PORT OF LOS ANGELES
EMISSIONS INVENTORY HIGHLIGHTS - 2015

THE PORT OF LOS ANGELES

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FOREWORD

This document provides an overview of the air quality improvement efforts associated with the Port of Los Angeles (POLA) in reaching its goals as presented in the San Pedro Bay Ports Clean Air Action Plan (CAAP). This Port of Los Angeles Emissions Inventory Highlights document presents 2015 inventory findings, trends in emissions and cargo since 2005, CAAP measure progress, and upcoming highlights for 2016 and beyond. This document does not replace the detailed annual emissions reports; it draws information from these documents and reports progress in the context of the CAAP goals in a reader-friendly format.

portoflosangeles.org/environment/studies_reports.asp

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Please note, that due to rounding and decimal places shown in this document, on occasion the totals and percentages may not add up.

Photos by POLA; Illustrations by Rodolfo Montalvo

INTRODUCTION

The Port of Los Angeles (POLA) Emissions Inventory Highlights document is published in conjunction with the annual emissions inventories. This document is intended to provide the key findings of the annual emissions inventory and track progress with the goals of the San Pedro Bay Ports Clean Air Action Plan (CAAP). The CAAP focuses on emissions of diesel particulate matter (DPM), oxides of nitrogen (NOx), and sulfur oxides (SOx).

In March 2006, a groundbreaking meeting occurred at the highest level between POLA, Port of Long Beach (POLB), and the South Coast Air Quality Management District where all parties expressed the need to work jointly toward solutions to reduce emissions from port-related operations. Shortly thereafter, the Ports also engaged the California Air Resources Board and the United States Environmental Protection Agency Region 9 in the spirit of cooperation to help the Ports develop the original 2006 San Pedro Bay Ports CAAP, the 2010 Update, and the current update which is under development.

As part of the 2010 CAAP Update, both POLA and POLB (the Ports) developed mass emissions and health-risk reduction standards in coordination with the United States Environmental Protection Agency (EPA) Region 9, the California Air Resources Board (CARB), and the South Coast Air Quality Management District (SCAQMD). These emissions reduction standards set the bar for performance for port-related emission sources and represent the Ports' "fair share" in reducing emissions in the South Coast Air Basin (the Basin). The standards are compared to 2005 baseline levels.

THE PORT OF LOS ANGELES

The **San Pedro Bay Standards** are a statement of the Ports' commitments to significantly reduce the air quality impacts from port operations. Achievement of the standards listed below will require coordination with our agency partners, diligent pursuit of all of the existing CAAP measures and aggressive action to seek out further emissions and health risk reductions from port-related sources from strategies that will emerge over time. The standards are relative to 2005 conditions.

Health Risk Reduction Standard - By 2020, reduce the population-weighted residential cancer risk of port-related DPM emissions by 85%.

Mass Emissions Reduction Standards -
By 2014, reduce emissions by 72% DPM, 22% NOx, & 93% SOx
By 2023, reduce emissions by 77% DPM, 59% NOx, & 93% SOx

In addition, the CAAP sets out various measures for ocean-going vessels (OGV or ships), harbor craft, cargo handling equipment (CHE), locomotives, and heavy-duty vehicles (HDV or trucks). Additional initiatives, such as the Technology Advancement Program (TAP) and the zero emissions effort, support POLA's progress at attaining and maintaining the standards into the future.

The challenges of the CAAP are not only reaching the most aggressive reduction targets of any port, but maintaining the standards while the Ports continues to grow. POLA is leading with solutions and investing today in technologies that will ensure that growth can be accomplished without significant impact on the surrounding communities and environment.

2014 San Pedro Bay Standards

The 2015 annual emissions inventory demonstrated that the Port not only met but continues to exceed the San Pedro Bay Standards for 2014, which in return significantly reduced the impacts on the local communities around the Port. The work is not done. There are the 2023 standards to be achieved and the greater challenge of growing the Port green such that the Port emissions remain below the standards into the future.

REPORT CARD

POLA developed an annual "Report Card" summary in 2009 which helps distill each current-year inventory and compares it to 2005, showing progress toward the CAAP goals. The report card is an concise way in communicating a high level understanding of emissions reduction progress to date, describing Port efficiency measured in emissions per twenty-foot equivalent units (teus), and showing pollutant emissions for the five emission source categories. Additional relevant information is also provided each year on the report card. The report cards are posted annually on the POLA website *portoflosangeles.org/environment/studies_reports.asp*

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2005 2015 AIR QUALITY REPORT CARD

SAN PEDRO BAY STANDARDS

The San Pedro Bay Standards establish the long-term emissions-reduction and health risk-reduction goals for the ports of Los Angeles and Long Beach.

- Emission Reduction Standard for DPM, NOx, and SOx have target years of 2014 and 2023 to support state ambient air quality goals.
- Health Risk Reduction Standard has a target year of 2020 to align with CARB's Goods Movement Emission Reduction Plan.

Clean Air Action Plan (CAAP) Goals *(% reduction compared to 2005)*	2014	2023
DPM	72%	77%
NO_x	22%	59%
SO_x	93%	93%
Health Risk Reduction Standard *(% reduction in residential cancer risk compared to 2005)*	**2020**	**85%**

OVERALL EMISSIONS REDUCTIONS CY 2005-2015

Pollutant	CY 2005-2015 %	tons
DPM	85%	743
$PM_{2.5}$	83%	683
PM_{10}	84%	801
NO_x	51%	8,324
SO_x	97%	4,824

EMISSIONS PER 10,000 TEU HANDLED REDUCTIONS

Pollutant	CY 2005-2015 %	tons
DPM	86%	1.01
$PM_{2.5}$	84%	0.93
PM_{10}	85%	1.09
NO_x	55%	12
SO_x	98%	6.46

OCEAN-GOING VESSEL EMISSIONS REDUCTIONS

Pollutant	CY 2005-2015 %	tons
DPM	87%	406
$PM_{2.5}$	84%	364
PM_{10}	86%	465
NO_x	29%	1,511
SO_x	97%	4,673

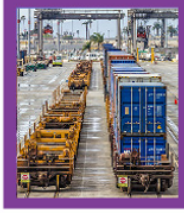
HEAVY-DUTY VEHICLE/CLEAN TRUCK EMISSIONS REDUCTIONS

Pollutant	CY 2005-2015 %	tons
DPM	97%	241
$PM_{2.5}$	97%	230
PM_{10}	97%	240
NO_x	70%	4,411
SO_x	91%	41

HARBOR CRAFT EMISSIONS REDUCTIONS

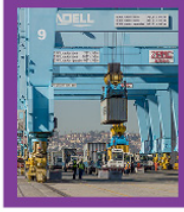
Pollutant	CY 2005-2015 %	tons
DPM	45%	25
$PM_{2.5}$	45%	23
PM_{10}	45%	25
NO_x	37%	493
SO_x	89%	6

RAIL EMISSIONS REDUCTIONS



Pollutant	CY 2005-2015 %	tons
DPM	47%	26
$PM_{2.5}$	48%	25
PM_{x10}	47%	26
NO_x	52%	893
SO_x	99%	97

CARGO HANDLING EQUIPMENT EMISSIONS REDUCTIONS



Pollutant	CY 2005-2015 %	tons
DPM	86%	46
$PM_{2.5}$	83%	41
PM_{10}	83%	45
NO_x	65%	1,016
SO_x	81%	8

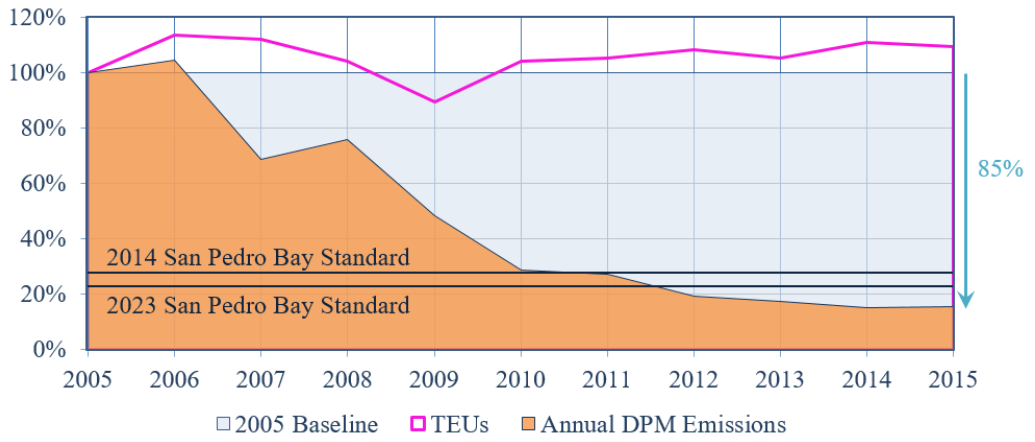
CO_2 EQUIVALENT EMISSIONS BY SOURCE TYPE

Source Type	CY 2005-2015 %	tons
Ocean-Going Vessels	13%	38,531
Harbor Craft	-7%	-4,088
Cargo Handling Equipment	-27%	-36,090
Rail	17%	13,769
Heavy-Duty Vehicles	19%	87,522
TOTAL	**10%**	**99,644**

PRIMARY POLLUTANTS DEFINED:
DPM = Diesel Particulate Matter
NO_x = Oxides of Nitrogen
SO_x = Oxides of Sulfur
$PM_{2.5}$ = Particulate Matter less than 2.5 microns in diameter
PM_{10} = Particulate Matter less than 10 microns in diameter
CO_2 = Carbon Dioxide (A Green House Gas contributor)

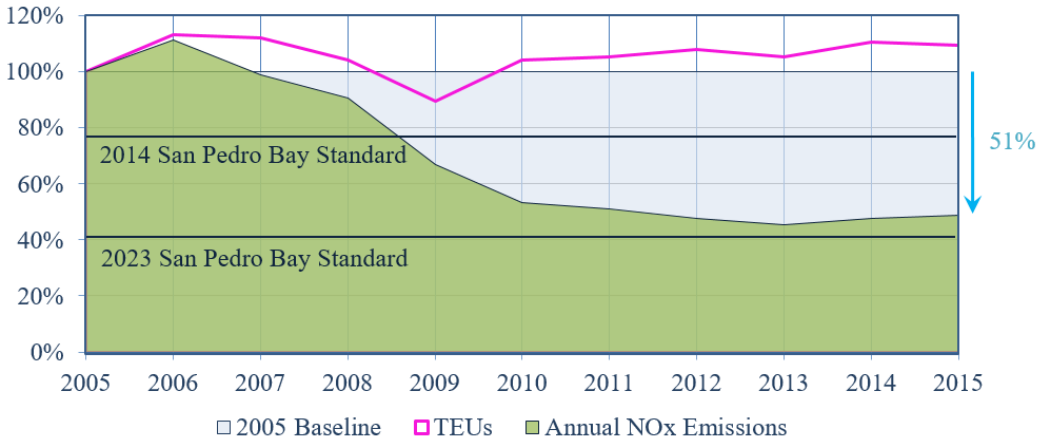
2005-2015 PORT-RELATED EMISSIONS TRENDS

Cargo activities and emissions have diverged paths since 2006 with emissions reductions far exceeding changes in cargo volumes due to the implementation of the CAAP and various CARB/EPA regulations. The figures below show the Port-related trends for DPM, NOx, SOx, and CO_2e.



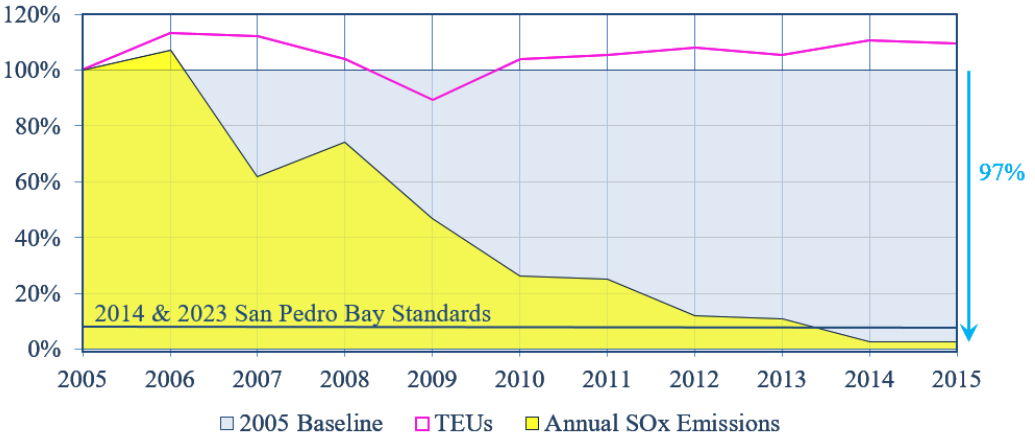
Port DPM Emissions

Port-related DPM emissions have decreased 85% since 2005. These reductions were led by vessel speed reduction, cleaner vessel fuels, Alternative Maritime Power (AMP) also known as shore power, and the Clean Truck Program, which all contributed to significant reductions in DPM emissions.



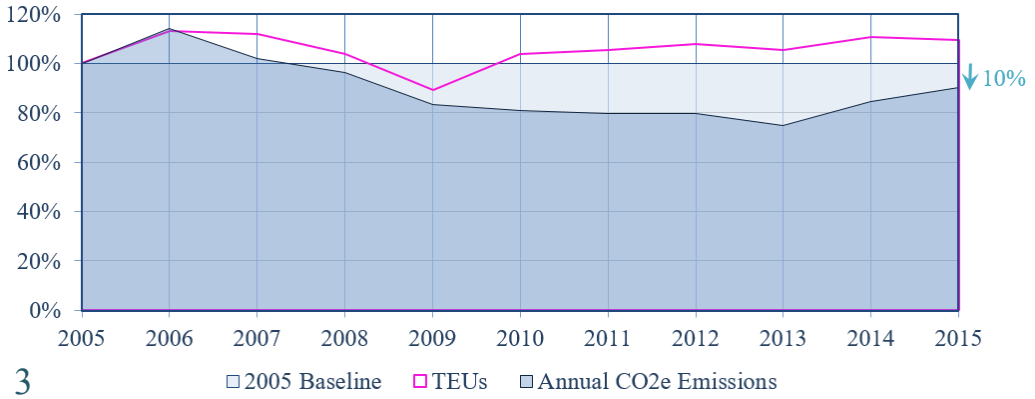
Port NOx Emissions

Port-related NOx emissions have decreased 51% since 2005. The slight increase from 2013 is due to increased cruise and tanker activity, temporary congestion at the Ports, and increases in on-road truck deterioration.



Port SOx Emissions

Port-related SOx emissions have decreased 97% since 2005. These reductions were led by the CARB vessel fuel switching regulation, Environmental Ship Index (ESI), use of ultra-low sulfur diesel (ULSD) by on-road and off-road vehicles, vessel speed reduction, and AMP.

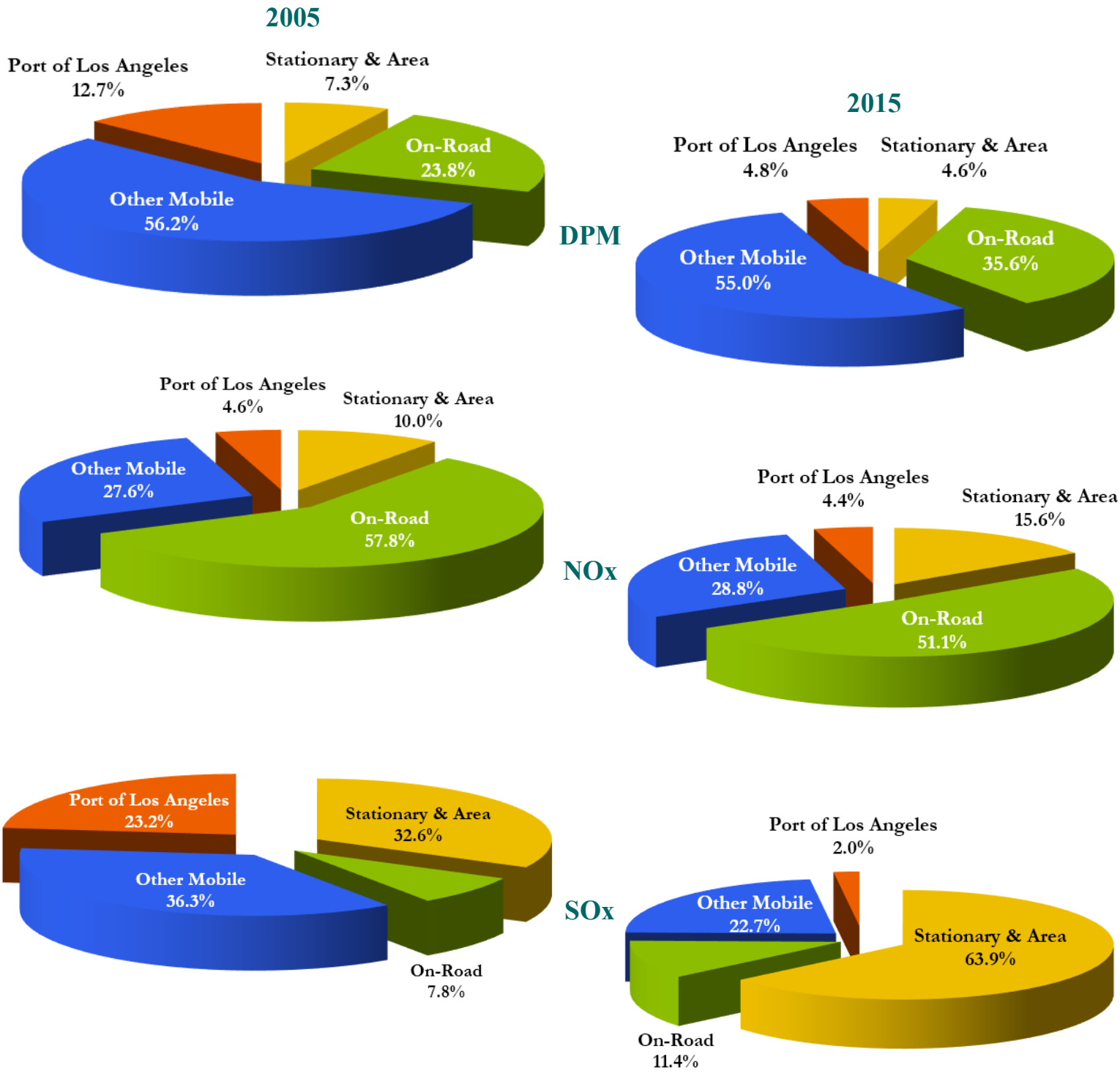


Port CO_2e Emissions

Since 2005, greenhouse gas emissions have been reduced by 10% as a result of "co-benefits" from the implementation of CAAP measures. The increase from 2013 is due to additional cruise and tanker activities, temporary congestion at the Ports, and increases in on-road truck deterioration.

2005 & 2015 REGIONAL EMISSIONS CONTRIBUTION

Illustrated below are the 2005 and 2015 percent pollutant contributions of Port-related emissions relative to the total South Coast Air Basin emissions.

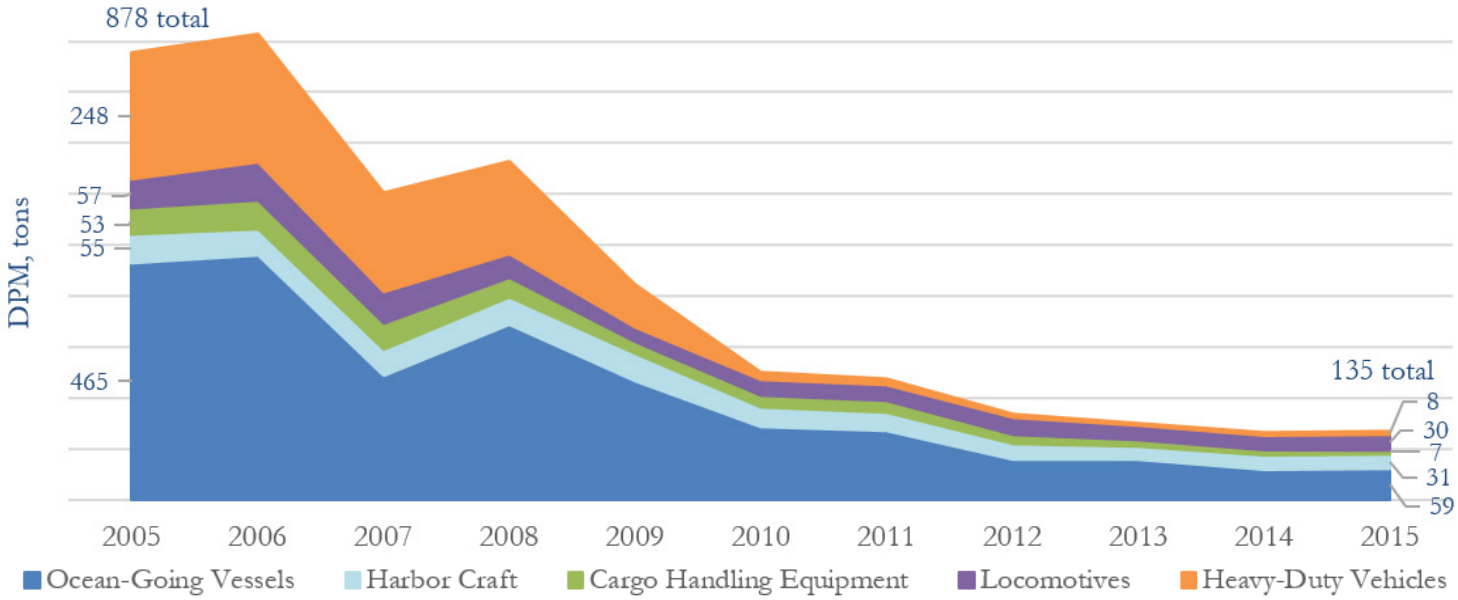


Basin emissions have continued to be reduced from 2005 levels. The Port-related emissions contribution to total Basin DPM and SOx have significantly decreased. The Port-related NOx contributions have slightly decreased, while other mobile, stationary, and area sources have increased their contribution. Overall, Port-related Basin DPM contribution has reduced by 62%, NOx contribution has reduced by 4%, and SOx contribution has reduced by 91%!

2005-2015 SOURCE CATEGORY CONTRIBUTION TRENDS

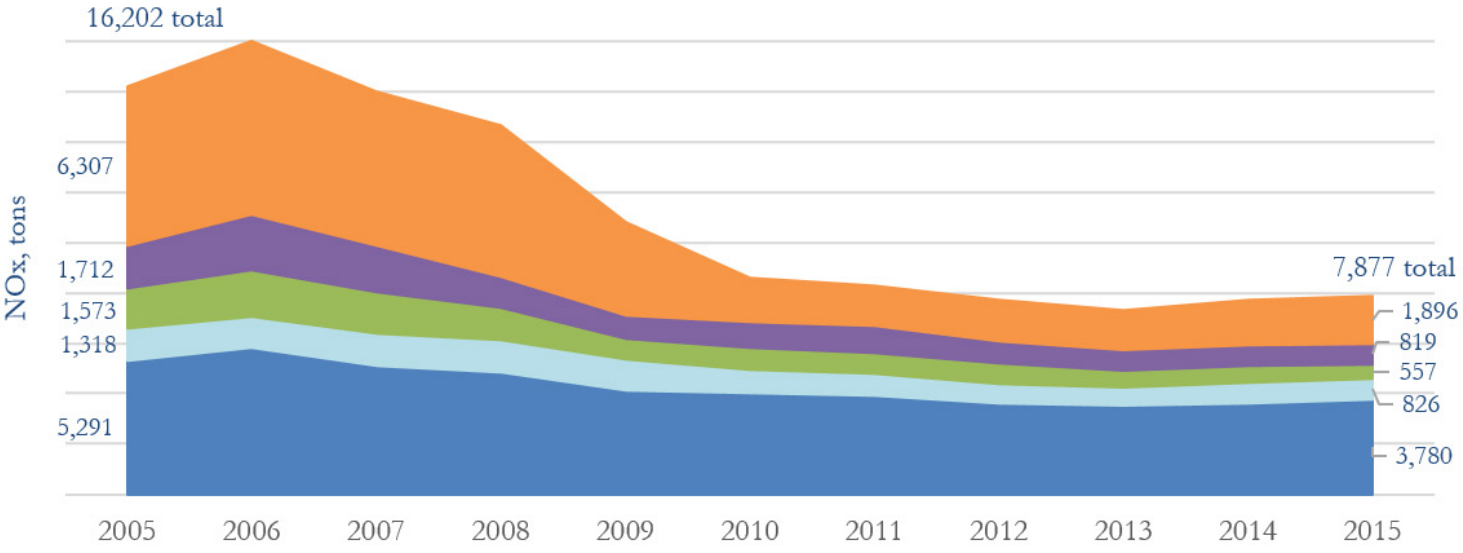
The POLA emissions inventory and CAAP focus on the reduction of DPM, NOx, and SOx as well as greenhouse gas emissions. One of the primary focuses of the CAAP has been the continued reduction in the emissions from ships, trucks, and CHE due to each source category's relative contribution to pollutant and greenhouse gas emissions. The following figures illustrate the changes in Port-related emissions contribution by source category between 2005 and 2015.

DPM Emissions Contributions by Source Category



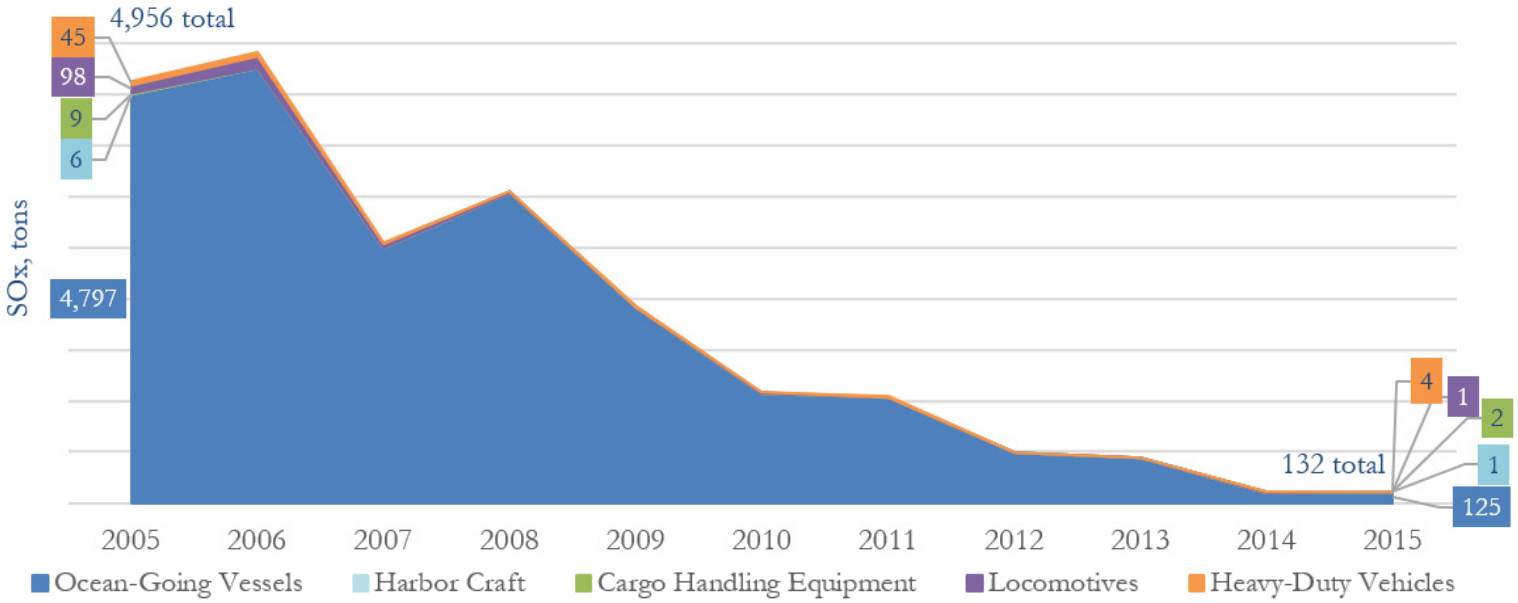
In 2005, DPM emissions were dominated by ships and trucks making up 713 tons or 81%, with cargo handling equipment, locomotives, and harbor craft making up 165 tons or 19%. Since 2005, DPM emissions from ships have significantly reduced that now rail and harbor craft emit more DPM than ships! CHE and truck DPM contributions are nearly eliminated. These reductions have been achieved through CARB and EPA fuel sulfur regulations, CARB CHE fleet rule, CAAP initiatives like the voluntary Vessel Speed Reduction (VSR) Program, Environmental Ship Index (ESI) incentives, Clean Truck Program, CHE and harbor craft repowering, and continued operational efficiency improvements by the goods movement sector. NOx has had a similar progression as DPM, however there are still significant reductions anticipated from the CARB shore power regulation and continued equipment and fleet turn over.

NOx Emissions Contributions by Source Category



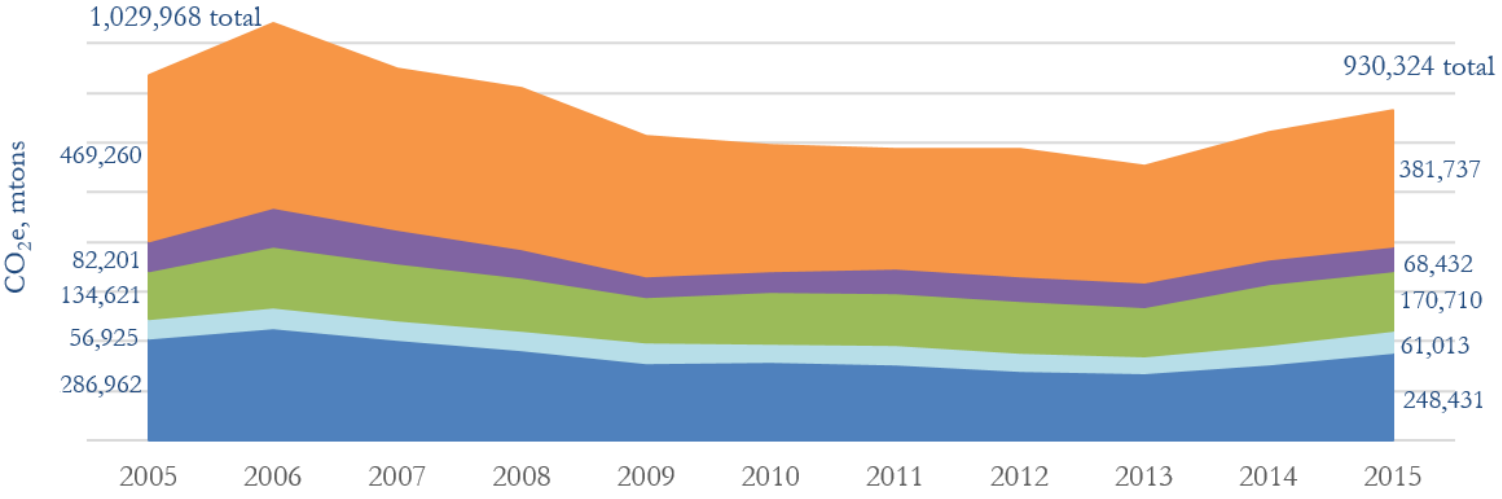
Total emissions for DPM, NOx, and SOx by source category are presented in the following figures in tons. Greenhouse gases (GHGs), represented by carbon dioxide equivalents or CO_2e are presented in metric tons (mtons). Additional pollutants are included in the more detailed technical reports located at: *portoflosangeles.org /environment/studies_reports.asp*.

SOx Emissions Contributions by Source Category



The efforts to reduce SOx have had dramatic success since 2005! Ships have always dominated SOx emissions due to their fuel's high sulfur content. CARB and EPA fuel regulations and CAAP programs like ESI incentives, VSR, and operational efficiencies have reduced Port-related SOx emissions by 97%! The ESI incentives and operational efficiencies will continue to further reduce sulfur emissions from ships in the future. GHG emissions increased in 2014 and 2015 due to the effects of the period of temporary congestion at the San Pedro Bay Ports. These impacts were clearly seen by the unprecedented increase in container ship activities at the anchorages (see page 10). By the second half of 2015, activity levels returned to traditional trends and it's anticipated that 2016 will see the continuation of those trends.

CO_2e Emissions Contributions by Source Category

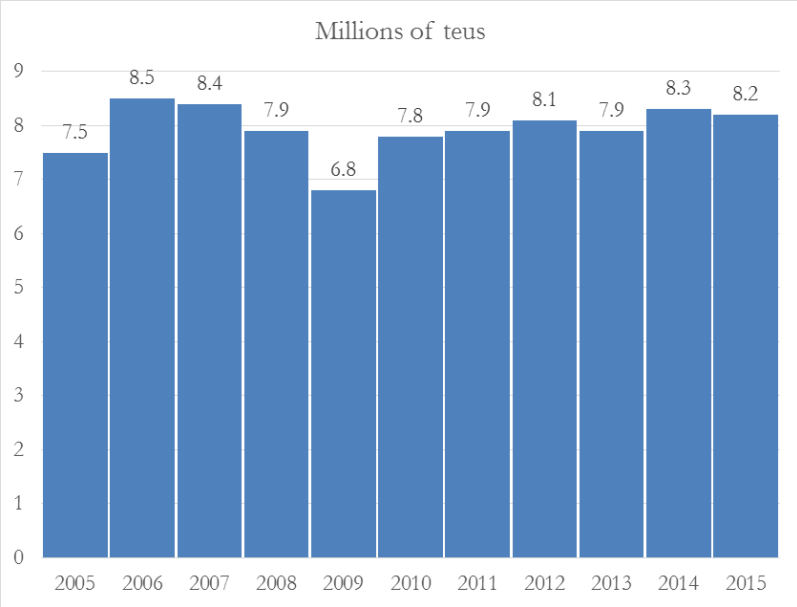


2005-2015 ACTIVITY & CARGO GROWTH

Activity and cargo growth from 2005 to 2015 provides an overall context for the changes in emissions over time. The following figure presents the changes in cargo-related activity from 2005 to 2015, in millions of containers annually. As can be seen in the trends figure, cargo peaked in 2006 and then dropped off significantly in the 2008 to 2009 period. From 2010 to 2015 cargo volumes have recovered above 2005 levels.

Over the same period of time, vessel call distributions changed showing a shifting of the deployed fleet over time. Events relating to the financial crisis that began in late 2007 have resulted in significant changes to the fleets calling POLA, as shipping lines adjust their fleets in response to the changes in cargo volumes and box rates. Container ship call data shows definite size-related trends as the fleet transitions to larger vessels; generally the changes have had a positive effect on ship-related emissions.

Containerized Cargo Volume

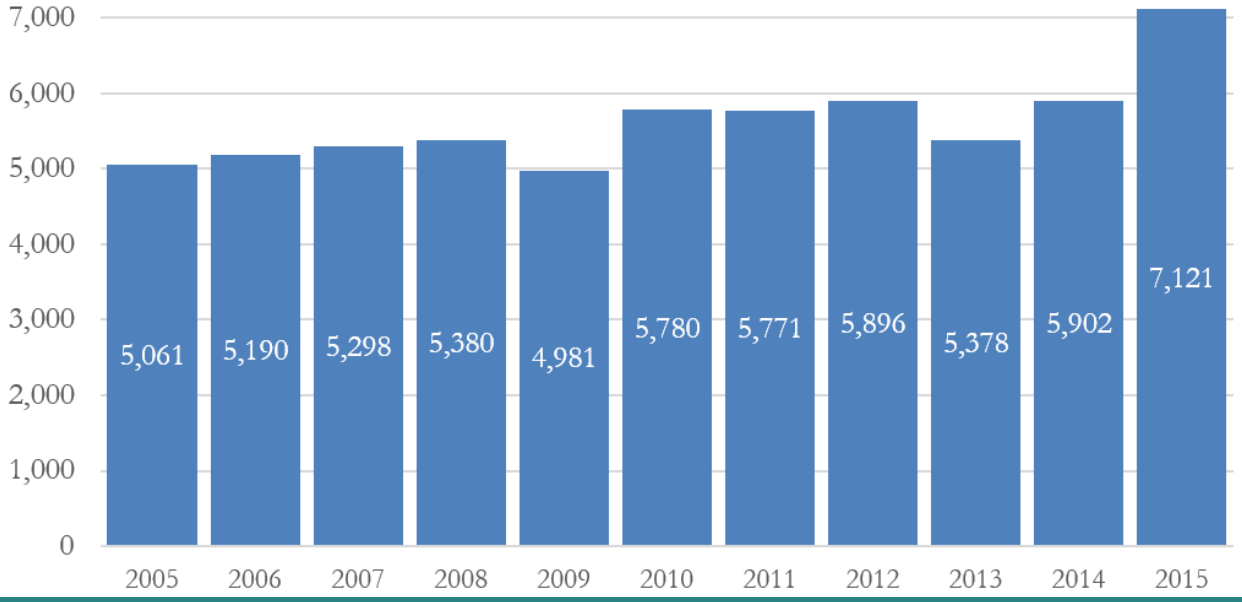


In 2015, there was a 21% increase in the number of teus per call compared to 2014 and there has been a 41% increase since 2005. At the same time, 2015 container ship calls decreased by 19% compared to 2014 and have decreased 23% since 2005, while moving 9% more cargo since 2005.

2005-2015 PORT-RELATED EFFICIENCY TRENDS

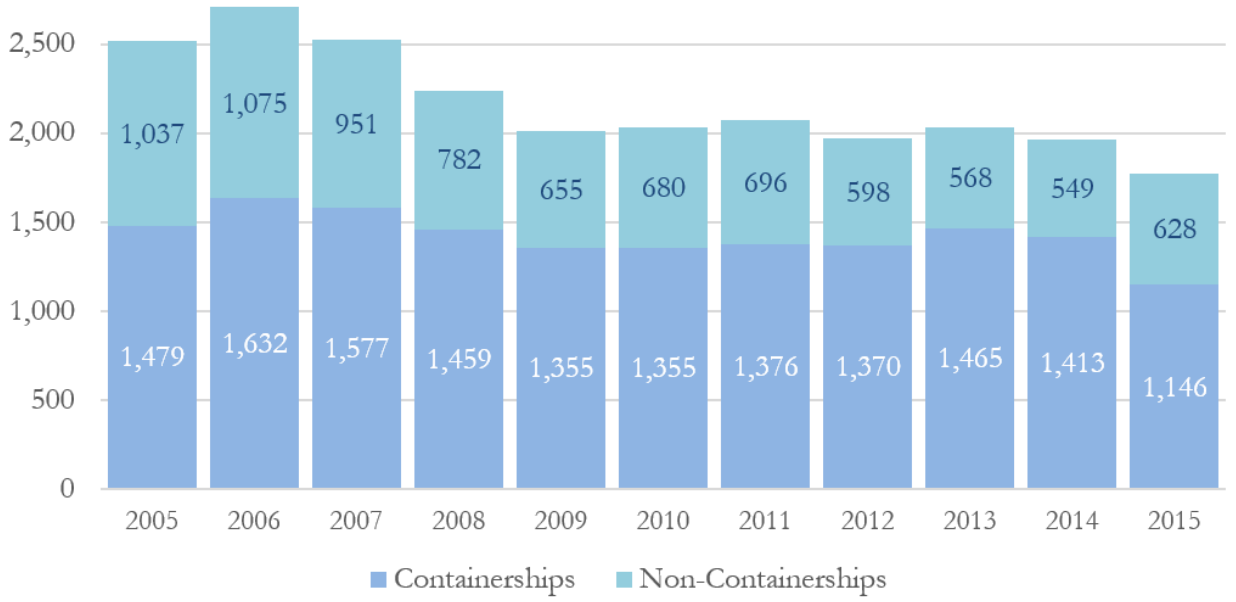
Port-related efficiency improvements track well with total Port-related emissions trends. The following figures illustrate the efficiency improvements related to container density per ship arrival basis and the reduced number of arrivals of both container and non-container ships calling the Port. The improvements in container density per arrival (in teus per arrival) have allowed for fewer, bigger ships to bring 9% more cargo since 2005.

Container Density per Arrival, teus/arrival



Container density, measured in teus per containership arrival, has significantly increased, up 21% between 2014 and 2015! This is the first time since 2005 that teus per arrival increased beyond the 5,000s. Meanwhile, containership calls significantly dropped 19% between 2014 and 2015, while cargo decreased 1% over the same period. With the advent of larger ships, the theory has been that there will be fewer, bigger ships carrying larger volumes of cargo. The 2015 activity suggests that this indeed is materializing, assuming 2015 is not an anomaly. The 2015 non-containership arrivals show a decreased level of activity of 39% since 2005.

Container & Non-Container Ship Arrivals



SOURCE CATEGORY HIGHLIGHTS

Ocean-going vessels

Emissions comparisons 2005-2015.

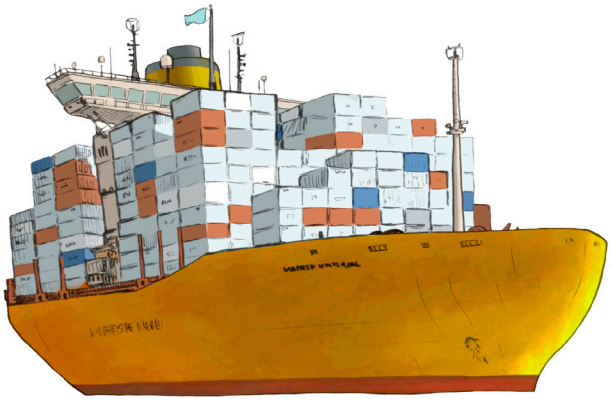
DPM Emission by Year

2005 465 tons

2015 59 tons

In 2015, container ship anchorage NOx emissions increased by more than two times or over 200 tons compared to 2013 due to the temporary congestion experienced at the Port. Container ship anchorage activity returned to historical levels starting in the second quarter of 2015. At-berth NOx emissions from container and cruise ships were offset from the CARB shore power regulations.

SOx Emission by Year



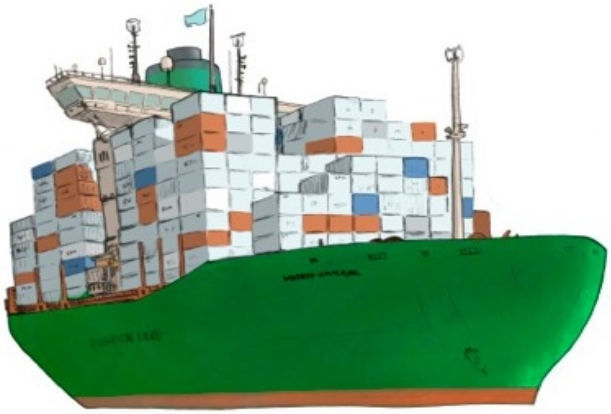
2005 4,797 tons

2015 120 tons

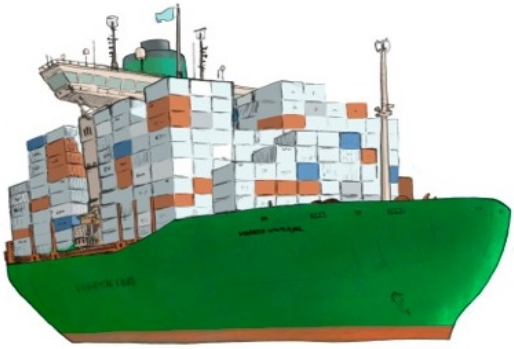
Ship-related emissions continue to show reductions from 2005 due to successful implementation of CAAP measures, Environmental Ship Index incentives, and CARB fuel-based and shore power regulations. Highlights include:

- Continued high compliance rates with the voluntary vessel speed reduction (VSR) program
  - 93% compliance 20 nautical miles (nm)
  - 83% compliance 20-40 nm
- Increasing use of AMP while at berth

NOx Emission by Year



2005 5,291 tons



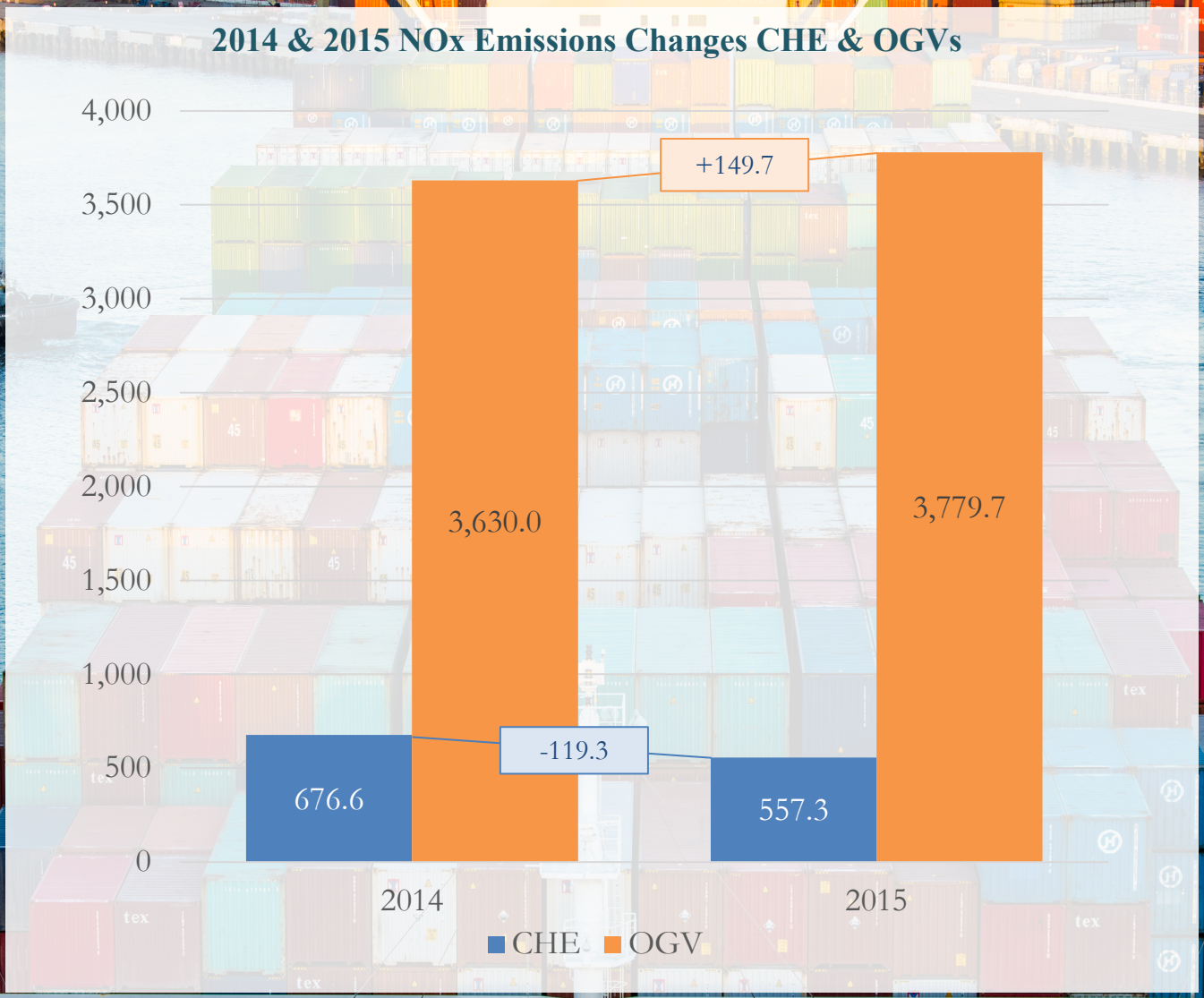
2015 3,780 tons

Utilizing AMP for one container or cruise ship call reduces ~1 ton of NOx generated onboard the ship. The City of Los Angeles' Department of Water & Power generates the same energy at 96% less NOx emissions. The resulting NOx reduction per call is the equivalent of taking 295 cars off the road for a year.

Since the start of 2015, CARB's shore-power regulation requires container, reefer, and cruise lines that have more than 25 fleet calls to utilize shore power for 50% of their calls. The regulation increases to 70% in 2017 and 80% in 2020. Further reductions from AMP is anticipated to increase in upcoming emissions inventories.

Increases in Container Ship Anchorage Emissions Nearly Offset by Improvements in CHE

As shown below, there were significant increases in OGV anchorage activity in 2015 compared to 2014. This increase in activity mostly effected container, tanker, general cargo, and bulk ships. During the same timeframe, CHE activity saw significant increases in the use of Tier 4 equipment. The changes in activity for both source categories had opposing impacts on 2015 NOx emissions. Looking at NOx, OGVs increased anchorage NOx emissions by nearly 150 tons in 2015 compared to 2014, while CHE fleet turnover reduced nearly 120 tons of NOx. The combined result almost netted out the OGV NOx increase at anchorage.




MAERSK
HYUNDAI
TRITON
tex

SOURCE CATEGORY HIGHLIGHTS

Trucks

DPM Emissions Comparison

2005 248 tons

2015 8 tons

NOx Emissions Comparison

2005 6,307 tons

2015 1,896 tons

SOx Emissions Comparison

2005 45 tons

2015 4 tons

The development and implementation of the Clean Truck Program (CTP) continues to be a true success story of the CAAP. The first program of its kind for Port-related trucks, it continues to accelerate the benefits from EPA cleaner engine standards by banning older model year trucks from access to Port facilities. The illustrations on the left compare DPM, NOx, and SOx emissions in 2005 to 2015. The CARB ULSD rule came into effect in June 2006 which dramatically reduced truck-related SOx emissions.

As part of the CTP implementation, the following three incremental truck model year bans at Port facilities have been implemented:

- Ban #1 - October 1, 2008: All pre-1989 trucks were banned
- Ban #2 - January 1, 2010: All 1989-1993 trucks were banned in addition to 1994-2003 trucks that had not been retrofitted
- Ban #3 - January 1, 2012: All trucks not meeting 2007 EPA clean truck standards were banned

The CTP has been so successful that ports along the West, Gulf, and East coasts are implementing similar versions of the program. Overseas ports are also looking at the CTP as a measure they can employ to reduce port-related emissions.

In 2015, the fourth full year of the CTP, emissions are increasing modestly as trucks accrue mileage, which is a part of normal engine operations. This phenomenon occurs in the CTP due to the lower turnover rate of the newer 2007 through pre-2010 trucks in the program. In addition, times on terminal increased in 2015 which is assumed to be related to the period of temporary congestion.

In 2005, over 99% of the trucks servicing POLA terminals were older than 2004, 50% of those trucks were older than 1994. In 2015, approximately 58% were 2007-2009 and 42% were 2010 or newer trucks.

SOURCE CATEGORY HIGHLIGHTS

Rail Locomotives

There are two types of railroad services associated with port-related cargo movements: switching and line haul. Switching services are related to the building and organizing of unit trains, railcar pickup and delivery to the various terminals, and related yard work. Class 1 line haul services are related to the interstate movement of trains for nationwide cargo distribution.

The illustrations below illustrate how DPM, NOx, and SOx emissions have changed since 2005 for all Port-related locomotive emissions. The Pacific Harbor Line, Inc. (PHL) is the primary company providing switching services at POLA. PHL currently operates 23 locomotives in and around the Port areas. In 2005, the PHL switching fleet consisted of locomotives built from the 1950s to the 1970s, which is typical for the industry. Over the past several years, with assistance from POLA, POLB, AQMD, and CARB, PHL has replaced all of their aging locomotives with a modern fleet of advanced low-emissions locomotives using Tier 3 or better engines; the full benefits from this latest advancement have been seen since 2012. As of 2015, SOx emissions have been virtually eliminated from locomotives, totaling less than one ton!

DPM Emissions Comparison

2005 57 tons

2015 30 tons

SOx Emissions Comparison

2005 98 tons

2015 <1 ton

NOx Emissions Comparison

2005 1,712 tons

2015 819 tons

Since 2005, SOx emissions from locomotives has been nearly eliminated (reduced by 99%) through federal and state rules requiring ultra low sulfur or ULSD fuels, which are capped at less than 10 parts per million sulfur.

SOURCE CATEGORY HIGHLIGHTS

Cargo Handling Equipment

Efforts to reduce emissions associated with cargo handling equipment (CHE) were among the earliest emissions reduction control measures implemented at POLA, including several that predate the CAAP. DPM and NOx emissions have been reduced through a combination of regulations, emissions reduction projects and grants, installation of emissions control devices, and the use of on-road engines in CHE. SOx emissions have been significantly reduced through the CARB ULSD mandate in 2006. The illustrations present the relative change in CHE emissions from 2005 versus 2015.

Cargo handling equipment emissions were significantly reduced since 2005. The combination of terminal efficiency improvements, CARB terminal equipment rule, cleaner engine standards, grant project funding, and efforts by terminal operators to reduce fuel consumption are the reasons for the reductions in annual emissions.

- DPM has been reduced 86% since 2005
- NOx has been reduced 65% since 2005
- SOx has been reduced 81% since 2005

In 2015, there was a significant increase in the number of Tier 4 nonroad equipment, jumping from 30% in 2014 to 45% in 2015. The Tier 4 equipment were utilized for 48% of the work done, followed by 30% Tier 3, 23% Tier 2 or older. The result is that for similar activity levels between 2014 and 2015, NOx was reduced by 119 tons and DPM by 3 tons!

Harbor Craft

Most of the emissions reductions associated with harbor craft have been achieved through grant funding by POLA through the Air Quality Mitigation Incentive Program and through AQMD and CARB programs for replacing older vessel engines with cleaner engines. These efforts continue to reduce DPM and NOx annual emissions. SOx was reduced in 2006 by CARB's ULSD fuel rule which significantly reduced the harbor craft contribution to total Port-related sulfur emissions.

CHE Emissions 2005-2015

Harbor craft emissions have decreased significantly since 2005. A combination of engine repowers, CARB regulations, and innovative solutions from vessel owners/operators are responsible for the reductions in annual emissions.

- DPM has been reduced 45% since 2005
- NOx has been reduced 37% since 2005
- SOx has been reduced 89% since 2005

Harbor craft activities increased in 2015 mostly in the crew boat and assist tug vessels due to the large number of ships at anchorage and the increased number of shifts and intra terminal shifts repositioning ships to maximize berth space. The activity levels are anticipated to return to historic trends in 2016.

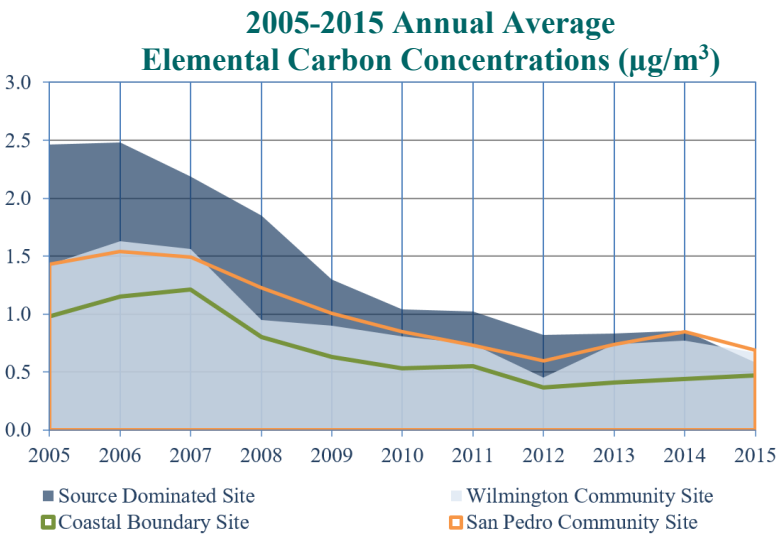
AIR MONITORING HIGHLIGHTS

Air Quality Monitoring Trends

In addition to developing and publishing the annual emissions inventory as a means of tracking progress, the Port operates four air monitoring stations at locations around POLA. Elemental carbon is monitored as a surrogate for diesel-related emissions. The figure shows how the measured annual average elemental carbon concentration readings have reduced by 52-76%, which trends similarly with the DPM emissions inventory trends over the same period.

Air monitoring provides for another "real world" metric in addition to the inventories to measure the Port's progress in reducing its mass emissions and health-risk related impacts.

POLA has four monitoring stations that started to collect elemental carbon data in 2005. These stations consist of the coastal boundary station (typically representing background levels), the Wilmington and San Pedro community sites, and a source dominated site on Terminal Island in the middle of Port-related operations.
caap.airsis.com/Default.aspx



LOOKING AHEAD

2015 & Beyond

With eyes on the future, looking for innovative methods to sustaining emissions reductions while accommodating growth, POLA continues to look for emissions reduction and efficiency opportunities. Through the Technology Advancement Program or TAP, the Ports are evaluating tomorrow's technologies today (*cleanairactionplan.org/programs/tap/default.asp*).

It is anticipated that 2016 will see activity levels return to pre-2014 trends as the period of temporary congestion was concluded in early 2015. Energy consumption, which is estimated for each of the source categories in the emissions inventory, is the most accurate metric to evaluate activity and identify changes in efficiency. While energy consumption has always been estimated in the inventories, other indicators of activity, such as ship calls and cargo throughput have been used to discuss activity changes. Starting in 2016, energy consumption will be added to these indicators to provide better context relating to Port operations.

Building on a shared commitment to eliminate pollution for Port-related operations, Pasha Stevedoring and Terminals L.P. and the Port of Los Angeles are launching the Green Omni Terminal Demonstration Project, a full-scale, real-time demonstration of zero and near-zero emission technologies at a working marine terminal. The project is funded in part by a $14.5 million grant from the California Air Resources Board. As part of the project, Pasha will be demonstrating a 1 megawatt solar photovoltaic system, a 2.6 megawatt-hour battery storage system, an energy control system, nine charging stations, two wharf crane upgrades, a ShoreCat on-dock vessel emissions capture and treatment system, four electric yard tractors, two 21-ton electric forklifts, an electric top handler, and two on-road electric drayage trucks.

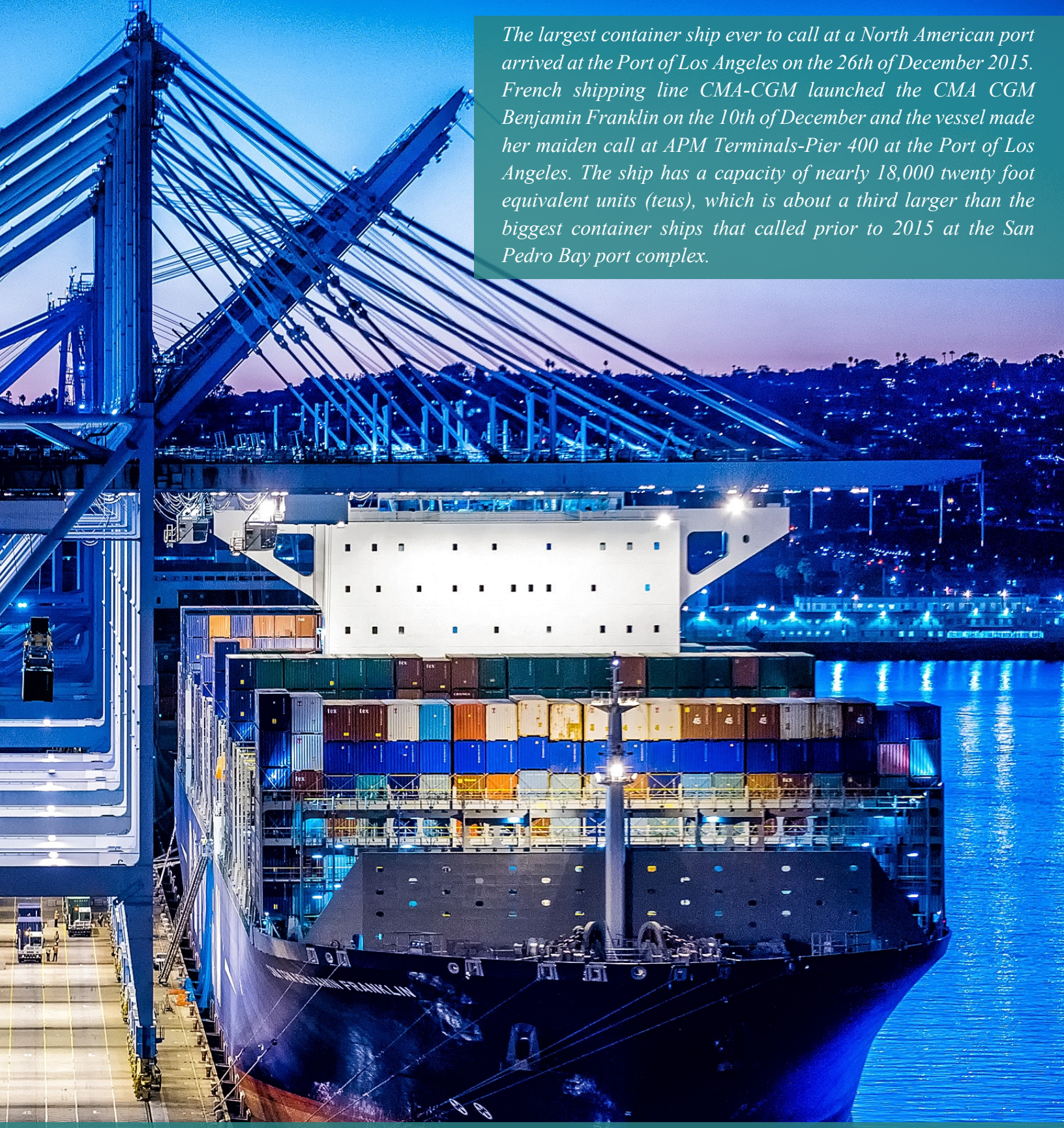
Emissions reductions will be continued through the ongoing implementation of the Environmental Ship Index (ESI) incentive program to reward and recognize the top performing cleanest vessels.

POLA is a founding member of the World Port Climate Initiative (WPCI) of the International Association of Ports and Harbors (IAPH). Approximately 60 of the world's key ports, acknowledging their unique capacity as key hubs in global supply chains, have come together in a commitment to reduce their greenhouse gas emissions while continuing their role as transportation and economic centers. POLA hosted the formation of the WPCI in November 2008 and has been the lead port for the IAPH Tool Box and Carbon Footprinting working groups. In 2013, POLA implemented the WPCI ESI as it looks to continue to reduce emissions from ships. As of July 2016, there are over 48 incentive providers and 4,200 participating ships in the ESI program.

wpci.iaphworldports.org/index.html

Further advancement in clean technologies and deployment of cleaner equipment is anticipated in 2016. It's also anticipated that there will be an increasing number of 2010 or newer trucks into the fleet serving POLA, an increase in the use of alternative fuels, and further development and deployment of electric cargo handling equipment.

The Port of Los Angeles, in collaboration with the Port of Long Beach, is in the process of updating the CAAP. It is anticipated that the update will result in the identification of new strategies that will assist in the continued reductions of Port-related emissions.



The largest container ship ever to call at a North American port arrived at the Port of Los Angeles on the 26th of December 2015. French shipping line CMA-CGM launched the CMA CGM Benjamin Franklin on the 10th of December and the vessel made her maiden call at APM Terminals-Pier 400 at the Port of Los Angeles. The ship has a capacity of nearly 18,000 twenty foot equivalent units (teus), which is about a third larger than the biggest container ships that called prior to 2015 at the San Pedro Bay port complex.

The Port of Los Angeles is America's premier port and has a strong commitment to developing innovatively strategic and sustainable operations that benefit Southern California's economy and quality of life. As North America's leading seaport by container volume and cargo value, the Port of Los Angeles facilitated $270 billion in trade during 2015. Port operations and commerce facilitate more than 133,000 jobs (about one in 14) in the City of Los Angeles and 479,000 jobs (or one in 18) in the five-county Southern California region. The San Pedro Bay Ports support nearly 1 million California jobs and 2.8 million nationwide.

For more information & the detailed technical report

portoflosangeles.org/environment/studies_reports.asp