 8 arrivals. The vessels reported switching from LNG to traditional fuels in the main engine before slowing down to approach the port but were able to run the auxiliary engines and boiler, as needed, on LNG throughout the emissions inventory domain and port stay. On average, LNG fuel was used with 3.6% of MGO fuel as pilot fuel.

LNG EFs shown in tables 3.14 and 3.15 below are composite of LNG and MGO EFs weighted based on proportion of pilot fuel to alternate fuel. Table 3.14 lists the emission factors for engines and steam boilers using LNG fuel per EPA's Ports EI Guidance for most pollutants, except for the SO_x EF which is from the IMO 4th GHG Study[48] and 3.6% MGO as pilot fuel. The brake specific fuel consumption (BSFC) used for LNG fuel in this report is 166 g/kWh.

Table 3.14: Emission Factors for Propulsion Engines and Steam Boilers using LNG fuel and 3.6% MGO as Pilot Fuel, g/kWh

Engine Category	IMO Tier	Range Year	PM_{10}	$PM_{2.5}$	DPM	NO_x	SOx	CO	HC	CO_2	N_2O	CH_4
Slow speed propulsion	Tier 0	1999 and older	0.036	0.033	0.007	1.87	0.018	1.30	0.02	461.4	0.029	0.000
Slow speed propulsion	Tier I	2000 to 2011	0.036	0.033	0.007	1.83	0.018	1.30	0.02	461.4	0.029	0.000
Slow speed propulsion	Tier II	2011 to 2016	0.036	0.033	0.007	1.77	0.018	1.30	0.02	461.4	0.029	0.000
Slow speed propulsion	Tier III	2016 and newer	0.036	0.033	0.007	1.37	0.018	1.30	0.02	461.4	0.029	0.000
Medium speed propulsion	Tier 0	1999 and older	0.036	0.033	0.007	1.72	0.020	1.29	0.02	463.7	0.029	0.000
Medium speed propulsion	Tier I	2000 to 2011	0.036	0.033	0.007	1.68	0.020	1.29	0.02	463.7	0.029	0.000
Medium speed propulsion	Tier II	2011 to 2016	0.036	0.033	0.007	1.62	0.020	1.29	0.02	463.7	0.029	0.000
Medium speed propulsion	Tier III	2016 and newer	0.036	0.033	0.007	1.35	0.020	1.29	0.02	463.7	0.029	0.000
Steam boilers	na	na	0.035	0.032	0.000	1.32	0.026	1.26	0.00	474.7	0.075	0.000

48 IMO, *https://www.imo.org/en/ourwork/Environment/Pages/Fourth-IMO-Greenhouse-Gas-Study-2020.aspx*

Table 3.15: Emission Factors for Auxiliary Engines using LNG fuel and 3.6% MGO as Pilot Fuel, g/kWh

Engine Category	IMO Tier	Range Year	PM_{10}	$PM_{2.5}$	DPM	NO_x	SOx	CO	HC	CO_2	N_2O	CH_4
Medium speed Auxiliary	Tier 0	1999 and older	0.036	0.033	0.007	1.75	0.02	1.29	0.01	465.1	0.029	0.000
Medium speed Auxiliary	Tier I	2000 to 2011	0.036	0.033	0.007	1.69	0.02	1.29	0.01	465.1	0.029	0.000
Medium speed Auxiliary	Tier II	2011 to 2016	0.036	0.033	0.007	1.63	0.02	1.29	0.01	465.1	0.029	0.000
Medium speed Auxiliary	Tier III	2016 and newer	0.036	0.033	0.007	1.35	0.02	1.29	0.01	465.1	0.029	0.000
High speed Auxiliary	Tier 0	1999 and older	0.036	0.033	0.007	1.65	0.02	1.29	0.01	465.1	0.029	0.000
High speed Auxiliary	Tier I	2000 to 2011	0.036	0.033	0.007	1.61	0.02	1.29	0.01	465.1	0.029	0.000
High speed Auxiliary	Tier II	2011 to 2016	0.036	0.033	0.007	1.53	0.02	1.29	0.01	465.1	0.029	0.000
High speed Auxiliary	Tier III	2016 and newer	0.036	0.033	0.007	1.32	0.02	1.29	0.01	465.1	0.029	0.000

Emission Estimates

The following tables present the estimated OGV emissions categorized in different ways, such as by engine type, operating mode, and vessel type. The criteria pollutant emissions are presented in tons per year, while the greenhouse gas emissions are presented in metric tons (tonnes) per year.

Table 3.16 presents emission estimates by engine type. The emissions for the CARB approved emissions control technologies (CAECS) were included with the auxiliary engine emissions in this table.

Table 3.16: 2024 Ocean-Going Vessel Emissions by Engine Type

Engine Type	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e tonnes
Main Engine	10	9	10	1,168	17	85	56	37,161
Auxiliary Engine	15	14	15	825	29	95	34	55,326
Auxiliary Boiler	15	14	0	154	33	16	8	69,555
Total	**40**	**36**	**25**	**2,148**	**79**	**196**	**98**	**162,042**

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Table 3.17 presents emission estimates by mode. For each mode, the engine type emissions are also listed. At-berth hotelling and at-anchorage hotelling are listed separately. Transit and harbor maneuvering emissions include both berth and anchorage calls.

Table 3.17: 2024 Ocean-Going Vessel Emissions by Mode

Mode	Engine Type	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e tonnes
Transit	Main	8.6	7.9	8.6	1,048.2	15.8	73.8	46.8	33,909
Transit	Auxiliary Engine	5.8	5.4	5.8	322.7	10.4	35.6	12.9	20,654
Transit	Auxiliary Boiler	0.5	0.5	0.0	5.7	1.1	0.6	0.3	2,551
Total Transit		**15.0**	**13.8**	**14.4**	**1,377**	**27.4**	**110.0**	**60.0**	**57,113**
Maneuvering	Main	1.1	1.1	1.1	119.7	1.4	10.9	9.7	3,253
Maneuvering	Auxiliary Engine	1.5	1.4	1.5	85.4	2.7	9.5	3.4	5,511
Maneuvering	Auxiliary Boiler	0.2	0.2	0.0	2.2	0.4	0.2	0.1	980
Total Maneuvering		**2.9**	**2.7**	**2.7**	**207**	**4.6**	**20.6**	**13.3**	**9,744**
Hotelling at-berth	Main	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Hotelling at-berth	Auxiliary Engine	5.7	5.2	5.7	311.1	12.1	37.9	12.6	21,920
Hotelling at-berth	Auxiliary Boiler	12.8	11.8	0.0	134.3	28.7	13.9	6.8	60,555
Total Hotelling at-berth		**18.5**	**17.0**	**5.7**	**445**	**40.8**	**51.7**	**19.4**	**82,475**
Hotelling at-anchorage	Main	0.0	0.0	0.0	0	0.0	0.0	0.0	0
Hotelling at-anchorage	Auxiliary Engine	2.0	1.9	2.0	106.2	3.4	12.5	4.5	7,241
Hotelling at-anchorage	Auxiliary Boiler	1.2	1.1	0.0	12.1	2.6	1.2	0.6	5,470
Total Hotelling at-anchorage		**3.2**	**2.9**	**2.0**	**118**	**6.1**	**13.7**	**5.1**	**12,710**
Total		**39.5**	**36.4**	**24.8**	**2,147.6**	**78.8**	**196.1**	**97.8**	**162,042**

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A summary of the OGV emission estimates by vessel type for all pollutants for the year 2024 is presented in Table 3.18.

Table 3.18: 2024 Ocean-Going Vessel Emissions by Vessel Type

Vessel Type	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e tonnes
Auto Carrier	1.1	1.0	0.9	80.4	1.5	7.1	3.4	4,621
Bulk	1.4	1.3	1.0	68.2	3.4	6.9	2.3	5,260
Bulk - Heavy Load	0.1	0.1	0.0	3.8	0.2	0.3	0.1	292
Container - 1000	0.2	0.2	0.2	13	0.7	1.3	0.4	1,109
Container - 2000	0.7	0.6	0.5	43	1.4	3.7	1.5	3,364
Container - 3000	0.6	0.5	0.3	30	1.5	2.8	1.2	2,550
Container - 4000	1.4	1.3	0.9	110	2.8	7.1	3.5	6,682
Container - 5000	1.9	1.7	1.0	121	5.1	7.7	4.0	8,424
Container - 6000	0.9	0.8	0.6	47	1.5	5.7	3.6	3,013
Container - 7000	0.5	0.5	0.2	35	1.5	2.0	0.9	2,620
Container - 8000	5.2	4.8	2.8	329	9.4	23.3	13.7	23,502
Container - 9000	2.9	2.6	1.4	140	5.1	12.7	7.6	12,046
Container - 10000	1.4	1.3	0.6	82	2.7	4.0	2.1	7,206
Container - 11000	3.5	3.2	2.2	197	4.3	23.0	14.6	13,555
Container - 12000	0.7	0.7	0.5	33	0.6	5.7	3.4	2,656
Container - 13000	1.9	1.7	0.9	71	4.1	8.0	4.6	7,604
Container - 14000	0.9	0.8	0.5	48	1.6	4.6	2.7	3,882
Container - 15000	1.2	1.1	0.7	44	2.1	7.5	4.1	4,308
Container - 16000	0.0	0.0	0.0	2	0.0	0.2	0.1	205
Cruise	5.9	5.4	5.4	349	12.1	33.2	13.2	20,944
General Cargo	0.8	0.7	0.6	43	1.7	4.0	1.5	2,887
Miscellaneous	0.0	0.0	0.0	1	0.0	0.1	0.0	48
Reefer	0.6	0.5	0.5	38	1.5	3.1	1.2	2,208
Tanker - Chemical	3.0	2.8	2.1	141.5	6.9	14.9	5.1	11,906
Tanker - Handysize	1.4	1.3	0.5	50.0	3.7	4.0	1.8	5,787
Tanker - Panamax	1.3	1.2	0.3	29.4	3.4	3.0	1.2	5,365
Total	**39.5**	**36.4**	**24.8**	**2,147.6**	**78.8**	**196.1**	**97.8**	**162,042**

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SECTION 4 HARBOR CRAFT

This section presents emission estimates for the commercial harbor craft source category, including source descriptions, geographical domain, data acquisition, operational profiles, emissions estimation methodology, and emission estimates.

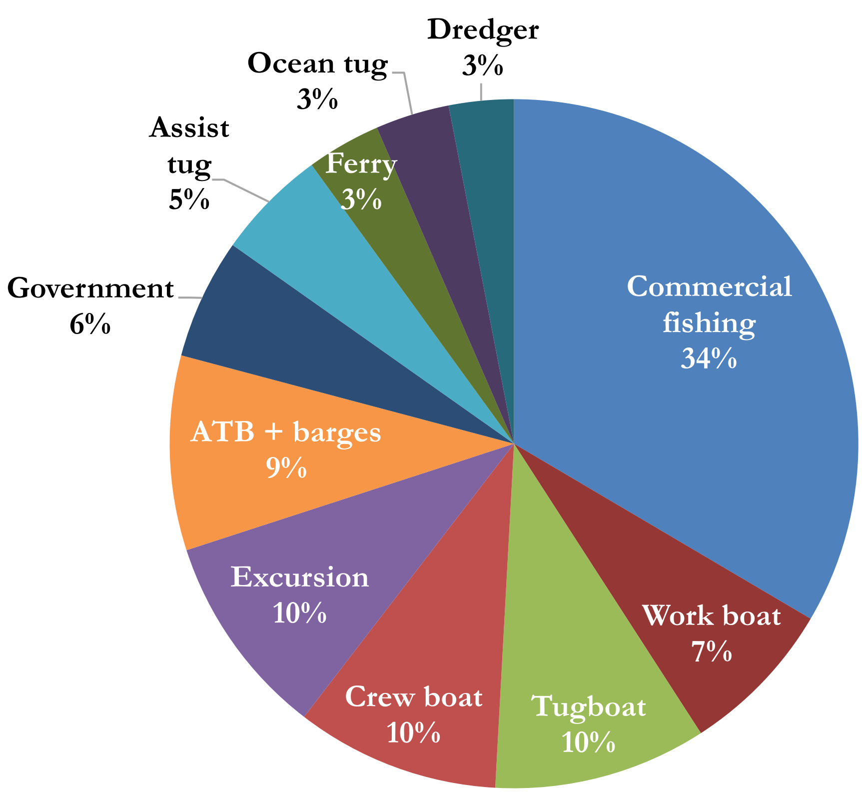
Source Description

Harbor craft are commercial vessels that spend the majority of their time within or near the port and harbor, except for articulated tug barges (ATBs). The ATBs are included to be consistent with the 2022 CARB CHC regulation amendment. The harbor craft emissions inventory consists of the following vessel types:

- Articulated tug barge (ATB)
- Assist and escort tugboats
- Commercial fishing vessels
- Crew boats
- Dredgers
- Excursion vessels
- Ferry vessels
- Government vessels
- Ocean tugs
- Tugboats
- Work boats incl dredger ops

Figure 4.1 presents the distribution of the 230 commercial harbor craft inventoried for the Port in 2024.

Figure 4.1: Distribution of Commercial Harbor Craft Population by Vessel Type



Ocean tugs included in this section are different from the articulated tug barge (ATB). ATBs are seen as specialized single vessels. The ocean tugs in this section are not rigidly connected to the barge and are typically not home-ported at the Port but may make frequent calls with barges. They are different from tugboats because their average engine loads are higher than tugboats, which tend to idle more between jobs. Tugboats are typically home-ported in San Pedro Bay harbor and primarily operate within the harbor area but can also operate outside the harbor depending on their work assignments. Assist tugs are tugboats whose main job is to assist and escort the largest vessels that call the Port and tend to have larger engines and typically have higher hours than regular tugboats due to the assigned regular work.

Geographical Domain

The geographical domain for harbor craft is the same as that for ocean-going vessels.

Data and Information Acquisition

Commercial harbor craft companies were contacted to obtain key operational parameters for their vessels. These include:

- Vessel type
- Engine count
- Engine horsepower (or kilowatts) for main and auxiliary engines
- Engine model year
- Operating hours in calendar year 2024
- Vessel repower information
- Fuel type used

Operational Profiles

Tables 4.1 and 4.2 summarize the propulsion and auxiliary engine data, respectively, for each vessel type. In cases where the model year, horsepower, or operating hour information was missing, the averages by vessel type were used as defaults. Defaults were used mainly for commercial fishing vessels, barge ATBs and excursion vessels. This resulted in the use of defaults for 6% of engine model year values, 12% of horsepower values, and 7% of operating hours.

There are a number of companies that operate harbor craft in both the ports of Los Angeles and Long Beach. The activity hours for the vessels that are common to both ports reflect work performed during 2024 for the Port of Los Angeles only.

Table 4.1: 2024 Summary of Propulsion Engine Data by Vessel Category

Harbor Craft Type	Vessel Count	Engine Count	Model year Minimum	Model year Maximum	Model year Average	Horsepower Minimum	Horsepower Maximum	Horsepower Average	Annual Operating Hours Minimum	Annual Operating Hours Maximum	Annual Operating Hours Average
Assist tug	12	24	2008	2022	2016	2,000	3,433	2,787	102	2,265	1,208
ATB	15	30	2001	2018	2010	2,009	6,000	4,017	6	1764	208
Barge	6	0	na	na	na	na	na	na	na	na	na
Commercial fishing	77	84	1968	2018	2005	150	1,000	381	100	3,800	1,557
Crew boat	22	54	2003	2023	2016	180	1,450	594	0	1,869	674
Dredger	7	0	na	na	na	na	na	na	na	na	na
Excursion	22	43	1979	2024	2016	285	800	419	0	4,086	1,158
Ferry	8	20	2010	2022	2016	1,875	2,680	2,223	662	1,813	1,062
Government	13	25	1993	2019	2008	230	1,770	649	0	1,158	309
Ocean tug	8	16	2003	2024	2011	599	2,375	1,659	448	1,242	797
Tugboat	23	45	2001	2020	2014	235	3,386	1033	0	1,578	657
Work boat	17	30	2002	2024	2015	135	1,000	515	0	4,606	936
Total	**230**	**371**									

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Table 4.2: 2024 Summary of Auxiliary Engine Data by Vessel Category

Harbor	Vessel	Engine		Model year			Horsepower			Annual Operating Hours	
Craft Type	Count	Count	Minimum	Maximum	Average	Minimum	Maximum	Average	Minimum	Maximum	Average
Assist tug	12	26	2007	2021	2016	54	397	213	0	2,635	1,337
ATB	15	38	2001	2023	2013	102	800	283	41	2,454	588
ATB barge	na	72	2001	2019	2008	95	1900	499	14	1,812	100
Barge other	6	11	2008	2018	2012	32	375	168	0	1,200	285
Commercial fishing	77	31	1973	2016	2010	12	165	80	700	4,400	1,820
Crew boat	22	23	2009	2022	2016	11	107	51	0	1,786	669
Dredger	7	24	2001	2018	2009	80	3257	1091	14	1962	528
Excursion	22	25	1981	2023	2013	11	54	37	0	4,860	1,509
Ferry	8	16	2008	2024	2017	18	133	70	23	2,454	807
Government	13	19	2002	2019	2006	17	1555	394	0	2930	276
Ocean tug	8	16	2003	2022	2014	45	154	106	56	1,492	916
Tugboat	23	41	2008	2021	2014	27	429	126	0	2,480	738
Work boat	17	23	1981	2022	2013	8	305	113	0	3,569	911
Total	**230**	**365**									

Harbor craft engines with known model year and horsepower (hp) were categorized according to their respective EPA marine engine standards (known as EPA Tier). Table 4.3 is consistent with the CARB CHC regulation amendment.

Table 4.3: Harbor Craft Marine Engine Tier Levels

EPA Tier	Marine Engine Model Year Range	Horsepower Range
Tier 0	2003 and older	All
Tier 1	2004 to 2006	All
Tier 2	2007 to 2008	< 100 hp
Tier 2	2007 to 2012	≥ 100 hp
Tier 3	2009 and newer	< 100 hp
Tier 3	2013 and newer	100 to 800 hp
Tier 3	2013 to 2016	≥ 800 hp
Tier 4	2017 and newer	≥ 800 hp

Figure 4.2 provides the distribution by tier of all harbor craft propulsion and auxiliary engines operating at the Port in 2024. If model year and/or horsepower information were not available, the engines were classified as unknown. Due to rounding, the percent in the figure may not add up to 100%.

Figure 4.2: Distribution of Harbor Craft Engines by Engine Standards

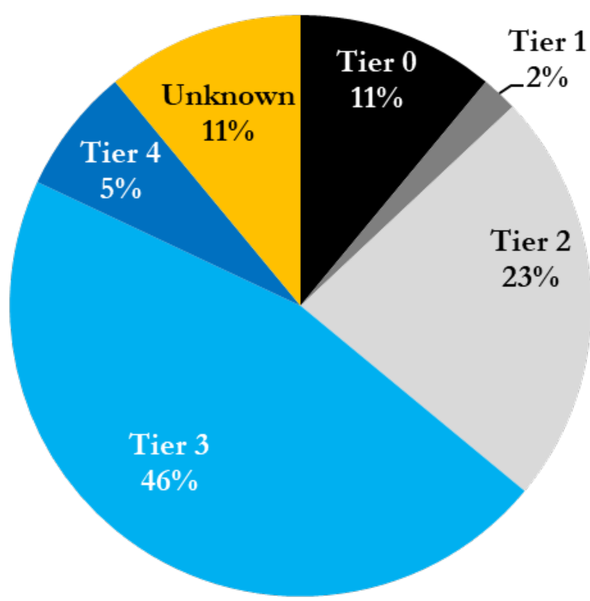


Table 4.4 summarizes the energy consumption (kWh) per engine tier used to estimate harbor craft emissions. The newer Tier 2 to Tier 4 engines made up 82% of the harbor craft energy consumption, indicating higher use of cleaner engines. Energy consumption of harbor craft engines with an unknown tier was distributed among other tiers with similar characteristics based on the defaults used for missing model year or horsepower for emissions calculations.

Table 4.4: Harbor Craft Energy Consumption by Engine Tier, kWh and %

Engine Tier	2024 kWh	2024 % of Total
Tier 0	5,997,033	7%
Tier 1	4,390,893	5%
Tier 2	25,484,441	31%
Tier 3	29,279,948	36%
Tier 4	17,310,980	21%
Total	**82,463,294**	**100%**

Emissions Estimation Methodology

The emissions calculation methodology and the emission rates are described in Section 3 of the SPBP Emissions Inventory Methodology Report Version 5. The Port's harbor craft emission calculation methodology is the same as the previous year and is consistent with the methodology used by CARB to estimate emissions inventory for commercial harbor craft operating in California.[49] Harbor craft emissions are estimated for each engine individually, based on the engine's model year, power rating, and annual hours of operation.

[49] CARB, *Commercial Harbor Craft Regulatory Activities*, Appendix H: 2021 Update to the Emission Inventory for Commercial Harbor Craft: Methodology and Results, Date of release, September 21, 2021. *www.arb.ca.gov/sites/default/files/barcu/regact/2021/chc2021/apph.pdf*

Renewable diesel was used by all the harbor craft engines in California for the first time in 2023 due to CARB Commercial Harbor Craft Regulation requirement[50]. For pre-Tier 4 engines, use of renewable fuel reduces[51] tailpipe PM emission by 30%, NO_x and CO emissions by 10%, and hydrocarbon emissions by 5%. Tailpipe CO_2 emissions are reduced by 4.5 % for all tiers. Table 4.5 summarizes the control factors for renewable diesel use.

Table 4.5: Control Factors for Renewable Diesel

Control Measure	Engine Tier	Retrofit	PM_{10}	$PM_{2.5}$	DPM	NO_x	SOx	CO	HC	CO_2	N_2O	CH_4
Renewable Diesel (RD99)	Tier 0-3	None	0.70	0.70	0.70	0.90	1.00	0.90	0.95	0.96	0.90	0.95
Renewable Diesel (RD99)	Tier 4	None	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.96	1.00	1.00
Renewable Diesel (RD99)	Tier 0-3	DPF	0.11	0.11	0.11	0.90	1.00	0.90	0.95	0.96	0.90	0.95

Emission Estimates

[50] CARB, *https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2021/chc2021/chcfro.pdf*, Section 2299.5 (b)

[51] *https://ww2.arb.ca.gov/sites/default/files/2021-11/Low_Emission_Diesel_Study_Final_Report.pdf* ; *https://ww2.arb.ca.gov/sites/default/files/2023-04/2022InUseDieselInventory.pdf*

Table 4.6 summarizes the estimated 2024 harbor craft emissions by vessel type and engine type. The criteria pollutants are listed as tons per year while the CO_2e values are listed as tonnes (metric tons) per year.

Table 4.6: 2024 Harbor Craft Emissions by Vessel and Engine Type

Harbor Craft Type	Engine Type	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e tonnes
Assist Tug	Auxiliary	0.2	0.2	0.2	8.2	0.0	2.2	0.3	1,301
	Propulsion	0.6	0.6	0.6	35.6	0.1	9.3	1.5	6,359
Assist Tug Total		**0.8**	**0.8**	**0.8**	**43.9**	**0.1**	**11.5**	**1.8**	**7,659**
ATB	Auxiliary	0.2	0.2	0.2	10.1	0.0	2.4	0.4	1,324
	Propulsion	1.5	1.5	1.5	55.6	0.0	8.8	3.8	4,551
ATB Total		**1.8**	**1.7**	**1.8**	**65.7**	**0.1**	**11.1**	**4.3**	**5,875**
Barges	Auxiliary	0.1	0.1	0.1	4.2	0.0	1.0	0.2	495
	Propulsion	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Barge Total		**0.1**	**0.1**	**0.1**	**4.2**	**0.0**	**1.0**	**0.2**	**495**
Commercial Fishing	Auxiliary	0.2	0.2	0.2	7.4	0.0	2.1	0.4	1,042
	Propulsion	2.1	2.0	2.1	84.1	0.1	21.8	5.5	7,071
Commercial Fishing Total		**2.3**	**2.2**	**2.3**	**91.5**	**0.1**	**23.9**	**5.9**	**8,113**
Crew boat	Auxiliary	0.0	0.0	0.0	1.2	0.0	0.3	0.1	180
	Propulsion	0.4	0.4	0.4	27.6	0.0	4.6	1.1	3,184
Crew boat Total		**0.5**	**0.4**	**0.5**	**28.9**	**0.0**	**4.9**	**1.2**	**3,364**
Excursion	Auxiliary	0.1	0.1	0.1	2.5	0.0	0.7	0.1	353
	Propulsion	0.4	0.4	0.4	22.8	0.0	4.4	1.1	2,875
Excursion Total		**0.5**	**0.5**	**0.5**	**25.3**	**0.0**	**5.1**	**1.2**	**3,228**
Dredge	Auxiliary	0.9	0.9	0.9	49.9	0.1	9.7	2.3	5,081
	Propulsion	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Dredge Total		**0.9**	**0.9**	**0.9**	**49.9**	**0.1**	**9.7**	**2.3**	**5,081**
Ferry	Auxiliary	0.0	0.0	0.0	1.3	0.0	0.4	0.1	206
	Propulsion	0.8	0.8	0.8	45.2	0.1	11.1	2.0	7,323
Ferry Total		**0.8**	**0.8**	**0.8**	**46.5**	**0.1**	**11.5**	**2.1**	**7,529**
Government	Auxiliary	0.0	0.0	0.0	1.0	0.0	0.2	0.1	86
	Propulsion	0.2	0.2	0.2	8.0	0.0	1.5	0.6	916
Government Total		**0.3**	**0.3**	**0.3**	**8.9**	**0.0**	**1.7**	**0.7**	**1,002**
Ocean Tug	Auxiliary	0.1	0.1	0.1	2.8	0.0	0.7	0.1	392
	Propulsion	1.6	1.5	1.6	63.3	0.1	10.4	4.1	5,282
Ocean Tug Total		**1.7**	**1.6**	**1.7**	**66.1**	**0.1**	**11.0**	**4.2**	**5,674**
Tugboat	Auxiliary	0.1	0.1	0.1	5.4	0.0	1.4	0.2	847
	Propulsion	0.5	0.5	0.5	28.3	0.0	5.5	1.2	3,346
Tugboat Total		**0.6**	**0.6**	**0.6**	**33.8**	**0.0**	**6.9**	**1.5**	**4,193**
Work boat	Auxiliary	0.0	0.0	0.0	1.7	0.0	0.4	0.1	261
	Propulsion	0.3	0.3	0.3	16.3	0.0	3.9	0.6	3,131
Work boat Total		**0.3**	**0.3**	**0.3**	**18.0**	**0.0**	**4.3**	**0.7**	**3,391**
Harbor Craft Total		**10.5**	**10.1**	**10.5**	**482.6**	**0.5**	**102.6**	**26.0**	**55,604**

DB ID427

SECTION 5 CARGO HANDLING EQUIPMENT

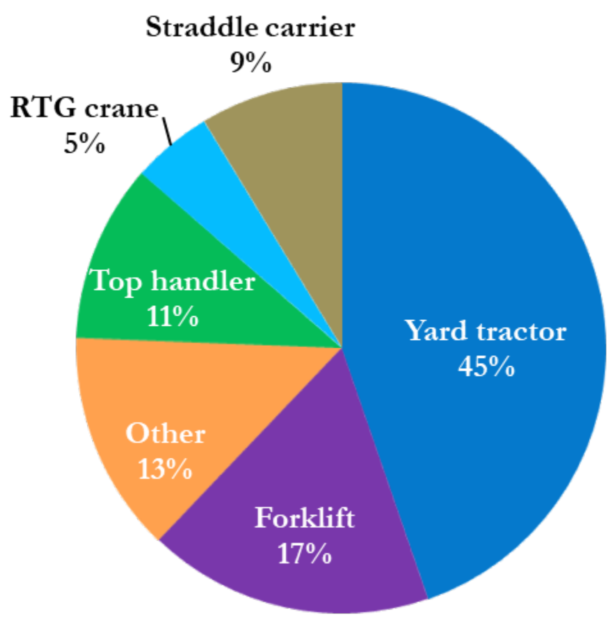
This section presents emissions estimates for the CHE source category, including source descriptions, geographical domain, data acquisition, operational profiles, emissions estimation methodology, and emission estimates.

Source Description

The CHE category includes equipment that moves cargo (including cargo in containers, general cargo, and bulk cargo) to and from marine vessels, railcars, and on-road trucks. The equipment is typically operated at marine terminals or at rail yards and not on public roadways. This inventory includes cargo handling equipment fueled by diesel, gasoline, propane, LNG, and electricity. Due to the diversity of cargo handled by the Port's terminals, there is a wide range of equipment types.

Figure 5.1 presents the population distribution of the 1,985 pieces of equipment inventoried at the Port for calendar year 2024. The 13% for "other" equipment captures a variety of terminal equipment, such as bulldozer, cone vehicle, loader, man lift, material handler, rail pusher, reach stacker, skid steer loader, side pick, sweeper, telehandler, and truck. The hybrid and conventional rubber-tired gantry (RTG) crane counts were included under RTG crane. The hybrid and conventional straddle carrier counts were included under straddle carrier. In 2024, the yard tractor percentage of equipment count is lower than prior year, while the straddle carrier has a higher percentage as compared to 2023. This is due to a terminal using more straddle carriers in their operation and another terminal completing transition to newer yard tractors and taking older yard tractors out of service.

Figure 5.1: 2024 CHE Count Distribution by Equipment Type



Geographical Domain

The geographical domain for CHE is the terminals within the Port.

Data and Information Acquisition

The maintenance and/or operating staff of each terminal were contacted in person, by e-mail, or by telephone, to obtain equipment count and activity information on the CHE specific to their terminal's operation for the 2024 calendar year.

Operational Profiles

Table 5.1 summarizes the cargo handling equipment data collected from the terminals and facilities for the calendar year 2024. The table includes the count of all equipment as well as the range and average horsepower, model year, and annual operating hours by equipment type for equipment with known operating parameters. For the electric-powered equipment shown in the table, "na" denotes "not applicable" for engine size, model year, and operating hours.

The averages by CHE engine and fuel type were used as defaults for any missing information. Similar to the previous year, defaults were used for 1% of engine model year values, 4% of horsepower values, and 1% of operating hours. Some of the equipment with zero operating hours are included in the table because the equipment is part of the fleet and for various reasons, may not have been used in 2024.

Table 5.1: 2024 CHE Engine Characteristics for All Terminals

Equipment	Engine Type	Count	Power (hp)			Model Year			Annual Activity Hours		
			Min	Max	Average	Min	Max	Average	Min	Max	Average
Stacking crane	Electric	29	na	na	na	na	na	na	961	2,869	2,142
Bulldozer	Diesel	2	174	200	187	2007	2024	2016	46	73	60
Cone Vehicle	Diesel	23	15	35	29	2010	2022	2017	0	2,511	1,055
Crane	Diesel	8	130	751	299	2003	2021	2012	5	1,262	379
Crane	Electric	3	na	na	na	na	na	na	na	na	na
Wharf crane	Electric	87	na	na	na	na	na	na	0	5,650	1,604
Forklift	Diesel	103	56	400	194	2004	2024	2014	0	2,501	423
Forklift	Electric	78				0	0	0	0	1,699	133
Forklift	Gasoline	5	45	45	45	2010	2012	2011	46	376	138
Forklift	Propane	161	28	165	80	1991	2022	2010	0	2,432	387
Loader	Diesel	14	74	527	308	2007	2022	2014	0	4,587	1,172
Man lift	Diesel	28	48	107	78	2002	2022	2012	0	705	254
Man lift	Electric	3	na	na	na	na	na	na	na	na	na
Man lift	Gasoline	1	60	60	60	2007	2007	2007	0	0	0
Material handler	Diesel	10	390	450	423	2008	2023	2017	624	4,332	2,213
Rail pusher	Diesel	1	194	194	194	2012	2012	2012	612	612	612
Rail pusher	Electric	1	na	na	na	2021	2021	2021	453	453	453
Reach stacker	Diesel	5	250	449	344	2012	2022	2016	0	1,970	749
Hybrid RTG	Diesel	39	154	302	245	2011	2023	2019	138	8,642	3,222
RTG crane	Diesel	58	320	779	600	2003	2022	2012	0	7,255	3,082
Side pick	Diesel	8	240	275	261	2014	2020	2017	0	4,514	1,631
Skid steer loader	Diesel	5	73	75	73	1994	2023	2016	36	1,013	598
Hybrid straddle carrier	Diesel	144	102	103	103	2016	2022	2020	1,079	4,380	2,639
Straddle carrier	Diesel	28	425	425	425	2013	2015	2014	1,147	6,683	5,563
Sweeper	Diesel	8	96	210	164	2000	2021	2013	46	1,011	382
Sweeper	Gasoline	1				2018	2018	2018	na	na	na
Telehandler	Diesel	7	74	130	82	2013	2021	2017	280	959	431
Top handler	Diesel	206	250	400	344	2002	2024	2014	0	4,015	1,804
Top handler	Electric	9	na	na	na	2019	2019	2019	208	2,832	988
Truck	Diesel	23	185	598	345	1988	2022	2009	0	2,806	675
Yard tractor	Diesel	695	158	250	220	1995	2024	2015	0	7,431	1,671
Yard tractor	Electric	15	na	na	na	2019	2019	2019	98	636	412
Yard tractor	LNG	22	250	250	250	2018	2018	2018	343	1,933	1,352
Yard tractor	Propane	155	195	231	201	2007	2021	2015	0	3,584	890
Total count		**1,985**									

DB ID228

Table 5.2 summarizes the emission reduction technologies utilized in cargo handling equipment, including diesel particulate filters (DPF) and BlueCAT retrofit for large-spark ignition (LSI) engines. In 2024, renewable diesel was used by the majority of container terminals.

Table 5.2: 2024 Count of CHE Utilizing Emission Reduction Technologies

Equipment	On-Road Engines	DPF Retrofit	Hybrid	BlueCAT LSI Equip	Renewable Diesel
Forklift	0	21	0	22	76
RTG crane	0	2	39	0	51
Straddle carrier	0	0	144	0	144
Top handler	0	46	0	0	132
Yard tractor	469	4	0	0	472
Sweeper	0	0	0	0	6
Other	13	18	0	0	84
Total	**482**	**91**	**183**	**22**	**965**

DB ID234

Table 5.3 shows the distribution of equipment by fuel type. The "other" electric equipment includes automatic stacking carriers (ASCs), cranes, loaders, manlifts, and miscellaneous. The fossil fueled equipment in the other category includes propane truck, gasoline sweeper and manlift, in addition to many diesel equipment types (bulldozer, cone vehicle, crane, loader, manlift, material handler, reach stacker, side pick, skid steer loader, sweeper, telehandler, truck).

Table 5.3: 2024 Count of CHE Equipment by Fuel Type

Equipment	Electric	LNG	Propane	Gasoline	Diesel	Total
Forklift	78	0	161	5	103	347
Wharf crane	87	0	0	0	0	87
RTG crane	0	0	0	0	97	97
Straddle carrier	0	0	0	0	172	172
Top handler	9	0	0	0	206	215
Yard tractor	15	22	155	0	695	887
Other	36	0	0	2	142	180
Total	**225**	**22**	**316**	**7**	**1,415**	**1,985**

DB ID235

Table 5.4 summarizes the distribution of diesel cargo handling equipment engines including smaller auxiliary RTG engines by off-road diesel engine standards[52] (Tier 0, 1, 2, 3, 4i interim, and 4f final) based on model year and horsepower range. The table also lists the count of each type of equipment using on-road diesel engines. The table does not reflect the fact that some of the engines may be cleaner than the tier level they are certified to because of the use of emissions control devices added to existing equipment. The "Unknown Tier" column shown in the table represents equipment with missing horsepower or model year information necessary for tier level classifications.

Table 5.4: 2024 Count of Diesel Engines by Engine Standards

Equipment Type	Tier 0	Tier 1	Tier 2	Tier 3	Tier 4i	Tier 4f	On-road Engine	Unknown Tier	Total Diesel Engines
Forklift	0	0	6	16	19	46	0	16	103
RTG crane	0	0	11	0	37	49	0	0	97
Top handler	0	1	15	31	24	134	0	1	206
Yard tractor	4	0	0	0	0	205	469	17	695
Other	1	4	6	12	22	62	13	14	134
Straddle carrier	0	0	0	0	17	155	0	0	172
Total	**5**	**5**	**38**	**59**	**119**	**659**	**482**	**48**	**1,415**
Percent	**0.4%**	**0.4%**	**3%**	**4%**	**8%**	**47%**	**34%**	**3%**	

DB ID878

[52] EPA, *Nonroad Compression-Ignition Engines- Exhaust Emission Standards,* June 2004

Table 5.5 summarizes the energy consumption (kWh) for the diesel equipment by engine tier and the other engine types (i.e., gasoline, propane, and LNG), but not electric. Energy consumption of cargo handling equipment engines with unknown tiers was distributed among other tiers based on defaults used for missing model year or horsepower for emissions calculations.

Table 5.5: 2024 Equipment Energy Consumption by Engine Tier, kWh and %

Engine Type	Engine Tier	Energy Consumption kWh	Percent Total
Diesel	Tier 0	328,119	0.2%
Diesel	Tier 1	180,423	0.1%
Diesel	Tier 3	8,945,963	4.6%
Diesel	Tier 4i	28,154,489	14.5%
Diesel	Tier 4f	93,523,809	48.1%
Diesel	Onroad engines	50,121,749	25.8%
Gasoline		11,200	0.0%
Propane		9,141,434	4.7%
LNG		2,157,485	1.1%
Total		**194,558,446**	

Emissions Estimation Methodology

The emissions calculation methodology and the emission rates are updated based on CARB's recommendation and described in Section 4 of the San Pedro Bay Ports Emissions Inventory Methodology Report Version 5. The Port's emissions calculation methodology used to estimate CHE emissions is consistent with CARB's latest methodology for estimating emissions from CHE.[53]

Table 5.6 summarizes the control measures for renewable diesel used by CHE at some of the container terminals.

Table 5.6: Control Measure for Renewable Diesel

Control Measure	Engine Tier	Retrofit	PM_{10}	$PM_{2.5}$	DPM	NO_x	SOx	CO	HC	CO_2	N_2O	CH_4
Renewable Diesel (RD99)	Tier 0-3	None	0.700	0.700	0.700	0.9	1.0	0.9	0.95	0.96	0.9	0.95
Renewable Diesel (RD99)	Tier 4	None	1.000	1.000	1.000	1.0	1.0	1.0	1.00	0.96	1.0	1.00
Renewable Diesel (RD99)	Tier 0-3	DPF	0.105	0.105	0.105	0.9	1.0	0.9	0.95	0.96	0.9	0.95

[53] CARB, 2017 Off-road Diesel Emission Factors and 2017 Off-road Diesel Emission Factors Documentation. *https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/road-documentation/msei-documentation-road*

Emission Estimates

Table 5.7 summarizes the CHE emissions by terminal type. The "Other" category represents CHE emissions for the intermodal yard and other facilities located on Port property.

Table 5.7: 2024 CHE Emissions by Terminal Type

Terminal Type	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e tonnes
Auto	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
Break-Bulk	0.5	0.4	0.5	13.2	0.1	22.0	2.8	7,848
Container	9.2	8.5	8.4	233.2	1.5	442.3	46.8	131,583
Cruise	0.0	0.0	0.0	0.2	0.0	1.3	0.0	73
Dry Bulk	0.1	0.0	0.0	4.5	0.0	8.7	0.5	351
Liquid	0.0	0.0	0.0	0.0	0.0	1.2	0.0	18
Other	0.2	0.2	0.1	4.9	0.1	26.4	1.5	5,549
Total	**9.9**	**9.2**	**9.1**	**256.0**	**1.7**	**501.9**	**51.6**	**145,423**

Table 5.8 presents the emissions by cargo handling equipment type and engine type.

Table 5.8: 2024 CHE Emissions by Equipment and Engine Type

Equipment	Engine	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e tonnes
Bulldozer	Diesel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7
Cone vehicle	Diesel	0.0	0.0	0.0	1.3	0.0	1.8	0.1	179
Crane	Diesel	0.0	0.0	0.0	1.1	0.0	0.6	0.1	286
Forklift	Diesel	0.1	0.1	0.1	4.3	0.0	5.7	0.5	1,384
Forklift	Gasoline	0.0	0.0	0.0	0.0	0.0	0.3	0.0	7
Forklift	Propane	0.1	0.1	0.0	3.1	0.0	37.6	0.9	1,025
Loader	Diesel	0.1	0.1	0.1	3.9	0.0	4.9	0.9	2,029
Man lift	Diesel	0.0	0.0	0.0	0.8	0.0	1.1	0.1	163
Man lift	Gasoline	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Material handler	Diesel	0.1	0.1	0.1	2.3	0.0	6.8	1.1	3,178
Rail pusher	Diesel	0.0	0.0	0.0	0.1	0.0	0.1	0.0	35
Reach stacker	Diesel	0.0	0.0	0.0	0.6	0.0	1.0	0.1	451
Hybrid RTG	Diesel	0.2	0.2	0.2	3.1	0.0	8.5	1.2	3,558
RTG crane	Diesel	1.7	1.5	1.7	50.3	0.1	27.6	6.4	12,243
Side pick	Diesel	0.1	0.1	0.1	1.6	0.0	2.7	0.4	1,139
Skid steer loader	Diesel	0.0	0.0	0.0	0.4	0.0	0.4	0.0	68
Hybrid Straddle Carrier	Diesel	0.1	0.1	0.1	4.7	0.1	29.7	1.3	4,297
Straddle carrier	Diesel	0.8	0.7	0.8	19.6	0.1	16.6	3.3	7,248
Sweeper	Diesel	0.0	0.0	0.0	0.3	0.0	0.6	0.1	214
Sweeper	Gasoline	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4
Telehandler	Diesel	0.0	0.0	0.0	0.1	0.0	0.3	0.0	48
Top handler	Diesel	3.0	2.8	3.0	88.7	0.5	96.3	17.3	43,004
Truck	Diesel	0.2	0.2	0.2	4.7	0.0	4.1	0.6	1,981
Yard tractor	Diesel	2.5	2.3	2.5	54.5	0.7	140.5	10.9	54,677
Yard tractor	LNG	0.0	0.0	0.0	0.0	0.0	0.7	0.0	948
Yard tractor	Propane	0.7	0.7	0.0	10.5	0.0	114.1	6.4	7,249
Total		**9.9**	**9.2**	**9.1**	**256.0**	**1.7**	**501.9**	**51.6**	**145,423**

DB ID237

SECTION 6 LOCOMOTIVES

This section presents emission estimates for the railroad locomotives source category, including source description, geographical domain, data and information acquisition, operational profiles, emissions estimation methodology, and emission estimates.

Source Description

Railroad operations are typically described in terms of two different types of operations, line haul and switching. Line haul refers to the movement of cargo by train over long distances. Line haul operations occur at or near the Port as the initiation or termination of a line haul trip; cargo is either picked up for transport to destinations across the country or is dropped off for shipment overseas. Switching refers to short movements of rail cars, such as in the assembling and disassembling of trains at various locations in and around the Port, sorting of the cars of inbound cargo trains into contiguous "fragments" for subsequent delivery to terminals, and the short distance hauling of rail cargo within the Port.

The Port is served by three railway companies:

- Burlington Northern Santa Fe Railway Company (BNSF)
- Union Pacific Railroad (UP)
- Pacific Harbor Line (PHL)

BNSF and UP provide line haul service to and from the Port and operate switching services at their off-port locations, while PHL performs most of the switching operations within the Port. Locomotives used for line haul operations are typically equipped with large, powerful engines of over 4,000 hp, while switch engines are smaller, typically having one or more engines totaling 2,000 to 3,000 hp. The locomotives used in switching service at the Port are primarily new, low-emitting locomotives specifically designed for switching duty. Switching locomotives are operated by PHL within the Port and by UP at the near-port railyard.

Geographical Domain

The specific activities included in this emissions inventory are movements of cargo within Port boundaries, directly to or from Port-owned properties such as terminals and on-Port rail yards, and within and to the boundary of the SoCAB. The inventory does not include rail movements of cargo that occur solely outside the Port, such as off-port rail yard switching, and movements that neither begin nor end at a Port property, such as east-bound line hauls that initiate in central Los Angeles intermodal yards. For rail locomotives, the domain extends from the Port to the cargo's first point of rest within the SoCAB or up to the SoCAB boundary, whichever comes first. Figure 1.1, presented earlier in Section 1, illustrates the boundaries.

Data and Information Acquisition

Information from the following general sources was used to estimate emissions associated with maritime industry-related activities of locomotives operating both within the Port and outside the Port to the boundary of the SoCAB:

- Previous emissions studies
- Port cargo statistics
- Input from railroad operators
- Information published by EPA, the Surface Transportation Board, and other sources as cited in this report
- CARB MOU line-haul fleet compliance data

The Port continues to use the most recent, locally specific data available, including MOU compliance data reflective of actual recent line haul fleet mix characteristics in the SoCAB. In addition, PHL has provided fuel consumption information for each locomotive in service in each calendar year, along with the engine tier levels of the locomotives. Table 6.1 lists the number of locomotives for each tier level that were operated in 2024 and the percentage of fuel used by locomotives in each tier.

Table 6.1: PHL Switching Fleet Mix

Locomotive Tier Level /Power Type	Count	% of Fuel Consumed
Genset	6	2%
Tier 3	0	0%
Tier 3+	17	96%
Tier 4	1	2%
Totals	**24**	**100%**

PHL switching locomotives continued to use renewable diesel in 2024. Similar to harbor craft, it was assumed that use of renewable fuel in switching locomotives, for pre-Tier 4 engines, reduces[54] tailpipe PM emission by 30%, NO_x and CO emissions by 10%, and hydrocarbon emissions by 5%. Tailpipe CO_2 emissions are reduced by 4.5 % for all tiers. Discussion of the tiers and a list of tier-specific emission factors are included in Section 5 of the San Pedro Bay Ports Emissions Inventory Methodology Report Version 5.

[54] *https://ww2.arb.ca.gov/sites/default/files/2021-11/Low_Emission_Diesel_Study_Final_Report.pdf ; https://ww2.arb.ca.gov/sites/default/files/2023-04/2022InUseDieselInventory.pdf*

Operational Profiles

The goods movement rail system in terms of the activities that are carried out by locomotive operators is the same as described in detail in Section 5 of the San Pedro Bay Ports Emissions Inventory Methodology Report Version 5.

Emissions Estimation Methodology

The emission calculation methodology used to estimate locomotive emissions is consistent with the methodology described in detail in Section 5 of the San Pedro Bay Ports Emissions Inventory Methodology Report Version 5. Tables that contain information specific to this EI are presented below.

Table 6.2 presents the MOU compliance information submitted by both of the line haul railroads and the composite of both railroads' pre-Tier 0 through Tier 4 locomotive NO_x emissions for calendar year 2024, showing a weighted average NO_x emission factor of 5.57 g/hp-hr.[55]

[55]Notes from railroads' MOU compliance submissions:

1. For more information on the U.S. EPA locomotive emission standards please visit. *www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-emission-standards-locomotives-and-locomotive*
2. Number of locomotives is the sum of all individual locomotives that visited or operated within the SoCAB at any time during 2022.

Table 6.2: MOU Compliance Data, MWh and g NO_x/hp-hr

Engine Tier	Number of Locomotives	Megawatt-hours (MWh)	% MWh by Tier Level	Wt'd Avg NO_x (g/bhp-hr)	Tier Contribution to Fleet Average (g/bhp-hr)
BNSF					
Pre-Tier 0	498	553	0.3%	13.0	0.03
Tier 0	94	4,067	2.0%	11.2	0.22
Tier 1	1,527	81,754	40%	6.5	2.58
Tier 2	1,663	62,681	30%	4.9	1.49
Tier 3	1,269	46,001	22%	4.6	1.03
Tier 4	281	10,984	5.3%	1.2	0.06
ULEL	0	0	0%	-	-
Total BNSF	**5,332**	**206,040**	**100%**		**5.41**
UP					
Pre-Tier 0	11	73	0.0%	9.1	0.00
Tier 0	251	5,286	3%	8	0.21
Tier 1	1,909	102,502	51%	6.74	3.46
Tier 2	1,215	52,412	26%	4.8	1.26
Tier 3	805	29,406	15%	4.9	0.72
Tier 4	230	10,189	5.1%	1.1	0.06
ULEL	0	0	0%		0.00
Total UP	**4,421**	**199,868**	**100%**		**5.71**
		ULEL Credit Used			0.20
		UP Fleet Average			**5.50**
Both railroads, excluding ULELs and ULEL credits					
Pre-Tier 0	509	626	0%	12.5	0.02
Tier 0	345	9,353	2%	9.4	0.22
Tier 1	3,436	184,256	45%	6.6	3.01
Tier 2	2,878	115,093	28%	4.9	1.38
Tier 3	2,074	75,407	19%	4.7	0.88
Tier 4	511	21,173	5.22%	1.2	0.060
Total both	**9,753**	**405,908**	**100%**		**5.57**

Emission factors for particulate matter (PM_{10}), HC, and CO were calculated using the tier-specific emission rates for those pollutants published by EPA.[56] The emission rates were used to develop weighted average emission factors using the megawatt hour (MWh) numbers provided in the railroads' submissions. These results are presented in Table 6.3.

Table 6.3: Fleet MWh and PM, HC, CO Emission Factors, g/bhp-hr

Engine Tier	MWh	% of MWh	EPA Tier-specific PM_{10}	HC	CO	Fleet Composite PM_{10}	HC	CO
			g/bhp-hr			g/bhp-hr		
Pre-Tier 0	626	0%	0.32	0.48	1.28	0.000	0.00	0.00
Tier 0	9,353	2%	0.32	0.48	1.28	0.007	0.01	0.03
Tier 1	184,256	45%	0.32	0.47	1.28	0.145	0.21	0.58
Tier 2	115,093	28%	0.18	0.26	1.28	0.051	0.07	0.36
Tier 3	75,407	19%	0.08	0.13	1.28	0.015	0.02	0.24
Tier 4	21,173	5%	0.015	0.04	1.28	0.000	0.00	0.07
Total	**405,908**	**100%**				**0.218**	**0.33**	**1.28**

Emission factors for $PM_{2.5}$ and DPM were calculated as fractions of PM_{10}, with $PM_{2.5}$ calculated as 94% of PM_{10} consistent with CARB methodology and DPM equal to $PM_{10,}$ since all PM emissions from diesel engines are defined as DPM. Rounding of emission factors before and after the conversion resulted in the emission factor values shown in Table 6.4. Table 6.4 summarizes the latest emission factors for line haul locomotives, presented in unit of g/hp-hr. The greenhouse gas emission factors are unchanged from the previous EI.

Table 6.4: Emission Factors for Line Haul Locomotives, g/bhp-hr

	PM_{10}	$PM_{2.5}$	DPM	NO_x	SO_x	CO	HC	CO_2	N_2O	CH_4
EF, g/bhp-hr	0.218	0.201	0.218	5.57	0.005	1.28	0.33	489	0.013	0.04

56 EPA Office of Transportation and Air Quality, "Emission Factors for Locomotives" EPA-420-F-09-025 April 2009.

On-Port Line Haul Emissions

The estimated number of trains per year, locomotives per train, and on-port hours per train were multiplied together to calculate total locomotive hours per year. This activity information is summarized in Table 6.5.

Table 6.5: 2024 Estimated On-Port Line Haul Locomotive Activity

Activity Measure	Inbound	Outbound	Total
Trains per Year	4,253	3,301	7,554
Locomotives per Train	3	3	N/A
Hours on Port per Trip	1	2.5	N/A
Locomotive Hours per Year	12,759	24,758	37,517

Out-of-Port Line Haul Emissions

Table 6.6 lists the estimated totals of travel distance, out-of-port trains per year, out-of-port million gross tons (MMGT), out-of-port MMGT-miles, gallons of fuel used, and horsepower-hours. The gross ton-miles were calculated by multiplying distance in miles by the number of trains and by the average weight of a train, which was estimated to be 7,402 tons. Fuel consumption was calculated by multiplying gross ton-miles by the average fuel consumption factor of 0.965 gallons per thousand gross ton-miles.[57] Overall horsepower hours were calculated by multiplying the fuel used by the fuel consumption conversion factor of 20.8 hp-hr/gal.

Table 6.6: 2024 Gross Ton-Mile, Fuel Use, and Horsepower-hour Estimate

	Distance miles	Trains per year	MMGT per year	MMGT-miles per year
Alameda Corridor	21	5,573	41	861
Central LA to Air Basin Boundary	84	5,573	41	3,444
Million gross ton-miles				**4,305**
Estimated gallons of fuel (millions)				**4.15**
Estimated million horsepower-hours				**86.3**

[57] Union Pacific, *Class I Railroad Annual Report R-1 to the Surface Transportation Board for the Year Ending Dec. 31, 2023* and BNSF, *Class I Railroad Annual Report R-1 to the Surface Transportation Board for the Year Ending Dec. 31, 2023. https://www.stb.gov/reports-data/economic-data/annual-report-financial-data/*

Emission Estimates

A summary of estimated emissions from locomotive operations related to the Port is presented below in Table 6.7. These maritime industry related emissions include operations within the Port and outside the Port out to the boundary of the SoCAB. The maritime industry-related off-port activity was associated with cargo movements having either their origin or termination at the Port. Emissions resulting from the movement of cargo originating or terminating at one of the off-port rail yards were not included. The criteria pollutants are listed as tons per year, while the CO_2e values are listed as tonnes (metric tons) per year.

In order for the total emissions to be consistently displayed for each pollutant, the individual values in the table entries do not, in some cases, add up to the totals listed in the table. This is because there are fewer decimal places displayed (for readability) than were included in the calculated totals.

Table 6.7: 2024 Locomotive Operations Estimated Emissions

Activity Component	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e tonnes
Switching	0.4	0.4	0.4	41.6	0.1	15.2	2.5	5,386
Line Haul	31.0	28.6	31.0	792.6	0.7	182.2	47.0	63,719
Total	**31.4**	**29.0**	**31.4**	**834.2**	**0.8**	**197.4**	**49.5**	**69,105**

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SECTION 7 HEAVY-DUTY VEHICLES

This section presents emission estimates for the HDV emission source category, including source description, geographical domain, data and information acquisition, operational profiles, emissions estimation methodology, and emission estimates.

Source Description

Heavy-duty vehicles (specifically heavy-duty trucks) are used extensively to move cargo, particularly containerized cargo, to and from the marine terminals. Trucks deliver cargo to both local and national destinations. The local activity is often referred to as drayage and includes the transfer of containers between terminals and off-port railcar loading facilities. In the course of their daily operations, both local and national destined trucks are driven onto and through Port terminals, where they deliver and/or pick up cargo. They are also driven on public roads within the Port boundaries and on public roads outside the Port.

The majority (92%) of trucks that service the Port's terminals are diesel-fueled vehicles. Approximately 7% of the trucks that called are alternatively fueled trucks, including compressed and liquefied natural gas (CNG and LNG). The emission estimates prepared using this methodology reflect the use of diesel and natural gas fuel. In addition, 1.6% of the trucks were battery electric zero emissions trucks in 2024.

The most common configuration of HDV is the articulated tractor-trailer (truck and semi-trailer) having five axles, including the trailer axles. The most common type of trailer in the study area is the container chassis, built to accommodate standard-sized cargo containers. Additional trailer types include tankers, boxes, and flatbeds. A tractor traveling without an attached trailer is called a "bobtail" while a tractor pulling an unloaded container trailer chassis is known simply as a "chassis." These vehicles are all classified as heavy HDVs regardless of their actual weight because the classification is based on gross vehicle weight rating (GVWR), which is a rating of the vehicle's total carrying capacity. Therefore, the emission estimates do not distinguish among the different configurations.

Geographical Domain

Two major geographical components of truck activities were evaluated for this inventory:

- On-terminal operations, which include waiting for terminal entry, transiting the terminal to drop off and/or pick up cargo, and departing the terminal.

- On-road operations, which consist of travel on public roads within the SoCAB. This also includes travel on public roads within the Port boundaries and those of the adjacent Port of Long Beach (POLB).

Data and Information Acquisition

Information regarding on-terminal truck activity, such as average times and driving distances while on the terminals, was collected from terminal personnel. For on-road operations, the volumes (number of trucks), distances, and average speeds on roadway segments between defined intersections were estimated using trip generation and travel demand models that have been developed for these purposes. The trip generation model was used to develop truck trip numbers for container terminals, while the terminal operator interviews were used to obtain trip counts associated with non-container terminals.

Operational Profiles

Table 7.1 illustrates the range and average of reported operating characteristics of on-terminal truck activities at Port container terminals, while Table 7.2 shows similar summary data for the non-container terminals and facilities. In 2024, the total number of terminal calls associated with the Port's container terminals and non-container facilities was 4,259,961and 484,877, respectively. The number of container terminal calls to each terminal was estimated by the trip generation model on which truck travel estimates are based, while non-container terminal calls were obtained from the terminal operators. The non-container terminal number includes activity at the Port's peel-off yard that operated in 2024, totaling approximately 14,232 calls. The peel-off yard was established to improve terminal efficiency by allowing containers off-loaded from ships to be quickly removed from the container terminal and placed in the yard, to be picked up for further transport later.

Table 7.1: Summary of Reported Container Terminal Operating Characteristics

Parameter	Speed (mph)	Distance (miles)	Time on Terminal (hours)
Maximum	15	1.9	1.37
Minimum	10	0.9	0.61
Average	13	1.5	1.15

Table 7.2: Summary of Reported Non-Container Facility Operating Characteristics

Parameter	Speed (mph)	Distance (miles)	Time on Terminal (hours)
Maximum	20	1.3	0.47
Minimum	0	0.0	0.00
Average	8	0.5	0.17

Table 7.3 presents further detail on the on-terminal operating parameters provided by terminal operators, listing total estimated miles traveled and hours of idling on-terminal and waiting at entry gates. Terminals are listed by type.

Table 7.3: 2024 Estimated On-Terminal VMT and Idling Hours by Terminal

Terminal Type	Total Miles Traveled	Total Hours Idling (all trips)
Container	1,390,605	1,270,086
Container	1,275,507	518,706
Container	1,014,683	710,278
Container	705,659	611,571
Container	433,622	505,892
Container	1,132,256	774,701
Container	450,317	390,274
Auto	1,250	850
Break Bulk	10,000	6,400
Break Bulk	28,000	6,300
Dry Bulk	1,500	450
Dry Bulk	3,250	1,040
Liquid Bulk	5,822	699
Liquid Bulk	18	0
Other	65,000	8,000
Other	231,410	104,135
Other	14,102	2,061
Other	1,900	3,325
Other	1,423	6,689
Other	40	320
Total	**6,766,363**	**4,921,777**

Emissions Estimation Methodology

The emission estimating methodology for the Port's on-road truck fleet is described in Section 6 of the San Pedro Bay Ports Emissions Inventory Methodology Report Version 5. HDV emission estimates were based on estimates of vehicle miles traveled (VMT), average speeds, CARB's on-road vehicle emissions model EMFAC2021, and HDV model year information specific to the San Pedro Bay Ports. The most recent version of the vehicle emissions model, EMFAC2021, reflects CARB's current understanding of motor vehicle travel activities and their associated emission levels. A new feature of this version of the model is the ability to produce emission factors for natural gas fueled trucks in addition to the more common diesel fueled trucks.

Table 7.4 summarizes the 2024 speed-specific composite emission factors developed from the EMFAC2021 model and the model year distribution discussed below. These composite emission factors were developed using model year specific emission factors for the T7 POLA class 8 vehicle category of EMFAC2021 and reflect the use of diesel and natural gas fuel model year distribution, based on evaluation of the Port's Clean Truck Program (CTP) activity records and the Port Drayage Truck Registry (PDTR).

Table 7.4: 2024 Speed-Specific Composite Exhaust Emission Factors

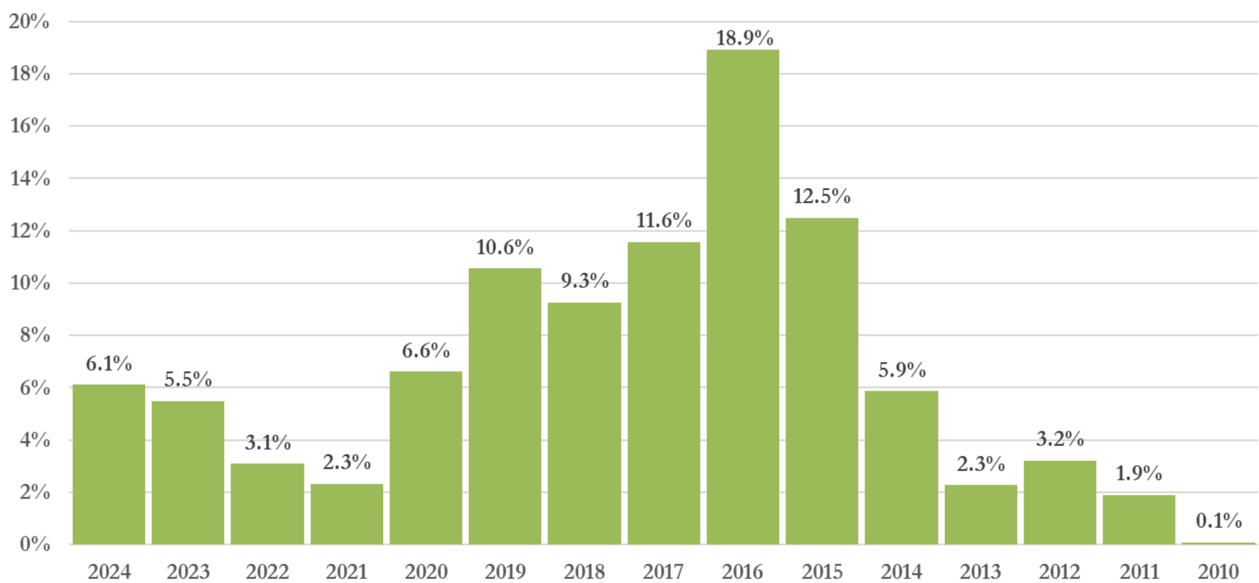
Speed range (mph)		PM_{10}	$PM_{2.5}$	DPM	NO_x	SO_x	CO	HC	CO_2	N_2O	CH_4	Units
Idle		0.0071	0.0068	0.0039	22.9828	0.0530	38.5696	3.9155	6,432	0.9331	0.2303	g/hr
> 0	5	0.0095	0.0091	0.0090	9.4365	0.0291	2.4781	0.5968	3,314	0.5333	0.5052	g/mi
5	10	0.0081	0.0078	0.0077	6.7213	0.0249	1.9756	0.3902	2,824	0.4538	0.3366	g/mi
10	15	0.0067	0.0064	0.0063	4.3889	0.0205	1.4866	0.2299	2,310	0.3708	0.2024	g/mi
15	20	0.0058	0.0056	0.0055	3.3236	0.0180	1.1940	0.1628	2,025	0.3246	0.1450	g/mi
20	25	0.0054	0.0052	0.0052	2.5648	0.0165	0.9848	0.1270	1,849	0.2962	0.1131	g/mi
25	30	0.0058	0.0055	0.0056	1.9218	0.0154	0.8081	0.1042	1,716	0.2747	0.0928	g/mi
30	35	0.0069	0.0066	0.0067	1.4181	0.0145	0.6568	0.0882	1,613	0.2582	0.0788	g/mi
35	40	0.0088	0.0084	0.0087	1.0535	0.0138	0.5309	0.0766	1,541	0.2465	0.0684	g/mi
40	45	0.0114	0.0109	0.0113	0.8270	0.0135	0.4302	0.0679	1,498	0.2395	0.0606	g/mi
45	50	0.0149	0.0142	0.0148	0.7389	0.0134	0.3547	0.0614	1,484	0.2371	0.0543	g/mi
50	55	0.0191	0.0183	0.0190	0.7893	0.0136	0.3045	0.0566	1,499	0.2393	0.0493	g/mi
55	60	0.0241	0.0230	0.0240	0.9800	0.0140	0.3009	0.0575	1,546	0.2467	0.0494	g/mi
60	65	0.0298	0.0285	0.0297	1.3086	0.0147	0.3033	0.0589	1,621	0.2585	0.0495	g/mi
65	70	0.0298	0.0285	0.0297	1.3144	0.0147	0.3034	0.0589	1,621	0.2585	0.0495	g/mi

Model Year Distribution

Since vehicle emissions vary according to the model year and age, the activity level of trucks within each model year is an important part of developing emission estimates. The 2024 model year distribution for the current emissions inventory was based on call data originating from radio frequency identification (RFID) data, which records information on the truck calls made to the Port of Los Angeles and the Port of Long Beach in 2024, as well as model year data drawn from the PDTR. The PDTR contains model year information on all registered drayage trucks serving the Port and the fuel type used by each truck.

The distribution of the model years of the trucks that called at both the Port and POLB terminals during 2024, which was used to develop the composite emission factors listed above, is presented in Figure 7.1. The percentage of mileage driven by 2014 and newer model year trucks increased from 86% in 2023 to 92% in 2024. Of special note, almost all the trucks at the San Pedro Bay Ports are 2010 or newer model year (99.99%), a milestone for 2024.

Figure 7.1: 2024 Model Year Distribution of the Heavy-Duty Truck Fleet



Emission Estimates

The estimates of 2024 HDV emissions are presented in this section. As discussed above, on-terminal emissions were based on terminal-specific information, such as the number of trucks passing through the terminal and the distance they travel on-terminal. The Port-wide totals are the sum of the terminal-specific estimates. The on-road emissions were estimated using travel demand model results to estimate how many miles in total the trucks traveled at average speeds along defined roadways in the SoCAB on the way to their first cargo drop-off point. The on-terminal estimates include the sum of driving and idling emissions calculated separately. The idling emissions are likely to be somewhat over-estimated since the idling estimates were based on the entire time that trucks were on terminal (except for driving time), which does not account for times that trucks were turned off while on terminal. No data source has been identified that would provide a reliable estimate of the average percentage of time the trucks' engines were turned off while on terminal. The on-road estimates include idling emissions as a normal part of the driving cycle because the average speeds include estimates of normal traffic idling times, and the emission factors were designed to take this into account.

For the total emissions to be consistently displayed for each pollutant, the individual values in each table column do not, in some cases, add up to the listed total in the tables. This is due to fewer decimal places displayed for readability than were included in the calculated total.

Emission estimates for HDV activity associated with Port terminals and other facilities are presented in the following tables. Table 7.5 summarizes emissions from HDVs associated with all Port terminals.

Table 7.5: 2024 HDV Emissions

Activity Location	Vehicle Miles Traveled	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NOx tons	SOx tons	CO tons	HC tons	CO_2e tonnes
On-Terminal	6,766,363	0.1	0.1	0.1	165	0.5	221.9	23.5	50,835
On-Road	225,305,038	4.5	4.3	4.5	213	3.4	80.2	14.5	353,181
Total	**232,071,401**	**4.6**	**4.4**	**4.6**	**378**	**3.8**	**302.2**	**38.0**	**404,016**

Table 7.6 presents HDV emissions associated with container terminal activity. Table 7.7 presents HDV emissions associated with other Port terminals and facilities.

Table 7.6: 2024 HDV Emissions Associated with Container Terminals

Activity Location	Vehicle Miles Traveled	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NOx tons	SOx tons	CO tons	HC tons	CO_2e tonnes
On-Terminal	6,402,648	0.1	0.1	0.1	159	0.4	215.3	22.8	48,956
On-Road	190,103,158	3.8	3.6	3.8	181	2.9	68.2	12.3	298,093
Total	**196,505,806**	**3.9**	**3.7**	**3.9**	**341**	**3.3**	**283.5**	**35.0**	**347,049**

Table 7.7 presents emissions associated with other Port terminals and facilities separately.

Table 7.7: 2024 HDV Emissions Associated with Other Port Terminals

Activity Location	Vehicle Miles Traveled	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NOx tons	SOx tons	CO tons	HC tons	CO_2e tonnes
On-Terminal	363,715	0.0	0.0	0.0	6	0.0	6.6	0.7	1,879
On-Road	35,201,880	0.7	0.7	0.7	31	0.5	12.0	2.2	55,088
Total	**35,565,595**	**0.7**	**0.7**	**0.7**	**37**	**0.5**	**18.6**	**2.9**	**56,967**

SECTION 8 SUMMARY OF 2024 EMISSION RESULTS

Table 8.1 summarizes the 2024 total maritime industry-related emissions associated with the Port of Los Angeles by category. Tables 8.2 through 8.6 present PM_{10}, $PM_{2.5}$, DPM, NO_x, and SO_x emissions in the context of Port-wide and air basin-wide emissions by source category and the more specific subcategories. Table 8.7 presents the CO_2e emissions in the context of Port-wide emissions.

Table 8.1: 2024 Emissions by Source Category

Category	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e tonnes
Ocean-going vessels	40	36	25	2,148	79	196	98	162,042
Harbor craft	11	10	11	483	1	103	26	55,604
Cargo handling equipment	10	9	9	256	2	502	52	145,423
Locomotives	31	29	31	834	1	197	49	69,105
Heavy-duty vehicles	5	4	5	378	4	302	38	404,016
Total	**96**	**89**	**80**	**4,098**	**86**	**1,300**	**263**	**836,190**

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Table 8.2: 2024 PM_{10} Emissions by Category and Percent Contribution

Category	Subcategory	PM_{10}	Percent PM_{10} Emissions of Total Category	Port	SoCAB AQMP
OGV	Auto carrier	1.1	3%	1%	0.0%
OGV	Bulk vessel	1.5	4%	2%	0.0%
OGV	Containership	24.0	61%	25%	0.0%
OGV	Cruise	5.9	15%	6%	0.0%
OGV	General cargo	0.8	2%	1%	0.0%
OGV	Other	0.0	0%	0%	0.0%
OGV	Reefer	0.6	2%	1%	0.0%
OGV	Tanker	5.7	14%	6%	0.0%
OGV	**Subtotal**	**40**	**100%**	**41%**	**0.1%**
Harbor Craft	Assist tug	0.8	8%	1%	0.0%
Harbor Craft	ATB and barge	1.9	18%	2%	0.0%
Harbor Craft	Harbor tug	0.6	6%	1%	0.0%
Harbor Craft	Commercial fishing	2.3	22%	2%	0.0%
Harbor Craft	Ferry	0.8	8%	1%	0.0%
Harbor Craft	Ocean tugboat	1.7	16%	2%	0.0%
Harbor Craft	Government	0.3	3%	0%	0.0%
Harbor Craft	Excursion	0.5	4%	0%	0.0%
Harbor Craft	Crewboat	0.5	4%	0%	0.0%
Harbor Craft	Work boat	1.2	12%	1%	0.0%
Harbor Craft	**Subtotal**	**11**	**100%**	**11%**	**0.0%**
CHE	RTG crane	1.8	18%	2%	0.0%
CHE	Forklift	0.2	2%	0%	0.0%
CHE	Top handler, side pick	3.1	31%	3%	0.0%
CHE	Other	1.5	15%	2%	0.0%
CHE	Yard tractor	3.2	33%	3%	0.0%
CHE	**Subtotal**	**10**	**100%**	**10%**	**0.0%**
Locomotives	Switching	0.4	1%	0%	0.0%
Locomotives	Line haul	31.0	99%	32%	0.1%
Locomotives	**Subtotal**	**31**	**100%**	**33%**	**0.1%**
HDV	On-Terminal	0.1	2%	0%	0.0%
HDV	On-Road	4.5	98%	5%	0.0%
HDV	**Subtotal**	**5**	**100%**	**5%**	**0.0%**
Port	**Total**	**96**		**100%**	**0.2%**
SoCAB AQMP	**Total**	**56,734**			

Table 8.3: 2024 $PM_{2.5}$ Emissions by Category and Percent Contribution

Category	Subcategory	$PM_{2.5}$	Percent $PM_{2.5}$ Emissions of Total Category	Port	SoCAB AQMP
OGV	Auto carrier	1.0	3%	1%	0.0%
OGV	Bulk vessel	1.3	4%	2%	0.0%
OGV	Containership	22.1	61%	25%	0.1%
OGV	Cruise	5.4	15%	6%	0.0%
OGV	General cargo	0.7	2%	1%	0.0%
OGV	Other	0.0	0%	0%	0.0%
OGV	Reefer	0.5	2%	1%	0.0%
OGV	Tanker	5.2	14%	6%	0.0%
OGV	**Subtotal**	**36**	**100%**	**41%**	**0.2%**
Harbor Craft	Assist tug	0.8	8%	1%	0.0%
Harbor Craft	ATB and barge	1.8	18%	2%	0.0%
Harbor Craft	Harbor tug	0.6	6%	1%	0.0%
Harbor Craft	Commercial fishing	2.2	22%	2%	0.0%
Harbor Craft	Ferry	0.8	8%	1%	0.0%
Harbor Craft	Ocean tugboat	1.6	16%	2%	0.0%
Harbor Craft	Government	0.3	3%	0%	0.0%
Harbor Craft	Excursion	0.5	5%	1%	0.0%
Harbor Craft	Crewboat	0.4	4%	0%	0.0%
Harbor Craft	Work boat	1.2	12%	1%	0.0%
Harbor Craft	**Subtotal**	**10**	**100%**	**11%**	**0.1%**
CHE	RTG crane	1.7	18%	2%	0.0%
CHE	Forklift	0.2	2%	0%	0.0%
CHE	Top handler, side pick	2.9	31%	3%	0.0%
CHE	Other	1.4	15%	2%	0.0%
CHE	Yard tractor	3.0	33%	3%	0.0%
CHE	**Subtotal**	**9**	**100%**	**10%**	**0.0%**
Locomotives	Switching	0.4	1%	0%	0.0%
Locomotives	Line haul	28.6	99%	32%	0.1%
Locomotives	**Subtotal**	**29**	**100%**	**33%**	**0.1%**
HDV	On-Terminal	0.1	2%	0%	0.0%
HDV	On-Road	4.3	98%	5%	0.0%
HDV	**Subtotal**	**4**	**100%**	**5%**	**0.0%**
Port	**Total**	**89**		**100%**	**0.5%**
SoCAB AQMP	**Total**	**19,677**			

Table 8.4: 2024 DPM Emissions by Category and Percent Contribution

Category	Subcategory	DPM	Percent DPM Emissions of Total Category	Port	SoCAB AQMP
OGV	Auto carrier	0.9	4%	1%	0.1%
OGV	Bulk vessel	1.1	4%	1%	0.1%
OGV	Containership	13.4	54%	17%	1.1%
OGV	Cruise	5.4	22%	7%	0.4%
OGV	General cargo	0.6	2%	1%	0.0%
OGV	Other	0.0	0%	0%	0.0%
OGV	Reefer	0.5	2%	1%	0.0%
OGV	Tanker	3.0	12%	4%	0.2%
OGV	**Subtotal**	**25**	**100%**	**31%**	**2.0%**
Harbor Craft	Assist tug	0.8	8%	1%	0.1%
Harbor Craft	ATB and barge	1.9	18%	2%	0.1%
Harbor Craft	Harbor tug	0.6	6%	1%	0.0%
Harbor Craft	Commercial fishing	2.3	22%	3%	0.2%
Harbor Craft	Ferry	0.8	8%	1%	0.1%
Harbor Craft	Ocean tugboat	1.7	16%	2%	0.1%
Harbor Craft	Government	0.3	3%	0%	0.0%
Harbor Craft	Excursion	0.5	4%	1%	0.0%
Harbor Craft	Crewboat	0.5	4%	1%	0.0%
Harbor Craft	Work boat	1.2	12%	2%	0.1%
Harbor Craft	**Subtotal**	**11**	**100%**	**13%**	**0.8%**
CHE	RTG crane	1.8	20%	2%	0.1%
CHE	Forklift	0.1	1%	0%	0.0%
CHE	Top handler, side pick	3.1	34%	4%	0.2%
CHE	Other	1.5	16%	2%	0.1%
CHE	Yard tractor	2.5	28%	3%	0.2%
CHE	**Subtotal**	**9**	**100%**	**11%**	**0.7%**
Locomotives	Switching	0.4	1%	1%	0.0%
Locomotives	Line haul	31.0	99%	39%	2.4%
Locomotives	**Subtotal**	**31**	**100%**	**39%**	**2.5%**
HDV	On-Terminal	0.1	2%	0%	0.0%
HDV	On-Road	4.5	98%	6%	0.4%
HDV	**Subtotal**	**5**	**100%**	**6%**	**0.4%**
Port	**Total**	**80**		**100%**	**6.4%**
SoCAB AQMP	**Total**	**1,267**			

Table 8.5: 2024 NO_x Emissions by Category and Percent Contribution

Category	Subcategory	NO_x	Percent NO_x Emissions of Total		
			Category	Port	SoCAB AQMP
OGV	Auto carrier	80.4	4%	2%	0.1%
OGV	Bulk vessel	72.0	3%	2%	0.1%
OGV	Containership	1,344.0	63%	33%	1.4%
OGV	Cruise	349.1	16%	9%	0.4%
OGV	General cargo	42.5	2%	1%	0.0%
OGV	Other	0.9	0%	0%	0.0%
OGV	Reefer	37.9	2%	1%	0.0%
OGV	Tanker	220.9	10%	5%	0.2%
OGV	**Subtotal**	**2,148**	**100%**	**52%**	**2.2%**
Harbor Craft	Assist tug	43.9	9%	1%	0.0%
Harbor Craft	ATB and barge	69.8	14%	2%	0.1%
Harbor Craft	Harbor tug	33.8	7%	1%	0.0%
Harbor Craft	Commercial fishing	91.5	19%	2%	0.1%
Harbor Craft	Ferry	46.5	10%	1%	0.0%
Harbor Craft	Ocean tugboat	66.1	14%	2%	0.1%
Harbor Craft	Government	8.9	2%	0%	0.0%
Harbor Craft	Excursion	25.3	5%	1%	0.0%
Harbor Craft	Crewboat	28.9	6%	1%	0.0%
Harbor Craft	Work boat	67.9	14%	2%	0.1%
Harbor Craft	**Subtotal**	**483**	**100%**	**12%**	**0.5%**
CHE	RTG crane	53.4	21%	1%	0.1%
CHE	Forklift	7.4	3%	0%	0.0%
CHE	Top handler, side pick	90.3	35%	2%	0.1%
CHE	Other	39.9	16%	1%	0.0%
CHE	Yard tractor	65.0	25%	2%	0.1%
CHE	**Subtotal**	**256**	**100%**	**6%**	**0.3%**
Locomotives	Switching	41.6	5%	1%	0.0%
Locomotives	Line haul	792.6	95%	19%	0.8%
Locomotives	**Subtotal**	**834**	**100%**	**20%**	**0.9%**
HDV	On-Terminal	165.1	44%	4%	0.2%
HDV	On-Road	212.6	56%	5%	0.2%
HDV	**Subtotal**	**378**	**100%**	**9%**	**0.4%**
Port	**Total**	**4,098**		**100%**	**4.3%**
SoCAB AQMP	**Total**	**96,218**			

Table 8.6: 2024 SO_x Emissions by Category and Percent Contribution

Category	Subcategory	SO_x	Percent SO_x Emissions of Total		
			Category	Port	SoCAB AQMP
OGV	Auto carrier	1.5	2%	2%	0.0%
OGV	Bulk vessel	3.6	5%	4%	0.1%
OGV	Containership	44.3	56%	52%	0.8%
OGV	Cruise	12.1	15%	14%	0.2%
OGV	General cargo	1.7	2%	2%	0.0%
OGV	Other	0.0	0%	0%	0.0%
OGV	Reefer	1.5	2%	2%	0.0%
OGV	Tanker	14.1	18%	16%	0.3%
OGV	**Subtotal**	**78.8**	**100%**	**92%**	**1.4%**
Harbor Craft	Assist tug	0.1	14%	0%	0.0%
Harbor Craft	ATB and barge	0.1	11%	0%	0.0%
Harbor Craft	Harbor tug	0.0	8%	0%	0.0%
Harbor Craft	Commercial fishing	0.1	15%	0%	0.0%
Harbor Craft	Ferry	0.1	14%	0%	0.0%
Harbor Craft	Ocean tugboat	0.1	10%	0%	0.0%
Harbor Craft	Government	0.0	2%	0%	0.0%
Harbor Craft	Excursion	0.0	6%	0%	0.0%
Harbor Craft	Crewboat	0.0	6%	0%	0.0%
Harbor Craft	Work boat	0.1	15%	0%	0.0%
Harbor Craft	**Subtotal**	**0.5**	**100%**	**1%**	**0.0%**
CHE	RTG crane	0.2	11%	0%	0.0%
CHE	Forklift	0.0	1%	0%	0.0%
CHE	Top handler, side pick	0.5	31%	1%	0.0%
CHE	Other	0.2	14%	0%	0.0%
CHE	Yard tractor	0.7	43%	1%	0.0%
CHE	**Subtotal**	**1.7**	**100%**	**2%**	**0.0%**
Locomotives	Switching	0.1	7%	0%	0.0%
Locomotives	Line haul	0.7	93%	1%	0.0%
Locomotives	**Subtotal**	**0.8**	**100%**	**1%**	**0.0%**
HDV	On-Terminal	0.5	12%	1%	0.0%
HDV	On-Road	3.4	88%	4%	0.1%
HDV	**Subtotal**	**3.8**	**100%**	**4%**	**0.1%**
Port	**Total**	**86**		**100%**	**1.6%**
SoCAB AQMP	**Total**	**5,524**			

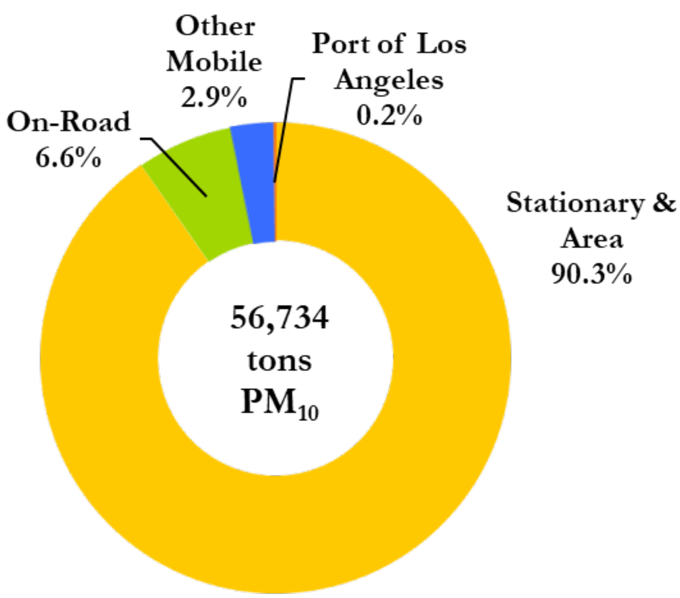
Table 8.7: 2024 CO_2e Emissions by Category and Percent Contribution

Category	Subcategory	CO_2e	Percent CO_2e Emissions of Total Category	Percent CO_2e Emissions of Total Port
OGV	Auto carrier	4,621	3%	1%
OGV	Bulk vessel	5,552	3%	1%
OGV	Containership	102,724	63%	12%
OGV	Cruise	20,944	13%	3%
OGV	General cargo	2,887	2%	0%
OGV	Other	48	0%	0%
OGV	Reefer	2,208	1%	0%
OGV	Tanker	23,058	14%	3%
OGV	**Subtotal**	**162,042**	**100%**	**19%**
Harbor Craft	Assist tug	7,659	14%	1%
Harbor Craft	ATB and barge	6,370	11%	1%
Harbor Craft	Harbor tug	4,193	8%	1%
Harbor Craft	Commercial fishing	8,113	15%	1%
Harbor Craft	Ferry	7,529	14%	1%
Harbor Craft	Ocean tugboat	5,674	10%	1%
Harbor Craft	Government	1,002	2%	0%
Harbor Craft	Excursion	3,228	6%	0%
Harbor Craft	Crewboat	3,364	6%	0%
Harbor Craft	Work boat	8,472	15%	1%
Harbor Craft	**Subtotal**	**55,604**	**100%**	**7%**
CHE	RTG crane	15,801	11%	2%
CHE	Forklift	2,416	2%	0%
CHE	Top handler, side pick	44,143	30%	5%
CHE	Other	20,190	14%	2%
CHE	Yard tractor	62,873	43%	8%
CHE	**Subtotal**	**145,423**	**100%**	**17%**
Locomotives	Switching	5,386	8%	1%
Locomotives	Line haul	63,719	92%	8%
Locomotives	**Subtotal**	**69,105**	**100%**	**8%**
HDV	On-Terminal	50,835	13%	6%
HDV	On-Road	353,181	87%	42%
HDV	**Subtotal**	**404,016**	**100%**	**48%**
Port	**Total**	**836,190**		**100%**

To place the maritime industry-related emissions into context, the following figures compare the Port's contributions to the total emissions in the South Coast Air Basin by major emission source category. Stationary sources are those with a fixed location such as factories and power plants. On-road vehicles include all vehicle types such as trucks, buses, and passenger cars. Other mobile sources not related to the Port contribution include aircraft, trains, harbor craft, recreational vehicles, and equipment.

The 2024 SoCAB emissions were based on the 2022 AQMP Appendix III,[58] except for the SoCAB on-road emission estimates which were updated to take into consideration EMFAC2021.[59] Thus, the 2024 SoCAB total emissions do not exactly match 2022 AQPM Appendix III values. It should be noted that neither the SoCAB nor the Port's on-road heavy-duty diesel PM_{10} and $PM_{2.5}$ emissions include brake and tire wear emissions. Due to rounding, the percentages may not total 100%.

Figure 8.1: 2024 PM_{10} Emissions in the South Coast Air Basin



[58] SCAQMD, *2022 AQMP Appendix III, Base & Future Year Emission Inventory*, adopted December 2022. Except on-road emissions based on EMFAC2014 are replaced with EMFAC2021 estimates. *www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan*
[59] CARB, *www.arb.ca.gov/emfac/*

Figure 8.2: 2024 $PM_{2.5}$ Emissions in the South Coast Air Basin

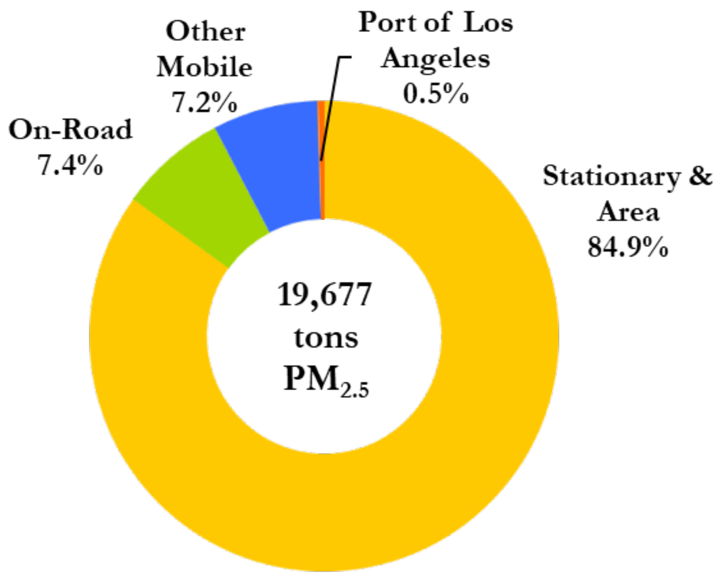


Figure 8.3: 2024 DPM Emissions in the South Coast Air Basin

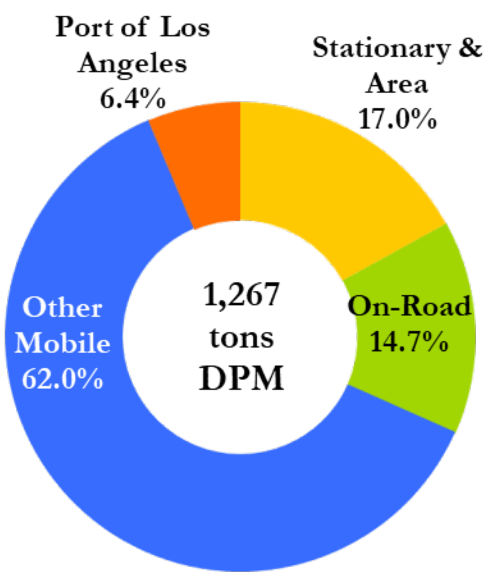


Figure 8.4: 2024 NO_x Emissions in the South Coast Air Basin

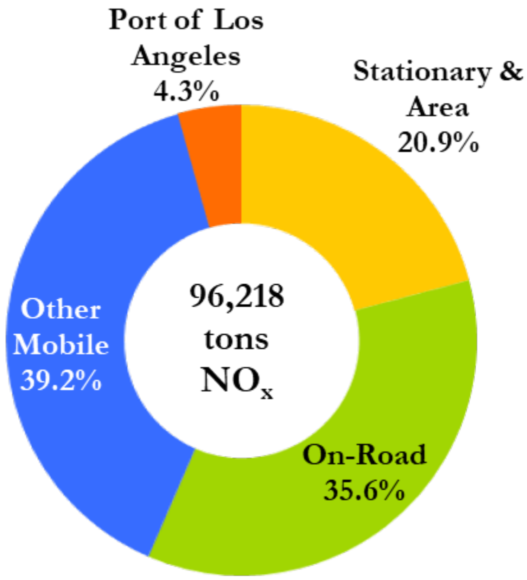
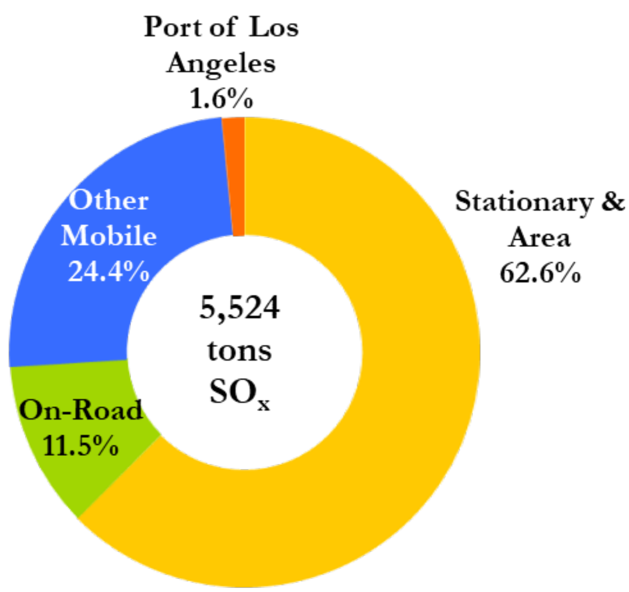


Figure 8.5: 2024 SO_x Emissions in the South Coast Air Basin



SECTION 9 COMPARISON OF EMISSIONS ESTIMATES AND FINDINGS

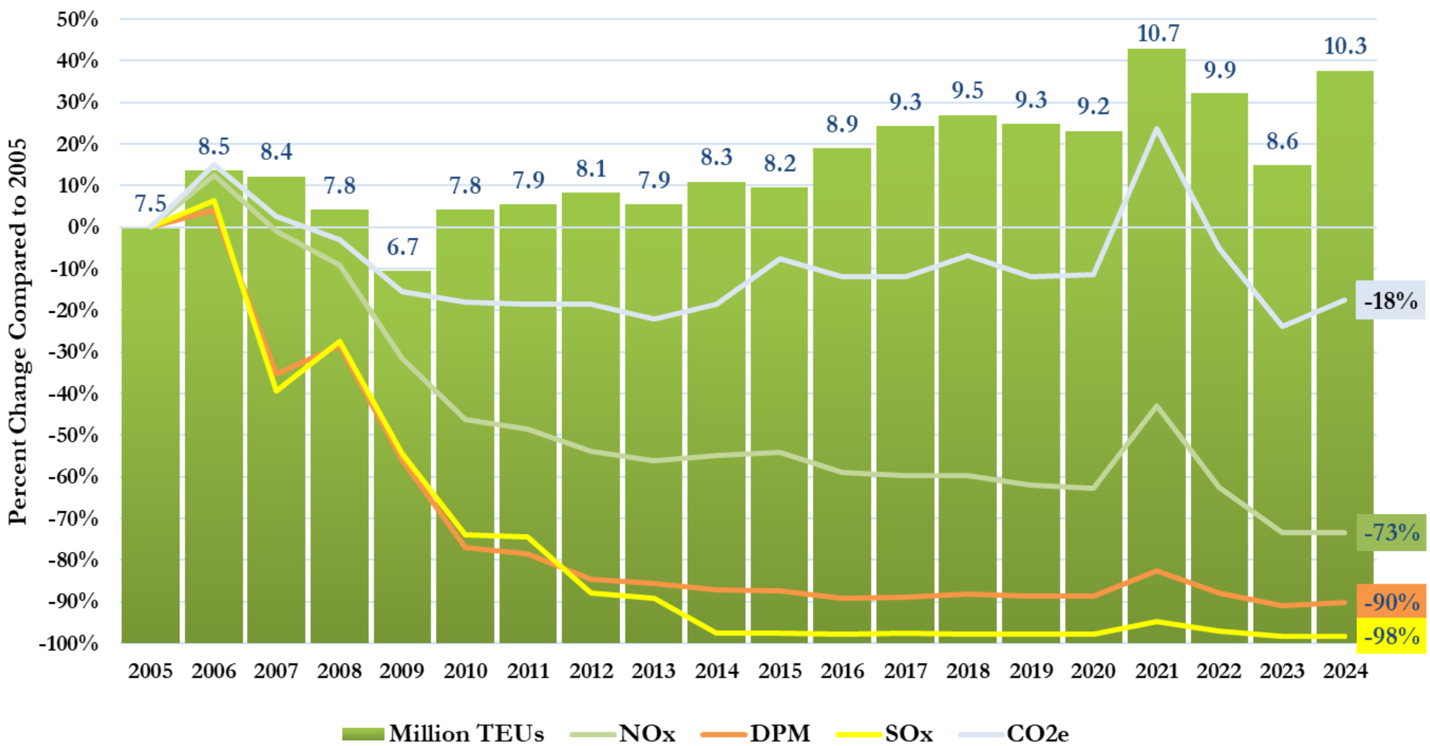
This section compares 2024 emissions to emissions in the previous year, 2017, and 2005, in terms of overall emissions and for each source category. To maintain consistency between the years compared, the emissions for the previous years are recalculated whenever new estimation methodologies are introduced. The calendar year 2017 is included for comparison because the Port of Los Angeles and Port of Long Beach updated their landmark Clean Air Action Plan with new emission reduction strategies that year. The comparison of the current inventory year to 2017 allows the Port and its stakeholders to better understand the progress made since the adoption of the Clean Air Action Plan update. CAAP Progress is a comparison of the current inventory year with the CAAP baseline year of 2005.

Comparisons by emission source categories are addressed in separate subsections in table and chart formats, with the explanation of the findings and differences in emissions between years. Table 9.1 presents the port-wide emissions comparison for 2024, 2023, 2017 and 2005. Figure 9.1 illustrates the emissions trend for 2005 to 2024. NO_X, DPM and SO_x have all decreased significantly since 2005.

Table 9.1: Emissions Comparison

EI Year	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e tonnes
2024	96	89	81	4,098	86	1,300	263	836,190
2023	90	83	75	4,078	82	1,376	285	771,102
2017	113	104	91	6,222	113	1,597	343	893,350
2005	982	845	816	15,394	4,830	3,532	819	1,013,709
2024 vs 2023	**7%**	**7%**	**8%**	**0%**	**5%**	**-6%**	**-8%**	**8%**
2024 vs 2017	**-15%**	**-14%**	**-12%**	**-34%**	**-24%**	**-19%**	**-23%**	**-6%**
2024 vs 2005	**-90%**	**-89%**	**-90%**	**-73%**	**-98%**	**-63%**	**-68%**	**-18%**

Figure 9.1: Emissions Trend



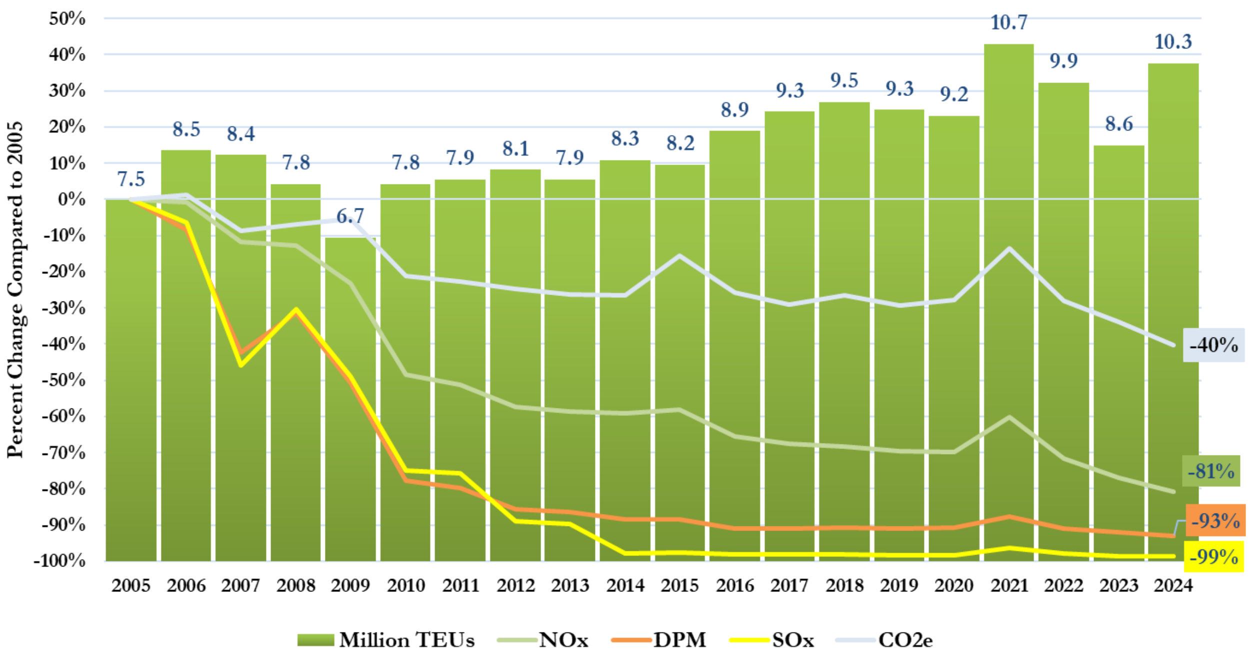
In order to measure progress of the various emission reduction goals, the Port has established metrics to track emissions per unit of work. Table 9.2 and Figure 9.2 show emissions efficiency as tons of emissions per 10,000 TEUs for total emissions. In Table 9.2, a positive percent change for the emissions efficiency comparison means an improvement in efficiency.

Table 9.2: Emissions Efficiency Metric, tons/10,000 TEUs

EI Year	PM_{10}	$PM_{2.5}$	DPM	NO_x	SO_x	CO	HC	CO_2e
2024	0.093	0.086	0.078	3.98	0.08	1.26	0.26	813
2023	0.104	0.096	0.086	4.73	0.09	1.59	0.33	894
2017	0.121	0.111	0.098	6.66	0.12	1.71	0.37	956
2005	1.313	1.129	1.090	20.57	6.45	4.72	1.09	1,354
2024 vs 2023	**11%**	**10%**	**9%**	**16%**	**11%**	**21%**	**21%**	**9%**
2024 vs 2017	**23%**	**23%**	**20%**	**40%**	**33%**	**26%**	**30%**	**15%**
2024 vs 2005	**93%**	**92%**	**93%**	**81%**	**99%**	**73%**	**76%**	**40%**

In Figure 9.2, for illustrative purposes, a negative percent change shows the improvement from the baseline year. It shows that the Port handled more cargo in 2024 with less emissions emitted per TEU as compared to prior years.

Figure 9.2: Emissions Efficiency Trends



Ocean-Going Vessels

The main improvement for the OGV emissions methodology for 2024 is updating LNG emission factors to include the latest percent of pilot fuel (MGO) usage and updating the auxiliary engine and boiler defaults with new VBP data. All the improvements are based on the latest data collected and therefore it is not a change in the methodology. The emissions calculation methodology and the emission rates are described in Section 2 of the San Pedro Bay Ports Emissions Inventory Methodology Report Version 5.

The various emission reduction strategies implemented for ocean-going vessels are listed in Table 9.3. The table lists the percentage of all vessel calls that participated in the specific control strategy for 2024, the previous year, 2017, and 2005. The following OGV emission reductions strategies are listed:

- Shore Power[60] refers to vessel calls using shore power at berth, instead of running their fossil fuel-powered auxiliary engines.
- VSR[61] refers to the vessels reducing their transit speed to 12 knots or lower within 20 and 40 nm of the Port.
- ESI[62] refers to vessel calls that participated in the Ports' ESI program and used ship-specific low sulfur fuel, which in several cases contained sulfur levels below the regulated sulfur level of 0.1%, resulting in additional SO_x, PM, $PM_{2.5}$, and DPM benefit.
- Engine International Air Pollution Prevention (EIAPP) certificates refer to the vessel calls using ship-specific NO_x emission factors for main and auxiliary engines, where vessel specific EIAPP certificates with actual NO_x rating were available through the ESI program or the VBP.

Table 9.3: Participation Rates of OGV Emission Reduction Strategies

Year	Shore Power	VSR 20 nm	VSR 40 nm	ESI Fuel	EIAPP Main Eng	EIAPP Aux Eng
2024	64%	97%	95%	56%	71%	69%
2023	59%	97%	93%	60%	70%	68%
2022	54%	96%	93%	54%	65%	62%
2017	44%	92%	84%	44%	63%	62%
2005	2%	65%	na	0%	5%	5%

DB ID1790

[60] POLA, *www.portoflosangeles.org/environment/air-quality/alternative-maritime-power-(amp)*
[61] POLA, *www.portoflosangeles.org/environment/air-quality/vessel-speed-reduction-program*
[62] POLA, *www.portoflosangeles.org/environment/air-quality/environmental-ship-index*

In 2024, in addition to the shore power calls listed in the table, an additional 100 vessel calls (6% of all calls) used the CARB approved emissions control strategies (CAECS) [63] to comply with the CARB At-Berth Regulation.

Table 9.4 summarizes the percentage of calls with the main engine IMO NO_x standards tiers (Tier) for 2024, the previous year, 2017, and 2005. The "No Tier" column characterizes vessels that do not have diesel engines, such as steamships or cruise ships with gas turbines. Tier I refers to calls by vessels meeting or exceeding Tier I NO_x standards (vessels constructed from 2000-2010), Tier II refers to calls by vessels meeting or exceeding Tier II NO_x standards (vessels constructed from 2011-2015), and Tier III NO_x refers to calls by vessels meeting or exceeding the IMO's Tier III standards, which are in effect in the North American ECA for vessels constructed on or after January 1, 2016.

Table 9.4: OGV Percentage of Calls by Main Engine Tiers

Year	IMO Tier 0	IMO Tier I	IMO Tier II	IMO Tier III	No Tier
2024	4.0%	42.7%	38.4%	14.5%	0.4%
2023	4.2%	52.1%	37.0%	6.4%	0.3%
2022	5.6%	56.5%	30.3%	7.3%	0.4%
2017	10.3%	64.3%	21.1%	0.0%	4.4%
2005	58.5%	37.3%	0.0%	0.0%	4.1%

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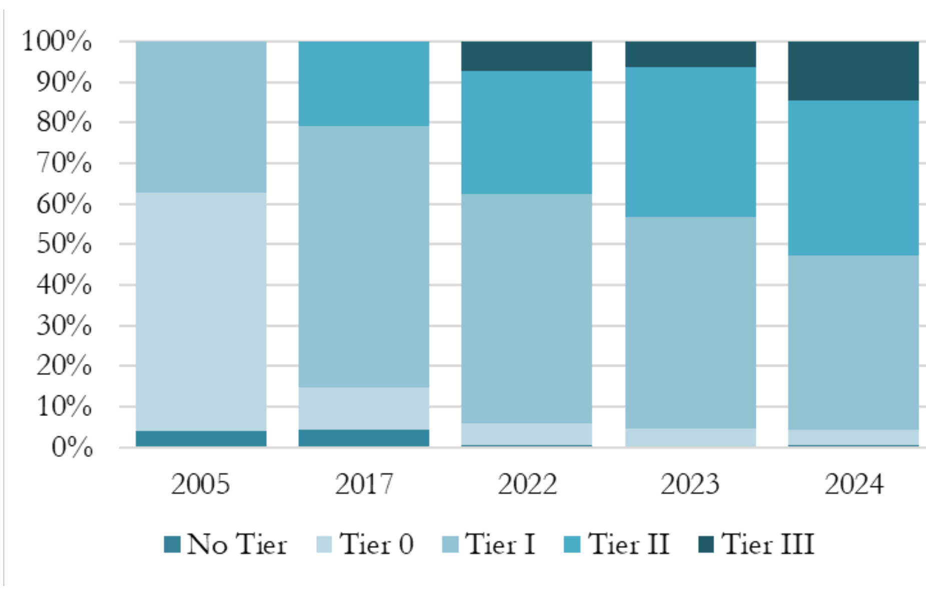
Figure 9.5: Distribution of OGV by Engine Tier, %



[63] CARB, *https://ww2.arb.ca.gov/berth-regulation-executive-orders*

Table 9.5 presents OGV activity by engine type in terms of total energy consumption (expressed as kWh). In 2024, total energy consumption is lower than all prior years compared. Main engine activity has significantly decreased since 2005 mainly due to the VSR program and fewer vessel calls. Total energy consumption is 2% lower in 2024 compared to 2023 due to 5% more shore power calls which lowered the auxiliary engine energy consumption (11%).

Table 9.5: OGV Energy Consumption Comparison, kWh

Year	All Engines Total kWh	Main Eng Total kWh	Aux Eng Total kWh	Boiler Total kWh
2024	200,420,916	50,752,624	78,708,304	70,959,988
2023	203,863,590	48,421,796	88,208,383	67,233,411
2017	264,084,382	75,840,371	98,089,880	89,710,683
2005	369,055,813	106,193,773	186,871,089	75,990,951
2024 vs 2023	**-2%**	**5%**	**-11%**	**6%**
2024 vs 2017	**-24%**	**-33%**	**-20%**	**-21%**
2024 vs 2005	**-46%**	**-52%**	**-58%**	**-7%**

Table 9.6 compares the OGV emissions for calendar years 2024, 2023, 2017, and 2005. The 2024 emissions are lower (1-9%) compared to 2023, except for SO_x, primarily due to more vessels using shore power (5%). The SO_x emissions increase is due to more vessel calls. The 2024 emissions are lower compared to 2017 due to fewer vessel calls, 20% increase in shore power, the Port's Environmental Ship Index (ESI) Incentive Program, Vessel Speed Reduction (VSR) compliance, and newer vessels. Reductions in OGV emissions since 2005 are mainly attributed to fewer vessel calls, CARB marine fuel regulation, use of shore power, and the Port's Vessel Speed Reduction (VSR) and ESI-based incentive programs. Except for the alternatively fueled vessels, all engines for OGVs continued to use fuel with 0.1% sulfur or lower in 2024. The CARB At-Berth Regulation (i.e., shore power) was also in effect.

Table 9.6: OGV Emissions Comparison

EI Year	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e tonnes
2024	40	36	25	2,148	79	196	98	162,042
2023	41	38	27	2,258	76	213	106	163,737
2017	52	48	33	3,083	106	256	126	212,074
2005	601	482	435	5,220	4,673	424	209	279,873
2024 vs 2023	**-3%**	**-3%**	**-9%**	**-5%**	**4%**	**-8%**	**-8%**	**-1%**
2024 vs 2017	**-24%**	**-24%**	**-24%**	**-30%**	**-26%**	**-23%**	**-22%**	**-24%**
2024 vs 2005	**-93%**	**-92%**	**-94%**	**-59%**	**-98%**	**-54%**	**-53%**	**-42%**

DB ID692

The overall calls and time spent at berth increased in 2024 as compared to 2023. Figure 9.3 shows the count of containership activities at anchorage through the years for the Port.

Figure 9.3: Containership Number of Anchorage Calls Trend

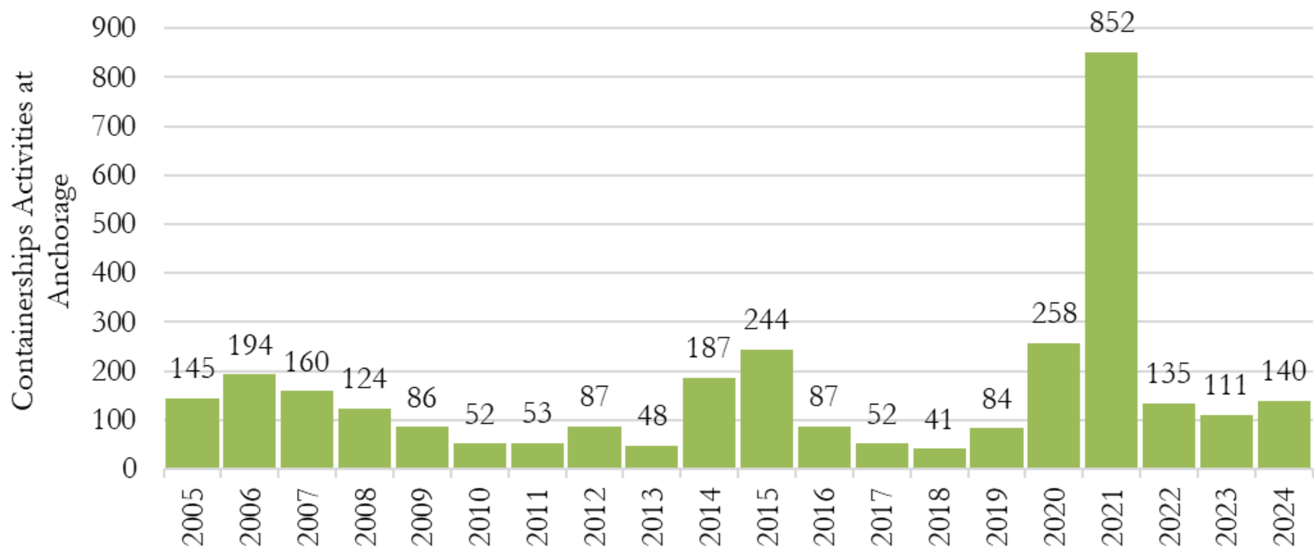
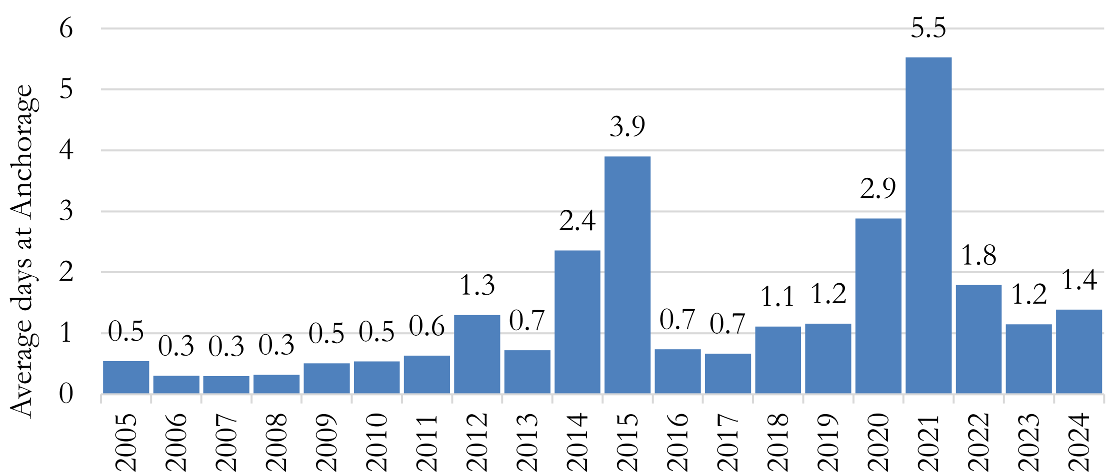


Figure 9.4 shows the average number of days for containerships at anchorage based on average hours divided by 24 hours in a day.

Figure 9.4: Containership Average Days at Anchorage Trend



Harbor Craft

The emissions calculation methodology used to estimate the current harbor craft emissions is similar to previous years and includes the latest factors per CARB's latest methodology. Table 9.7 summarizes the percent distribution of engines based on EPA's engine standards by Tier. Tier 0 engines are unregulated engines built prior to the promulgation of the EPA emission standards. The population of Tier 0 engines is primarily made up of ATBs of which individual vessels vary from year to year since most are not home ported in the San Pedro Bay complex. The percentages in the "unknown" column represent engines missing model year, horsepower, or both.

Table 9.7: Harbor Craft Engine Distribution Comparison by Tier

Year	Tier 0	Tier 1	Tier 2	Tier 3	Tier 4	Unknown
2024	11%	2%	23%	46%	7%	11%
2023	9%	3%	25%	41%	5%	16%
2017	4%	7%	41%	29%	0%	19%
2005	16%	28%	3%	0%	0%	53%

Table 9.8 summarizes the number of harbor craft inventoried for 2024, 2023, 2017 and 2005. In 2024, other barges and vessels used for dredge operations were included and this increased the vessel count by 9% as compared to the prior year. The dredge category was added for the first time in 2024, thus the "na" for prior years.

Table 9.8: Harbor Craft Count Comparison

Harbor Vessel Type	2024	2023	2017	2005
Assist tug	12	11	14	16
ATB and other barges	21	17	2	na
Commercial fishing	77	78	120	156
Crew boat	22	22	24	14
Dredger	7	na	na	na
Excursion	22	21	25	24
Ferry	8	8	8	7
Government	13	13	11	26
Ocean tug	8	6	7	7
Tugboat	23	22	18	21
Work boat	17	12	10	14
Total	**230**	**210**	**239**	**285**

Table 9.9 summarizes the overall harbor craft activity in million kWh by vessel type, which increased 8% in 2024 as compared to the previous year. Compared to 2005, the harbor craft activity increased by 32%. Ocean tug, tugboat and work boat activity increased in 2024 as compared to the previous year, while the other vessels' activity decreased. The dredge category was added for the first time in 2024, thus the "na" for prior years.

Table 9.9: Harbor Craft Activity by Vessel Type, million kWh

Vessel Type	2024	2023	2017	2005
Assist Tug	11.6	12.6	12.7	13.8
ATB	8.6	9.4	0.4	2.8
ATB barge engines	0.7	0.9	0.2	0.1
Commercial Fishing	11.8	12.6	16.5	14.1
Crew boat	4.9	5.6	5.4	1.8
Dredger	7.5	na	na	na
Excursion	4.7	5.1	5.5	8.2
Ferry	11.4	13.8	10.8	9.3
Government	1.5	1.5	1.4	2.0
Ocean Tug	8.4	6.5	12.3	2.4
Tugboat	6.2	4.5	1.4	6.5
Work boat	5.1	3.9	2.6	1.4
Total	**82.5**	**76.5**	**69.4**	**62.2**

Figure 9.5 illustrates the harbor craft energy consumption (kWh) comparison by engine tier for calendar years 2024, 2023, 2017 and 2005.

Figure 9.5: Distribution of Harbor Craft Energy Consumption by Engine Tier, %

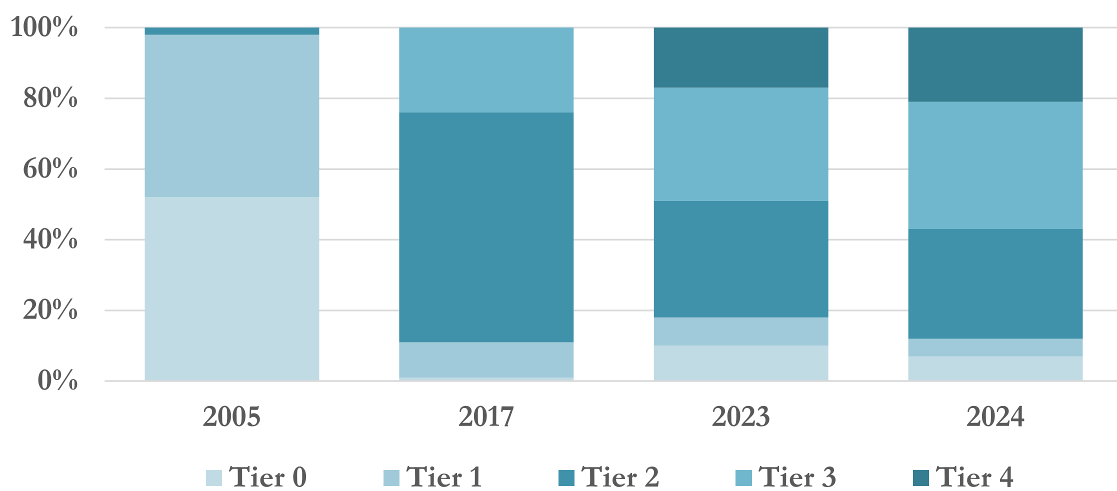


Table 9.10 shows the emissions comparisons for calendar years 2024, 2023, 2017, and 2005 for harbor craft. In 2024, PM, DPM, NO_x and hydrocarbon emissions are slightly lower as compared to the previous year despite the increase in vessel count and activity. The SO_x CO and CO_2e emissions increased 7% which is in line with the increase in activity.

Table 9.10: Harbor Craft Emission Comparison

Year	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e tonnes
2024	11	10	11	483	0.5	103	26	55,604
2023	11	10	11	482	0.5	96	27	51,746
2017	11	10	11	521	0.5	91	21	49,837
2005	33	32	33	706	4.1	209	49	44,947
2024 vs 2023	**-2%**	**-2%**	**-2%**	**0.2%**	**7%**	**7%**	**-3%**	**7%**
2024 vs 2017	**-3%**	**-1%**	**-3%**	**-7%**	**17%**	**13%**	**24%**	**12%**
2024 vs 2005	**-68%**	**-68%**	**-68%**	**-32%**	**-87%**	**-51%**	**-46%**	**24%**

DB ID427

Cargo Handling Equipment

The methodology used to estimate CHE emissions for the 2024 inventory remained the same as the previous year. The emissions calculation methodology and the emission rates are described in Section 4 of the San Pedro Bay Ports Emissions Inventory Methodology Report Version 5.

Table 9.11 shows that the number of units of cargo handling equipment decreased by 9% with the overall energy consumption remaining similar (1%) in 2024 as compared to the previous year. It shows the efficiency in the cargo handling equipment being able to handle the increased throughput with less equipment.

Table 9.11: CHE Count and Activity Comparison

Year	Count	Energy Consumption kWh	TEUs	Activity (kWh) per TEU
2024	1,985	194,558,446	10,297,352	18.9
2023	2,174	193,257,472	8,629,681	22.4
2017	2,213	222,085,376	9,343,193	23.8
2005	1,782	173,108,402	7,484,624	23.1
2024 vs 2023	**-9%**	**1%**	**19%**	**-16%**
2024 vs 2017	**-10%**	**-12%**	**10%**	**-21%**
2024 vs 2005	**11%**	**12%**	**38%**	**-18%**

Energy consumption is measured as total kWh, the product of the rated engine size in kW, annual operating hours, and load factors for fossil fueled equipment. Despite the record 10.3 million TEU cargo throughput in 2024, there was less equipment than the previous year which worked the same as previous year and less kWh per TEU. From 2005 to 2024, equipment count was 11% higher, with a 12% increase in activity level to handle the 38% increase in TEU throughput.

Table 9.12 summarizes the numbers of cargo handling equipment using various engines and power types, including electric, LNG, diesel, propane, and gasoline. Compared to the previous year, the equipment counts are lower and there is an increase in electric equipment counts.

Table 9.12: Count of CHE Equipment Type

Equipment	Electric	LNG	Propane	Gasoline	Diesel	Total
2024						
Forklift	78	0	161	5	103	347
Wharf crane	87	0	0	0	0	87
RTG crane	0	0	0	0	97	97
Straddle carrier	0	0	0	0	172	172
Top handler	9	0	0	0	206	215
Yard tractor	15	22	155	0	695	887
Other	36	0	0	2	142	180
Total	**225**	**22**	**316**	**7**	**1,415**	**1,985**
2024 Percent	**11.3%**	**1.1%**	**15.9%**	**0.4%**	**71.3%**	
2023						
Forklift	65	0	168	6	101	340
Wharf crane	88	0	0	0	0	88
RTG crane	0	0	0	0	105	105
Straddle carrier	0	0	0	0	160	160
Top handler	2	0	0	0	205	207
Yard tractor	11	22	207	0	841	1,081
Other	38	0	0	4	151	193
Total	**204**	**22**	**375**	**10**	**1,563**	**2,174**
2023 Percent	**9.4%**	**1.0%**	**17.2%**	**0.5%**	**71.9%**	
2017						
Forklift	8	0	379	7	117	511
Wharf crane	84	0	0	0	0	84
RTG crane	0	0	0	0	102	102
Straddle carrier	0	0	0	0	40	40
Top handler	0	0	0	0	217	217
Yard tractor	0	17	180	0	845	1,042
Other	57	0	1	5	130	193
Total	**149**	**17**	**560**	**12**	**1,451**	**2,189**
2017 Percent	**6.8%**	**0.8%**	**25.6%**	**0.5%**	**66.3%**	
2005						
Forklift	0	0	263	8	151	422
Wharf crane	67	0	0	0	0	67
RTG crane	0	0	0	0	98	98
Straddle carrier	0	0	0	0	0	0
Top handler	0	0	0	0	127	127
Yard tractor	0	0	53	0	848	901
Other	12	0	0	3	152	167
Total	**79**	**0**	**316**	**11**	**1,376**	**1,782**
2005 Percent	**4.4%**	**0.0%**	**17.7%**	**0.6%**	**77.2%**	

DB ID235

Table 9.13 summarizes the number and percentage of diesel-powered CHE with various emission controls by equipment type in 2024, the previous year, 2017, and 2005. The emission controls for CHE include:

- Hybrid equipment
- On-road engines (CHE equipped with on-road certified engines instead of off-road engines)
- DPF retrofits
- ULSD with a maximum sulfur content of 15 ppm
- Renewable diesel

For 2024, the following observations for Table 9.16 are:

- ✓ Hybrid equipment increased due to new hybrid RTG cranes and hybrid straddle carriers continue to be added to the fleet.
- ✓ The on-road engine count is lower due to equipment being replaced with newer equipment that have Tier 4 final engines or replaced with electric equipment.
- ✓ The use of DPF retrofits continues to decline as the older equipment is replaced with newer Tier 4 final equipment that have the DPF built in and thus, no need to install a DPF after purchasing the equipment.
- ✓ The use of ULSD remained the same.
- ✓ Container terminals continued to use renewable diesel in 2024. The renewable diesel count is lower in 2024 compared to 2023 due to less diesel equipment in 2024.

Table 9.13: Count of CHE Diesel Equipment Emissions Control Matrix

Equipment	Hybrid	On-Road Engines	DPF Retrofit	ULSD Fuel	Renewable Diesel	Total Diesel Equipment	% of Diesel Powered Equipment Hybrid	On-Road Engines	DPF Retrofit	ULSD Fuel	Renewable Diesel
2024											
Forklift	0	0	21	27	76	103	0%	0%	20%	26%	74%
RTG crane	39	0	2	46	51	97	40%	0%	2%	47%	53%
Straddle carrier	144	0	0	28	144	172	84%	0%	0%	16%	84%
Top handler	0	0	46	74	132	206	0%	0%	22%	36%	64%
Yard tractor	0	469	4	223	472	695	0%	67%	1%	32%	68%
Sweeper	0	0	0	2	6	8	0%	0%	0%	25%	75%
Other	0	13	18	50	84	134	0%	10%	13%	37%	63%
Total	**183**	**482**	**91**	**450**	**965**	**1,415**	**13%**	**34%**	**6%**	**32%**	**68%**
2023											
Forklift	0	0	23	27	74	101	0%	0%	23%	27%	73%
RTG crane	19	0	22	42	63	105	18%	0%	21%	40%	60%
Straddle carrier	132	0	0	0	160	160	83%	0%	0%	0%	100%
Top handler	0	0	51	66	139	205	0%	0%	25%	32%	68%
Yard tractor	0	617	4	220	621	841	0%	73%	0%	26%	74%
Sweeper	0	0	0	1	5	6	0%	0%	0%	17%	83%
Other	0	13	29	92	53	145	0%	9%	20%	63%	37%
Total	**151**	**630**	**139**	**448**	**1,115**	**1,563**	**10%**	**40%**	**9%**	**29%**	**71%**
2017											
Forklift	0	0	50	117	0	117	0%	0%	43%	100%	0%
RTG crane	6	0	14	102	0	102	6%	0%	14%	100%	0%
Straddle carrier	12	0	0	40	0	40	30%	0%	0%	100%	0%
Top handler	0	0	102	217	0	217	0%	0%	47%	100%	0%
Yard tractor	0	795	4	845	0	845	0%	94%	0%	100%	0%
Sweeper	0	0	2	5	0	5	0%	0%	40%	100%	0%
Other	0	13	43	125	0	125	0%	10%	34%	100%	0%
Total	**18**	**808**	**215**	**1,451**	**0**	**1,451**	**1%**	**56%**	**15%**	**100%**	**0%**
2005											
Forklift	0	0	0	27	0	151	0%	0%	0%	18%	0%
RTG crane	0	0	0	36	0	98	0%	0%	0%	37%	0%
Straddle carrier	0	0	0	16	0	41	0%	0%	0%	39%	0%
Top handler	0	0	0	79	0	127	0%	0%	0%	62%	0%
Yard tractor	0	164	0	483	0	848	0%	19%	0%	57%	0%
Sweeper	0	0	0	0	0	8	0%	0%	0%	0%	0%
Other	0	1	0	65	0	103	0%	1%	0%	63%	0%
Total	**0**	**165**	**0**	**706**	**0**	**1,376**	**0%**	**12%**	**0%**	**51%**	**0%**

Table 9.14 compares the total number of cargo handling equipment with off-road diesel engines (meeting Tier 0, 1, 2, 3, 4i, and 4f off-road diesel engine standards) and those equipped with on-road diesel engines for 2024, 2023, 2017, and 2005. Since classification of engine standards are based on the engine's model year and horsepower, equipment with missing horsepower or model year information were listed separately under the "Unknown Tier" column in this table. The unknown tier accounts for 3% of diesel equipment in 2024.

Implementation of the CAAP's CHE measure and CARB's CHE regulation have resulted in a steady increase in the prevalence of newer and cleaner equipment (i.e., primarily Tier 4f and on-road engines) replacing the older and higher-emitting equipment (Tier 0 to Tier 3). In 2024, the number of Tier 4 final engines increased 13% from the previous year. The total diesel equipment count is 9% lower in 2024 compared to 2023.

Table 9.14: Count of CHE Diesel Engine Tier and On-road Engine

Year	Tier 0	Tier 1	Tier 2	Tier 3	Tier 4i	Tier 4f	On-road Engine	Unknown Tier	Total Diesel Engines
2024	5	5	38	59	119	659	482	48	1,415
2023	7	7	67	74	162	582	630	34	1,563
2017	16	29	106	138	144	215	808	19	1,475
2005	256	582	360	0	0	0	165	13	1,376
2024 vs 2023	**-29%**	**-29%**	**-43%**	**-20%**	**-27%**	**13%**	**-23%**	**41%**	**-9%**
2024 vs 2017	**-69%**	**-83%**	**-64%**	**-57%**	**-17%**	**207%**	**-40%**	**153%**	**-4%**
2024 vs 2005	**-98%**	**-99%**	**-89%**	**100%**	**100%**	**100%**	**192%**	**269%**	**3%**

DB ID878

Figure 9.6 illustrates the distribution of equipment energy consumption (kWh) comparison by engine type.

Figure 9.6: Distribution of CHE Energy Consumption by Engine Type, %

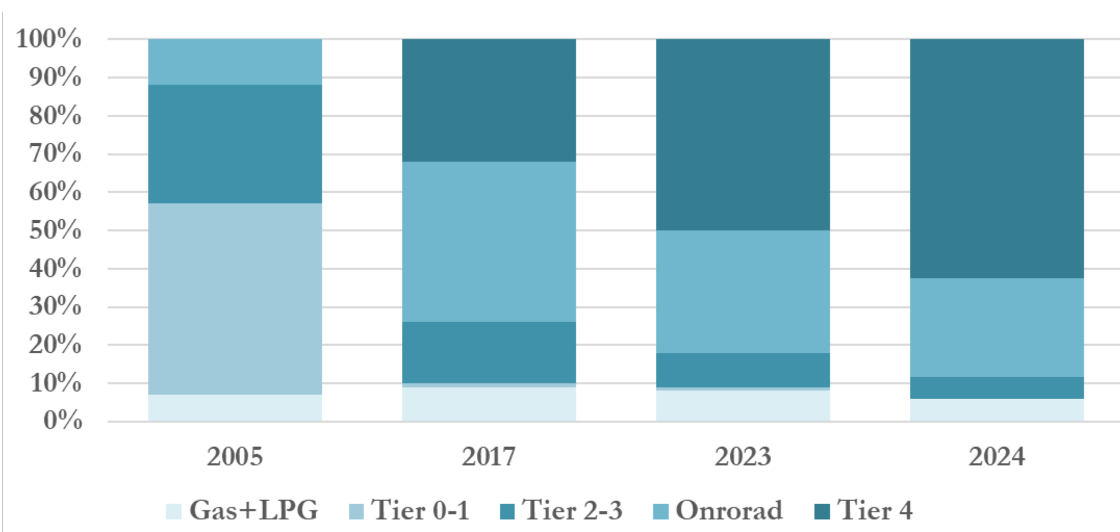


Table 9.15 shows the cargo handling equipment emissions comparisons for 2024, the previous year, 2017 and 2005. Compared to the previous year, emissions were lower, except for DPM and SO_x.

The reductions in 2024 emissions compared to 2005 emissions are largely due to the implementation of the Port's CHE measures and CARB's CHE regulation aimed at lowering criteria pollutants. The efforts resulted in the introduction of newer equipment with cleaner engines and the installation of emission controls. The increase in CO_2e is mainly due to the 12% increase in energy consumption in 2024 as compared to 2005.

Table 9.15: CHE Emissions Comparison

Year	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e tonnes
2024	9.9	9.2	9.1	256.0	1.7	501.9	51.6	145,423
2023	10.1	9.4	8.8	329.0	1.6	623.8	78.9	145,385
2017	12.9	12.0	11.2	543.3	1.9	782.5	86.8	172,882
2005	43.6	40.2	42.6	1,449.1	9.4	797.4	103.6	134,542
2024 vs 2023	**-2%**	**-2%**	**3%**	**-22%**	**4%**	**-20%**	**-35%**	**0%**
2024 vs 2017	**-23%**	**-24%**	**-19%**	**-53%**	**-10%**	**-36%**	**-41%**	**-16%**
2024 vs 2005	**-77%**	**-77%**	**-79%**	**-82%**	**-82%**	**-37%**	**-50%**	**8%**

DB ID237

Locomotives

The methodology used to estimate locomotive emissions is the same as that used in the previous year inventory. The emissions calculation methodology and the emission rates are described in Section 5 of the San Pedro Bay Ports Emissions Inventory Methodology Report Version 5.

Table 9.16 shows the throughput and locomotive activity for 2024, the previous year, 2017 and 2005. TEU Throughput increased in 2024 along with the on-dock lifts and TEUs.

Table 9.16: Throughput Comparison, million TEUs

Throughput	2005	2017	2021	2022	2023	2024
Total	7.48	9.34	10.68	9.91	8.63	10.29
On-dock lifts	1.02	1.25	1.27	1.20	1.06	1.40
On-dock TEUs	1.84	2.26	2.28	2.16	1.91	2.52
% On-Dock	25%	24%	21%	22%	22%	25%

Table 9.17 shows the locomotive emission estimates for calendar years 2024, 2023, 2017, and 2005. The increase in emissions in 2024 compared to previous year is due to the increase in TEU throughput and on-dock lifts and TEUs.

Compared to 2005, the decrease in emissions were due to PHL's and UP's fleet turnover to ultra-low emissions switching locomotives, the use of ULSD, the Class 1 railroads' compliance with the MOU, and introduction of newer locomotives. CO_2e emissions have been reduced since 2005 despite the increase in rail throughput through the freight movement efficiency improvements implemented by the railroads and terminals.

Table 9.17: Locomotive Emission Comparison

Year	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e tonnes
2024	31	29	31	834	1	197	49	69,105
2023	24	22	24	659	0.6	158	38	55,373
2017	30	27	30	839	0.8	208	45	73,301
2005	57	53	57	1,712	98.0	237	89	79,470
2024 vs 2023	**29%**	**29%**	**29%**	**27%**	**25%**	**25%**	**30%**	**25%**
2024 vs 2017	**6%**	**8%**	**6%**	**-1%**	**-4%**	**-5%**	**10%**	**-6%**
2024 vs 2005	**-45%**	**-45%**	**-45%**	**-51%**	**-99%**	**-17%**	**-44%**	**-13%**

DB ID428

Heavy-Duty Vehicles

The methodology used to estimate HDV emissions in this 2024 inventory is the same as the methodology used in the previous year inventory. The latest version of CARB's emission estimating model, EMFAC2021, has been used for the 2024 estimates. The emissions calculation methodology and the emission rates are described in Section 6 of the San Pedro Bay Ports Emissions Inventory Methodology Report Version 5.

Emissions from the HDV source category continue to be far lower than in 2005 due largely to the following factors affecting the overall age of the truck fleet.

- Newer fleet of trucks due to the CTP[64] and CARB Advanced Clean Fleets Regulation[65]. As of 2023, trucks accessing the ports must be model year 2010 or newer per the CARB Regulation. As part of CTP, new trucks entering service at the Port must be model year 2014 or newer. As of 2024, 92% of the share of mileage were from trucks of model year 2014 and newer and essentially 100% were 2010+ and newer, reflecting the removal of pre-2010 trucks from service and their replacement with newer trucks.

[64] *https://www.portoflosangeles.org/environment/air-quality/clean-truck-program*
[65] *https://ww2.arb.ca.gov/resources/fact-sheets/advanced-clean-fleets-regulation-detailed-drayage-truck-requirements*

- The terminals optimized their gate systems and they use radio frequency identification (RFID) readers to identify trucks complying with the CTP provisions, which helped reduce idling time.

- Terminal automation installed by terminals reduce wait times and limits turn times compared with traditional terminal operations.

Table 9.18 shows the total port-wide idling time based on an improved source of data regarding the time spent by trucks while on terminal (turn time) which, as noted previously, relates to time that may not solely be time spent idling. Total idling increased 10% compared to the previous year. The 63% increase in idling since 2005 may be due in part to the 38% increase in TEU throughput, which resulted in more truck trips, in addition to improved and more accurate data sources. Continued improvement in data sources may provide more information regarding actual on-terminal idling times (as opposed to turn times).

Table 9.18: HDV Idling Time Comparison, hours

EI Year	Total Idling Time (hours)
2024	4,921,777
2023	4,464,751
2017	3,373,541
2005	3,017,252
2024 vs 2023	**10%**
2024 vs 2017	**46%**
2024 vs 2005	**63%**

Table 9.19 summarizes the average age of the truck fleet in 2024, the previous year, 2017, and 2005. The average age of trucks visiting the Port is eight years in 2024. The share of mileage driven by 2014 and newer model year trucks is 92% in 2024 and the share of the mileage driven by 2010 and newer model year is essentially 100% in 2024, significantly reducing emissions of NO_x and other pollutants. The 2010+ and 2014+ engines are the cleanest diesel engines available in the nation.

Table 9.19: HDV Fleet Weighted Average Age and Latest Model Year, years

Calendar Year	Call-Weighted Average Age (years)	Truck calls 2014 & newer (%)
2005	11	0%
2017	5	16%
2023	6	86%
2024	8	92%

Figure 9.7 illustrates the HDV model year distribution for the calendar years 2020 to 2024. It shows model year 2016 trucks continues to be the dominant model year in 2024.

Figure 9.7: HDV Model Year Distribution

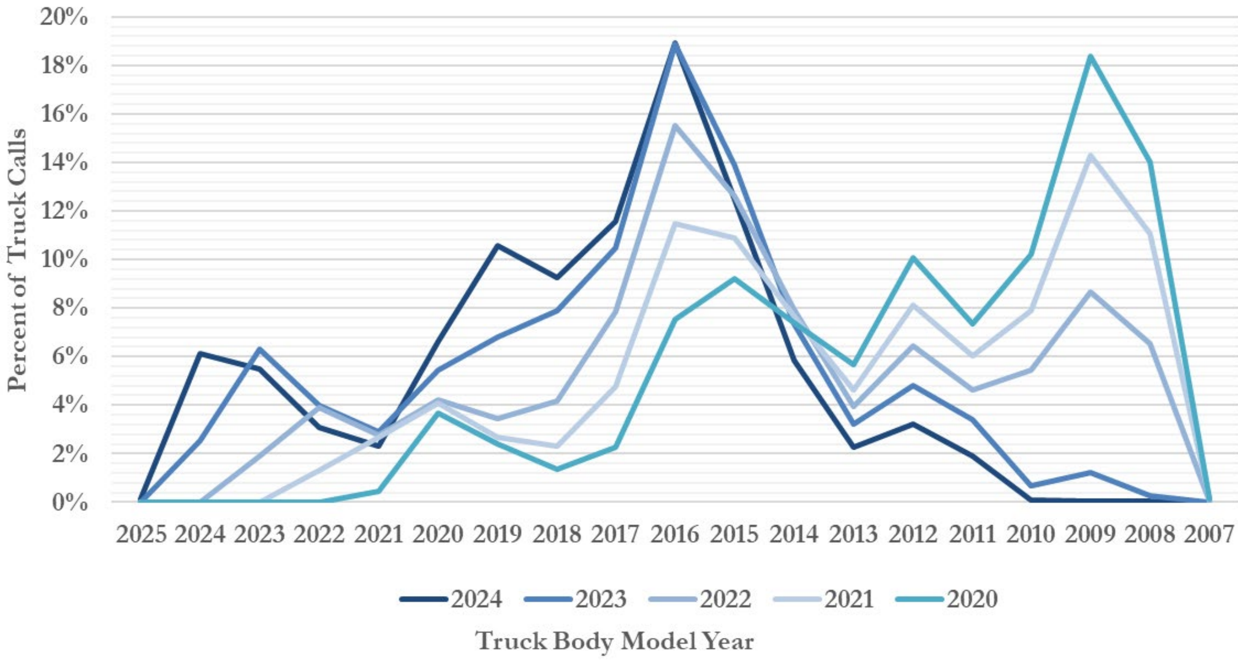


Figure 9.8 illustrates the distribution of truck calls by model year comparison showing how the 2014 and newer trucks have increased since 2017. It also shows that practically all the trucks calling the Port have 2010 and newer trucks in 2024 which quite a feat. The newer 2010+ trucks have lower emissions.

Figure 9.8: Distribution of Truck Calls by Model Year, %

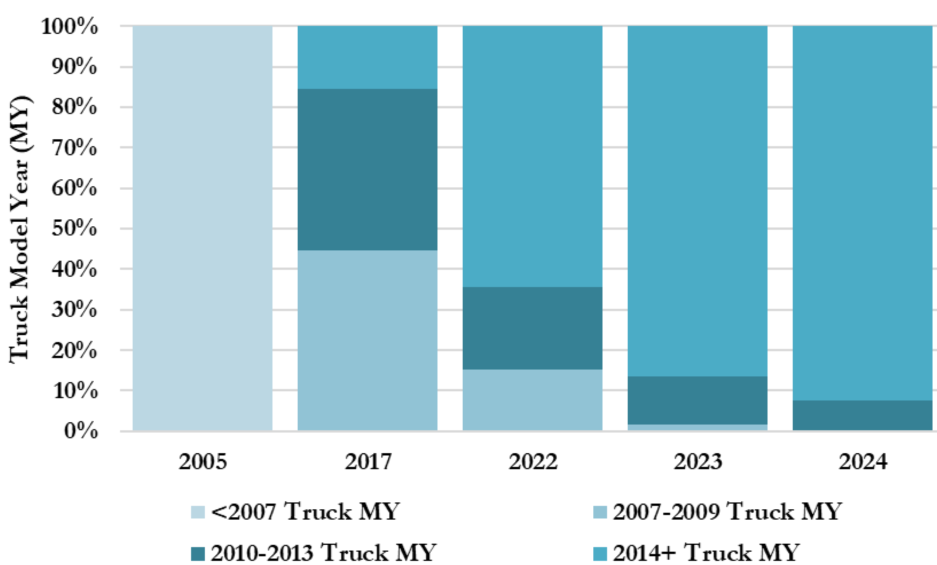


Table 9.20 summarizes the HDV emissions for 2024, the previous year, 2017, and 2005. The HDV emissions of all pollutants have decreased significantly from 2005 largely due to increasingly stringent on-road engine emission standards and the implementation of the CTP. Emissions are higher in 2024 compared to 2023 due to higher throughput (19%) which resulted in higher on-terminal idling and vehicle miles driven.

Table 9.20: HDV Emissions Comparison

Year	VMT	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NOx tons	SOx tons	CO tons	HC tons	CO_2e tonnes
2024	232,071,401	4.6	4.4	4.6	378	3.8	302	38.0	404,016
2023	205,369,478	3.4	3.2	3.3	350	3.4	285	35	356,601
2017	220,325,276	7.0	6.7	7.0	1,236	3.7	260	64	385,255
2005	266,434,761	248	238	248	6,307	44.9	1,865	368	474,877
2024 vs 2023	**13%**	**38%**	**38%**	**38%**	**8%**	**14%**	**6%**	**9%**	**13%**
2024 vs 2017	**5%**	**-34%**	**-34%**	**-35%**	**-69%**	**4%**	**16%**	**-41%**	**5%**
2024 vs 2005	**-13%**	**-98%**	**-98%**	**-98%**	**-94%**	**-91%**	**-84%**	**-90%**	**-15%**

As an overall measure of the changes in HDV emissions independent of fluctuations in throughput, Table 9.21 illustrates the changes in emissions in average grams per mile (g/mi) between 2024 and prior years. The unit of grams per mile was used because it shows the changes in emissions independent of variations in throughput, which can complicate the comparisons. The values were calculated by dividing overall HDV emissions by overall miles traveled and include idling emissions, as well as emissions from driving at various speeds, on-terminal and on-road. Particulate emissions have been reduced most dramatically from 2005 to 2024, followed by the other pollutants. The CTP and engine emission standards are responsible for most reductions, including the particulate and NO_x decreases, while fuel sulfur standards, specifically the introduction of ULSD, are responsible for the SO_x reduction. For the previous year comparison, PM emissions increased in 2024 due to higher on-road speeds resulting in the use of 22% higher PM emission factors per CARB's EMFAC model as shown on Table 9.21.

Table 9.21: HDV Fleet Average Emissions, g/mile

Year	PM_{10}	$PM_{2.5}$	DPM	NOx	SOx	CO	HC	CO_2e
2024	0.0181	0.0173	0.0179	1.4766	0.0150	1.1811	0.1484	1,579
2023	0.0149	0.0142	0.0147	1.5450	0.0149	1.2598	0.1540	1,575
2017	0.0289	0.0277	0.0288	5.0906	0.0152	1.0695	0.2652	1,586
2005	0.8457	0.8091	0.8457	21.476	0.1529	6.3487	1.2536	1,782
2024 vs 2023	**22%**	**22%**	**22%**	**-4%**	**1%**	**-6%**	**-4%**	**0%**
2024 vs 2017	**-37%**	**-37%**	**-38%**	**-71%**	**-1%**	**10%**	**-44%**	**0%**
2024 vs 2005	**-98%**	**-98%**	**-98%**	**-93%**	**-90%**	**-81%**	**-88%**	**-11%**

APPENDIX A: CHE Inventory

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 2	DPF level 3	Blue Cat	Renewable Diesel T0-T3	Renewable Diesel T4
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0		CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	2301	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	2381	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	2221	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	2307	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	1961	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	2347	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	2150	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	2027	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	1631	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	1338	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	1998	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	2196	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	2062	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	2216	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	1928	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	961	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	2361	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	2467	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	2491	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	2402	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	2527	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	2366	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	2421	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	2315	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	2869	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	2150	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 5.0	Electric				0	1992	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 5.0	Electric				0	1586	CHE Electric					
Bulldozer	Caterpillar	D6R	Diesel	Caterpillar	C9	2007	200	73	CHE Diesel		5/7/2015			
Bulldozer	Caterpillar	D6R	Diesel	Caterpillar		2024	174	46	CHE Diesel					
Cone Vehicle	MOTREC	MX-700	Diesel	Kubota	D902-EF01	2021	25	2511	CHE Diesel					
Cone Vehicle	MOTREC	MX-700	Diesel	Kubota	D902-EF01	2021	25	1800	CHE Diesel					
Cone Vehicle	MOTREC	MX-700	Diesel	Kubota	D902-EF01	2021	25	1903	CHE Diesel					
Cone Vehicle	MOTREC	MX-700	Diesel	Kubota	D902-EF01	2021	25	1788	CHE Diesel					
Cone Vehicle	MOTREC	MX-700	Diesel	Kubota	D902-EF01	2021	25	2397	CHE Diesel					
Cone Vehicle	MOTREC	MX-700	Diesel	Kubota	D902-EF01	2021	25	2196	CHE Diesel					
Cone Vehicle	Motrec	RR-662	Diesel	Kubota Corp	V1505-ET04	2015	35	0	CHE Diesel					4/1/2021
Cone Vehicle	Motrec	RR-662	Diesel	Kubota Corp	V1505-ET04	2015	35	0	CHE Diesel					4/1/2021
Cone Vehicle	Motrec	RR-662	Diesel	Kubota Corp	V1505-ET04	2015	35	306	CHE Diesel					4/1/2021
Cone Vehicle	Motrec	RR-662	Diesel	Kubota Corp	V1505-ET04	2015	35	330	CHE Diesel					4/1/2021
Cone Vehicle	Motrec	RR-662	Diesel	Kubota Corp	V1505-ET04	2015	35	0	CHE Diesel					4/1/2021
Cone Vehicle	Motrec	RR-662	Diesel	Kubota Corp	V1505-ET04	2015	35	39	CHE Diesel					4/1/2021
Cone Vehicle	Motrec	RR-662	Diesel	Kubota Corp	V1505-ET04	2015	35	217	CHE Diesel					4/1/2021
Cone Vehicle	Motrec	RR-662	Diesel	Kubota Corp	V1505-ET04	2015	35	120	CHE Diesel					4/1/2021
Cone Vehicle	Motrec	RR662SD	Diesel			2010	35	1056	CHE Diesel					12/31/2020
Cone Vehicle	Motrec	RR662SD	Diesel			2010	35	923	CHE Diesel					12/31/2020
Cone Vehicle	Motrec	RR662SD	Diesel			2010	35	1495	CHE Diesel					12/31/2020
Cone Vehicle	Motrec	RR662SD	Diesel			2014	35	1298	CHE Diesel					6/1/2021
Cone Vehicle	Motrec	RR662SD	Diesel			2014	35	1380	CHE Diesel					6/1/2021
Cone Vehicle	Motrec	MX-700	Diesel			2022	15	1012	CHE Diesel					1/1/2023
Cone Vehicle	Motrec	MX-700	Diesel			2022	15	612	CHE Diesel					1/1/2023
Cone Vehicle	Motrec	MX-700	Diesel			2022	15	1958	CHE Diesel					1/1/2023
Cone Vehicle	Motrec	MX-700	Diesel			2022	15	1595	CHE Diesel					1/1/2023
Crane	Terex	RT550	Diesel	Cummins	6bta5.9	2003	174	5	CHE Diesel					
Crane	Terex	RT230	Diesel	Cummins	6BT5.9	2004	130	147	CHE Diesel					
Crane	Terex	RT230-2	Diesel	Cummins	6BT5.9	2014	130	151	CHE Diesel					
Crane	Manitowoc		Diesel	Cummins	B6.7	2021	336	160	CHE Diesel					
Crane	Tadano	GR900XL	Diesel	Cummins	QSB6.7	2016	367	571	CHE Diesel					
Crane	Grove	RT855B	Diesel	Caterpillar	3116	2013	205	127	CHE Diesel		4/18/2013			
Crane	Liebherr	LHM550	Diesel	Liebherr	D9512A7-04	2014	751	609	CHE Diesel					
Crane	Grove	RT890E	Diesel	Cummins	QSB6.7	2012	300	1262	CHE Diesel					
Crane	Paceco		Electric				0		CHE Electric					
Crane	Paceco		Electric				0		CHE Electric					
Crane	Paceco		Electric				0		CHE Electric					
Electric wharf crane			Electric				0	0	CHE Electric					
Electric wharf crane			Electric				0	0	CHE Electric					
Electric wharf crane			Electric				0	0	CHE Electric					
Electric wharf crane			Electric				0	0	CHE Electric					
Electric wharf crane			Electric				0	0	CHE Electric					
Electric wharf crane	ZPMC		Electric				0	74	CHE Electric					
Electric wharf crane	ZPMC	J111A00-8	Electric				0	458	CHE Electric					
Electric wharf crane	ZPMC	J111A00-9	Electric				0	1693	CHE Electric					
Electric wharf crane	ZPMC	ZP-2073-10	Electric				0	2000	CHE Electric					
Electric wharf crane	ZPMC	ZP-2073-11	Electric				0	2133	CHE Electric					
Electric wharf crane	ZPMC	ZP-2073-12	Electric				0	2264	CHE Electric					
Electric wharf crane	ZPMC		Electric				0	2236	CHE Electric					
Electric wharf crane	ZPMC		Electric				0	1617	CHE Electric					
Electric wharf crane	ZPMC		Electric				0	865	CHE Electric					
Electric wharf crane	ZPMC		Electric				0	2323	CHE Electric					
Electric wharf crane	ZPMC		Electric				0	2420	CHE Electric					
Electric wharf crane	ZPMC		Electric				0	1130	CHE Electric					
Electric wharf crane	ZPMC		Electric				0	1112	CHE Electric					
Electric wharf crane	Noell		Electric				0	2035	CHE Electric					
Electric wharf crane	Noell		Electric				0	1087	CHE Electric					
Electric wharf crane	Noell		Electric				0	845	CHE Electric					
Electric wharf crane	Noell		Electric				0	1196	CHE Electric					
Electric wharf crane	Noell		Electric				0	1079	CHE Electric					
Electric wharf crane	Noell		Electric				0	1515	CHE Electric					
Electric wharf crane	Noell		Electric				0	1536	CHE Electric					
Electric wharf crane	Noell		Electric				0	967	CHE Electric					
Electric wharf crane	Noell		Electric				0	1181	CHE Electric					
Electric wharf crane	Noell		Electric				0	1427	CHE Electric					
Electric wharf crane	ZPMC		Electric				0	1087	CHE Electric					
Electric wharf crane	ZPMC		Electric				0	2035	CHE Electric					
Electric wharf crane	ZPMC		Electric				0	1427	CHE Electric					
Electric wharf crane	ZPMC		Electric				0	2025	CHE Electric					
Electric wharf crane			Electric				0	0	CHE Electric					
Electric wharf crane			Electric				0	0	CHE Electric					

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 2	DPF level 3	Blue Cat	Renewable Diesel T0-T3	Renewable Diesel T4
Electric wharf crane			Electric				0	0	CHE Electric					
Electric wharf crane			Electric				0	0	CHE Electric					
Electric wharf crane			Electric				0	0	CHE Electric					
Electric wharf crane			Electric				0	0	CHE Electric					
Electric wharf crane			Electric				0	0	CHE Electric					
Electric wharf crane			Electric				0	0	CHE Electric					
Electric wharf crane			Electric				0	0	CHE Electric					
Electric wharf crane			Electric				0	0	CHE Electric					
Electric wharf crane			Electric				0	0	CHE Electric					
Electric wharf crane			Electric				0	0	CHE Electric					
Electric wharf crane			Electric				0	0	CHE Electric					
Electric wharf crane			Electric				0	0	CHE Electric					
Electric wharf crane			Electric				0	0	CHE Electric					
Electric wharf crane			Electric				0	0	CHE Electric					
Electric wharf crane			Electric				0	99	CHE Electric					
Electric wharf crane			Electric				0	690	CHE Electric					
Electric wharf crane			Electric				0	821	CHE Electric					
Electric wharf crane	Paceco		Electric				0		CHE Electric					
Electric wharf crane	Paceco		Electric				0		CHE Electric					
Electric wharf crane	Paceco		Electric				0		CHE Electric					
Electric wharf crane	Paceco		Electric				0		CHE Electric					
Electric wharf crane	Paceco		Electric				0		CHE Electric					
Electric wharf crane	Paceco		Electric				0		CHE Electric					
Electric wharf crane	Paceco		Electric				0		CHE Electric					
Electric wharf crane	Paceco		Electric				0		CHE Electric					
Electric wharf crane	Paceco		Electric				0		CHE Electric					
Electric wharf crane	Paceco		Electric				0		CHE Electric					
Electric wharf crane	Mitsui/Paceco		Electric				0	3859	CHE Electric					
Electric wharf crane	Mitsui/Paceco		Electric				0	4014	CHE Electric					
Electric wharf crane	Mitsubishi	60T	Electric				0	1090	CHE Electric					
Electric wharf crane	Mitsubishi	60T	Electric				0	1481	CHE Electric					
Electric wharf crane	Mitsubishi	50T	Electric				0	2212	CHE Electric					
Electric wharf crane	Mitsubishi	50T	Electric				0	2791	CHE Electric					
Electric wharf crane	Mitsui/Paceco	70T	Electric				0	3819	CHE Electric					
Electric wharf crane	Mitsui/Paceco	70T	Electric				0	3936	CHE Electric					
Electric wharf crane	Mitsui/Paceco	70T	Electric				0	3961	CHE Electric					
Electric wharf crane	Mitsui/Paceco	70T	Electric				0	3351	CHE Electric					
Electric wharf crane	Noell		Electric				0	1848	CHE Electric					
Electric wharf crane	Noell		Electric				0	2168	CHE Electric					
Electric wharf crane	Noell		Electric				0	1918	CHE Electric					
Electric wharf crane	Noell		Electric				0	1568	CHE Electric					
Electric wharf crane	ZPMC	J481A	Electric				0	2527	CHE Electric					
Electric wharf crane	ZPMC	J481A	Electric				0	2772	CHE Electric					
Electric wharf crane	ZPMC	J481A	Electric				0	1220	CHE Electric					
Electric wharf crane	ZPMC	J481A	Electric				0	3550	CHE Electric					
Electric wharf crane	ZPMC	ZP-10020000148	Electric				0	4013	CHE Electric					
Electric wharf crane	ZPMC	ZP-10020000149	Electric				0	4072	CHE Electric					
Electric wharf crane	ZPMC	ZP-10020000150	Electric				0	4044	CHE Electric					
Electric wharf crane	ZPMC	ZP-10020000151	Electric				0	3708	CHE Electric					
Electric wharf crane	ZPMC	ZP-10020000151	Electric				0	4224	CHE Electric					
Electric wharf crane	ZPMC	ZP-10020000151	Electric				0	4612	CHE Electric					
Electric wharf crane	ZPMC	ZP-10020000151	Electric				0	5650	CHE Electric					
Electric wharf crane	ZPMC	ZP-10020000151	Electric				0	3724	CHE Electric					
Forklift	Kalmar	DCE-150-6	Diesel	Cummins	QSB6.7	2008	173	72	CHE Diesel		1/21/2015		12/31/2021	
Forklift	Kalmar	DCE-150-6	Diesel	Cummins	QSB6.7	2008	173	38	CHE Diesel		1/23/2015		12/31/2021	
Forklift	Kalmar	DCE-150-6	Diesel	Cummins	QSB6.7	2008	173	79	CHE Diesel		3/12/2015		12/31/2021	
Forklift	Taylor	TXH350L	Diesel	Cummins	QSB6.7	2014	173	191	CHE Diesel					11/1/2022
Forklift	Taylor	TXH350L	Diesel	Cummins	QSB6.7	2014	173	128	CHE Diesel					11/1/2022
Forklift	Taylor	TXH350L	Diesel	Cummins	QSB6.7	2014	173	67	CHE Diesel					11/1/2022
Forklift	Taylor	TX1700L	Diesel	Cummins	QSL-9	2013	230	119	CHE Diesel					11/1/2022
Forklift	Taylor	TX1700L	Diesel	Cummins	QSL-9	2013	230	137	CHE Diesel					11/1/2022
Forklift	Taylor	TX1700L	Diesel	Cummins	QSL-9	2013	230	108	CHE Diesel					11/1/2022
Forklift	Taylor	XH700RC	Diesel	Cummins	L9	2023	297	288	CHE Diesel					11/1/2022
Forklift	Taylor	XH700L	Diesel	Cummins	L9	2023	297	304	CHE Diesel					11/1/2022
Forklift	Taylor	XH700L	Diesel	Cummins	L9	2023	297	311	CHE Diesel					11/1/2022
Forklift	Taylor	XH700L	Diesel	Cummins	L9	2023	280	111	CHE Diesel					11/1/2022
Forklift	Clark	C55S	LPG	GM	V6 4.3	2013	93	112	CHE Propane					
Forklift	Clark	S25L	LPG	Ford	2.5L	2021		118	CHE Propane					
Forklift	Clark	S25L	LPG	Ford	2.5L	2021		142	CHE Propane					
Forklift	Taylor	X-360M	Diesel	Cummins	QSB 6.7-C173 Tie	2015	173	849	CHE Diesel					
Forklift	Toyota	8FD4SU	Diesel	Toyota		2016		168	CHE Diesel					
Forklift	Yale	GDP050	LPG	Mazda	F2-Z25D	2014	51	577	CHE Propane					
Forklift	Yale	GLP050VXESV	LPG	Mazda	F2-Z25D	2006	51	734	CHE Propane					
Forklift	Yale	GLP050VXESV	LPG	Mazda	F2-Z25D	2006	51	304	CHE Propane					
Forklift	Heyster	H50FT	LPG	IMPCO		2010	46	656	CHE Propane					
Forklift	Clark	C50sL	LPG	GM	4.3L	2013	75	1200	CHE Propane					
Forklift	Clark	C20s	LPG	Hyundai	2.4L	2013	40	52	CHE Propane					
Forklift	Mitsubishi	FG40N	LPG	Nissan	TB45L	2011	76	112	CHE Propane					
Forklift	Hyster	H300HD	Diesel	Cummins	QSB6.7	2013	129	497	CHE Diesel					
Forklift	Komatsu		LPG			2021	125	606	CHE Propane					
Forklift			LPG			2015	125	2432	CHE Propane					
Forklift	TOYOTA		LPG	TOYOTA	3.7L IFS	2018	87	550	CHE Propane					
Forklift	Unicarries		LPG			2021	55	550	CHE Propane					
Forklift	Nissan		LPG			2022	59	550	CHE Propane					
Forklift	Nissan		LPG	PSI	K25	2017	62	550	CHE Propane					
Forklift	DOOSAN		LPG	KUBOTA	WG3800	2022	92	550	CHE Propane					
Forklift	BOBCAT		Diesel	Kubota	WG3800	2024	92	550	CHE Diesel					
Forklift	BOBCAT		Diesel	Kubota	WG3800	2024	92	550	CHE Diesel					
Forklift	HYSTER		LPG	PSI	PSI 2.4L	2016	59	550	CHE Propane					
Forklift	HYSTER		LPG	PSI	PSI 2.4L	2019	59	550	CHE Propane					
Forklift	Linde		LPG	Deutz		2021	59	550	CHE Propane					
Forklift	Linde		LPG	Deutz		2021	59	550	CHE Propane					
Forklift	Linde		LPG	Deutz		2021	59	550	CHE Propane					
Forklift	Linde		LPG	Deutz		2021	59	550	CHE Propane					
Forklift	Kubota		LPG	PSI	WG3800	2019	75	550	CHE Propane					
Forklift	Linde		LPG			2022	59	550	CHE Propane					
Forklift	Komatsu	5000 lb	LPG			2002	58	800	CHE Propane					
Forklift	Komatsu	5000 lb	LPG			2002	58	800	CHE Propane					
Forklift	Komatsu	6000 lb	LPG			2002	60	800	CHE Propane					

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 2	DPF level 3	Blue Cat	Renewable Diesel T0-T3	Renewable Diesel T4
Forklift	Komatsu	6000 lb	LPG			2002	60	800	CHE Propane					
Forklift	Komatsu	6000 lb	LPG			2002	60	800	CHE Propane					
Forklift	Komatsu	6000 lb	LPG			2002	60	800	CHE Propane					
Forklift	Komatsu	6000 lb	LPG			2002	60	800	CHE Propane					
Forklift	Komatsu	6000 lb	LPG			2002	60	800	CHE Propane					
Forklift	Komatsu	6000 lb	LPG			2008	60	800	CHE Propane					
Forklift	Komatsu	6000 lb	LPG			2008	60	800	CHE Propane					
Forklift	Komatsu	6000 lb	LPG			2008	60	800	CHE Propane					
Forklift	Komatsu	6000 lb	LPG			2008	60	800	CHE Propane					
Forklift	Hyster	6000 lb	Electric					400	CHE Electric					
Forklift	Hyster	6000 lb	Electric					400	CHE Electric					
Forklift	Hyster	6000 lb	Electric					400	CHE Electric					
Forklift	Hyster	6000 lb	Electric					400	CHE Electric					
Forklift	Hyster	6000 lb	Electric					400	CHE Electric					
Forklift	Hyster	6000 lb	Electric					400	CHE Electric					
Forklift	Hyster	6000 lb	Electric					400	CHE Electric					
Forklift	Hyster	6000 lb	Electric					400	CHE Electric					
Forklift			LPG					250	CHE Propane					
Forklift	Komatsu	FG15HT-15	LPG	Nissan	H2O	1994	46	250	CHE Propane			7/4/1905		
Forklift	Komatsu	FG15HT-15	LPG	Nissan	H2O	1994	46	250	CHE Propane			7/4/1905		
Forklift	Komatsu	FG15HT-15	LPG	Nissan	K21L	2008	48	250	CHE Propane					
Forklift	Komatsu	FG15HT-15	LPG	Nissan	K21L	2008	48	250	CHE Propane					
Forklift	Komatsu	FG45T-6	LPG	Nissan	TB42	1991	85	250	CHE Propane			7/5/1905		
Forklift	Komatsu	FG45T-6	LPG	Nissan	TB42	1991	85	250	CHE Propane			7/5/1905		
Forklift	Komatsu	FG45T-6	LPG	Nissan	TB42	1991	85	250	CHE Propane			7/5/1905		
Forklift	Komatsu	FG45T-6	LPG	Nissan	TB42	1991	85	250	CHE Propane			7/5/1905		
Forklift	Komatsu	FG45T-6	LPG	Nissan	TB42	1991	85	250	CHE Propane			7/5/1905		
Forklift	Komatsu	FG45T-6	LPG	Nissan	TB42	1991	85	250	CHE Propane			7/5/1905		
Forklift	Komatsu	FG45T-6	LPG	Nissan	TB42	1991	85	250	CHE Propane			7/5/1905		
Forklift	Komatsu	FG45T-6	LPG	Nissan	TB42	1991	85	250	CHE Propane			7/5/1905		
Forklift	Komatsu	FG45T-6	LPG	Nissan	TB42	1991	85	250	CHE Propane			7/5/1905		
Forklift	Komatsu	FG45T-6	LPG	Nissan	TB42	1994	85	250	CHE Propane			7/5/1905		
Forklift	Komatsu	FG45K1	LPG	Nissan	TB45L	2006	117	250	CHE Propane					
Forklift	Komatsu	FG45T-8	LPG	Nissan	TB45L	2008	84	250	CHE Propane					
Forklift	Komatsu	FG45T-8	LPG	Nissan	TB45L	2006	117	250	CHE Propane					
Forklift	Hyster	J30XN (4 wheel)	Electric				0	0	CHE Electric					
Forklift	Hyster	J30XNT (3 wheel)	Electric				0	0	CHE Electric					
Forklift	Hyster	J30XNT (3 wheel)	Electric				0	0	CHE Electric					
Forklift	Hyster	J30XNT (3 wheel)	Electric				0	0	CHE Electric					
Forklift	Hyster	J30XNT (3 wheel)	Electric				0	0	CHE Electric					
Forklift	Hyster	J30XNT (3 wheel)	Electric				0	0	CHE Electric					
Forklift	Hyster	J30XNT (3 wheel)	Electric				0	0	CHE Electric					
Forklift	Hyster	J30XNT (3 wheel)	Electric				0	0	CHE Electric					
Forklift	Mitsubishi	FB16KT	Electric				0	0	CHE Electric					
Forklift	Mitsubishi	FB16KT	Electric				0	0	CHE Electric					
Forklift	Hyster	J30XNT (3 wheel)	Electric				0	0	CHE Electric					
Forklift	Hyster	J30XNT (3 wheel)	Electric				0	0	CHE Electric					
Forklift	Hyster	J30XNT (3 wheel)	Electric				0	0	CHE Electric					
Forklift	Hyster	J30XNT (3 wheel)	Electric				0	0	CHE Electric					
Forklift	Hyster	J30XNT (3 wheel)	Electric				0	0	CHE Electric					
Forklift	Hyster	J30XNT (3 wheel)	Electric				0	0	CHE Electric					
Forklift	Hyster	J30XNT (3 wheel)	Electric				0	0	CHE Electric					
Forklift	Hyster	J30XN (4 wheel)	Electric				0	0	CHE Electric					
Forklift	Hyster	J30XN (4 wheel)	Electric				0	0	CHE Electric					
Forklift	Hyster	J30XN (4 wheel)	Electric				0	0	CHE Electric					
Forklift	Hyster	J30XN (4 wheel)	Electric				0	0	CHE Electric					
Forklift	Hyster	J30XN (4 wheel)	Electric				0	0	CHE Electric					
Forklift	Hyster	J30XN (4 wheel)	Electric				0	0	CHE Electric					
Forklift	Hyster	J30XN (4 wheel)	Electric				0	0	CHE Electric					
Forklift	Hyster	J30XN (4 wheel)	Electric				0	0	CHE Electric					
Forklift	Hyster	J30XN (4 wheel)	Electric				0	0	CHE Electric					
Forklift	Hyster	J30XN (4 wheel)	Electric				0	0	CHE Electric					
Forklift	Hyster	J30XN (4 wheel)	Electric				0	0	CHE Electric					
Forklift	Hyster	J30XN (4 wheel)	Electric				0	0	CHE Electric					
Forklift	Hyster	J30XN (4 wheel)	Electric				0	0	CHE Electric					
Forklift	Hyster	J30XN (4 wheel)	Electric				0	0	CHE Electric					
Forklift	Hyster	J30XN (4 wheel)	Electric				0	0	CHE Electric					
Forklift	Hyster	J30XN (4 wheel)	Electric				0	0	CHE Electric					
Forklift	Komatsu	FG30G-11	LPG	Nissan		1991		250	CHE Propane			7/5/1905		
Forklift	Komatsu	FG30G-11	LPG	Nissan		1991		250	CHE Propane			7/5/1905		
Forklift	Komatsu	FG30G-11	LPG	Nissan		1994		250	CHE Propane			7/5/1905		
Forklift	Komatsu	FG45T-6	LPG	Nissan	TB45L	2005	96	250	CHE Propane					
Forklift	Mitsubishi	FB16KT	Electric				0	250	CHE Electric					
Forklift	Mitsubishi	FB16KT	Electric				0	250	CHE Electric					
Forklift	Mitsubishi	FB16NT	Electric				0	0	CHE Electric					
Forklift	Mitsubishi	FB16KT	Electric				0	0	CHE Electric					
Forklift	Mitsubishi	FB16KT	Electric				0	0	CHE Electric					
Forklift	Mitsubishi	FB16KT	Electric				0	0	CHE Electric					
Forklift	Mitsubishi	EP16KT	Electric				0	0	CHE Electric					
Forklift	Mitsubishi	FB16KT	Electric				0	0	CHE Electric					
Forklift	Mitsubishi	EP16KT	Electric				0	0	CHE Electric					
Forklift	Mitsubishi	EP16KT	Electric				0	0	CHE Electric					
Forklift	Mitsubishi	FB16KT	Electric				0	0	CHE Electric					
Forklift	Mitsubishi	FB16KT	Electric				0	0	CHE Electric					
Forklift	Mitsubishi	FB16KT	Electric				0	0	CHE Electric					
Forklift	Mitsubishi	FB16NT	Electric				0	0	CHE Electric					
Forklift	Mitsubishi	FB16KT	Electric				0	0	CHE Electric					
Forklift	Mitsubishi	FB16KT	Electric				0	0	CHE Electric					
Forklift	Mitsubishi	FB16KT	Electric				0	0	CHE Electric					
Forklift	Mitsubishi	FB16NT	Electric				0	0	CHE Electric					
Forklift	Clark	CT-50	LPG	Ford				250	CHE Propane			7/5/1905		
Forklift	Komatsu	FG15HT-15	LPG	Nissan	H2O			250	CHE Propane			7/5/1905		
Forklift	Raymond Pacer	R30-C30TT	Electric				0	0	CHE Electric					
Forklift	Hyster	H100ft	Diesel	Kubota		2023	74	1442	CHE Diesel					
Forklift	Linde	H35D	Diesel	Volkswagon	BAEU	2007	59	493	CHE Diesel					
Forklift	Wiggins	W450YE	Electric			2022	0	644	CHE Electric					
Forklift	Wiggins	W450YE	Electric			2023	0	1699	CHE Electric					
Forklift	Caterpillar	2EP11000	Electric			2022	0	704	CHE Electric					
Forklift	Caterpillar	2EP11000	Electric			2022	0	893	CHE Electric					

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 2	DPF level 3	Blue Cat	Renewable Diesel T0-T3	Renewable Diesel T4
Forklift	Caterpillar	2EP11000	Electric			2022	0	993	CHE Electric					
Forklift	Caterpillar	2EP11000	Electric			2022	0	1013	CHE Electric					
Forklift	Caterpillar	GP35N5	LPG	Caterpillar	GK25	2021	28	210	CHE Propane					
Forklift	Hyster	H50FT	LPG	Mazda	2.2L	2010	51	249	CHE Propane					
Forklift	Hyster	H50FT	LPG	Mazda	2.2L	2010	51	316	CHE Propane					
Forklift	Hyster	H50FT	LPG	Mazda	2.2L	2010	51	239	CHE Propane					
Forklift	Hyster	H50FT	LPG	Mazda	2.2L	2011	51	273	CHE Propane					
Forklift	Hyster	H50FT	LPG	Mazda	2.2L	2012	51	270	CHE Propane					
Forklift	Hyster	H50FT	LPG	Mazda	2.2L	2011	51	334	CHE Propane					
Forklift	Hyster	H50FT	LPG	Mazda	2.2L	2012	51	261	CHE Propane					
Forklift	Hyster	H50FT	LPG	GM	Vortex 4.3L	2011		583	CHE Propane					
Forklift	Hyster	H50FT	LPG	Mazda	2.2L	2011	51	305	CHE Propane					
Forklift	Hyster	H50FT	LPG	Mazda	2.2L	2012	51	284	CHE Propane					
Forklift	Hyster	H50FT	LPG	Mazda	2.2L	2012	51	341	CHE Propane					
Forklift	Hyster	H50FT	LPG	Mazda	2.2L	2012	51	41	CHE Propane					
Forklift	Hyster	H50FT	LPG	Mazda	2.2L	2012	51	291	CHE Propane					
Forklift	Yale	GLP-100	LPG	GM	VORTEX 4.3L	2007		94	CHE Propane					
Forklift	Hyster	H50FT	LPG	Mazda	2.2L	2011	51	291	CHE Propane					
Forklift	Nissan	CPH01A15V	Gasoline				45	55	CHE Gasoline					
Forklift	Nissan	CSP01L15S	Electric				0	0	CHE Electric					
Forklift	Nissan	CK1B1L15S	Electric				0	0	CHE Electric					
Forklift	Nissan	MCJ1B1L15S	Electric				0	432	CHE Electric					
Forklift	Yale	GC040LX2	LPG	PSI	PSI 2.4L	2020	164	934	CHE Propane					
Forklift	Yale	GC040LX2	LPG	PSI	PSI 2.4L	2020	164	1066	CHE Propane					
Forklift	Yale	GDP360EF	LPG	PSI	2.4L	2019	62	803	CHE Propane					
Forklift	Hyster	GLP050MXNEAE0	LPG	PSI	2.4L	2019	62	191	CHE Propane					
Forklift	Taylor	TX360L	Diesel	Cummins	QSB 6.7	2012	173	1745	CHE Diesel					
Forklift	Fantuzzi	FDC180/1600	Diesel	Caterpillar	Tier 4i C4.4	2014	174	772	CHE Diesel					
Forklift	Fantuzzi	FDC180/1600	Diesel	Caterpillar	Tier 4i C4.4	2014	174	2501	CHE Diesel					
Forklift	Taylor	TX360L	Diesel	Cummins	QSB 6.7	2015	173	532	CHE Diesel					
Forklift	Clark	C50sD	Diesel	Deutz	TD 3.6 L4	2015	56	261	CHE Diesel					
Forklift	Clark	C50sD	Diesel	Deutz	TD 3.6 L4	2015	56	231	CHE Diesel					
Forklift	Clark	C50sD	Diesel	Deutz	TD 3.6 L4	2015	56	96	CHE Diesel					
Forklift	Clark	C50sD	Diesel	Deutz	TD 3.6 L4	2015	56	124	CHE Diesel					
Forklift	Clark	C50sD	Diesel	Deutz	TD 3.6 L4	2015	56	261	CHE Diesel					
Forklift	Clark	C50sD	Diesel	Deutz	TD 3.6 L4	2015	56	310	CHE Diesel					
Forklift	Clark	C50sD	Diesel	Deutz	TD 3.6 L4	2015	56	277	CHE Diesel					
Forklift	Clark	C50sD	Diesel	Deutz	TD 3.6 L4	2015	56	291	CHE Diesel					
Forklift	Nissan	PL50LP	LPG			2007	122	230	CHE Propane					
Forklift	Nissan	P80Y	LPG			2007	122	2	CHE Propane					
Forklift	Nissan	JP80BYLP	LPG			2007	122	319	CHE Propane					
Forklift	Nissan	JP80BYLP	LPG			2007	122	300	CHE Propane					
Forklift	Nissan	JP80BYLP	LPG			2007	122	153	CHE Propane					
Forklift	Nissan	JP80BYLP	LPG			2007	122	620	CHE Propane					
Forklift	Nissan	JP80BYLP	LPG			2007	122	687	CHE Propane					
Forklift	Taylor	TE650	Diesel			2015	210	20	CHE Diesel					10/1/2022
Forklift	Hoist	P36	Diesel	Hyster	P360	2007	160	795	CHE Diesel		1/1/2012		12/31/2021	
Forklift	Kone	SMV16-600B	Diesel	Kone	SMV 16-1600B	2011	248	1225	CHE Diesel					10/1/2022
Forklift	Kone	SMV16-600B	Diesel	Kone	SMV 16-1600B	2011	248	1284	CHE Diesel					10/1/2022
Forklift	Hyster	H250HD2	Diesel	Hyster	H250HD2	2015		955	CHE Diesel					10/1/2022
Forklift	Hyster	H250HD2	Diesel	Hyster	H250HD2	2015		1466	CHE Diesel					10/1/2022
Forklift	Clark	C40L	LPG	PSI	PSI-4.3	2020		426	CHE Propane					
Forklift	Clark	C40L	LPG	PSI	PSI-4.3	2020		423	CHE Propane					
Forklift	Clark	C40L	LPG	PSI	PSI-4.3	2020		31	CHE Propane					
Forklift	Clark	C40L	LPG	PSI	PSI-4.3	2020		356	CHE Propane					
Forklift			Diesel	Cummins	QSF3.8	2018			CHE Diesel					
Forklift			LPG			2004			CHE Propane					
Forklift			LPG			2004		194	CHE Propane					
Forklift			LPG			2004		205	CHE Propane					
Forklift			LPG			2010		663	CHE Propane					
Forklift			LPG			2010		384	CHE Propane					
Forklift			Electric					7	CHE Electric					
Forklift			Electric					21	CHE Electric					
Forklift			Electric					23	CHE Electric					
Forklift			Electric					6	CHE Electric					
Forklift			Electric					1	CHE Electric					
Forklift			Electric					13	CHE Electric					
Forklift			Electric					47	CHE Electric					
Forklift			Electric					25	CHE Electric					
Forklift			Electric					4	CHE Electric					
Forklift	Hyster	H80XL	LPG	GMC	3.6	1995	165	14	CHE Propane					
Forklift	Hyster	H50FT	Diesel	YANMAR	3.3L	2014	165	269	CHE Diesel					
Forklift	Hyster	H50FT	LPG	PSI	2.2	2014	59	265	CHE Propane					
Forklift	Hyster	H50FT	LPG	PSI	2.2	2015	59	203	CHE Propane					
Forklift	Yale	GLP100MJNB	LPG	GMC	3.6	2005	160	287	CHE Propane					
Forklift	Yale	GLP100MJNB	LPG	GMC	3.6	2005	160	68	CHE Propane					
Forklift	Yale	GLP100	LPG			2008	160	116	CHE Propane					
Forklift	Yale	GLP100	LPG			2008	160	18	CHE Propane					
Forklift	Hyster	H100FT	LPG			2011		944	CHE Propane					
Forklift	Taylor	TX360L	Diesel	Cummins	5.9	2007	137	317	CHE Diesel		5/13/2013			
Forklift	Taylor	TX360L	Diesel	Cummins	5.9	2007	137	183	CHE Diesel		3/12/2014			
Forklift	Yale	GDP360EBECCV1	Diesel			2009		216	CHE Diesel		8/13/2013			
Forklift	Taylor	TH350L	Diesel	Cummins	5.9	2004	190	1051	CHE Diesel		1/15/2014			
Forklift	Taylor	TH350L	Diesel	Cummins	5.9	2004	152	1078	CHE Diesel		8/18/2014			
Forklift	Taylor	TH350L	Diesel	Cummins	5.9	2005	152	1810	CHE Diesel		2/21/2013			
Forklift	Taylor	TH350L	Diesel	Cummins	5.9	2005	152	1137	CHE Diesel		8/14/2014			
Forklift	Taylor	TXH350L	Diesel	Cummins	QSB6.7	2011	160	286	CHE Diesel		7/17/2015		12/31/2021	
Forklift	Taylor	TXH350L	Diesel	Cummins	QSB6.7	2011	160	613	CHE Diesel		7/21/2015		12/31/2021	
Forklift	Taylor	TXH350L	Diesel	Cummins	QSB6.7	2011	160	564	CHE Diesel		7/23/2015		12/31/2021	
Forklift	Taylor	TXH350L	Diesel	Cummins	QSB6.7	2011	160	367	CHE Diesel		7/24/2015		12/31/2021	
Forklift	Taylor	TXH350L	Diesel	Cummins	QSB6.7	2014	173	712	CHE Diesel					11/1/2022
Forklift	Taylor	TXH350L	Diesel	Cummins	QSB6.7	2014	173	304	CHE Diesel					11/1/2022
Forklift	Taylor	TXH350L	Diesel	Cummins	QSB6.7	2014	173	61	CHE Diesel					11/1/2022
Forklift	Taylor	TXH350L	Diesel	Cummins	QSB6.7	2014	173	537	CHE Diesel					11/1/2022
Forklift	Taylor	TXH350L	Diesel	Cummins	QSB6.7	2014	173	782	CHE Diesel					11/1/2022
Forklift	Taylor	XH350L	Diesel	Cummins	QSB6.7	2017	173	308	CHE Diesel					11/1/2022
Forklift	Taylor	XH350L	Diesel	Cummins	QSB6.7	2017	173	739	CHE Diesel					11/1/2022
Forklift	Taylor	XH350L	Diesel	Cummins	QSB6.7	2021	173	611	CHE Diesel					11/1/2022
Forklift	Taylor	XH350L	Diesel	Cummins	QSB6.7	2021	173	150	CHE Diesel					11/1/2022

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 2	DPF level 3	Blue Cat	Renewable Diesel T0-T3	Renewable Diesel T4
Forklift	Taylor	XH350L	Diesel	Cummins	QSB6.7	2022	252	241	CHE Diesel					11/1/2022
Forklift	Taylor	XH350L	Diesel	Cummins	QSB6.7	2022	252	198	CHE Diesel					11/1/2022
Forklift	Taylor	XH350L	Diesel	Cummins	QSB6.7	2024	252	42	CHE Diesel					11/1/2022
Forklift	Taylor	XH350L	Diesel	Cummins	QSB6.7	2022	252	60	CHE Diesel					11/1/2022
Forklift	Taylor	XH350L	Diesel	Cummins	QSB6.7	2024	252	120	CHE Diesel					11/1/2022
Forklift	Taylor	XH350L	Diesel	Cummins	QSB6.7	2024	252	110	CHE Diesel					11/1/2022
Forklift	Taylor	TX550RC	Diesel	Cummins	QSB6.7	2023	252	248	CHE Diesel					1/1/2023
Forklift	Taylor	TX550RC	Diesel	Cummins	QSB6.7	2023	252	570	CHE Diesel					1/1/2023
Forklift	Taylor	TX550RC	Diesel	Cummins	QSB6.7	2023	252	606	CHE Diesel					1/1/2023
Forklift	Taylor	TX550RC	Diesel	Cummins	B6.7	2023	252	198	CHE Diesel					1/1/2023
Forklift	Taylor	TX550RC	Diesel	Cummins	B6.7	2023	252	149	CHE Diesel					1/1/2023
Forklift	Taylor	TX550RC	Diesel	Cummins	B6.7	2023	252	89	CHE Diesel					1/1/2023
Forklift	Kalmar	DCD250	Diesel	Cummins	QSB6.7	2008	260	27	CHE Diesel		2/5/2016		12/31/2021	
Forklift	Kalmar	DCD370-12	Diesel	Volvo	TAD1170VE	2014	319	57	CHE Diesel					11/1/2022
Forklift	Kalmar	DCD370-12	Diesel	Cummins	QSM11	2016	319	0	CHE Diesel				11/1/2022	
Forklift	Clark	C55S	LPG	GM	V6 4.3	2013	93	324	CHE Propane					
Forklift	Clark	C55S	LPG	GM	V6 4.3	2013	93	684	CHE Propane					
Forklift	Clark	C55S	LPG	GM	V6 4.3	2013	93	151	CHE Propane					
Forklift	Clark	C55S	LPG	GM	V6 4.3	2013	93	356	CHE Propane					
Forklift	Clark	C55S	LPG	GM	V6 4.3	2013	93	555	CHE Propane					
Forklift	Clark	C55S	LPG	GM	V6 4.3	2013	93	193	CHE Propane					
Forklift	Clark	C55S	LPG	GM	V6 4.3	2013	93	120	CHE Propane					
Forklift	Clark	C55S	LPG	GM	V6 4.3	2013	93	619	CHE Propane					
Forklift	Clark	C55S	LPG	GM	V6 4.3	2013	93	413	CHE Propane					
Forklift	Clark	C55S	LPG	GM	V6 4.3	2013	93	191	CHE Propane					
Forklift	Clark	C55S	LPG	GM	V6 4.3	2013	93	684	CHE Propane					
Forklift	Clark	C55S	LPG	GM	V6 4.3	2013	93	414	CHE Propane					
Forklift	Clark	C55S	LPG	GM	V6 4.3	2013	93	508	CHE Propane					
Forklift	Clark	C55S	LPG	GM	V6 4.3	2013	93	677	CHE Propane					
Forklift	Kalmar	DCF500-12	Diesel	Cummins	QSM11	2008	350	580	CHE Diesel		4/8/2016		12/31/2021	
Forklift	Kalmar	DCF500-12	Diesel	Volvo	TAD1360VE	2013	348	529	CHE Diesel					11/1/2022
Forklift	Taylor	Xh1000	Diesel	Cummins	X12	2023	400	113	CHE Diesel					11/1/2022
Forklift	Taylor	X1000RC	Diesel	Volvo	TAD1371VE	2014	388	316	CHE Diesel					11/1/2022
Forklift	Taylor	X1000RC	Diesel	Volvo	TAD1371VE	2014	388	320	CHE Diesel					11/1/2022
Forklift	Clark	C75L	LPG	GM	V6 4.3	2013	93	93	CHE Propane					
Forklift	Clark	C75L	LPG	GM	V6 4.3	2013	93	202	CHE Propane					
Forklift	Kalmar	DCE90-6L	Diesel	Perkins	S6S	2004	114	115	CHE Diesel		7/31/2014		12/31/2021	
Forklift			Diesel			2020		0	CHE Diesel					1/1/2023
Forklift			Diesel			2017		0	CHE Diesel					1/1/2023
Forklift			Diesel			2016		0	CHE Diesel					1/1/2023
Forklift			Diesel			2017		0	CHE Diesel					1/1/2023
Forklift	Toyota	8FGU32	LPG	Toyota	4Y	2017	42	430	CHE Propane					
Forklift	Toyota	8FGU32	LPG	Toyota	4Y	2017	42	192	CHE Propane					
Forklift	Toyota	8FGU32	LPG	Toyota	4Y	2017	42	365	CHE Propane					
Forklift	Toyota	8FGU32	LPG	Toyota	4Y	2017	42	554	CHE Propane					
Forklift	Toyota	8FGU32	LPG	Toyota	4Y	2017	42	112	CHE Propane					
Forklift	Toyota	8FGU32	LPG	Toyota	4Y	2017	42	456	CHE Propane					
Forklift	Toyota	8FGU32	LPG	Toyota	4Y	2017	42	211	CHE Propane					
Forklift	Hyster	H50FT	LPG	Mazda	2.2L	2010	46	0	CHE Propane					
Forklift	Hyster	H50FT	LPG	Mazda	2.2L	2010	46	0	CHE Propane					
Forklift	Hyster	H50FT	LPG	Mazda	2.2L	2010	46	99	CHE Propane					
Forklift	Kalmar	15T	Diesel	Cummins	QSB 6.7	2007	220	1	CHE Diesel					11/1/2022
Forklift	Capacity	TJ7000	Diesel	Cummins	QSC8.3L	2007	230	35	CHE Diesel		1/1/2009		12/31/2021	
Forklift	Nissan	60	LPG	Nissan	K25L	2007		113	CHE Propane					
Forklift	Nissan	60	LPG	Nissan	K25L	2007		146	CHE Propane					
Forklift	Nissan		LPG	Nissan		2007		261	CHE Propane					
Forklift	Nissan	85G-21	Electric					123	CHE Electric					
Forklift	Capacity	TJ7000	Diesel	Cummins	QSB6.7	2008	220	50	CHE Diesel		3/1/2010		12/31/2021	
Forklift	Capacity	TJ7000	Diesel	Cummins	QSB6.7	2008	220	95	CHE Diesel		3/1/2010		12/31/2021	
Forklift	Toyota		Gasoline	Vortec	V6	2010		376	CHE Gasoline					
Forklift	Toyota		Gasoline	Vortec	V6	2011		66	CHE Gasoline					
Forklift	Toyota		Gasoline	Vortec	V6	2011		46	CHE Gasoline					
Forklift	Mitsubishi		Gasoline	Nissan	TB45G	2012		147	CHE Gasoline					
Forklift	CAT		LPG	Nissan	K25L	2008		169	CHE Propane					
Forklift	CAT		LPG	Nissan	K25L	2008		160	CHE Propane					
Forklift	Taylor		Diesel	Cummins	QSB 6.7	2012		177	CHE Diesel					11/1/2022
Forklift	Taylor		Diesel	Cummins	QSB 6.7	2015		1109	CHE Diesel					11/1/2022
Forklift	Taylor		Diesel	Cummins	QSB 6.7	2015		616	CHE Diesel					11/1/2022
Forklift	Taylor		Diesel	Cummins	QSB 6.7	2015		279	CHE Diesel					11/1/2022
Forklift	Hyundai		Diesel	Cummins	QSB 6.7	2017		73	CHE Diesel					11/1/2022
Forklift	Taylor		Diesel	PSI	PSI 4.3P	2019		613	CHE Diesel					11/1/2022
Forklift	Taylor		Diesel	PSI	PSI 4.3P	2019		649	CHE Diesel					11/1/2022
Forklift	Toyta		LPG			1994	55	63	CHE Propane					
Forklift	Toyta		LPG			1994	55	261	CHE Propane					
Forklift	Taylor	TE800L	Diesel	Cummins		2018	330	71	CHE Diesel					6/1/2021
Forklift	Komatsu	FG40ZT-8	LPG	Nissan	TB45L	2007	86	94	CHE Propane					
Forklift	Komatsu	FG40ZT-8	LPG	Nissan	TB45L	2007	86	85	CHE Propane					
Forklift	Nissan	PF80YLP	LPG	Nissan	TB45	2010	95	440	CHE Propane					
Forklift	Nissan	PF80YLP	LPG	Nissan	TB45	2010	95	735	CHE Propane					
Forklift	Nissan	PF80YLP	LPG	Nissan	TB45	2010	95	418	CHE Propane					
Forklift	Nissan	PF80YLP	LPG	Nissan	TB45	2010	95	208	CHE Propane					
Forklift	Nissan	PF80YLP	LPG	Nissan	TB45	2010	95	347	CHE Propane					
Forklift	Clark	C40L	LPG	GM	4.3L	2012	120	0	CHE Propane					
Forklift	Clark	C40L	LPG	GM	4.3L	2012	120	196	CHE Propane					
Forklift	Clark	C40L	LPG	GM	4.3L	2012	120	1182	CHE Propane					
Forklift	Clark	C40L	LPG	GM	4.3L	2012	120	1157	CHE Propane					
Forklift	Clark	C40L	LPG	GM	4.3L	2012	120	680	CHE Propane					
Forklift	Toyota	8FGUS25-147V	LPG	Toyota	:2403050	2012	51	60	CHE Propane					
Forklift	Toyota	8FGUS25-147V	LPG	Toyota	:2403050	2012	51	62	CHE Propane					
Forklift	Mitsubishi	FG45N-LE	LPG	Nissan	TB45	2013	95	161	CHE Propane					
Forklift	Mitsubishi	FG45N-LE	LPG	Nissan	TB45	2013	95	443	CHE Propane					
Forklift	Mitsubishi	FG45N-LE	LPG	Nissan	TB45	2013	95	12	CHE Propane					
Forklift	Hyster	H90FT	LPG	GM	4.3L	2014	100	125	CHE Propane					
Forklift	Hyster	H90FT	LPG	GM	4.3L	2014	100	943	CHE Propane					
Forklift	Hyster	H90FT	LPG	GM	4.3L	2014	100	75	CHE Propane					
Forklift	Hyster	H90FT	LPG	GM	4.3L	2014	100	182	CHE Propane					
Forklift	Toyota	8FGU25	LPG	Toyota	204Y	2014	51	171	CHE Propane					
Forklift	Toyota	8FGU25	LPG	Toyota	204Y	2014	51	271	CHE Propane					
Forklift	Hyster	P360	Diesel	Cummins	QSB6.7	2016	164	205	CHE Diesel					6/1/2021

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 2	DPF level 3	Blue Cat	Renewable Diesel T0-T3	Renewable Diesel T4
Forklift	Hyster	P360	Diesel	Cummins	QSB6.7	2016	164	190	CHE Diesel					6/1/2021
Forklift	Hyster	P360	Diesel	Cummins	QSB6.7	2018	164	1877	CHE Diesel					6/1/2021
Forklift	Hyster	P360	Diesel	Cummins	QSB6.7	2018	164	2031	CHE Diesel					6/1/2021
Forklift	Hyster	P360	Diesel	Cummins	QSB6.7	2018	164	444	CHE Diesel					6/1/2021
Forklift	Hyster	P360	Diesel	Cummins	QSB6.7	2018	164	396	CHE Diesel					6/1/2021
Hybrid RTG	ZPMC	RTG	Diesel			2011	197	3297	CHE Diesel					
Hybrid RTG	Paceco	RTG	Diesel	Caterpillar	C7.1 ACERT	2015	302	3781	CHE Diesel					
Hybrid RTG	Paceco	RTG	Diesel	Caterpillar	C7.1 ACERT	2015	302	3603	CHE Diesel					
Hybrid RTG	Paceco	RTG	Diesel	Caterpillar	C7.1 ACERT	2015	302	2354	CHE Diesel					
Hybrid RTG	Paceco	RTG	Diesel	Caterpillar	C7.1 ACERT	2015	302	3150	CHE Diesel					
Hybrid RTG	Paceco	RTG	Diesel	Caterpillar	C7.1 ACERT	2015	302	3245	CHE Diesel					
Hybrid RTG	Paceco	RTG	Diesel	Cummins	QSB5-G11	2023	154	215	CHE Diesel					
Hybrid RTG	Paceco	RTG	Diesel	Cummins	QSB5-G11	2023	154	315	CHE Diesel					
Hybrid RTG	Paceco	RTG	Diesel	Cummins	QSB5-G11	2023	154	138	CHE Diesel					
Hybrid RTG	Paceco	RTG	Diesel	Cummins	QSB5-G11	2023	154	367	CHE Diesel					
Hybrid RTG	Paceco	RTG	Diesel	Cummins	QSB5-G11	2023	154	270	CHE Diesel					
Hybrid RTG	Paceco	RTG	Diesel	Cummins	QSB5-G11	2023	154	225	CHE Diesel					
Hybrid RTG	ZPMC	RTG	Diesel	Volvo	TAD 580 VE	2023	235	556	CHE Diesel					
Hybrid RTG	ZPMC	RTG	Diesel	Volvo	TAD 580 VE	2023	235	705	CHE Diesel					
Hybrid RTG	ZPMC	RTG	Diesel	Cummins		2022	302	1163	CHE Diesel					
Hybrid RTG	ZPMC	RTG	Diesel	Cummins		2022	302	1469	CHE Diesel					
Hybrid RTG	ZPMC	RTG	Diesel	Cummins		2022	302	903	CHE Diesel					
Hybrid RTG	ZPMC	RTG	Diesel	Cummins		2022	302	1418	CHE Diesel					
Hybrid RTG	Mitsui/Paceco		Diesel	Caterpillar	C7.1	2016	250	4690	CHE Diesel					1/1/2023
Hybrid RTG	Mitsui/Paceco		Diesel	Caterpillar	C7.1	2016	250	4718	CHE Diesel					1/1/2023
Hybrid RTG	Mitsui/Paceco		Diesel	Caterpillar	C7.1	2016	250	4919	CHE Diesel					1/1/2023
Hybrid RTG	Mitsui/Paceco		Diesel	Caterpillar	C7.1	2016	250	1974	CHE Diesel					1/1/2023
Hybrid RTG	Mitsui/Paceco		Diesel	Caterpillar	C7.1	2016	250	1595	CHE Diesel					1/1/2023
Hybrid RTG	Mitsui/Paceco		Diesel	Caterpillar	C7.1	2016	250	677	CHE Diesel					1/1/2023
Hybrid RTG	Mitsui/Paceco		Diesel	Caterpillar	C7.1	2016	250		CHE Diesel					1/1/2023
Hybrid RTG	Mitsui/Paceco		Diesel	Caterpillar	C7.1	2016	250		CHE Diesel					1/1/2023
Hybrid RTG	Paceco-Mitsui		Diesel	Caterpillar	C7	2018	249	7224	CHE Diesel					6/1/2021
Hybrid RTG	Paceco-Mitsui		Diesel	Caterpillar	C7	2018	249	7743	CHE Diesel					6/1/2021
Hybrid RTG	Paceco-Mitsui		Diesel	Caterpillar	C7	2018	249	8642	CHE Diesel					6/1/2021
Hybrid RTG	Paceco-Mitsui		Diesel	Caterpillar	C7	2018	249	7610	CHE Diesel					6/1/2021
Hybrid RTG	Paceco-Mitsui		Diesel	Caterpillar	C7	2018	249	7623	CHE Diesel					6/1/2021
Hybrid RTG	Paceco-Mitsui		Diesel	Caterpillar	C7	2018	249	7774	CHE Diesel					6/1/2021
Hybrid RTG	Paceco-Mitsui		Diesel	Caterpillar	C7	2018	249	7581	CHE Diesel					6/1/2021
Hybrid RTG	Paceco-Mitsui		Diesel	Caterpillar	C7	2018	249	8038	CHE Diesel					6/1/2021
Hybrid RTG	Paceco-Mitsui		Diesel	Caterpillar	C7	2018	249	7826	CHE Diesel					6/1/2021
Hybrid RTG	Noell		Diesel	Caterpillar	C7	2021	249	385	CHE Diesel					6/1/2021
Hybrid RTG	Noell		Diesel	Caterpillar	C7	2021	249	996	CHE Diesel					6/1/2021
Hybrid RTG	Noell		Diesel	Caterpillar	C7	2021	249	1757	CHE Diesel					6/1/2021
Hybrid RTG	Noell		Diesel	Caterpillar	C7	2021	249	285	CHE Diesel					6/1/2021
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2147	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2148	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2107	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	1978	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2192	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2155	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2224	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2156	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2145	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2124	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2242	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2300	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2264	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2254	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	1916	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2122	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2208	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2269	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2205	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2247	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2300	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	1825	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2159	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2038	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2112	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	1079	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2389	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	2603	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	2215	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	2830	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	2934	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	2868	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	2759	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	2746	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2020	103	3404	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2020	103	3512	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2020	103	3754	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2020	103	3640	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2020	103	3390	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2020	103	3463	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2020	103	2830	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2020	103	2832	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2020	103	3638	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2020	103	3623	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2020	103	3389	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2020	103	3446	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2020	103	3511	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2020	103	3566	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2020	103	3253	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2020	103	3410	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2020	103	3068	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2020	103	3047	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2020	103	2083	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2020	103	3085	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2020	103	3116	CHE Diesel					10/1/2022

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 2	DPF level 3	Blue Cat	Renewable Diesel T0-T3	Renewable Diesel T4
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2020	103	2714	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2020	103	2975	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2020	103	3152	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2020	103	2865	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2020	103	3015	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2020	103	2643	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2020	103	2675	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2020	103	2902	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2020	103	2612	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2020	103	2792	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2020	103	2899	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2020	103	2410	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2020	103	2966	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2020	103	2621	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2020	103	2434	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	3105	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	2940	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	3083	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	3023	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	2749	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	3505	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	2876	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	3367	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	3171	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	2895	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	2878	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	3038	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	3067	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	3111	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	3319	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	3118	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	3004	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	2923	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	2985	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	2718	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	2862	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	2943	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	2797	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	2815	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	2768	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	2887	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	2784	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	2648	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	2371	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	2596	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	2768	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	2712	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	2707	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	2612	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	2643	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	2669	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	2109	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	2316	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	2295	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	2455	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	2166	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	2278	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	2352	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	2169	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	2355	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	2303	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	2039	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	2057	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	2190	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	1992	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	1848	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	1801	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	2012	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	1941	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	1918	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	1936	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	1722	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	1788	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	1690	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	1761	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	1223	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu		2022	103	1605	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	HSC350A	Diesel	AGCO	44AWF	2016	102	4380	CHE Diesel					4/1/2021
Hybrid Straddle Carrier	Kalmar	HSC350A	Diesel	AGCO	44AWF	2016	102	3525	CHE Diesel					4/1/2021
Hybrid Straddle Carrier	Kalmar	HSC350A	Diesel	AGCO	44AWF	2016	102	3908	CHE Diesel					4/1/2021
Hybrid Straddle Carrier	Kalmar	HSC350A	Diesel	AGCO	44AWF	2016	102	2650	CHE Diesel					4/1/2021
Hybrid Straddle Carrier	Kalmar	HSC350A	Diesel	AGCO	44AWF	2016	102	3178	CHE Diesel					4/1/2021
Hybrid Straddle Carrier	Kalmar	HSC350A	Diesel	AGCO	44AWF	2016	102		CHE Diesel					4/1/2021
Hybrid Straddle Carrier	Kalmar	HSC350A	Diesel	AGCO	44AWF	2016	102	3155	CHE Diesel					4/1/2021
Hybrid Straddle Carrier	Kalmar	HSC350A	Diesel	AGCO	44AWF	2016	102	1618	CHE Diesel					4/1/2021
Hybrid Straddle Carrier	Kalmar	HSC350A	Diesel	AGCO	44AWF	2016	102	3279	CHE Diesel					4/1/2021
Hybrid Straddle Carrier	Kalmar	HSC350A	Diesel	AGCO	44AWF	2016	102	2415	CHE Diesel					4/1/2021
Hybrid Straddle Carrier	Kalmar	HSC350A	Diesel	AGCO	44AWF	2016	102	2130	CHE Diesel					4/1/2021
Hybrid Straddle Carrier	Kalmar	HSC350A	Diesel	AGCO	44AWF	2016	102	3427	CHE Diesel					4/1/2021
Loader	Case	480	Diesel			2009	110	658	CHE Diesel					
Loader	Caterpillar	988K	Diesel	Caterpillar	C3.8B	2020	74	871	CHE Diesel					
Loader	Caterpillar	950M	Diesel	Caterpillar	C7.1	2016	174	981	CHE Diesel					
Loader	Caterpillar	966-D	Diesel	Caterpillar	C-7	2010	300	0	CHE Diesel					
Loader	Caterpillar	966-D	Diesel	Caterpillar	C-7	2010	232	0	CHE Diesel		7/22/2010			
Loader	Caterpillar	966M	Diesel	Caterpillar	C9.3	2020	174	2065	CHE Diesel					
Loader	Caterpillar	980H	Diesel	Caterpillar	C15	2007	318	927	CHE Diesel		5/8/2015			
Loader	Caterpillar	988H	Diesel	Caterpillar	C18	2011	527	3027	CHE Diesel		2/27/2015			
Loader	Caterpillar	988K	Diesel	Caterpillar	C18	2013	527	0	CHE Diesel					
Loader	Caterpillar	988K	Diesel	Caterpillar	C18	2013	527	2328	CHE Diesel					

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 2	DPF level 3	Blue Cat	Renewable Diesel T0-T3	Renewable Diesel T4
Loader	Caterpillar	988K	Diesel	Caterpillar	C18	2018	527	4587	CHE Diesel					
Loader	Caterpillar	450	Diesel	Caterpillar	C7.1	2022	100	361	CHE Diesel					
Loader	Mijack	M115	Diesel	Cummins	QSX11.9	2010	460	290	CHE Diesel				11/1/2022	
Loader	Mijack	MJ150	Diesel	Cummins	QSB 6.7	2015	260	308	CHE Diesel					11/1/2022
Man Lift	Genie lift	S60	Diesel	Deutz	D2011L031	2007	49	139	CHE Diesel					
Man Lift	Genie		Diesel	Perkins		2014	51	563	CHE Diesel					
Man Lift	Genie		Diesel	Perkins		2014	74	487	CHE Diesel					
Man Lift	Genie		Diesel	Perkins		2014	63	455	CHE Diesel					
Man Lift	Genie		Electric				0	75	CHE Electric					
Man Lift	Genie		Diesel	Perkins		2014	48	705	CHE Diesel					
Man Lift	Genie		Diesel	Perkins		2014		586	CHE Diesel					
Man Lift	JLG Lift	800 AJ	Diesel	Deutz	TD2011L04	2008	75	251	CHE Diesel					
Man Lift	JLG	86055	Diesel	Deutz	FRM2011	2002	87	275	CHE Diesel		1/1/2012		12/31/2021	
Man Lift	JLG	86JS	Diesel	Deutz		2007	87	233	CHE Diesel		1/1/2012		12/31/2021	
Man Lift			Diesel	Deutz		2022		138	CHE Diesel				12/31/2021	
Man Lift			Diesel	Deutz		2022		42	CHE Diesel				12/31/2021	
Man Lift			Diesel	Deutz		2016		484	CHE Diesel				12/31/2021	
Man Lift			Diesel	Deutz		2016		513	CHE Diesel				12/31/2021	
Man Lift			Diesel						CHE Diesel				12/31/2021	
Man Lift			Diesel						CHE Diesel				12/31/2021	
Man Lift	Terex	TB60	Diesel	Cummins	B3.9-C	2002	73	82	CHE Diesel		8/20/2014		12/31/2021	
Man Lift	JLG	1350SJP	Diesel	Deutz	TD2011L04	2012	73	167	CHE Diesel					11/1/2022
Man Lift	JLG		Diesel			2016		328	CHE Diesel					4/1/2021
Man Lift	JLG		Diesel			2016		194	CHE Diesel					4/1/2021
Man Lift	Skyjack	SJIH 4740	Electric				0	0	CHE Electric					
Man Lift	Skyjack		Diesel			2017	107	225	CHE Diesel					4/1/2021
Man Lift	Skyjack		Diesel			2017	107	191	CHE Diesel					4/1/2021
Man Lift	Skyjack		Electric				0	0	CHE Electric					
Man Lift	Skyjack	SJ1256	Diesel	Deutz AG	TCD 3.6 l4	2017	107	138	CHE Diesel					4/1/2021
Man Lift	JLG		Diesel	Deutz	BF4M2011	2004	87	59	CHE Diesel		9/1/2010		12/31/2021	
Man Lift	JLG		Diesel	Deutz	BF4M2011	2006	87	176	CHE Diesel		9/1/2010		12/31/2021	
Man Lift	Genie	S-125	Diesel			2003	75	0	CHE Diesel		1/1/2014		12/31/2020	
Man Lift	JLG	660SJ	Gasoline			2007	60	0	CHE Gasoline					
Man Lift	JLG	660SJ	Diesel			2022	62	244	CHE Diesel				12/31/2020	
Man Lift	JLG	1200SJP	Diesel			2022	75	471	CHE Diesel				12/31/2020	
Man Lift	JLG	660SJ	Diesel			2022	62	164	CHE Diesel				12/31/2020	
Material Handler	Caterpillar		Diesel	Caterpillar		2023	445	2269	CHE Diesel					
Material Handler	Caterpillar	375-L	Diesel	Caterpillar	C15	2009	450	624	CHE Diesel		8/1/2011			
Material Handler	Caterpillar	385C	Diesel	Caterpillar	C18	2008	390	874	CHE Diesel		3/23/2015			
Material Handler	Caterpillar	385C	Diesel	Caterpillar	C18	2011	390	1015	CHE Diesel		3/20/2015			
Material Handler	Caterpillar	349FL	Diesel	Caterpillar	C13	2018	425	1773	CHE Diesel					
Material Handler	Caterpillar	3260	Diesel	Caterpillar	C13	2020	425	3991	CHE Diesel					
Material Handler	Caterpillar	3260	Diesel	Caterpillar	C13	2020	425	2440	CHE Diesel					
Material Handler	Caterpillar	3260	Diesel	Caterpillar	C13	2020	425	3338	CHE Diesel					
Material Handler	Caterpillar	3260	Diesel	Caterpillar	C13	2022	425	4332	CHE Diesel					
Material Handler	Caterpillar	3260	Diesel	Caterpillar	C13	2022	425	1471	CHE Diesel					
Rail Pusher	Rail King	RK320	Diesel	Cummins	QSB6.7	2012	194	612	CHE Diesel					
Rail Pusher	Zephir		Electric			2021	0	133	CHE Electric					
Reach Stacker	SANY	SRSC4535C2	Diesel	Cummins	QSL9 333	2014	333	55	CHE Diesel					
Reach Stacker	CVS FERRARI	F581W	Diesel	Cummins	X12	2021	449	1970	CHE Diesel					
Reach Stacker			Diesel	Volvo	TAD873	2022		0	CHE Diesel				12/31/2021	
Reach Stacker	Taylor	TS9972	Diesel	Volvo	TAD136OVE	2012	343	248	CHE Diesel					12/31/2021
Reach Stacker	Kalmar	TD100G	Diesel	Cummins	QSL9 250	2013	250	1471	CHE Diesel					4/1/2021
Rub-trd Gantry Crane	ZPMC	RTG	Diesel	Caterpillar	3456	2003	612	1289	CHE Diesel	12/1/2012				
Rub-trd Gantry Crane	ZPMC	RTG	Diesel	Caterpillar	3456	2003	612	1642	CHE Diesel	12/1/2012				
Rub-trd Gantry Crane	ZPMC	RTG	Diesel	Caterpillar	3456	2003	612	793	CHE Diesel	12/1/2012				
Rub-trd Gantry Crane	Mi Jack	1200R	Diesel	Cummins	QSL9	2011	320	614	CHE Diesel					
Rub-trd Gantry Crane	Mi Jack	1200R	Diesel	Detroit	DDEC	2011	320	0	CHE Diesel					
Rub-trd Gantry Crane	Mi Jack	1200R	Diesel	Cummins	QSL9	2011	320	3414	CHE Diesel					
Rub-trd Gantry Crane	Mi Jack	1200R	Diesel	Cummins	QSL9	2011	320	2785	CHE Diesel					
Rub-trd Gantry Crane	Mi Jack	1200R	Diesel	Cummins	QSL9 333	2015	320	3835	CHE Diesel					
Rub-trd Gantry Crane	MI-JACK	1200R	Diesel	Cummins	QSL9	2021	332	2756	CHE Diesel					
Rub-trd Gantry Crane	MI-JACK	1200R	Diesel	Cummins	QSL9	2022	320	2547	CHE Diesel					
Rub-trd Gantry Crane	Mitsui-Paceco	RT4023-8-1	Diesel	Caterpillar	C-15	2013	779	2490	CHE Diesel					
Rub-trd Gantry Crane	Mitsui-Paceco	RT4023-8-1	Diesel	Caterpillar	C-15	2013	779	2457	CHE Diesel					
Rub-trd Gantry Crane	Mitsui-Paceco	RT4023-8-1	Diesel	Caterpillar	C-15	2013	779	2187	CHE Diesel					
Rub-trd Gantry Crane	ZMPC	RC40.6/56	Diesel	Caterpillar	3456ATAAC	2005	612	1289	CHE Diesel		1/1/2015			
Rub-trd Gantry Crane	Mitsui-Paceco	RT4023-8-1	Diesel	Caterpillar	C-15	2013	779	2161	CHE Diesel					
Rub-trd Gantry Crane	Mitsui-Paceco	RT4023-8-1	Diesel	Caterpillar	C-15	2013	779	2392	CHE Diesel					
Rub-trd Gantry Crane	Mitsui-Paceco	RT4023-8-1	Diesel	Caterpillar	C-15	2013	779	2361	CHE Diesel					
Rub-trd Gantry Crane	Mitsui-Paceco	RT4023-8-1	Diesel	Caterpillar	C-15	2013	779	2521	CHE Diesel					
Rub-trd Gantry Crane	Mitsui-Paceco	RT4023-8-1	Diesel	Caterpillar	C-15	2013	779	2379	CHE Diesel					
Rub-trd Gantry Crane	Mitsui-Paceco	RT4023-8-1	Diesel	Caterpillar	C-15	2013	779	2429	CHE Diesel					
Rub-trd Gantry Crane	Mitsui-Paceco	RT4023-8-1	Diesel	Caterpillar	C-15	2013	779	2482	CHE Diesel					
Rub-trd Gantry Crane	Mitsui-Paceco	RT4023-8-1	Diesel	Caterpillar	C-15	2013	779	2498	CHE Diesel					
Rub-trd Gantry Crane	Kone	D1703	Diesel	Cummins	QSX 15-G7	2004	680	1931	CHE Diesel		1/1/2020		12/31/2021	
Rub-trd Gantry Crane	Kone	D1703	Diesel	Cummins	QSX X 15 T4f	2019	680	1570	CHE Diesel					12/31/2021
Rub-trd Gantry Crane	ZPMC	RTG	Diesel	Caterpillar	3456	2003	612	2009	CHE Diesel	12/1/2012				
Rub-trd Gantry Crane	ZPMC	RTG	Diesel	Caterpillar	3456	2003	612	386	CHE Diesel	12/1/2012				
Rub-trd Gantry Crane	ZPMC	RTG	Diesel	Caterpillar	3456	2003	612	1794	CHE Diesel	12/1/2012				
Rub-trd Gantry Crane	ZPMC	RTG	Diesel	Caterpillar	3456	2003	612	1477	CHE Diesel	12/1/2012				
Rub-trd Gantry Crane	Paceco	RTG	Diesel	Deutz	8M1015C	2004	454	1153	CHE Diesel	12/1/2012				
Rub-trd Gantry Crane	Paceco	RTG	Diesel	Deutz	8M1015C	2004	454	1910	CHE Diesel	12/1/2012				
Rub-trd Gantry Crane	Mitsui/Paceco	RT-4020-8-I-5	Diesel	Cummins	QSX15 Tier 4i	2012	550	2860	CHE Diesel					11/1/2022
Rub-trd Gantry Crane	Mitsui/Paceco	RT-4020-8-I-5	Diesel	Cummins	QSX15 Tier 4i	2013	627	2608	CHE Diesel					11/1/2022
Rub-trd Gantry Crane	Mitsui/Paceco	RT-4020-8-I-5	Diesel	Cummins	QSX15 Tier 4i	2013	627	2601	CHE Diesel					11/1/2022
Rub-trd Gantry Crane	Mitsui/Paceco	RT-4020-8-I-5	Diesel	Cummins	QSX15 Tier 4i	2011	410	2926	CHE Diesel					11/1/2022
Rub-trd Gantry Crane	Mitsui/Paceco	RT-4020-8-I-5	Diesel	Cummins	QSX15 Tier 4i	2012	550	2752	CHE Diesel					11/1/2022
Rub-trd Gantry Crane	Mitsui/Paceco	RT-4020-8-I-5	Diesel	Cummins	QSX15 Tier 4i	2011	410	2843	CHE Diesel					11/1/2022
Rub-trd Gantry Crane	Mitsui/Paceco	RT-4020-8-I-5	Diesel	Cummins	QSX15 Tier 4i	2012	550	2971	CHE Diesel					11/1/2022
Rub-trd Gantry Crane	Mitsui/Paceco	RT-4020-8-I-5	Diesel	Cummins	QSX15 Tier 4i	2012	550	2989	CHE Diesel					11/1/2022
Rub-trd Gantry Crane	Mitsui/Paceco	RT-4020-8-I-5	Diesel	Cummins	QSX15 Tier 4i	2012	550	3055	CHE Diesel					11/1/2022
Rub-trd Gantry Crane	Mitsui/Paceco	RT-4020-8-I-5	Diesel	Cummins	QSX15 Tier 4i	2012	550	3200	CHE Diesel					11/1/2022
Rub-trd Gantry Crane	Mitsui/Paceco	RT-4020-8-I-5	Diesel	Cummins	QSX15 Tier 4F	2020	410	3128	CHE Diesel					11/1/2022
Rub-trd Gantry Crane	Mitsui/Paceco	RT-4020-8-I-5	Diesel	Cummins	QSX15 Tier 4i	2012	550	3076	CHE Diesel					11/1/2022
Rub-trd Gantry Crane	Mitsui/Paceco	RT-4020-8-I-5	Diesel	Cummins	QSX15 Tier 4i	2012	550	3074	CHE Diesel					11/1/2022
Rub-trd Gantry Crane	Mitsui/Paceco	RT-4020-8-I-5	Diesel	Cummins	QSX15 Tier 4i	2012	550	3207	CHE Diesel					11/1/2022
Rub-trd Gantry Crane	Sumitomo	RTG62 / 22.555 / 4	Diesel	Cummins	QSX15G	2014	750	4785	CHE Diesel					6/1/2021
Rub-trd Gantry Crane	Sumitomo	RTG62 / 22.555 / 4	Diesel	Cummins	QSX15G	2014	750	3475	CHE Diesel					12/31/2020

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 2	DPF level 3	Blue Cat	Renewable Diesel T0-T3	Renewable Diesel T4
Rub-trd Gantry Crane	Noell	RTG62 / 22.555 / 4	Diesel	Cummins	KTA 19-G2	2013	600	6430	CHE Diesel					6/1/2021
Rub-trd Gantry Crane	Noell	RTG62 / 22.555 / 4	Diesel	Cummins	KTA 19-G2	2013	600	5907	CHE Diesel					6/1/2021
Rub-trd Gantry Crane	Noell	RTG62 / 22.555 / 4	Diesel	Cummins	KTA 19-G2	2013	600	7255	CHE Diesel					6/1/2021
Rub-trd Gantry Crane	Noell	RTG62 / 22.555 / 4	Diesel	Cummins	KTA 19-G2	2013	600	6751	CHE Diesel					6/1/2021
Rub-trd Gantry Crane	Noell	RTG62 / 22.555 / 4	Diesel	Cummins	KTA 19-G2	2013	600	6080	CHE Diesel					6/1/2021
Rub-trd Gantry Crane	Noell	RTG62 / 22.555 / 4	Diesel	Cummins	KTA 19-G2	2013	600	0	CHE Diesel					6/1/2021
Rub-trd Gantry Crane	Noell	RTG62 / 22.555 / 4	Diesel	Cummins	KTA 19-G2	2013	600	6690	CHE Diesel					6/1/2021
Rub-trd Gantry Crane	Noell	RTG62 / 22.555 / 4	Diesel	Cummins	KTA 19-G2	2013	600	6722	CHE Diesel					6/1/2021
Rub-trd Gantry Crane	Paceco-Mitsui		Diesel	Cummins	QSX15G	2014	750	6537	CHE Diesel					6/1/2021
Rub-trd Gantry Crane	Paceco-Mitsui		Diesel	Cummins	C15X	2020	750	6224	CHE Diesel					6/1/2021
Rub-trd Gantry Crane	Paceco-Mitsui		Diesel	Cummins	C15X	2020	750	6418	CHE Diesel					6/1/2021
Rub-trd Gantry Crane	Paceco-Mitsui		Diesel	Cummins	C15X	2020	750	5803	CHE Diesel					6/1/2021
Side pick	Fantuzzi	FDC25K5	Diesel	Cummins	C 7.1 Tier 4F	2014	240	336	CHE Diesel					
Side pick	Fantuzzi	FDC25K5	Diesel	Caterpillar	C 7.1 Tier 4F	2014	250	0	CHE Diesel					
Side pick	Taylor		Diesel	Volvo		2020	250	2178	CHE Diesel					
Side pick	Taylor		Diesel	Volvo		2020	250	1968	CHE Diesel					
Side pick	Kalmar		Diesel	Cummins	QSL9 275	2017	275	94	CHE Diesel					4/1/2021
Side pick	Fantuzzi	FDC25K7	Diesel	Cummins	QSL	2016	275	2214	CHE Diesel					4/1/2021
Side pick	Terex	FDC25K7	Diesel	Cummins	QSL	2016	275	1746	CHE Diesel					4/1/2021
Side pick	Terex	FDC25K7	Diesel	Cummins	QSL	2016	275	4514	CHE Diesel					4/1/2021
Skid Steer Loader	Bobcat	853	Diesel	bobcat	KUBTA	1994	75	36	CHE Diesel					
Skid Steer Loader	Caterpillar	246D3	Diesel	Caterpillar	C3.8B	2022	73	1013	CHE Diesel					
Skid Steer Loader	Caterpillar	246D3	Diesel	Caterpillar	C3.8B	2023	73	620	CHE Diesel					
Skid Steer Loader	Caterpillar	246D3	Diesel	Caterpillar	C3.8B	2023	73	949	CHE Diesel					
Skid Steer Loader	Caterpillar	262DL	Diesel	Caterpillar	C3.8B	2018	73	370	CHE Diesel					
Straddle Carriers	Kalmar	ESC350WA	Diesel	AGCO	SISU POWER 98/	2013	425	5655	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	AGCO	SISU POWER 98/	2013	425	5688	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	AGCO	SISU POWER 98/	2013	425	6275	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	AGCO	SISU POWER 98/	2013	425	4823	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	AGCO	SISU POWER 98/	2013	425	5987	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	AGCO	SISU POWER 98/	2013	425	6278	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	AGCO	SISU POWER 98/	2013	425	1147	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	AGCO	SISU POWER 98/	2013	425	5099	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	AGCO	SISU POWER 98/	2013	425	4808	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	Volvo	TAD1172VE	2015	425	5434	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	Volvo	TAD1172VE	2015	425	5706	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	AGCO	SISU POWER 98/	2013	425	6006	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	Volvo	TAD1172VE	2015	425	4624	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	Volvo	TAD1172VE	2015	425	6587	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	Volvo	TAD1172VE	2015	425	6421	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	Volvo	TAD1172VE	2015	425	5763	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	Volvo	TAD1172VE	2015	425	5142	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	Volvo	TAD1172VE	2015	425	5828	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	Volvo	TAD1172VE	2015	425	6201	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	Volvo	TAD1172VE	2015	425	5752	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	Volvo	TAD1172VE	2015	425		CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	AGCO	SISU POWER 98/	2013	425	6683	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	AGCO	SISU POWER 98/	2013	425	6625	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	AGCO	SISU POWER 98/	2013	425	5863	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	AGCO	SISU POWER 98/	2013	425	3717	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	AGCO	SISU POWER 98/	2013	425	6459	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	AGCO	SISU POWER 98/	2013	425	6528	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	AGCO	SISU POWER 98/	2013	425	5111	CHE Diesel					4/1/2021
Sweeper	Tymco	500X	Diesel	Isuzu	44K1TC	2018	210	292	CHE Diesel					
Sweeper			Diesel			2015		810	CHE Diesel					
Sweeper			Diesel			2021		1011	CHE Diesel					
Sweeper	Caterpillar	IT14G	Diesel	Caterpillar	3054 DIT	2000	96	261	CHE Diesel		9/19/2013		12/31/2021	
Sweeper	Caterpillar	DL200TC-5	Diesel	Doosan	1204F-E44TAN	2016	173	46	CHE Diesel					11/1/2022
Sweeper	Caterpillar	DL200TC-5	Diesel	Doosan	1204F-E44TAN	2016	173	317	CHE Diesel					11/1/2022
Sweeper	Nautilus		Gasoline			2018		40	CHE Gasoline					
Sweeper	Elgin	Crosswind	Diesel		ISB 6.7	2013	200	186	CHE Diesel					4/1/2021
Sweeper	Schwarze		Diesel	John Deere		2019	200	253	CHE Diesel					11/1/2022
Telehandler	JLG	1055	Diesel	Cummins	QSF3.B	2021	130	959	CHE Diesel					
Telehandler	JCB	509-42 F	Diesel	JCB	444TA4I8IL1	2013	74	280	CHE Diesel					
Telehandler	JCB	509-42 F	Diesel	JCB	444TA4I8IL1	2014	74	304	CHE Diesel					
Telehandler	JCB	509-42 F	Diesel	JCB	444TA4I8IL1	2014	74	286	CHE Diesel					
Telehandler	JCB	509-42 F	Diesel	JCB	444TA4I8IL1	2018	74	407	CHE Diesel					
Telehandler	JCB	509-42 F	Diesel	JCB	444TA4I8IL1	2019	74	377	CHE Diesel					
Telehandler	JCB	509-42 F	Diesel	JCB	444TA4I8IL1	2019	74	406	CHE Diesel					
Top handler	Taylor	THDC-955	Diesel	Cummins	QSM11	2002	250	1424	CHE Diesel		12/1/2012			
Top handler	Taylor	THDC-955	Diesel	Cummins	QSM11	2006	260	0	CHE Diesel		12/1/2012			
Top handler	Taylor	THDC-955	Diesel	Cummins	QSM11	2006	260	999	CHE Diesel		12/1/2012			
Top handler	Taylor	THDC-955	Diesel	Cummins	QSM11	2006	260	0	CHE Diesel		12/1/2012			
Top handler	Taylor	THDC-975	Diesel	Cummins	QSM11	2006	260	1478	CHE Diesel		12/1/2012			
Top handler	Taylor	THDC-975	Diesel	Cummins	QSM11	2007	260	0	CHE Diesel		1/1/2009			
Top handler	Taylor	THDC-975	Diesel	Cummins	QSM11	2007	260	1403	CHE Diesel		1/1/2009			
Top handler	Taylor	THDC-975	Diesel	Cummins	QSM11	2007	260	553	CHE Diesel		1/1/2009			
Top handler	Taylor	THDC-975	Diesel	Cummins	QSM11	2007	260	0	CHE Diesel		1/1/2009			
Top handler	Taylor	XLC975	Diesel	Cummins	Tier 4 Final	2018		5	CHE Diesel					
Top handler	Taylor	TEC-950L	Diesel	Cummins	QSM-11	2011	330	2	CHE Diesel		1/1/2012			
Top handler	Fantuzzi	FDC500G5	Diesel	Cummins	QSM11	2003	330	1257	CHE Diesel		1/1/2011			
Top handler	Fantuzzi	FDC500G5	Diesel	Cummins	QSM11	2004	330	88	CHE Diesel		1/1/2011			
Top handler	Fantuzzi	FDC500G5	Diesel	Cummins	QSM11	2004	330	37	CHE Diesel		1/1/2011			
Top handler	Fantuzzi	FDC500G5	Diesel	Cummins	QSM11	2003	330	106	CHE Diesel		1/1/2011			
Top handler	Fantuzzi	FDC500G5	Diesel	Cummins	QSM11	2004	330	365	CHE Diesel		1/1/2011			
Top handler	Fantuzzi	FDC500G5	Diesel	Cummins	QSM11	2004	330	0	CHE Diesel		1/1/2013			
Top handler	Fantuzzi	FDC500G5	Diesel	Cummins	QSM11	2004	330	141	CHE Diesel		1/1/2011			
Top handler	Fantuzzi	FDC500G5	Diesel	Cummins	QSM11	2004	330	207	CHE Diesel		1/1/2011			
Top handler	Taylor	TXLC976	Diesel	Volvo T4i	TAD1360WE	2012	256	1451	CHE Diesel					
Top handler	Taylor	TXLC976	Diesel	Volvo T4i	TAD1360WE	2012	256	1464	CHE Diesel					
Top handler	Taylor	XLC976	Diesel	Volvo T4F	TAD1375VE	2016	388	2330	CHE Diesel					
Top handler	Taylor	XLC976	Diesel	Volvo T4F	TAD1375VE	2016	388	2510	CHE Diesel					
Top handler	Taylor	XLC976	Diesel	Volvo T4F	TAD1375VE	2016	388	2257	CHE Diesel					
Top handler	Taylor	XLC976	Diesel	Volvo T4F	TAD1375VE	2016	388	2483	CHE Diesel					
Top handler	Taylor	XLC976	Diesel	Volvo T4F	TAD1375VE	2016	388	2233	CHE Diesel					
Top handler	Taylor	XLC976	Diesel	Volvo T4F	TAD1375VE	2016	388	1036	CHE Diesel					
Top handler	Taylor	XLC976	Diesel	Volvo T4F	TAD1375VE	2016	388	2331	CHE Diesel					
Top handler	Taylor	XLC976	Diesel	Volvo T4F	TAD1375VE	2016	388	2269	CHE Diesel					
Top handler	Taylor	XLC976	Diesel	Volvo T4F	TAD1375VE	2016	388	1836	CHE Diesel					

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 2	DPF level 3	Blue Cat	Renewable Diesel T0-T3	Renewable Diesel T4
Top handler	Taylor	XLC976	Diesel	Volvo T4F	TAD1375VE	2016	388	1615	CHE Diesel					
Top handler	Taylor	XLC976	Diesel	Volvo T4F	TAD1375VE	2016	388	1713	CHE Diesel					
Top handler	Taylor	ZLC	Electric				0	753	CHE Electric					
Top handler	Taylor	ZLC	Electric				0	728	CHE Electric					
Top handler			Diesel			2021	388	2092	CHE Diesel					
Top handler			Diesel			2021	388	1992	CHE Diesel					
Top handler			Diesel			2021	388	2126	CHE Diesel					
Top handler	Taylor	THDC-975	Diesel	Cummins		2012	348	2566	CHE Diesel					10/1/2022
Top handler	Hyster		Diesel	Cummins	QSL9	2014	350	2841	CHE Diesel					10/1/2022
Top handler	Hyster		Diesel	Cummins	QSL9	2014	350	2727	CHE Diesel					10/1/2022
Top handler	Hyster		Diesel	Cummins	QSL9	2014	350	2755	CHE Diesel					10/1/2022
Top handler	Hyster		Diesel	Cummins	QSL9	2014	350	2969	CHE Diesel					10/1/2022
Top handler	Hyster		Diesel	Cummins	QSL9	2014	350	2865	CHE Diesel					10/1/2022
Top handler	Hyster		Diesel	Cummins	QSL9	2014	350	2882	CHE Diesel					10/1/2022
Top handler	Hyster	H1150HD	Diesel	Cummins	QSL9	2014	350	2871	CHE Diesel					10/1/2022
Top handler	Hyster	H1150HD	Diesel	Cummins	QSL9	2014	350	3087	CHE Diesel					10/1/2022
Top handler			Diesel			2015	325	1766	CHE Diesel					10/1/2022
Top handler			Diesel			2015	325	1694	CHE Diesel					10/1/2022
Top handler			Diesel			2015	325	1961	CHE Diesel					10/1/2022
Top handler			Diesel			2015	325	1919	CHE Diesel					10/1/2022
Top handler	Taylor	THDC-955	Diesel	Cummins	QSM11	2006	335	0	CHE Diesel		1/1/2012		12/31/2021	
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD13	2015	325	2813	CHE Diesel					10/1/2022
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD13	2015	325	2153	CHE Diesel					10/1/2022
Top handler	Hyster	1150-CH	Diesel	Cummins	X12	2022	355	1511	CHE Diesel					10/1/2022
Top handler	Hyster	1150-CH	Diesel	Cummins	X12	2022	355	1647	CHE Diesel					10/1/2022
Top handler	Hyster	1150-CH	Diesel	Cummins	X12	2022	355	0	CHE Diesel					10/1/2022
Top handler	Hyster	1150-CH	Diesel	Cummins	X12	2022	355	1773	CHE Diesel					10/1/2022
Top handler	Hyster	1150-CH	Diesel	Cummins	X12	2022	355	0	CHE Diesel					10/1/2022
Top handler	Hyster	1150-CH	Diesel	Cummins	X12	2022	355	0	CHE Diesel					10/1/2022
Top handler	Hyster	1150-CH	Diesel	Cummins	X12	2022	355	0	CHE Diesel					10/1/2022
Top handler	Hyster	1150-CH	Diesel	Cummins	X12	2022	355	0	CHE Diesel					10/1/2022
Top handler	Hyster	1150-CH	Diesel	Cummins	X12	2022	355	1712	CHE Diesel					10/1/2022
Top handler	Taylor	THDC-975	Diesel	Cummins	QSM11	2006	260	2396	CHE Diesel		12/1/2012			
Top handler	Taylor	THDC-975	Diesel	Cummins	QSM11	2007	260	2415	CHE Diesel		1/1/2009			
Top handler	Taylor	THDC-975	Diesel	Cummins	QSM11	2007	260	1907	CHE Diesel		1/1/2009			
Top handler	Taylor	TXC-976	Diesel	Cummins	QSM11	2008	260	2980	CHE Diesel		1/1/2009			
Top handler	Taylor	TXC-976	Diesel	Cummins	QSM11	2008	260	2049	CHE Diesel		1/1/2009			
Top handler	Taylor	TXC-976	Diesel	Cummins	QSM11	2008	260	2273	CHE Diesel		1/1/2009			
Top handler	Taylor	TXC-976	Diesel	Cummins	QSM11	2008	260	2956	CHE Diesel		1/1/2009			
Top handler	Taylor	TXC-976	Diesel	Cummins	QSM11	2008	260	3017	CHE Diesel		1/1/2009			
Top handler	Taylor	TXC-976	Diesel	Cummins	QSM11	2008	260	3192	CHE Diesel		1/1/2009			
Top handler	Taylor	TXC-976	Diesel	Cummins	QSM11	2008	260	3257	CHE Diesel		1/1/2009			
Top handler	Taylor	TXC-976	Diesel	Cummins	QSM11	2008	260	3315	CHE Diesel		1/1/2009			
Top handler	Taylor	TXC-976	Diesel	Cummins	QSM11	2008	260	2755	CHE Diesel		1/1/2009			
Top handler	Taylor	TXC-976	Diesel	Cummins	QSM11	2008	260	1963	CHE Diesel		1/1/2009			
Top handler	Taylor	TXC-976	Diesel	Cummins	QSM11	2008	260	3146	CHE Diesel		1/1/2009			
Top handler	Taylor	TXC-976	Diesel	Cummins	QSM11	2008	260	3534	CHE Diesel		1/1/2009			
Top handler	Taylor	TXC-976	Diesel	Cummins	QSM11	2008	260	3476	CHE Diesel		1/1/2009			
Top handler	Taylor	TXC-976	Diesel	Cummins	QSM11	2008	260	3394	CHE Diesel		1/1/2009			
Top handler	Taylor	TXLC976	Diesel	Cummins	QSM11	2011	335	2629	CHE Diesel					
Top handler	Taylor	TXLC976	Diesel	Cummins	QSM11	2011	335	2012	CHE Diesel					
Top handler	Taylor	TXLC976	Diesel	Cummins	QSM11	2011	335	2017	CHE Diesel					
Top handler	Hyster	H-1150-HDCH	Diesel	Cummins	QSL 9L	2014	370	1881	CHE Diesel					
Top handler	Hyster	H1150HD-CH	Diesel	Cummins	QSL 9L	2017	363	1234	CHE Diesel					
Top handler	Hyster	H1150HD-CH	Diesel	Cummins	QSL 9L	2017	363	2068	CHE Diesel					
Top handler	Hyster	H1150HD-CH	Diesel	Cummins	QSL 9L	2017	363	2061	CHE Diesel					
Top handler	Hyster	H1150HD-CH	Diesel	Cummins	QSL 9L	2017	363	1958	CHE Diesel					
Top handler	Hyster	H1150HD-CH	Diesel	Cummins	QSL 9L	2017	363	1872	CHE Diesel					
Top handler	Hyster	H1150HD-CH	Diesel	Cummins	QSL 9L	2017	363	1700	CHE Diesel					
Top handler	Taylor	XLC 976E	Diesel	Volvo	12.8 L	2017	388	2071	CHE Diesel					
Top handler	Taylor	XLC 976E	Diesel	Volvo	12.8 L	2017	388	1910	CHE Diesel					
Top handler	Taylor	XLC 976E	Diesel	Volvo	12.8 L	2021	388	3131	CHE Diesel					
Top handler	Taylor	XLC 976	Diesel	Volvo	12.8 L	2023	388	213	CHE Diesel					
Top handler	Taylor	XLC 976	Diesel	Volvo	12.8 L	2023	388	577	CHE Diesel					
Top handler	Taylor	XLC 976	Diesel	Volvo	12.8 L	2023	388	1249	CHE Diesel					
Top handler	Taylor	XLC 976	Diesel	Volvo	12.8 L	2023	388	1430	CHE Diesel					
Top handler	Taylor	XLC 976	Diesel	Volvo	12.8 L	2023	388	1105	CHE Diesel					
Top handler	Taylor	XLC 976	Diesel	Volvo	12.8 L	2023	388	1162	CHE Diesel					
Top handler	Taylor	XLC 976	Diesel	Volvo	12.8 L	2023	388	1100	CHE Diesel					
Top handler	Taylor	XLC 976	Diesel	Volvo	12.8 L	2023	388	753	CHE Diesel					
Top handler	Taylor	XLC 976	Diesel	Volvo	12.8 L	2023	388	489	CHE Diesel					
Top handler	Taylor	XLC 976	Diesel	Volvo	12.8 L	2023	388	1505	CHE Diesel					
Top handler	Taylor	XLC975	Diesel	Cummins	TAD137IVE	2021	388	539	CHE Diesel					11/1/2022
Top handler	Taylor	THDC-975	Diesel	Cummins	QSL	2016	350	2604	CHE Diesel					4/1/2021
Top handler	Taylor	FDC550G5	Diesel	Cummins	QSG12	2016	400	322	CHE Diesel					4/1/2021
Top handler			Diesel			2017	350	2264	CHE Diesel					4/1/2021
Top handler	Fantuzzi	FDC500G5	Diesel	Cummins		2016	350	977	CHE Diesel					4/1/2021
Top handler			Diesel			2018	350	1613	CHE Diesel					4/1/2021
Top handler			Diesel			2019	350	929	CHE Diesel					4/1/2021
Top handler			Diesel			2019	350	928	CHE Diesel					4/1/2021
Top handler			Diesel			2017	350	1696	CHE Diesel					4/1/2021
Top handler			Diesel			2015	350	2224	CHE Diesel					4/1/2021
Top handler			Diesel			2021	350	667	CHE Diesel					4/1/2021
Top handler			Diesel			2021	350	223	CHE Diesel					4/1/2021
Top handler			Diesel			2021	350	202	CHE Diesel					4/1/2021
Top handler	Fantuzzi	FDS500	Diesel	Cummins	QSM11	2005	330	74	CHE Diesel		1/1/2012		12/31/2021	
Top handler	Fantuzzi	FDS500	Diesel	Cummins	QSM11	2005	330	31	CHE Diesel		1/1/2012		12/31/2021	
Top handler	Fantuzzi	FDS500	Diesel	Cummins	QSM11	2005	330	67	CHE Diesel		1/1/2012		12/31/2021	
Top handler	Fantuzzi	FDS500	Diesel	Cummins	QSM11	2005	330	91	CHE Diesel		1/1/2012		12/31/2021	
Top handler	Fantuzzi	FDS500	Diesel	Cummins	QSM11	2005	330	97	CHE Diesel		1/1/2012		12/31/2021	
Top handler	Fantuzzi	FDS500	Diesel	Cummins	QSM11	2005	330	105	CHE Diesel				11/1/2022	
Top handler	Fantuzzi	FDS500	Diesel	Cummins	QSM11	2005	330	98	CHE Diesel				11/1/2022	
Top handler	Taylor	TH976	Diesel	Cummins	QSM11	2008	335	937	CHE Diesel		1/1/2010		12/31/2021	
Top handler	Taylor	TH976	Diesel	Cummins	QSM11	2008	335	1829	CHE Diesel		2/1/2010		12/31/2021	
Top handler	Taylor	TH976	Diesel	Cummins	QSM11	2008	335	1620	CHE Diesel		1/1/2010		12/31/2021	
Top handler	Taylor	TH976	Diesel	Cummins	QSM11	2008	335	2248	CHE Diesel		3/1/2010		12/31/2021	
Top handler	Taylor	TH976	Diesel	Cummins	QSM11	2008	335	2535	CHE Diesel		1/1/2012		12/31/2021	
Top handler	Taylor	TH976	Diesel	Cummins	QSM11	2008	335	2107	CHE Diesel		3/1/2010		12/31/2021	
Top handler	Taylor	TXCL976	Diesel	Volvo	TAD1360V	2011	348	2625	CHE Diesel					11/1/2022

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 2	DPF level 3	Blue Cat	Renewable Diesel T0-T3	Renewable Diesel T4
Top handler	Taylor	TXCL976	Diesel	Volvo	TAD1360V	2011	348	2483	CHE Diesel					11/1/2022
Top handler	Taylor	TXCL976	Diesel	Volvo	TAD1360VE	2012	343	2919	CHE Diesel					11/1/2022
Top handler	Taylor	TXCL976	Diesel	Volvo	TAD1360VE	2012	343	3032	CHE Diesel					11/1/2022
Top handler	Taylor	TXCL976	Diesel	Volvo	TAD1360VE	2013	343	3246	CHE Diesel					11/1/2022
Top handler	Taylor	TXCL976	Diesel	Volvo	TAD1360VE	2013	343	3313	CHE Diesel					11/1/2022
Top handler	Taylor	TXCL976	Diesel	Volvo	TAD1360VE	2013	343	3266	CHE Diesel					11/1/2022
Top handler	Taylor	TXCL976	Diesel	Volvo	TAD1360VE	2013	343	3695	CHE Diesel					11/1/2022
Top handler	Taylor	TXCL976	Diesel	Volvo	TAD1360VE	2013	343	2589	CHE Diesel					11/1/2022
Top handler	Taylor	TXCL976	Diesel	Volvo	TAD1360VE	2013	343	3129	CHE Diesel					11/1/2022
Top handler	Taylor	TXCL976	Diesel	Volvo	TAD1360VE	2013	343	3067	CHE Diesel					11/1/2022
Top handler	Taylor	TXCL976	Diesel	Volvo	TAD1360VE	2015	343	3630	CHE Diesel					11/1/2022
Top handler	Taylor	TXCL976	Diesel	Volvo	TAD1360VE	2015	343	3423	CHE Diesel					11/1/2022
Top handler	Taylor	TXCL976	Diesel	Volvo	TAD1360VE	2015	343	3146	CHE Diesel					11/1/2022
Top handler	Taylor	TXCL976	Diesel	Volvo	TAD1360VE	2015	343	2890	CHE Diesel					11/1/2022
Top handler	Taylor	TXCL976	Diesel	Volvo	TAD1360VE	2015	343	2468	CHE Diesel					11/1/2022
Top handler	Taylor	TXCL976	Diesel	Volvo	TAD1360VE	2015	343	3094	CHE Diesel					11/1/2022
Top handler	Taylor	TXCL976	Diesel	Volvo	TAD1360VE	2015	343	3089	CHE Diesel					11/1/2022
Top handler			Electric					2832	CHE Electric					
Top handler			Electric					744	CHE Electric					
Top handler			Electric					836	CHE Electric					
Top handler			Electric					624	CHE Electric					
Top handler			Electric					1093	CHE Electric					
Top handler			Electric					1074	CHE Electric					
Top handler			Electric					208	CHE Electric					
Top handler	Taylor	TXC-976	Diesel			2015	330	855	CHE Diesel					6/1/2021
Top handler	Taylor	TXC-976	Diesel			2015	330	2231	CHE Diesel					6/1/2021
Top handler	Taylor	TXC-976	Diesel	Volvo	TAD1360VE	2012	335	2722	CHE Diesel					6/1/2021
Top handler	Taylor	TXC-976	Diesel	Volvo	TAD1360VE	2012	335	2620	CHE Diesel					6/1/2021
Top handler	Taylor	TXLC-976	Diesel	Volvo	TAD1360VE	2012	335	1779	CHE Diesel					6/1/2021
Top handler	Taylor	TXLC-976	Diesel	Volvo	TAD1360VE	2012	335	2148	CHE Diesel					6/1/2021
Top handler	Taylor	TXLC-976	Diesel	Volvo	TAD1360VE	2012	335	3137	CHE Diesel					6/1/2021
Top handler	Taylor	TXLC-976	Diesel	Volvo	TAD1360VE	2012	335	2947	CHE Diesel					6/1/2021
Top handler	Hyster	H1150HD-CH	Diesel	Cummins	QSL 9L	2014	350	1854	CHE Diesel					6/1/2021
Top handler	Hyster	H1150HD-CH	Diesel	Cummins	QSL 9L	2014	350	2187	CHE Diesel					6/1/2021
Top handler	Hyster	H1150HD-CH	Diesel	Cummins	QSL 9L	2014	350	2130	CHE Diesel					6/1/2021
Top handler	Hyster	H1150HD-CH	Diesel	Cummins	QSL 9L	2014	350	1444	CHE Diesel					6/1/2021
Top handler	Taylor	TXLC-976	Diesel	Volvo	L-TAD1360VE	2014	350	1507	CHE Diesel					6/1/2021
Top handler	Hyster	H1150HD-CH	Diesel	Cummins	QSL 9L	2014	350	1576	CHE Diesel					6/1/2021
Top handler	Hyster	H1150HD-CH	Diesel	Cummins	QSL 9L	2014	350	1518	CHE Diesel					6/1/2021
Top handler	Hyster	H1150HD-CH	Diesel	Cummins	QSL 9L	2014	350	1361	CHE Diesel					6/1/2021
Top handler	Hyster	H1150HD-CH	Diesel	Cummins	QSL 9L	2014	350	1592	CHE Diesel					6/1/2021
Top handler	Hyster	H1150HD-CH	Diesel	Cummins	QSL 9L	2015	350	1457	CHE Diesel					6/1/2021
Top handler	Hyster	H1150HD-CH	Diesel	Cummins	QSL 9L	2015	350	1848	CHE Diesel					6/1/2021
Top handler	Hyster	H1150HD-CH	Diesel	Cummins	QSL 9L	2015	350	1986	CHE Diesel					6/1/2021
Top handler	Taylor	TXLC-976	Diesel	Volvo	TAD1360VE	2015	335	3009	CHE Diesel					6/1/2021
Top handler	Taylor	TXLC-976	Diesel	Volvo	TAD1360VE	2015	335	2594	CHE Diesel					6/1/2021
Top handler	Taylor	TXLC-976	Diesel	Volvo	TAD1360VE	2015	335	2903	CHE Diesel					6/1/2021
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	3751	CHE Diesel					6/1/2021
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	3280	CHE Diesel					6/1/2021
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	2765	CHE Diesel					6/1/2021
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	2696	CHE Diesel					6/1/2021
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	3543	CHE Diesel					6/1/2021
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	3576	CHE Diesel					6/1/2021
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	4015	CHE Diesel					6/1/2021
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	3467	CHE Diesel					6/1/2021
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	3770	CHE Diesel					6/1/2021
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	3609	CHE Diesel					6/1/2021
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	2903	CHE Diesel					6/1/2021
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	2981	CHE Diesel					6/1/2021
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	2875	CHE Diesel					6/1/2021
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	3526	CHE Diesel					6/1/2021
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	3957	CHE Diesel					6/1/2021
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	3393	CHE Diesel					6/1/2021
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	3080	CHE Diesel					6/1/2021
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	3462	CHE Diesel					6/1/2021
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	2195	CHE Diesel					6/1/2021
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	2160	CHE Diesel					6/1/2021
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	2287	CHE Diesel					6/1/2021
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	2022	CHE Diesel					6/1/2021
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	2398	CHE Diesel					6/1/2021
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	2157	CHE Diesel					6/1/2021
Top handler	Hyster		Diesel			2022	355	1680	CHE Diesel					1/1/2023
Top handler	Hyster	H1150XD-CH	Diesel	Cummins	X12	2024	355	751	CHE Diesel					1/1/2023
Top handler	Hyster	H1150XD-CH	Diesel	Cummins	X12	2024	355	673	CHE Diesel					1/1/2023
Top handler	Hyster	H1150XD-CH	Diesel	Cummins	X12	2024	355	811	CHE Diesel					1/1/2023
Top handler	Hyster	H1150XD-CH	Diesel	Cummins	X12	2024	355	477	CHE Diesel					1/1/2023
Top handler	Hyster	H1150XD-CH	Diesel	Cummins	X12	2024	355	581	CHE Diesel					1/1/2023
Top handler	Hyster	H1150XD-CH	Diesel	Cummins	X12	2024	355	420	CHE Diesel					1/1/2023
Top handler	Hyster	H1150XD-CH	Diesel	Cummins	X12	2024	355	495	CHE Diesel					1/1/2023
Top handler	Hyster	H1150XD-CH	Diesel	Cummins	X12	2024	355	466	CHE Diesel					1/1/2023
Top handler	Hyster	H1150XD-CH	Diesel	Cummins	X12	2024	355	292	CHE Diesel					1/1/2023
Top handler	Hyster	H1150XD-CH	Diesel	Cummins	X12	2024	355	380	CHE Diesel					1/1/2023
Top handler	Hyster	H1150XD-CH	Diesel	Cummins	X12	2024	355	115	CHE Diesel					1/1/2023
Top handler	Hyster	H1150XD-CH	Diesel	Cummins	X12	2024	355	248	CHE Diesel					1/1/2023
Top handler	Hyster	H1150XD-CH	Diesel	Cummins	X12	2024	355	241	CHE Diesel					1/1/2023
Top handler	Hyster	H1150XD-CH	Diesel	Cummins	X12	2024	355	259	CHE Diesel					1/1/2023
Top handler	Hyster	H1150XD-CH	Diesel	Cummins	X12	2024	355	47	CHE Diesel					1/1/2023
Truck	Terex	40T 33-07	Diesel	Cummins	QSK19	2007	525	2055	CHE Diesel					
Truck	Terex	40T 33-07	Diesel	Cummins	QSK19	2007	525	820	CHE Diesel					
Truck	Freightleiner	M2-106	Diesel	Cummins	ISB6.7	2013	200	1150	CHE On Road Diesel					
Truck	Caterpillar	TA30	Diesel	Cummins	QSM11	2006	350	235	CHE Diesel					
Truck	Terex	TA400	Diesel	Scania		2014	444	45	CHE Diesel					
Truck	Caterpillar	745C	Diesel	Caterpillar	C18	2015	504	2806	CHE Diesel					
Truck	Caterpillar	772G	Diesel	Caterpillar	C18	2020	598	759	CHE Diesel					
Truck	Caterpillar	772G	Diesel	Caterpillar	C18	2020	598	696	CHE Diesel					
Truck	Caterpillar	772G	Diesel	Caterpillar	C18	2020	598	874	CHE Diesel					
Truck	Freightliner		Diesel	Cummins	ISL	2013	350	602	CHE On Road Diesel					
Truck	Freightliner	1085D	Diesel				350	395	CHE On Road Diesel					
Truck	Hino		Diesel				350	635	CHE On Road Diesel					

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 2	DPF level 3	Blue Cat	Renewable Diesel T0-T3	Renewable Diesel T4
Truck	Hino		Diesel				350	635	CHE On Road Diesel					
Truck	Freightliner	1085D	Diesel	Cummins	L9 350	2022	350	926	CHE On Road Diesel					
Truck	Freightliner	1085D	Diesel	Cummins	L9 350	2022	350	1016	CHE On Road Diesel					
Truck			Diesel			1988		0	CHE Diesel				4/1/2021	
Truck			Diesel			1996		0	CHE Diesel				4/1/2021	
Truck	Freightliner		Diesel	Cummins	5.9	2005	185	135	CHE On Road Diesel		1/1/2012		12/31/2021	
Truck	Freightliner		Diesel	Cummins	5.9	2005	185	230	CHE On Road Diesel		1/1/2012		12/31/2021	
Truck	Freightliner		Diesel	Cummins	5.9	2005	185	414	CHE On Road Diesel		1/1/2012		12/31/2021	
Truck	Peterbuilt		Diesel	Cummins	ISC	2006	240	1325	CHE On Road Diesel				11/1/2022	
Truck	Ford	F750	Diesel	Cummins	ISC	2008	240	136	CHE On Road Diesel				11/1/2022	
Truck	Peterbuilt		Diesel	Cummins	ISC	2006	240	881	CHE On Road Diesel				11/1/2022	
Yard tractor	Ottawa	YT-30	Diesel	Cummins	Tier 4 Final	2012		453	CHE Diesel					
Yard tractor	Ottawa	YT-30	Diesel	Cummins	Tier 4 Final	2012		414	CHE Diesel					
Yard tractor	Autocar	ACTT42	Diesel	Cummins	ISB6.7 200	2019	200	0	CHE On Road Diesel					
Yard tractor	Autocar	ACTT42	Diesel	Cummins	ISB6.7 200	2019	200	0	CHE On Road Diesel					
Yard tractor	Autocar	ACTT42	Diesel	Cummins	ISB6.7 200	2019	200	0	CHE On Road Diesel					
Yard tractor	Autocar	ACTT42	Diesel	Cummins	ISB6.7 200	2019	200	0	CHE On Road Diesel					
Yard tractor	Autocar	ACTT42	Diesel	Cummins	ISB6.7 200	2020	200	534	CHE On Road Diesel					
Yard tractor	Autocar	ACTT42	Diesel	Cummins	ISB6.7 200	2020	200	1479	CHE On Road Diesel					
Yard tractor	Autocar	ACTT42	Diesel	Cummins	ISB6.7 200	2020	200	0	CHE On Road Diesel					
Yard tractor	Autocar	ACTT42	Diesel	Cummins	ISB6.7 200	2020	200	524	CHE On Road Diesel					
Yard tractor	Autocar	ACTT42	Diesel	Cummins	ISB6.7 200	2020	200	542	CHE On Road Diesel					
Yard tractor	Autocar	ACTT42	Diesel	Cummins	ISB6.7 200	2020	200	305	CHE On Road Diesel					
Yard tractor	Autocar	ACTT42	Diesel	Cummins	ISB6.7 200	2020	200	0	CHE On Road Diesel					
Yard tractor	Autocar	ACTT42	Diesel	Cummins	ISB6.7 200	2020	200	0	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	1449	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	912	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	4582	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	4255	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	3559	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	0	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	0	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	0	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	0	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	0	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	0	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	0	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	0	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	1557	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	0	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	3577	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	3444	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	3369	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	1007	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	4305	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	3633	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	3264	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	1257	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	2256	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	3893	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	1141	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	811	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	3118	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	2405	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	4337	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	3832	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	3338	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	3339	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	2759	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	3482	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	3267	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	4629	CHE On Road Diesel					
Yard tractor			Diesel			1995	250	1432	CHE Diesel		1/1/2012			
Yard tractor			Diesel			1995	250	1251	CHE Diesel		1/1/2012			
Yard tractor			Diesel			1995	250	857	CHE Diesel		1/1/2012			
Yard tractor			Diesel			1995	250	968	CHE Diesel		1/1/2012			
Yard tractor	Pro Spotter		Diesel	Cummins	ISB6.7	2021	200	550	CHE Diesel					
Yard tractor	Pro Spotter		Diesel	Cummins	ISB6.7	2021	200	550	CHE Diesel					
Yard tractor	Pro Spotter		Diesel	Cummins	ISB6.7	2021	200	550	CHE Diesel					
Yard tractor	Pro Spotter		Diesel	Cummins	ISB6.7	2021	200	550	CHE Diesel					
Yard tractor			Electric				0	50	CHE Electric					
Yard tractor			Electric				0	482	CHE Electric					
Yard tractor			Electric				0	251	CHE Electric					
Yard tractor	Capacity		LNG	Cummins	ISLG-LNG 8.9L	2018	250	848	CHE On Road LNG					
Yard tractor	Capacity	TJ9000	LNG	Cummins	ISLG-LNG 8.9L	2018	250	1182	CHE On Road LNG					
Yard tractor	Capacity	TJ9000	LNG	Cummins	ISLG-LNG 8.9L	2018	250	1455	CHE On Road LNG					
Yard tractor	Capacity	TJ9000	LNG	Cummins	ISLG-LNG 8.9L	2018	250	698	CHE On Road LNG					
Yard tractor	Capacity	TJ9000	LNG	Cummins	ISLG-LNG 8.9L	2018	250	1642	CHE On Road LNG					
Yard tractor	Capacity	TJ9000	LNG	Cummins	ISLG-LNG 8.9L	2018	250	859	CHE On Road LNG					
Yard tractor	Capacity	TJ9000	LNG	Cummins	ISLG-LNG 8.9L	2018	250	1802	CHE On Road LNG					
Yard tractor	Capacity	TJ9000	LNG	Cummins	ISLG-LNG 8.9L	2018	250	1856	CHE On Road LNG					
Yard tractor	Capacity	TJ9000	LNG	Cummins	ISLG-LNG 8.9L	2018	250	343	CHE On Road LNG					
Yard tractor	Capacity	TJ9000	LNG	Cummins	ISLG-LNG 8.9L	2018	250	1836	CHE On Road LNG					
Yard tractor	Capacity	TJ9000	LNG	Cummins	ISLG-LNG 8.9L	2018	250	1380	CHE On Road LNG					
Yard tractor	Capacity	TJ9000	LNG	Cummins	ISLG-LNG 8.9L	2018	250	1842	CHE On Road LNG					
Yard tractor	Capacity	TJ9000	LNG	Cummins	ISLG-LNG 8.9L	2018	250	1780	CHE On Road LNG					
Yard tractor	Capacity	TJ9000	LNG	Cummins	ISLG-LNG 8.9L	2018	250	1933	CHE On Road LNG					
Yard tractor	Capacity	TJ9000	LNG	Cummins	ISLG-LNG 8.9L	2018	250	1840	CHE On Road LNG					
Yard tractor	Capacity	TJ9000	LNG	Cummins	ISLG-LNG 8.9L	2018	250	684	CHE On Road LNG					
Yard tractor	Capacity	TJ9000	LNG	Cummins	ISLG-LNG 8.9L	2018	250	1468	CHE On Road LNG					
Yard tractor	Capacity	TJ9000	LNG	Cummins	ISLG-LNG 8.9L	2018	250	1548	CHE On Road LNG					
Yard tractor	Capacity	TJ9000	LNG	Cummins	ISLG-LNG 8.9L	2018	250	1687	CHE On Road LNG					
Yard tractor	Capacity	TJ9000	LNG	Cummins	ISLG-LNG 8.9L	2018	250	655	CHE On Road LNG					
Yard tractor	Capacity	TJ9000	LNG	Cummins	ISLG-LNG 8.9L	2018	250	1036	CHE On Road LNG					
Yard tractor	Capacity	TJ9000	LNG	Cummins	ISLG-LNG 8.9L	2018	250	1368	CHE On Road LNG					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	779	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	856	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	0	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	169	CHE On Road Diesel					

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 2	DPF level 3	Blue Cat	Renewable Diesel T0-T3	Renewable Diesel T4
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	902	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	876	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	1089	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	483	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	1132	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	484	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	231	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	879	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	1117	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	1372	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	1004	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	1362	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	1031	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	1162	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	1196	CHE On Road Diesel					
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 6.7	2007	220	1327	CHE On Road Diesel					
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 6.7	2007	220	1240	CHE On Road Diesel					
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 6.7	2007	220	1067	CHE On Road Diesel					
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 6.7	2007	220	872	CHE On Road Diesel					
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 6.7	2007	220	159	CHE On Road Diesel					
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 6.7	2007	220	1249	CHE On Road Diesel					
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 6.7	2007	220	0	CHE On Road Diesel					
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 6.7	2007	220	0	CHE On Road Diesel					
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 220	2008	220	1117	CHE On Road Diesel					
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 220	2008	220	0	CHE On Road Diesel					
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 220	2008	220	922	CHE On Road Diesel					
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 220	2008	220	1131	CHE On Road Diesel					
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 220	2008	220	310	CHE On Road Diesel					
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 220	2008	220	0	CHE On Road Diesel					
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 220	2008	220	627	CHE On Road Diesel					
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 220	2008	220	1448	CHE On Road Diesel					
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 220	2008	220	1381	CHE On Road Diesel					
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 220	2008	220	1373	CHE On Road Diesel					
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 220	2008	220	1066	CHE On Road Diesel					
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 220	2008	220	1309	CHE On Road Diesel					
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 220	2008	220	104	CHE On Road Diesel					
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 220	2008	220	989	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 10	2011	240	715	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 10	2011	240	575	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 10	2011	240	646	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 10	2011	240	789	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 10	2011	240	615	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 10	2011	240	594	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 10	2011	240	25	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 10	2011	240	842	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 10	2011	240	1207	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 240	2012	240	1183	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 240	2012	240	1292	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 240	2012	240	1368	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 240	2012	240	1509	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 240	2012	240	1145	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 240	2012	240	1318	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 240	2012	240	1262	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 240	2012	240	1457	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 240	2012	240	1512	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 240	2012	240	778	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 240	2012	240	672	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 240	2012	240	1374	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 240	2012	240	1230	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 240	2012	240	927	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 240	2012	240	784	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 240	2012	240	1139	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 240	2012	240	1253	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 240	2012	240	1094	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 240	2012	240	1333	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 240	2012	240	1334	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 240	2012	240	1312	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	1053	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	1204	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	1630	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	1054	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	413	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	1122	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	1563	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	1460	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	1359	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	1171	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	960	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	948	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	0	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	1429	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	1116	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	1484	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	546	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	1063	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	1260	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	1584	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	1393	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	250	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	1510	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225		CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	1454	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	1286	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	442	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	1922	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	1265	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	883	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	641	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	159	CHE Diesel					

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 2	DPF level 3	Blue Cat	Renewable Diesel T0-T3	Renewable Diesel T4
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	169	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	1211	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	1147	CHE Diesel					
Yard tractor			Diesel			2021	225	0	CHE Diesel					
Yard tractor			Diesel			2021	225	1799	CHE Diesel					
Yard tractor			Diesel			2021	225	1808	CHE Diesel					
Yard tractor			Diesel			2021	225	1668	CHE Diesel					
Yard tractor			Diesel			2021	225	1708	CHE Diesel					
Yard tractor			Diesel			2021	225	1768	CHE Diesel					
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	1051	CHE On Road Diesel				10/1/2022	
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2012	250	2134	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2012	250	271	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2012	250	48	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2012	250	2155	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2012	250	565	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2012	250	1070	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2012	250	2027	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2012	250	1043	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2012	250	2607	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2012	250	2250	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2012	250	2241	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2012	250	2348	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2012	250	205	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2012	250	1952	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2012	250	2402	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2012	250	2577	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2012	250	2069	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2012	250	245	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2091	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2065	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2316	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	1924	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	560	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	1904	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2558	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2069	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	1981	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2282	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2145	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2157	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2081	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2336	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2016	250	2749	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2203	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	1971	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	1852	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2385	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	1959	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2475	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	1966	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	1890	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2206	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2031	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2279	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	1891	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2624	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2084	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2470	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2291	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2375	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2411	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2157	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2692	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	843	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2443	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2426	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	1132	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2627	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2015	250	1480	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2015	250	1569	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2015	250	1703	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2015	250	1511	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2015	250	1514	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2015	250	700	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2015	250	1385	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2015	250	1473	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2015	250	1976	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2015	250	1680	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2015	250	1255	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2015	250	1786	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2015	250	1606	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2016	200	1830	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2016	200	1949	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2016	200	2056	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2016	200	1925	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2016	200	1903	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2016	200	1705	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2016	200	1972	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2016	200	1663	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2016	200	1575	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2016	200	1577	CHE Diesel					10/1/2022
Yard tractor	Capacity	TJ9000	LPG	Ford	6.8L V10	2011	231	1038	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Ford	6.8L V10	2011	231	821	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Ford	6.8L V10	2011	231	758	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Ford	6.8L V10	2011	231	2	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Ford	6.8L V10	2011	231	564	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Ford	6.8L V10	2011	231	82	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Ford	6.8L V10	2011	231	1469	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Ford	6.8L V10	2011	231	546	CHE Propane					

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 2	DPF level 3	Blue Cat	Renewable Diesel T0-T3	Renewable Diesel T4
Yard tractor	Capacity	TJ9000	LPG	Ford	6.8L V10	2011	231	1056	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Ford	6.8L V10	2011	231	599	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Ford	6.8L V10	2011	231	441	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Ford	6.8L V10	2011	231	591	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Cummins	5.9L	2007	195	725	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Cummins	5.9L	2007	195		CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Cummins	5.9L	2007	195	547	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Cummins	5.9L	2007	195	788	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Cummins	5.9L	2007	195	513	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Cummins	5.9L	2007	195	999	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Cummins	5.9L	2007	195	1389	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Cummins	5.9L	2007	195	519	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Cummins	5.9L	2007	195	3584	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Cummins	5.9L	2007	195	871	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Cummins	5.9L	2007	195	1153	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Cummins	5.9L	2007	195	1106	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Cummins	5.9L	2007	195	1	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Cummins	5.9L	2007	195	228	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Cummins	5.9L	2007	195	681	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Cummins	5.9L	2007	195	1287	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Cummins	5.9L	2007	195	1023	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Cummins	5.9L	2007	195	846	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Cummins	5.9L	2007	195	0	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Cummins	5.9L	2007	195	1120	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Cummins	5.9L	2007	195	972	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Cummins	5.9L	2007	195		CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Cummins	5.9L	2007	195	1212	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Cummins	5.9L	2007	195	893	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Cummins	5.9L	2007	195	641	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Cummins	5.9L	2007	195	1190	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Cummins	5.9L	2007	195	1112	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Cummins	5.9L	2007	195	852	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Cummins	5.9L	2007	195	959	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Cummins	5.9L	2007	195	1385	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Cummins	5.9L	2007	195	688	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Cummins	5.9L	2007	195	818	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Cummins	5.9L	2007	195	989	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Cummins	5.9L	2007	195	1106	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Cummins	5.9L	2007	195	945	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Cummins	5.9L	2007	195	782	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Cummins	5.9L	2007	195	836	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Cummins	5.9L	2007	195	1257	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	1344	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	1344	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	1127	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	1272	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	1304	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	648	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	1503	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	1095	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	1471	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	1321	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	996	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	1044	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	295	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	1257	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	1247	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	1241	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	1204	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	1196	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	631	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	1339	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	504	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	1406	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	1039	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	1174	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	1212	CHE Propane					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	7431	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	1126	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	1168	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	787	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	483	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	1747	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	6976	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	1478	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	1547	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	782	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	419	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	1527	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	1507	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	842	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	1629	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	1274	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	1455	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	979	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	2301	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	1342	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	1731	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	1578	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	875	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	1526	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	1189	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	1694	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	803	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	1223	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	883	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	1706	CHE Diesel					
Yard tractor	MAFI	T-230	Diesel	Volvo	TAD 572 VE	2021	160	1839	CHE Diesel					
Yard tractor	MAFI	T-230	Diesel	Volvo	TAD 572 VE	2021	160	1853	CHE Diesel					

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 2	DPF level 3	Blue Cat	Renewable Diesel T0-T3	Renewable Diesel T4
Yard tractor	MAFI	T-230	Diesel	Volvo	TAD 572 VE	2021	160	1766	CHE Diesel					
Yard tractor	MAFI	T-230	Diesel	Volvo	TAD 572 VE	2021	160	1984	CHE Diesel					
Yard tractor	MAFI	T-230	Diesel	Volvo	TAD 572 VE	2021	160	2087	CHE Diesel					
Yard tractor	MAFI	T-230	Diesel	Volvo	TAD 572 VE	2021	160	2102	CHE Diesel					
Yard tractor	MAFI	T-230	Diesel	Volvo	TAD 572 VE	2021	160	2144	CHE Diesel					
Yard tractor	MAFI	T-230	Diesel	Volvo	TAD 572 VE	2021	160	2105	CHE Diesel					
Yard tractor	MAFI	T-230	Diesel	Volvo	TAD 572 VE	2021	160	150	CHE Diesel					
Yard tractor	MAFI	T-230	Diesel	Volvo	TAD 572 VE	2021	160	834	CHE Diesel					
Yard tractor	MAFI	T-230	Diesel	Volvo	TAD 572 VE	2021	160	1725	CHE Diesel					
Yard tractor	MAFI	T-230	Diesel	Volvo	TAD 572 VE	2021	160	977	CHE Diesel					
Yard tractor	MAFI	T-230	Diesel	Volvo	TAD 572 VE	2021	160	1762	CHE Diesel					
Yard tractor	MAFI	T-230	Diesel	Volvo	TAD 572 VE	2021	160	1520	CHE Diesel					
Yard tractor	MAFI	T-230	Diesel	Volvo	TAD 572 VE	2021	160	2157	CHE Diesel					
Yard tractor	MAFI	T-230	Diesel	Volvo	TAD 572 VE	2021	160	1089	CHE Diesel					
Yard tractor	MAFI	T-230	Diesel	Volvo	TAD 572 VE	2021	160	1837	CHE Diesel					
Yard tractor	MAFI	T-230	Diesel	Volvo	TAD 572 VE	2021	160	1148	CHE Diesel					
Yard tractor	MAFI	T-230	Diesel	Volvo	TAD 572 VE	2021	160	2104	CHE Diesel					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	919	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	897	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	945	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	2023	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	758	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	593	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	645	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	1179	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	712	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	171	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	524	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	820	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	648	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	1071	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	0	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	542	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	798	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	640	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	1064	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	805	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	973	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	724	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	1130	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	217	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	997	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	857	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	897	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	831	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	1004	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	923	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	791	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	662	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	821	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	363	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	896	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	649	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	503	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	882	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	1033	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	236	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	780	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	1157	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	669	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	1210	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	1088	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	29	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	1023	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	1060	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	710	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	979	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	911	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	1108	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	705	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	820	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	1096	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	990	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	434	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	760	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	781	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	194	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	895	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	539	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	1198	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	2423	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	1158	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	1054	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	1024	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	1026	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	950	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	992	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	1236	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	743	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	390	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	628	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	1051	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	416	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	867	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	159	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	1060	CHE Propane					
Yard tractor	MAFI	T-230	LPG	PSI	8.8L NA-LPG	2021	201	442	CHE Propane					
Yard tractor	BYD		Electric				0	167	CHE Electric					
Yard tractor	BYD		Electric				0	166	CHE Electric					

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 2	DPF level 3	Blue Cat	Renewable Diesel T0-T3	Renewable Diesel T4
Yard tractor	BYD		Electric				0	44	CHE Electric					
Yard tractor	BYD		Electric				0	102	CHE Electric					
Yard tractor	BYD		Electric				0	123	CHE Electric					
Yard tractor	BYD		Electric				0	285	CHE Electric					
Yard tractor	BYD		Electric				0	45	CHE Electric					
Yard tractor	BYD		Electric				0	1	CHE Electric					
Yard tractor	BYD		Electric				0	71	CHE Electric					
Yard tractor	BYD		Electric				0	46	CHE Electric					
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB-200	2007	200	0	CHE On Road Diesel				11/1/2022	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB-07	2007	200	677	CHE On Road Diesel				11/1/2022	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB-07	2007	200	670	CHE On Road Diesel				11/1/2022	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB-07	2007	200	575	CHE On Road Diesel				11/1/2022	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB-07	2007	200	495	CHE On Road Diesel				11/1/2022	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB-07	2007	200	0	CHE On Road Diesel				11/1/2022	
Yard tractor	Ottowa	4x2	Diesel	Cummins	ISB-6.7	2015	200	500	CHE On Road Diesel					11/1/2022
Yard tractor	Ottowa	4x2	Diesel	Cummins	ISB-6.7	2015	200	693	CHE On Road Diesel					11/1/2022
Yard tractor	Ottowa	T2-4x2	Diesel	Cummins	QSB-6.7	2015	173	535	CHE Diesel					11/1/2022
Yard tractor	Ottowa	T2-4x2	Diesel	Cummins	QSB-6.7	2015	173	445	CHE Diesel					11/1/2022
Yard tractor	BYD	Q1M	Electric				0	0	CHE Electric					
Yard tractor	BYD	Q1M	Electric				0	0	CHE Electric					
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1409	CHE On Road Diesel				4/1/2021	
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1254	CHE On Road Diesel				4/1/2021	
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1144	CHE On Road Diesel				4/1/2021	
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1246	CHE On Road Diesel				4/1/2021	
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1142	CHE On Road Diesel				4/1/2021	
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1149	CHE On Road Diesel				4/1/2021	
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1094	CHE On Road Diesel				4/1/2021	
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1296	CHE On Road Diesel				4/1/2021	
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1095	CHE On Road Diesel				4/1/2021	
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1081	CHE On Road Diesel				4/1/2021	
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1237	CHE On Road Diesel				4/1/2021	
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1089	CHE On Road Diesel				4/1/2021	
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1072	CHE On Road Diesel				4/1/2021	
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1182	CHE On Road Diesel				4/1/2021	
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1074	CHE On Road Diesel				4/1/2021	
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1049	CHE On Road Diesel				4/1/2021	
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	965	CHE On Road Diesel				4/1/2021	
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1480	CHE On Road Diesel				4/1/2021	
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1362	CHE On Road Diesel				4/1/2021	
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1263	CHE On Road Diesel				4/1/2021	
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1467	CHE On Road Diesel				4/1/2021	
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1134	CHE On Road Diesel				4/1/2021	
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1076	CHE On Road Diesel				4/1/2021	
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1107	CHE On Road Diesel				4/1/2021	
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1019	CHE On Road Diesel				4/1/2021	
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1044	CHE On Road Diesel				4/1/2021	
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1192	CHE On Road Diesel				4/1/2021	
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1806	CHE On Road Diesel				4/1/2021	
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1078	CHE On Road Diesel				4/1/2021	
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1068	CHE On Road Diesel				4/1/2021	
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1150	CHE On Road Diesel				4/1/2021	
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	0	CHE On Road Diesel				4/1/2021	
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1244	CHE On Road Diesel				4/1/2021	
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1069	CHE On Road Diesel				4/1/2021	
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	983	CHE On Road Diesel				4/1/2021	
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1325	CHE On Road Diesel				4/1/2021	
Yard tractor	Terberg		Diesel	Cummins	B6.7	2024	225	790	CHE Diesel				7/15/2024	
Yard tractor	Terberg		Diesel	Cummins	B6.7	2024	225	1618	CHE Diesel				7/15/2024	
Yard tractor	Terberg		Diesel	Cummins	B6.7	2024	225	2560	CHE Diesel				7/15/2024	
Yard tractor	Terberg		Diesel	Cummins	B6.7	2024	225	696	CHE Diesel				7/15/2024	
Yard tractor	Terberg		Diesel	Cummins	B6.7	2024	225	628	CHE Diesel				7/15/2024	
Yard tractor	Terberg		Diesel	Cummins	B6.7	2024	225	1383	CHE Diesel				7/15/2024	
Yard tractor	Terberg		Diesel	Cummins	B6.7	2024	225	836	CHE Diesel				7/15/2024	
Yard tractor	Terberg		Diesel	Cummins	B6.7	2024	225	1032	CHE Diesel				7/15/2024	
Yard tractor	Terberg		Diesel	Cummins	B6.7	2024	225	1843	CHE Diesel				7/15/2024	
Yard tractor	Terberg		Diesel	Cummins	B6.7	2024	225	582	CHE Diesel				7/15/2024	
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	314	CHE On Road Diesel				11/1/2022	
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	266	CHE On Road Diesel				11/1/2022	
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	2066	CHE On Road Diesel				11/1/2022	
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	1070	CHE On Road Diesel				11/1/2022	
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	665	CHE On Road Diesel				11/1/2022	
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	244	CHE On Road Diesel				11/1/2022	
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	509	CHE On Road Diesel				11/1/2022	
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	2149	CHE On Road Diesel				11/1/2022	
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	1542	CHE On Road Diesel				11/1/2022	
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	1618	CHE On Road Diesel				11/1/2022	
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	2483	CHE On Road Diesel				11/1/2022	
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	1577	CHE On Road Diesel				11/1/2022	
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	2480	CHE On Road Diesel				11/1/2022	
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	2507	CHE On Road Diesel				11/1/2022	
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	1788	CHE On Road Diesel				11/1/2022	
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	2527	CHE On Road Diesel				11/1/2022	
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	1894	CHE On Road Diesel				11/1/2022	
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	1726	CHE On Road Diesel				11/1/2022	
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	1358	CHE On Road Diesel				11/1/2022	
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	1384	CHE On Road Diesel				11/1/2022	
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	1421	CHE On Road Diesel				11/1/2022	
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	785	CHE On Road Diesel				11/1/2022	
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	91	CHE On Road Diesel				11/1/2022	
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	1785	CHE On Road Diesel				11/1/2022	
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	2182	CHE On Road Diesel				11/1/2022	
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	29	CHE On Road Diesel				11/1/2022	
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	2564	CHE On Road Diesel				11/1/2022	
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	549	CHE On Road Diesel				11/1/2022	
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	1946	CHE On Road Diesel				11/1/2022	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2305	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2051	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	1814	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2053	CHE On Road Diesel					11/1/2022

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 2	DPF level 3	Blue Cat	Renewable Diesel T0-T3	Renewable Diesel T4
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2113	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2506	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	1829	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2051	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2450	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2426	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2215	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2181	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2515	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2488	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2265	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2486	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2144	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	1771	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2229	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2728	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	1072	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2352	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2452	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	1894	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2300	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2486	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2559	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2702	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2331	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2188	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2178	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	255	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	1998	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2370	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2204	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2673	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2847	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	1945	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2167	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2259	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	1796	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2011	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	3020	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2325	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2518	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2378	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2514	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2692	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	1654	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2098	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	1404	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	1945	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2259	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2306	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2014	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	1091	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2117	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2369	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2333	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2177	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	1931	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	1685	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	1629	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2306	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	1618	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2269	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2157	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel			2015		1539	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel			2015		1609	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel			2015		1929	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel			2015		1719	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel			2015		1328	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel			2015		1988	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel			2015		1946	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel			2015		1848	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel			2015		1875	CHE On Road Diesel					11/1/2022
Yard tractor	Autocar		Diesel		QSB6.7	2018		2088	CHE Diesel					11/1/2022
Yard tractor	Autocar		Diesel		QSB6.7	2022		2942	CHE Diesel					1/1/2023
Yard tractor	Autocar		Diesel		QSB6.7	2022		3059	CHE Diesel					1/1/2023
Yard tractor	Autocar		Diesel		QSB6.7	2022		3342	CHE Diesel					1/1/2023
Yard tractor	Autocar		Diesel		QSB6.7	2022		2805	CHE Diesel					1/1/2023
Yard tractor	Autocar		Diesel		QSB6.7	2022		3662	CHE Diesel					1/1/2023
Yard tractor	Autocar		Diesel		QSB6.7	2022		3144	CHE Diesel					1/1/2023
Yard tractor	Autocar		Diesel		QSB6.7	2022		714	CHE Diesel					1/1/2023
Yard tractor	Autocar		Diesel		QSB6.7	2022		3325	CHE Diesel					1/1/2023
Yard tractor	Autocar		Diesel		QSB6.7	2022		3480	CHE Diesel					1/1/2023
Yard tractor	Autocar		Diesel		QSB6.7	2022		3845	CHE Diesel					1/1/2023
Yard tractor	Capacity		Diesel		QSB6.7	2024		1082	CHE Diesel					1/1/2023
Yard tractor	Capacity		Diesel		QSB6.7	2024		1535	CHE Diesel					1/1/2023
Yard tractor	Capacity		Diesel		QSB6.7	2024		1148	CHE Diesel					1/1/2023
Yard tractor	Capacity		Diesel		QSB6.7	2024		1316	CHE Diesel					1/1/2023
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	906	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	2103	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	2751	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	2767	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	1969	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	1417	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	2082	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	1421	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	2442	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	1811	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	2075	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	1969	CHE On Road Diesel					6/1/2021

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 2	DPF level 3	Blue Cat	Renewable Diesel T0-T3	Renewable Diesel T4
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	1857	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	2209	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	1850	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	1968	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	1840	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	1801	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	255	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	2183	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	2414	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	2430	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	628	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	1161	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	106	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	933	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	537	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	213	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	243	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	699	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	1403	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	1156	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	1022	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	637	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB	2008	240	401	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB	2008	240	31	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB	2008	240	1846	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB	2008	240	935	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB	2008	240	852	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB	2008	240	1925	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB	2008	240	7	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB	2008	240	1237	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB	2008	240	252	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB	2008	240	1830	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB	2008	240	1855	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB	2008	240	1780	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB	2008	240	843	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB	2008	240	1805	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB	2008	240	190	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB	2008	240	1803	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	2207	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	1744	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	2624	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	1012	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	1608	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	1056	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	2014	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	70	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	1584	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	1528	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	2433	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	1616	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	1457	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	2265	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	1553	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2012	220	782	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2012	220	2070	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2012	220	1784	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2012	220	1230	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2012	220	2365	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2012	220	1889	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2011	220	1852	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2011	220	2395	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	2446	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	2701	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	2863	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	1818	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	1675	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	2834	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	1824	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	1768	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	519	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	2298	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	2321	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	1829	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	380	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	2092	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	1838	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	2294	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	232	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	2248	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	2455	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	2092	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	2569	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	2352	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	609	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	2459	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	1620	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	7	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2032	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	23	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	3	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	1942	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2237	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2084	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	1122	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2266	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2469	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2054	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2405	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	1220	CHE On Road Diesel					6/1/2021

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 2	DPF level 3	Blue Cat	Renewable Diesel T0-T3	Renewable Diesel T4
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2213	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2130	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	1701	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2376	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	807	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2286	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2231	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2816	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	1593	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2028	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2123	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	727	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2466	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2187	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2616	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2107	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2362	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	1813	CHE On Road Diesel					6/1/2021
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	1719	CHE On Road Diesel					6/1/2021
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	3045	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	3126	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	3101	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	1858	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	3048	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	328	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	2918	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	3081	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	2914	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	2914	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	2844	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	3088	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	2831	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	3117	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	3013	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	3096	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	3100	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	3177	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	3019	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	2815	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	3071	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	3139	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	2891	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	2838	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	3046	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	3002	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	2908	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	2680	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	3060	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	2803	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	2472	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	2805	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	3135	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	2144	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	3036	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	2755	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	3076	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	2962	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	3063	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	3113	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	3070	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	3058	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	2987	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	3163	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	2691	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	3056	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	2866	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	2946	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	3189	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	3082	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	2742	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	2671	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	3589	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	2613	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	3037	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	2887	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	2240	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	2720	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	3158	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	1251	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	3073	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	2561	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	2310	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	2827	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	2957	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	2897	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	3254	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2022	200	3045	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2024	200	1267	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2024	200	1328	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2024	200	904	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2024	200	1221	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2024	200	1128	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2024	200	984	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2024	200	939	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2024	200	1222	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2024	200	771	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2024	200	644	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2024	200	1352	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2024	200	1295	CHE Diesel					1/1/2023

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 2	DPF level 3	Blue Cat	Renewable Diesel T0-T3	Renewable Diesel T4
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2024	200	947	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2024	200	0	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2024	200	1399	CHE Diesel					1/1/2023
Yard tractor	Kalmar	Ottawa-T2	Diesel	Cummins		2024	200	1145	CHE Diesel					1/1/2023