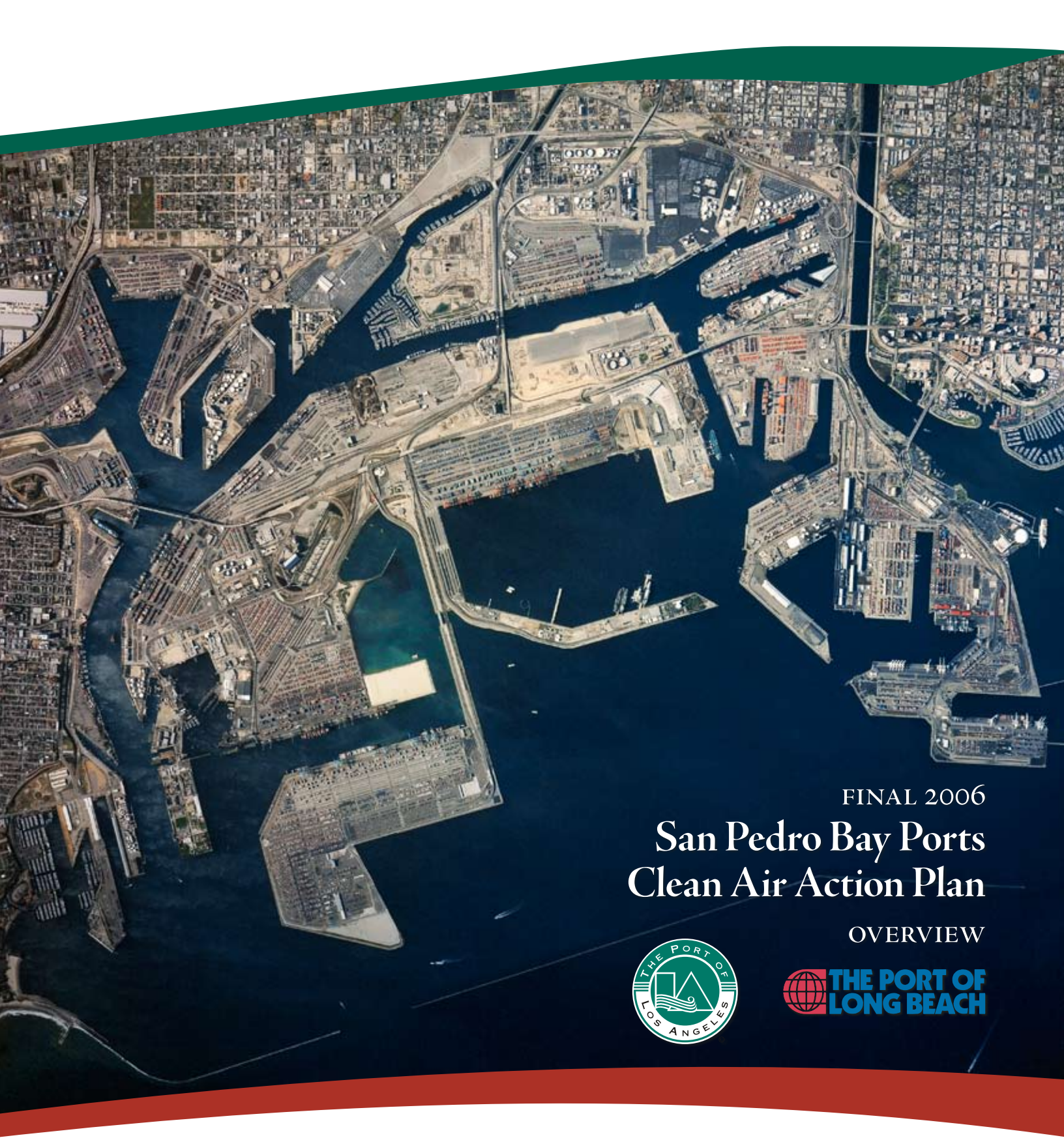

FINAL 2006

# San Pedro Bay Ports Clean Air Action Plan

## OVERVIEW

THE PORT OF LOS ANGELES

THE PORT OF LONG BEACH

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

California Environmental Protection Agency
Air Resources Board

AQMD

Prepared with the participation and cooperation of the staff of the US Environmental Protection Agency, California Air Resources Board and the South Coast Air Quality Management District.

# STATEMENTS OF THE PRESIDENTS OF THE LOS ANGELES BOARD OF HARBOR COMMISSIONERS AND THE LONG BEACH BOARD OF HARBOR COMMISSIONERS

At the Joint Special Meetings of the Los Angeles Board of Harbor Commissioners and the Long Beach Board of Harbor Commissioners (the "Commissions") held on Monday, November 20, 2006, at 1:00 P.M. in the Long Beach City Council Chamber, 333 W. Ocean Blvd., Long Beach, California, the two Commissions unanimously adopted the San Pedro Bay Ports Clean Air Action Plan ("CAAP" or "Plan") as reflected in the minute record of the proceedings. At the meeting, the Presidents of the Commissions made the following statements, findings and proposed amendments which were incorporated into the Clean Air Action Plan that was approved by the Commissions:

First, we agree with the demand of many of those who commented on the Plan that there must be measurable goals so the public can have a yardstick to measure progress. So, we propose that we commit to a goal of reducing particulate emissions in 2008 by at least 15% from what it would be without the Plan, ratcheting up each year to at least a 45% reduction in 2011.

Second, we think we need to recognize that ultrafine particles are probably the most damaging of the fossil-fuel related air pollutants to human health. Accordingly, we propose that the staffs of the two Ports be directed to work with the USC Research Group on Ultrafine Particles to present the results and suggested next steps to the two Commissions no later than July 1, 2007. In addition, our new Technology Advancement Program must include ways to eliminate emissions of ultrafine particles, which in reality, in our view, means moving towards carbon-free fuels.

Third, we should recognize that the recently enacted California Global Warming Solutions Act of 2006 (AB32) requires carbon emissions be reduced back to 1990 levels by the year 2020. In light of the growth prospects of the two Ports, that means we must switch to carbon-free fuels (for example, green electricity) and other carbon-free technologies in every possible application as soon as possible. Toward that end, we propose that our respective staffs include such technology in our Technology Advancement Program. As part of that effort, the Ports pledge to contribute, and raise from other interested parties, the many millions needed to fund this vital effort.

Also, there is one technical amendment we offer to make clear that implementation of the individual Plan measures are subject to additional CEQA review, a fact that is beyond dispute and in the interest of all parties. We therefore move that on page 19 of the Overview and page 24 of the Technical Report the three words after "conducted" be stricken and replaced with "subject to CEQA statute, regulations and guidelines".

Both the environmental organizations and the business communities have expressed a desire for a continuous process for participation in the ongoing review and improvement of the Clean Air Action Plan in the months and years ahead. We welcome such participation. We therefore urge ALL groups to provide the Ports, within the next 30 days following adoption of the CAAP [by December 20, 2006], their ideas for how such public participation can best be conducted. We will promptly approve and implement that process within 30 days after receipt and review of their ideas.

A critical initiative in the Plan is a massive effort to deal with the well-recognized problem of heavily polluting trucks driven by under-paid drivers. These trucks produce 10% of the Port-related diesel particulate emissions and fully 25% of the NOx emissions. The Ports have identified over 16,000 individual vehicles that make 80% of the trips to and from Port terminals, so cleaning up those vehicles would eliminate a significant portion of Port-related air pollution.

That will be a hugely expensive effort that will involve replacing many trucks and retrofitting others with pollution control devices. The Commissioners of both Ports believe that we can tackle the dirty truck problem in a manner consistent with the Clean Air Action Plan. Accordingly, we direct our respective staffs to work expeditiously to bring forward a plan with the following elements for further future approval of these boards:

a. The Ports undertake a 5-year, focused effort to replace or retrofit the entire fleet of over 16,000 trucks that regularly serve our Ports with trucks that at least meet the 2007 control standards and that are driven by people who at least earn the prevailing wage.
b. The Ports establish within their respective districts a program that restricts the operation of trucks that do not meet the clean standards established in the Plan. Further, that we impose a system of fees and transportation charges to raise the necessary funds to pay for the cleaner trucks. These fees would be imposed on "shippers", and not on the drivers.
c. The Ports will invite private enterprise trucking companies to hire the drivers on terms that offer the proper incentives and conditions to achieve the Clean Air Action Plan goals while resulting in adequately paid drivers.
d. The Ports begin this program with an infusion of cash to the Gateway Cities Program that would fund a 500-truck program that will demonstrate the applicability of new retrofit technologies. This demonstration program will be activated in the 1st quarter of 2007, and the full 16,800-truck program will be rolled out shortly thereafter.
e. The Ports develop requests for proposals that will encourage truck fleets of alternatively-fueled vehicles, for example, LNG.

We believe that we can count on the support of our private industry and government partners in this effort.

We believe that this program would enable the Ports to achieve one of the major goals of the Clean Air Action Plan quickly and with minimum economic impact to the people who can least afford to absorb extra costs, namely the hard-working truck drivers who move so much of the cargo.

That leads to our second point, which is the issue of monetary incentives. Many people have commented that the Ports need to pay to clean up pollution from Port operations. Both Boards want to make it clear that the Ports cannot and will not subsidize the cost of cleaner transportation indefinitely. Those expenses are a legitimate cost of doing business, and we believe that our position will ensure that companies engaged in goods movement pay their fair share of the cost of cleaning up our air and protecting our citizens. Accordingly, it is our policy that monetary payments by the Ports for cleaner technologies and fuels will be granted to true pioneers in the industry, but only for short periods of time. After that, each entity must bear the costs of reducing pollution from its operations.

# FOREWORD

To effectively integrate common goals for air quality in the South Coast Air Basin, the Port of Los Angeles (POLA) and the Port of Long Beach (POLB) have worked together in close coordination with the staff of the South Coast Air Quality Management District (SCAQMD), the California Air Resources Board (CARB), and the United States Environmental Protection Agency Region 9 (EPA Region 9) to develop the San Pedro Bay Ports Clean Air Action Plan. This Plan is the first of its kind in the country, linking the emissions reduction efforts and visions of the two largest Ports in the United States with similar efforts and goals of the regulatory agencies in charge of ensuring compliance with air quality standards. The collaborative effort will continue in the years to come with the review and update of the Clean Air Action Plan on an annual basis.

The air agencies have extensively reviewed and commented on the draft Plan, support the collaborative process that has been established, and support the goals delineated in the Plan. By participating in the development and annual review of this Plan, these regulatory agencies do not waive or forfeit their rights or obligations to continue to regulate emissions sources under their control. Participation in this process is voluntary by all parties and does not in any way inhibit or preclude agencies from any legal authorities and responsibilities to meet federal, state, and local air quality standards. Participation does not mean that the agencies necessarily endorse each of the measures and concepts proposed in the Plan.

## WHAT'S IN THE CLEAN AIR ACTION PLAN?

- **Final 2006 San Pedro Bay Ports Clean Air Action Plan Overview**
- Final 2006 San Pedro Bay Ports Clean Air Action Plan Technical Report
- Final 2006 San Pedro Bay Ports Clean Air Action Plan Comments Compendium

**For additional information see:**

- Port of Los Angeles website: www.portoflosangeles.org
- Port of Long Beach website: www.polb.com


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## INTRODUCTION

This document is the first San Pedro Bay Ports Clean Air Action Plan (Clean Air Action Plan). This joint Clean Air Action Plan describes the measures that the Ports of Los Angeles and Long Beach will take toward reducing emissions related to port operations. In March 2006, a groundbreaking meeting occurred at the highest level between the two Ports and the South Coast Air Quality Management District (SCAQMD) where all parties expressed the need to work jointly toward solutions. Shortly thereafter, the Ports engaged the California Air Resources Board (CARB) and the United States Environmental Protection Agency Region 9 (EPA Region 9) in the spirit of cooperation to help the Ports develop the Clean Air Action Plan for their respective Boards of Harbor Commissioners' approval. It should be emphasized that these entities have committed to continuing their efforts associated with the development, review, implementation, and update/revision of the Clean Air Action Plan on an annual basis.

The five-year Action Plan highlights the goals, emissions reductions, and budgetary needs for fiscal years (FY) 2006/2007 through 2010/2011. By the end of the five-year period, virtually all needed measures to meet the goals will be in place. Staff from both Ports intend to regularly evaluate progress towards meeting the Clean Air Action Plan goals, review status of existing control measures, evaluate new measures, and jointly develop a revised action Plan each year.

## THE HISTORY

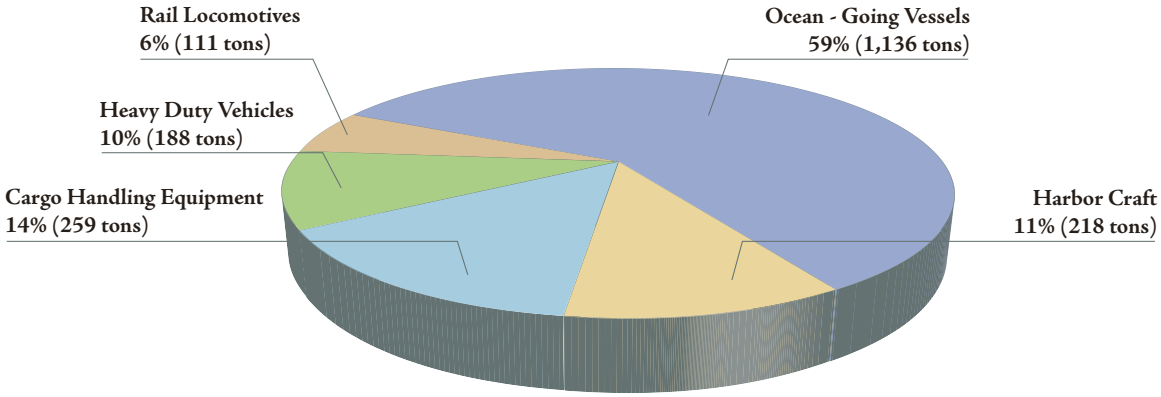
In the early 1900s, the State conveyed the Port tidelands to Los Angeles and Long Beach, as trustees for the people of the State of California, to accommodate and promote harbor commerce, navigation and fisheries. The Ports are landlord ports; they build terminal facilities and lease them to shipping lines and stevedoring companies. The Ports do not operate the terminals, ships, yard equipment, trucks or trains that move the cargo. However, the Ports are determined to accelerate the effort to reduce air pollution from "goods movement" activities using all the powers available to them.

The San Pedro Bay Ports (SPBP) comprise a huge regional and national economic engine. The Los Angeles Customs District accounts for approximately $300 billion in annual trade. More than 40% of all containerized trade in the nation flows through the SPBP. Economic forecasts suggest that the demand for containerized cargo moving through the San Pedro Bay region will more than double by the year 2020.

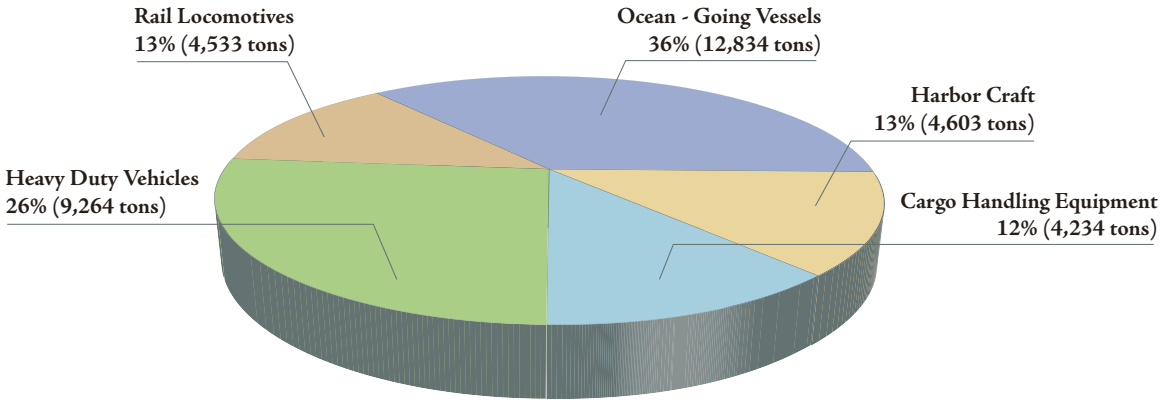
## PORT-RELATED EMISSIONS

Based on the baseline year emissions inventories for both Ports (2001/2002), the contribution of emissions by the five port-related source categories, and their percentage share compared to the South Coast Air Basin (SoCAB), are presented in following figures.

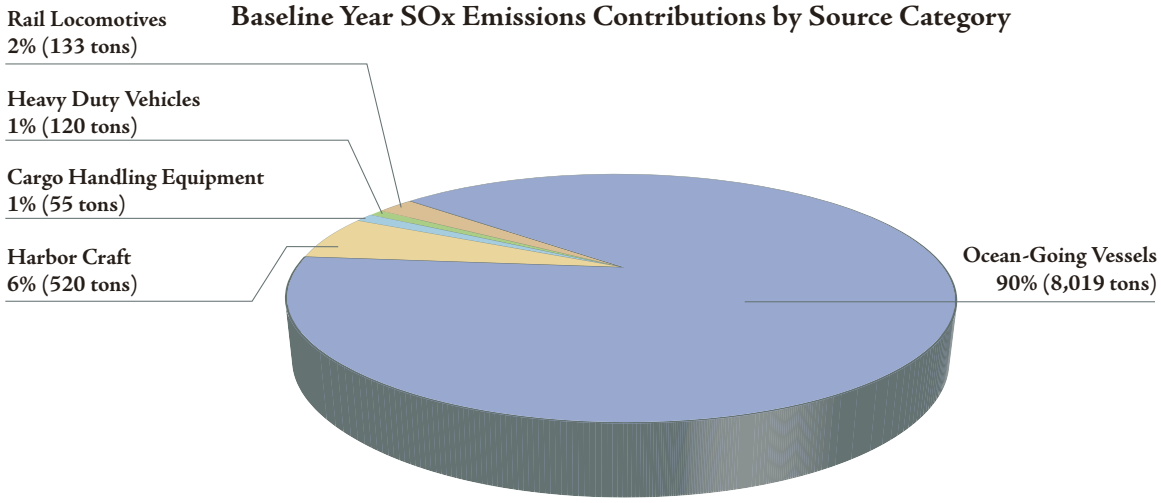
**Baseline Year DPM Emissions Contributions by Source Category**




**Baseline Year NOx Emissions Contributions by Source Category**

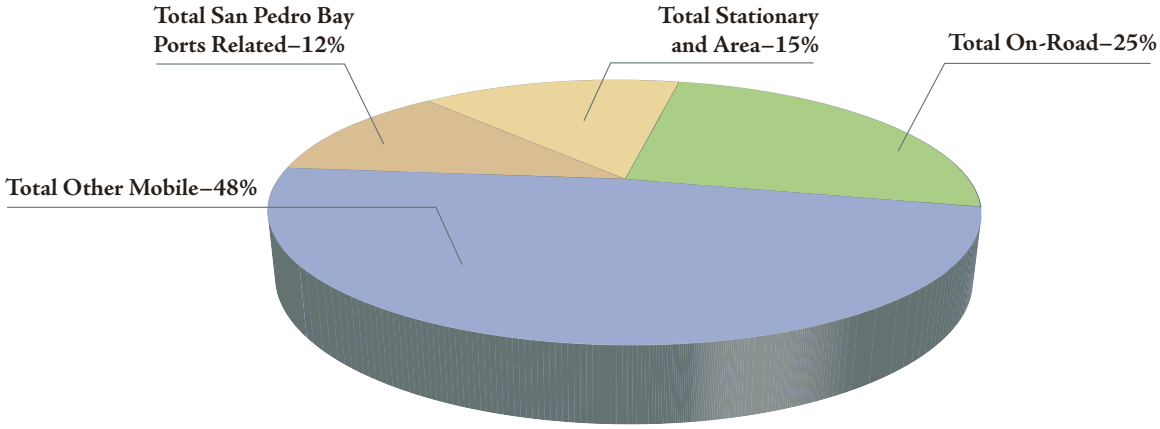



**Baseline Year SOx Emissions Contributions by Source Category**

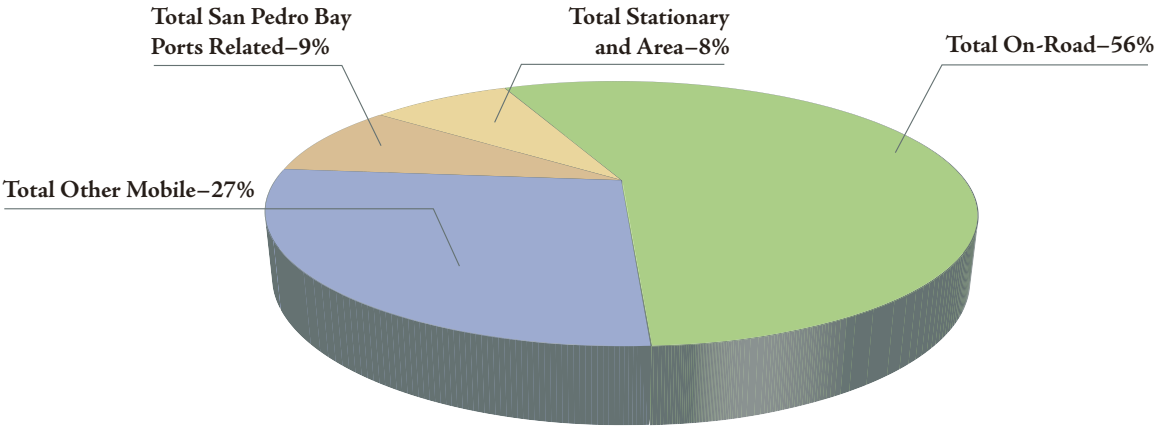


The following figures compare the San Pedro Bay Port percentage contributions, with the contributions from all the emissions sources in the SoCAB for the baseline year.

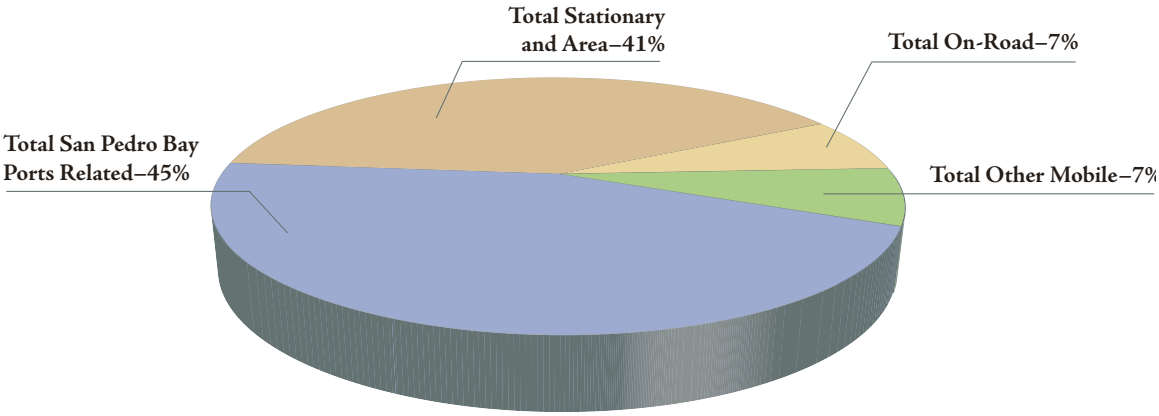
**Baseline Year SPBP vs. SoCAB DPM Emissions Contributions**




**Baseline Year SPBP vs. SoCAB NOx Emissions Contributions**




**Baseline Year SPBP vs. SoCAB SOx Emissions Contributions**




The Ports and regulatory agencies acknowledge that if port-related sources are not controlled by the Clean Air Action Plan to reduce their "fair share" with respect to the other sources in the SoCAB, port-related contributions to the basin's total emissions (particularly with respect to OGVs) will increase significantly beyond the levels presented above. Therefore, action must be taken now in order to help the basin meet its air quality goals.

## THE CHALLENGE

The San Pedro Bay Ports are located in the South Coast Air Basin (SoCAB). This Basin has some of the worst air quality in the nation, which represents a major health concern for its residents. Much of this air quality problem is attributable to the fact that the SoCAB is the second largest urban area in the nation (with all its associated emissions sources) and to the existence of topographical and meteorological conditions that enhance the formation of air pollution. Currently, the SoCAB is designated by the United States Environmental Protection Agency (EPA) as being in non-attainment of the National Ambient Air Quality Standards (NAAQS) for ozone and for particulate matter less than 2.5 microns (PM2.5). The ozone non-attainment level is rated "severe-17," with an attainment deadline year of 2021. The PM2.5 attainment deadline is 2015.

In addition, CARB has designated the exhaust from diesel-fueled engines as a toxic air contaminant, with diesel particulate matter (DPM) as a surrogate for total emissions. The EPA also lists diesel exhaust as a mobile source air toxic. According to CARB, about 70 percent of the potential cancer risk from toxic air contaminants in California can be attributed to DPM. Therefore, the concentration of DPM in communities has become a major public health concern and the focus of CARB and SCAQMD regulations.

In 2000, the SCAQMD released results from its second Multiple Air Toxics Exposure Study (MATES II), which raised concerns about the impact of emissions from ships, trucks and trains in the vicinity of the Ports and major transportation corridors. Since then, both Ports have had terminal development plans challenged and delayed due to concerns about the adequacy of environmental mitigation. The SCAQMD is currently preparing MATES III which is due for completion in 2007.

In order for the SoCAB to attain the NAAQS, and to protect public health, immediate action is necessary to significantly reduce emissions from all sectors, including "goods movement." Several port-related sources are subject to aggressive regulations, yet still fall short of the levels needed to accommodate growth while protecting public health. Recently, CARB undertook several actions targeted at reducing emissions from goods movement activities. These actions include:

- Ultra low sulfur diesel (ULSD) fuel requirements for on-road and off-road diesel engines fueled within the SoCAB
- Emissions standards for cargo handling equipment (CHE)
- Statewide Memorandum of Understanding (MOU) between CARB and line haul railroads

In addition to the focus on DPM, oxides of nitrogen (NOx), and oxides of sulfur (SOx), greenhouse gases (such as carbon dioxide, methane, etc.) are also an important consideration when evaluating emissions from mobile sources, since they potentially have a global effect. While the immediate purpose of this Clean Air Action Plan is to address emissions that affect public health risk on a local basis, it is important to note that none of the emissions mitigations measures proposed in this Plan will cause an increase in greenhouse gas (GHG) and that some, in fact, will reduce GHGs. Further, statewide greenhouse gas emission reductions are expected to be achieved through AB 32, which was signed into law in September 2006, requiring CARB to develop regulations and market mechanisms to implement a cap on greenhouse gas emissions from stationary sources that will reduce California's greenhouse gas emissions to 1990 levels by 2020. In addition, the Port of Los Angeles has joined the California Climate Registry which requires the Port to estimate Green House Gas Emissions from various port operations by 2007.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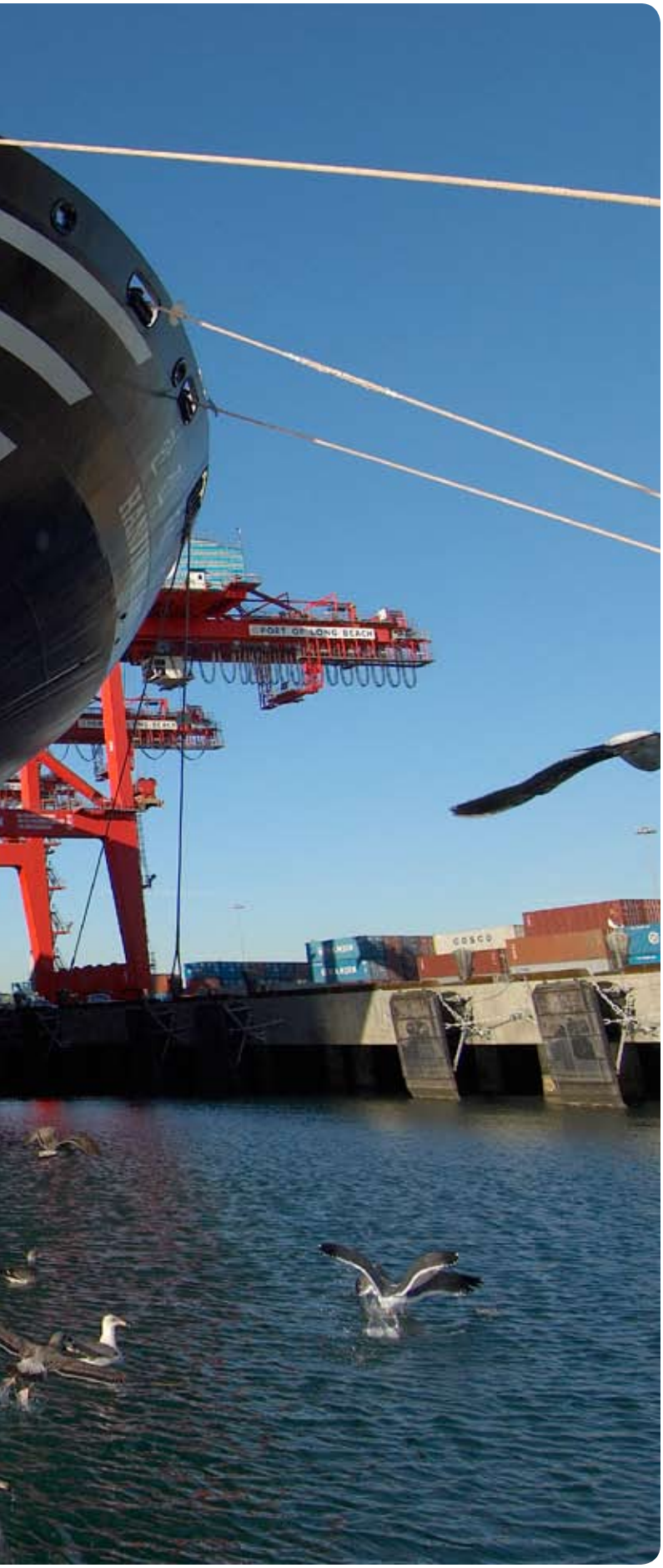


## THE VISION

The Ports recognize that their ability to accommodate the projected growth in trade will depend upon their ability to address adverse environmental impacts (and, in particular, air quality impacts) that result from such trade. The Clean Air Action Plan is designed to develop mitigation measures and incentive programs necessary to reduce air emissions and health risks while allowing port development to continue.

The Ports are determined to accelerate ongoing efforts to reduce air pollution from all modes of goods movement through the San Pedro Bay Ports. The Clean Air Action Plan is not only built upon the Ports' previous air quality mitigation efforts, but also on the efforts of the regulatory agencies, business stakeholders and concerned residents. This Plan incorporates their concepts and control measures while establishing a new vision for port-related goods movement.

The Ports are pleased to note that from preliminary emissions inventory estimates for 2005, current emission levels from cargo handling equipment are lower than 2001/2002 levels. But having noted this encouraging progress, both Ports recognize that there is still a significant amount of work to be done.

The Ports share the goal of reducing air pollution from existing and future port operations to acceptable regulatory health risk thresholds. The Ports take responsibility to implement the measures in this Clean Air Action Plan. The generally accepted health risk threshold for individual proposed projects is a 10 in 1,000,000 additional cancer risk. It is recognized that the standardized modeling used to measure this risk is imperfect. Therefore, the Clean Air Action Plan is multi-faceted. The Clean Air Action Plan includes stringent San Pedro Bay-wide standards that achieve real emissions reductions; a nested set of implementation strategies; investment in the development and integration of new/cleaner technologies into port operations; and creation of a comprehensive monitoring and tracking program that will document progress on all of these elements.

The Ports also expect that the Clean Air Action Plan will be the basis of control measures incorporated into the State Implementation Plan (SIP) through the

SCAQMD's AQMP. Due to the close coordination with SCAQMD and CARB, the Clean Air Action Plan will, it is hoped, represent the joint approach for reducing the "fair share" of emissions associated with port-related operations.

The Ports also acknowledge the reality that reducing pollution to near zero levels would require massive conversion to electric, fuel cell or hydrogen vehicles, which are not yet commercially available for all applications. However, there are low-emissions technologies commercially available that slash pollution up to 90% from the 2004 on-road heavy-duty exhaust emissions standards. The Ports also recognize that the extensive scope of emission reductions necessary to achieve the goals envisioned in this Plan will require more than a 5-year period to fully implement. This highlights the need for the Plan to be adopted in 2006, and for aggressive implementation to commence with strong commitments by both Ports.

It is important to understand that a significant amount of work will still be needed beyond the next five years to ensure that the goals are met and maintained. Due to the enormity of the challenges ahead, the Ports simply cannot fund these initiatives through their current operating budgets. Substantial additional funding must be secured. Efforts will need to be made at the legislative level to secure long-term funding, as there will be the need for incentives, coordination, evaluation, demonstration, implementation, and planning well beyond the five-year horizon. These challenges are why the Clean Air Action Plan needs to be reevaluated, adjusted, and updated annually.

For the continued reduction of public health risk associated with port-related sources, the regulatory agencies will need to continue to apply tighter emissions reduction requirements in the future to ensure that growth does not reverse the desired trend of continual emissions reductions. Further, "green-container" transport systems need to be developed, demonstrated, and integrated such that they ultimately replace the current systems. These "green-container" transport systems ultimately should be near pollution-free and be powered by "green energy" sources and renewable fuels. Perfecting the technology for a truly clean tomorrow is a critical element of the Clean Air Action Plan. Unless the Ports work with stakeholders and private enterprise to start demonstrating and implementing these technologies today, the benefits of cleaner port-related operations tomorrow will not be fully achieved.

Both Ports are supportive of greater regulatory agency participation, action, and regulation as this creates a fair and level playing field for both industry and ports. As the San Pedro Bay Ports approve and implement the Clean Air Action Plan, it could put them at a competitive disadvantage with (in regard to cargo that is destined for outside of the SoCAB) other California, west coast, and international ports. The Ports urge CARB to make the Clean Air Action Plan a standard that all California ports must meet, and further the Ports encourage EPA to make it a standard that all ports in United States must meet.

Even with the significant commitment of funding from both Ports and the SCAQMD, a sizeable infusion of additional funding will be required to execute the Clean Air Action Plan just to ensure turnover of the frequent-caller truck fleet (trucks that call at the Ports seven or more times per week).

The California Legislature recently passed a long-awaited infrastructure bond package that includes monies for port infrastructure and trade related air quality improvements. If approved by California voters in November 2006, funds resulting from the bond measure could be used to supplement Port and SCAQMD funding. Both the regulatory agencies and the Ports will need to push for the required additional funding through legislative solutions and will need to educate the public regarding these issues.


## THE PROCESS

The Port of Los Angeles, Port of Long Beach, SCAQMD, CARB, and EPA Region 9 have worked together to develop the scope and breadth of the San Pedro Bay Ports Clean Air Action Plan. This Plan was built upon earlier work, including the public efforts of the No Net Increase Task Force. The Ports and the agencies agreed that a draft Clean Air Action Plan should be released for public comment and to seek consensus regarding the contents of the final Clean Air Action Plan.

This Clean Air Action Plan offers several opportunities for continued collaboration with these agencies, including evaluations, demonstrations, funding, studies, emissions inventories, lessons learned during implementation, and future Plan updates.

The draft Clean Air Action Plan was released to the public on June 28, 2006 with an initial public review period of 30 days. The Plan was made available at both Ports' offices, as well as at public libraries throughout the surrounding communities. In addition, the Plan was posted on both Ports' websites in six different languages: English, Spanish, Cambodian, Chinese, Korean, and Japanese. Further, hard copies and CDs containing electronic versions of the Clean Air Action Plan documents were made available upon request. During this public review period, both Ports conducted four public workshops in which they presented an overview of the Clean Air Action Plan and took comments from the public. The meetings were held at:

- Banning's Landing, Wilmington
- Long Beach Council Chambers, Long Beach
- Cesar Chavez Park, Long Beach
- Peck Park, San Pedro

Available at the public workshops were printed copies of the Clean Air Action Plan, compact disks with the Plan, and live Spanish translations. Staff from both Ports, SCAQMD, CARB, and EPA Region 9 participated in the presentation panel at all meetings. After the overview of the Clean Air Action Plan, speakers who filled out speaker cards were given 5 minutes each to make statements, and after the speakers were finished, written questions from the audience were read aloud and answered by the panel of Port and regulatory staff. Oral comments were recorded and several requests for extension of the public review period were made. Based upon formal requests from five organizations, the Board's of both Ports granted a 30-day extension to the public comment period. All oral and written comments and the Ports' responses are provided in the San Pedro Bay Ports Clean Air Action Plan Comments Compendium. In addition to the public meetings, both Ports briefed the Boards of CARB and SCAQMD on the Clean Air Action Plan.


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RPRX 2401
Green
Goat
RAILPOWER
Ultra Clean Hybrid
United States Patent No. 6,308,639

# THE PLAN

This Clean Air Action Plan sets forth an array of approaches that can achieve the goals and implementation strategies that the Ports will use to reduce the public health risk from port operations. Details of the Plan are in the Technical Report.

**The Clean Air Action Plan consists of the following seven elements:**

- Standards and Goals
- Implementation Strategies
- Control Measures
- Technology Advancement Program
- Infrastructure & Operational Efficiency Improvements Initiative
- Estimated Emissions Reductions
- Estimated Budget Requirements

**This Clean Air Action Plan is based on the following principles:**

1) The Ports will work cooperatively to implement these strategies.
2) The Clean Air Action Plan, although built upon past efforts, will be continually updated and improved.
3) The Ports will be open to new technologies and other advancements to accelerate meeting the vision expressed above.
4) The Ports will achieve an appropriate "fair share" of necessary pollutant emission reductions.

Tenants, railroads, and the trucking industry will be expected to "sign-on" and participate in the Clean Air Action Plan beginning 2007. The Ports will work with tenants and the railroads to assist them in developing their own programs to meet the Clean Air Action Plan standards. These groups will be asked for a written explanation as to how they intend to meet or surpass the goals of the Clean Air Action Plan. The Ports are committed to working with industry stakeholders to assure speedy action.

The movement of goods by heavy-duty trucks from the Ports through local communities is an extraordinary challenge because it involves thousands of truck owner/operators who do not have the financial resources to acquire cleaner trucks on their own. The Ports are adopting a goal that will eliminate "dirty" trucks from San Pedro Bay terminals within 5 years from adoption of this Clean Air Action Plan. The Ports will therefore work with all concerned parties to establish new relationships and business paradigms that will help secure the necessary funding to make this important transition. The Ports will also pursue "green-container" transport systems that can transport containers with "green power" to inland destinations so that, over time, the Ports can move toward a pollution-free transport system for goods movement.

One of the most valuable aspects of this Clean Air Action Plan is that both Ports will combine resources and expertise to supplement the actions of federal, state, and local regulators as necessary to implement cleaner technologies for various source categories. The synergy of this group will also lead to additional options that can be implemented to reduce emissions and eliminate the associated public health risk. This will be achieved through the Technology Advancement Program.


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## THE STANDARDS

The Clean Air Action Plan establishes the path by which the targeted control measures will be implemented in the short-term and provides for budget planning over a five fiscal-year period. The Clean Air Action Plan will be reviewed each year in light of progress made during the previous year, and implementation strategies will be adjusted to ensure that the goals for the Clean Air Action Plan are achieved. Additional measures may be specified in future Clean Air Action Plan updates to maintain progress towards a complete and timely achievement of the goals. Goals will be reviewed annually as part of the update cycle and new goals may be added.

The following foundations support the San Pedro Bay Ports Clean Air Action Plan.

- The San Pedro Bay Ports are committed to expeditiously and constantly reduce the public health risk associated with port-related mobile sources, and implement a program within five years that will achieve this goal.
- The San Pedro Bay Ports are committed to facilitate growth in trade while reducing air emissions.
- The San Pedro Bay Ports will focus on lease amendments/renewals and California Environmental Quality Act (CEQA) evaluations as mechanisms to establish provisions and requirements in leases consistent with meeting the Clean Air Action Plan goals.
- The San Pedro Bay Ports will implement tariff changes as needed to influence activity changes that will result in emissions reductions.
- The San Pedro Bay Ports are committed to monitor, document, and report on performance of their efforts under the Clean Air Action Plan and will update the Plan on an annual basis.

The principles upon which this Clean Air Action Plan is based set forth extremely ambitious goals for port-related goods movement. From the vision of reducing port-related health risk and the principles stated previously, it is the Ports' goal to establish standards at the following three levels:

(1) **San Pedro Bay Standards** (see discussion on development of these standards below)

- Reduce public health risk from toxic air contaminants associated with port-related mobile sources to acceptable levels.
- Reduce criteria pollutant emissions to the levels that will assure that port-related sources decrease their "fair share" of regional emissions to enable the South Coast Air Basin to attain state and federal ambient air quality standards.
- Prevent port-related violations of the state and federal ambient air quality standards at air quality monitoring stations at both Ports.

(2) **Project Specific Standards**

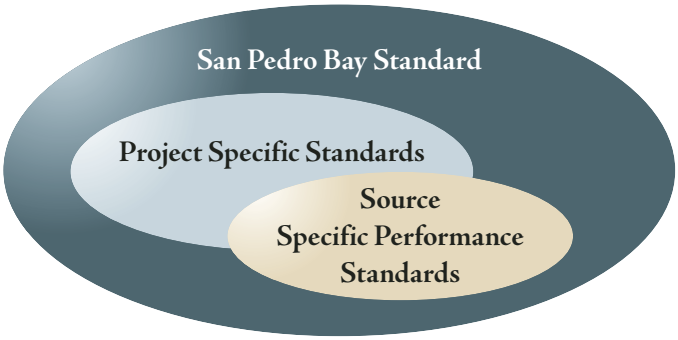
- Projects must meet the 10 in 1,000,000 excess residential cancer risk threshold, as determined by health risk assessments conducted subject to CEQA statute, regulations and guidelines and implemented through required CEQA mitigations associated with lease negotiations.
- Projects that exceed the SCAQMD CEQA significance thresholds for criteria pollutants must implement the maximum available controls and feasible mitigations for any emissions increases.
- The contribution of emissions from a particular project to the cumulative effects, in conjunction with Clean Air Action Plan and other adopted/implemented control measures, will allow for the timely achievement of the San Pedro Bay Standards.

**(3) Source Specific Performance Standards**

- A series of standards that will be met through Port lease requirements, tariffs, incentives, and market-based mechanisms as outlined below.

The standards are inter-related. Compliance with the Project Specific Standards may require that an individual terminal go beyond the Source Specific Performance Standards or advance the date of compliance with those performance standards. In addition, projects that meet the Project Specific Standard associated with health risk, must also meet the criteria pollutant emissions reductions associated with their "fair share" of regional emissions, and health risk reductions, as stated in the San Pedro Bay Standard. The relationships between these three standards are illustrated below.

## Relationships of Standards




Establishment of an appropriate San Pedro Bay Standard is a difficult task at this time, as no such standards currently exist. As currently written, there are three components to the San Pedro Bay Standards that are to be met: 1) reduction in health risk, 2) "fair share" of mass emission reductions of criteria pollutants, and 3) compliance with standards at the port air monitoring stations. These three components are included to identify the direction of the Ports and the agencies in developing an appropriate San Pedro Bay standard.

The Ports and the agencies anticipate building upon modeled Air Quality Management Plan (AQMP) estimates for developing overall San Pedro Bay emissions targets for NOx, SOx and PM, with targets and milestones for 2014 and 2020. These targets will establish the San Pedro Bay Ports' "fair share" of regional emissions reductions. These targets will be a valuable tool for long-term air quality planning, aiding the Ports and the agencies with evaluating the long-term cumulative effects of future projects. The Ports and the agencies are currently discussing the appropriate emissions targets for the two Ports, and expect to set an appropriate standard by early next year.

Discussions between the Ports and the regulatory agencies to better define both a toxics health risk standard and the criteria emissions reduction standard ("fair share") for San Pedro Bay have already begun. The goal of these discussions is to develop and present the agreed upon San Pedro Bay Standards to the Ports' Boards for their approval by Spring 2007. It is the goal of the Ports to establish these standards as soon as possible in order that they may be considered in the CEQA documents for a number of upcoming development projects. Due to the critical nature of these standards, the Ports and regulatory agencies will work together expeditiously to deliver sound proposals to the Boards as soon as possible.

Project Specific Standards require all new projects to meet or be below acceptable health risk standards (10 in 1,000,000 excess residential cancer risk threshold) and for projects that exceed the SCAQMD CEQA significance thresholds for criteria pollutants to implement the maximum available controls and feasible mitigations for any emissions increases. The Project Specific Standards do not limit the types of impacts that will be considered or mitigated pursuant to CEQA. For example, while the 10 in a million project standard for cancer risks applies to residential risks, the Ports will continue to evaluate and, if required by CEQA, mitigate all impacts. Additionally the Ports will evaluate and mitigate, where required, non-cancer health impacts.

One challenge, however, is that the Ports do not wish to discourage early action by tenants to reduce emissions beyond regulatory requirements. Therefore, the Ports will meet with SCAQMD and CARB to develop procedures by which early actions will be considered when evaluating projects under both the health risk and "fair share" criteria for emissions reduction standards. It is against both the interest of the Clean Air Action Plan and the AQMP to discourage voluntary early action on emission reductions.

As also specified under the Project Specific Standards, the emissions from an individual project will be analyzed based upon its contribution to cumulative effects. The project contribution will be evaluated in conjunction with the Clean Air Action Plan and other federal, state and local adopted and/or implemented control measures to ensure that the contribution to cumulative effects will allow for the timely achievement of the San Pedro Bay Standards.

The Ports have established Source Specific Performance Standards to assist in Clean Air Action Plan implementation which lay out particular strategies to attain the ultimate goals. However, the Ports encourage innovation and will accept equivalent strategies once proven. The Source Specific Performance Standards proposed in the Clean Air Action Plan are:

**Heavy-Duty Vehicles/Trucks**

- By the end of 2011, all trucks calling at the Ports frequently or semi-frequently will meet or be cleaner than the EPA 2007 on-road particulate matter (PM) emissions standards (0.01 g/bhp-hr for PM) and be the cleanest available oxides of nitrogen (NOx) at the time of replacement or retrofit.

**Ocean-Going Vessels**

- 100% compliance with the Vessel Speed Reduction (VSR) Program (initially out to a distance of 20 nm from Point Fermin, and expanded to 40 nm).
- The use of ≤0.2% sulfur Marine Gas Oil (MGO) fuel in vessel auxiliary and main engines at berth and during transit out to a distance of 20 nautical miles (nm) from Point Fermin and expanded to 40 nm or equivalent reduction (starting 1st quarter 2008).
- The use of shore-power (or equivalent) for hotelling emissions implemented at all major container, selected liquid bulk, and cruise terminals in POLA within five years and at all container terminals and one crude oil terminal in POLB within five to ten years (the implementation time difference being due to the Port of Long Beach's more extensive infrastructure development schedule).
- The use of diesel particulate matter (DPM) and NOx control devices on auxiliary and main engines mandated on new vessel builds and existing frequent callers.

**Cargo Handling Equipment**

- Beginning 2007, all CHE purchases will meet one of the following performance standards:
  - Cleanest available NOx alternative-fueled engine, meeting 0.01 g/bhp-hr PM, available at time of purchase, or
  - Cleanest available NOx diesel-fueled engine, meeting 0.01 g/bhp-hr PM, available at time of purchase.
  - If there are no engines available that meet 0.01 g/bhp-hr PM, then must purchase cleanest available engine (either fuel type) and install cleanest Verified Diesel Emissions Controls (VDEC) available.
- By the end of 2010, all yard tractors operating at the San Pedro Bay Ports will meet at a minimum the EPA 2007 on-road or Tier IV engine standards.
- By the end of 2012, all pre-2007 on-road or pre-Tier IV top picks, forklifts, reach stackers, rubber tired gantries (RTG), and straddle carriers <750 hp will meet at a minimum the EPA 2007 on-road engine standards or Tier IV off-road engine standards.
- By end of 2014, all CHE with engines >750 hp will meet at a minimum the EPA Tier IV off-road engine standards. Starting 2007 (until equipment is replaced with Tier IV), all CHE with engines >750 hp will be equipped with the cleanest available VDEC verified by CARB.

**Harbor Craft**

- By the second year of the Plan, all Harbor Craft (HC) home-based at San Pedro Bay Ports will meet EPA Tier II for harbor craft or equivalent reductions.
- By the fifth year, all previously repowered HC home-based at San Pedro Bay Ports will be retrofitted with the most effective CARB verified NOx and/or PM emissions reduction technologies.
- When Tier III engines become available, within five years all HC home-based at San Pedro Bay Ports will be repowered with the new engines.

**Railroad Locomotives**

- By 2008, all existing Pacific Harbor Line switch engines in the Ports shall be replaced with Tier II engines equipped with 15-minute idling limit devices, retrofitted with either DOCs or DPFs, and shall use emulsified or other equivalently clean alternative diesel fuels available.
- Any new switch engine acquired after the initial Pacific Harbor Line replacement must meet EPA Tier III standards or equivalent to 3 grams NOx/bhp-hr and 0.023 g PM/bhp-hr.
- By 2011, all diesel-powered Class 1 switcher and helper locomotives entering Port facilities will be 90% controlled for PM and NOx, will use 15-minute idle restrictors, and after January 1, 2007 use ULSD fuels.
- Starting in 2012 and fully implemented by 2014, the fleet average for Class 1 long haul locomotives calling at Port properties will be Tier III equivalent (Tier II equipped with DPF and SCR or new locomotives meeting Tier III) PM and NOx and will use 15-minute idle restrictors. Class 1 long haul locomotives will operate on USLD while on Port properties by the end of 2007. Technologies to get to these levels of reductions will be validated through the Technology Advancement Program.
- Any new rail yard developed or significantly redesigned at the San Pedro Bay Ports shall be required to operate the cleanest available technology for switcher, helper, and long haul locomotives, utilize idling shut-off devices and exhaust hoods, use only ULSD or alternative fuels, and have clean only CHEs and HDVs consistent with the Clean Air Action Plan.

# IMPLEMENTATION

Given that most of the control measures go beyond existing regulatory requirements (none are mandated as part of regular port operations), the Ports must take steps to implement the measures. In order to maximize effectiveness of implementation, multiple strategies will be evaluated and developed.

The primary implementation methods that both Ports agree upon are incorporation of control measures into lease requirements and utilization of appropriate mitigation measures, which may be identified as part of the CEQA evaluation process. The advantage of these methods is that the control measures will be tied to the lease or permit and, from a compliance standpoint, failure to meet the control measures would mean a violation of the lease or permit. The limitation of this strategy is that the timing of implementation port-wide will depend on the timing of lease negotiations. To make up for this limitation, the Ports will use targeted incentive funding to "encourage" early emissions reduction measures and other strategies such as tariffs changes wherever possible.

As the Clean Air Action Plan is put into practice, several implementation strategies will be utilized to maximize the reduction of public health risk, criteria pollutant mass emissions reductions, and meet the stated goals. Implementation will adapt so that strategies may be added, changed, or abandoned based on the experience that will be built up as the Clean Air Action Plan moves forward. Updates to each Port's Board will be made on how the various implementation strategies are progressing and any changes to the initial suite of strategies.

The Ports have evaluated numerous implementation strategies for the proposed standards, extensively reviewed options, and evaluated several scenarios. Strategies evaluated to date are:

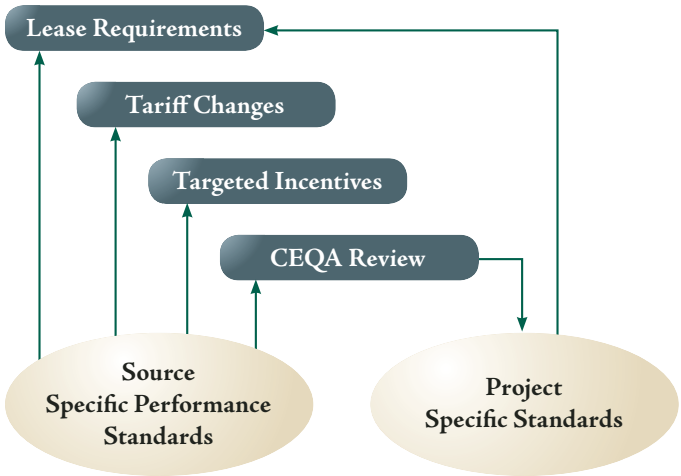
- Lease Requirements
- Tariff Changes
- CEQA Mitigations
- Incentives
- Voluntary Measures
- Credit Trading
- Capital Lease Backs
- Government-Backed Loan Guarantees
- Third Party Discount Leasing/ Purchasing
- Franchises
- Joint Powers Authority Trucking Entity
- Environmental Mitigation Fee
- Recognition Program

All control measures and implementation strategies are subject to further legal analysis by the City Attorneys of the two Ports. Encouragement of voluntary efforts and the recognition program strategy will be implemented as part of the Clean Air Action Plan independent of which additional strategies are ultimately used.

The most effective combination of implementation strategies identified at this time is a mix of lease requirements, tariff changes, CEQA mitigations, and incentives. This combination provides redundancy in implementing the Source Specific Performance Standards should any one of the other specific strategies fail to be applied.

The following flow diagram illustrates how the Source Specific Performance Standards and the Project Specific Standard will be implemented by the various strategies, and how the performance and project standards are related.

### Implementation Strategies and Standards Relationships



Tariff changes offer an opportunity to affect a broader range of tenants but have potential implementation issues. Lease requirements may be able to go further than tariffs, but requirements can generally only be negotiated when the lease is reopened, such as when:

- A terminal change/modification triggers an Environmental Impact Report (EIR)
- A new lease is sought
- An existing lease comes up for renewal

Therefore, these lease reopening dates are a key component in determining potential emissions reduction magnitudes from control measures.

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The following table presents the Port of Los Angeles' major leases, expiration dates, and currently anticipated upcoming Board action dates related to Environmental Impact Reports and/or lease actions.

POLA Leases & Status

| Land Use | Grantee | Terms of Agreement | Date Expires | Anticipated Board Action |
|---|---|---|---|---|
| Container | POLA Container Terminal (berths 206-209) | Vacant | Vacant | Within 5 years |
| Container | Eagle Marine Services, Ltd. | 30 Years | 12/31/2026 | 1st Quarter 2008 |
| Container | APM Terminals Pacific, Ltd. | 25 Years | 7/31/2027 | Not in 5 yr period |
| Container | China Shipping Holding Company, Ltd. | 25 Years | New | 1st Quarter 2007 |
| Container | Evergreen Marine Corporation, LTD. | 32 Years | 12/31/2028 | 2nd Quarter 2008 |
| Container | TraPac | 15 Years | 9/30/2002 | 2nd Quarter 2007 |
| Container | Yang Ming Marine Transport Corporation, Ltd. | 20 Years | 10/10/2021 | 1st Quarter 2008 |
| Container | Yusen Terminals Inc. | 25 Years | 9/30/2016 | 2nd Quarter 2008 |
| Passengers/Sup Com. | Pacific Cruise Ship Terminals, LLC | 18 Months | 6/30/2005 | Within 5 years |
| Automobile | Distribution & Auto Services, Inc. | N/A | N/A | N/A |
| General Cargo | Rio Doce Pasha Terminal, L.P. (berths 174-181) | 15 Years | Holdover | 1st quarter 2008 |
| General Cargo | Stevedoring Services of America (berths 54-55) | 10 Years | 10/31/2009 | 4th Quarter 2009 |
| Dry Bulk | Hugo Neu-Proler Company | 30 Years | 8/30/2024 | Not in 5 yr period |
| Dry Bulk | Los Angeles Export Terminal Corporation | 35 Years | 8/30/2032 | N/A |
| Liquid Bulk | Equilon (berths 167-169) | 35 Years | 2/11/2023 | Not in 5 yr period |
| Liquid Bulk | Exxon Mobil Corporation (berths 238-240) | 25 Years | 12/31/2015 | Not in 5 yr period |
| Liquid Bulk | Pacific Energy Marine Oil (pier 400) | TBD | TBD | 2nd Quarter 2007 |

POLA Leases & Status (continued from previous page)

| Land Use | Grantee | Terms of Agreement | Date Expires | Anticipated Board Action |
|---|---|---|---|---|
| Liquid Bulk | Conoco Phillips (berths 148-151) | TBD | Holdover | Not in 5 yr period |
| Liquid Bulk | Ultramar (berth 164) | 25 Years | Holdover | 3rd Quarter 2007 |
| Liquid Bulk | Vopak (berths 187-191) | 38 Years | 8/29/2023 | Not in 5 yr period |
| Liquid Bulk | Westway Terminal Company, Inc. (berths 70-71) | 30 Years | 3/23/2025 | Not in 5 yr period |
| Liquid Bulk | GATX Tank Storage (berths 118-119) | 25 Years | 4/13/2013 | Unknown |
| Liquid Bulk | Amerigas (berth 120) | TBD | Holdover | Not in 5 yr period |
| Liquid Bulk | Valero (berth 163) | 20 Years | 6/24/2014 | Not in 5 yr period |

The following table presents the Port of Long Beach's major leases, expiration dates, and currently anticipated upcoming Board action dates related to Environmental Impact Reports and/or lease actions.

POLB Leases & Status

| Land Use | Grantee | Terms of Agreement | Date Expires | Anticipated Board Action |
|---|---|---|---|---|
| Container | PCT | 20 Years | 4/30/2022 | Not in 5 yr period |
| Container | SSAT - Pier C | 20 Years | 4/30/2022 | Complete |
| Container | SSAT Long Beach - Pier A | 25 Years | 10/21/2027 | Not in 5 yr period |
| Container | TTI | 25 Years | 8/11/2027 | Not in 5 yr period |
| Container | CUT | 30 Years | 6/30/2009 | 4th Quarter 2007 |
| Container | LBCT | 25 Years | 6/30/2011 | 4th Quarter 2007 |
| Container | Pier S | TBD | New Lease | 3rd Quarter 2007 |
| Container | ITS | 20 Years | 8/31/2006 | Complete |
| Auto | Toyota | 16 Years | 12/31/2006 | 4th Quarter 2006 |
| Break Bulk | Cooper/T. Smith | 20 Years | 12/31/2008 | 4th Quarter 2008 |
| Break Bulk | Crescent Terminals | 15 Years | 6/30/2015 | Not in 5 yr period |
| Break Bulk | Fremont | 40 Years | 4/30/2036 | Not in 5 yr period |
| Break Bulk | Catalyst Paper (USA) Inc. | 3 Years | 8/31/2008 | 3rd Quarter 2008 |
| Break Bulk | Pacific Coast Recycling | 25 Years | 11/13/2019 | Not in 5 yr period |
| Break Bulk | Weyerhaeuser | 36 Years | 1/31/2011 | 1st Quarter 20011 |
| Dry Bulk | BP West Coast Products | 40 Years | 12/31/2009 | 4th Quarter 2009 |

POLB Leases & Status (continued from previous page)

| Land Use | Grantee | Terms of Agreement | Date Expires | Anticipated Board Action |
|---|---|---|---|---|
| Dry Bulk | CEMEX Pacific Coast Cement | 40 Years | 8/31/2021 | Not in 5 yr period |
| Dr y Bulk | Koch Carbon | 40 Years | 12/31/2027 | Not in 5 yr period |
| Dry Bulk | Marsulex | 20 Years | 5/31/2005 | 4th Quarter 2006 |
| Dry Bulk | MMC (Mitsubishi) | 33 Years | 6/13/2022 | Not in 5 yr period |
| Dry Bulk | Metropolitan Stevedore | 35 Years | 3/31/2016 | Not in 5 yr period |
| Dry Bulk | Morton | 15 Years | 7/31/2005 | 1st Quarter 2007 |
| Dry Bulk | NGC | 60 Years | 11/30/2024 | Not in 5 yr period |
| Dry Bulk | G-P Gypsum | N/A (private) | N/A (private) | N/A (private) |
| Dry Bulk | Oxbow (East) | 20 Years | 11/3/2019 | Not in 5 yr period |
| Dry Bulk | Oxbow (Pad 14) | 31 Years | 6/30/2021 | Not in 5 yr period |
| Dry Bulk | Oxbow (South) | 32 Years | 6/30/2021 | Not in 5 yr period |
| Dry Bulk | Oxbow (West) | 41 Years | 12/31/2027 | Not in 5 yr period |
| Other | Sea-launch | 10 Years | 1/14/2013 | Not in 5 yr period |
| Liquid Bulk | BP/ARCO | 40 Years | 5/30/2023 | 3rd Quarter 2007 |
| Liquid Bulk | ATSC | 20 Years | 12/31/2014 | Not in 5 yr period |
| Liquid Bulk | BP Terminal 3 | N/A (private) | N/A (private) | N/A (private) |
| Liquid Bulk | World Oil | N/A (private) | N/A (private) | N/A (private) |
| Liquid Bulk | Baker Commodities | month-to-month 90 day notice | N/A | Not in 5 yr period |
| Liquid Bulk | Chemoil | 36 Years | 6/30/2010 | 4th Quarter 2007 |
| Liquid Bulk | Equilon (Shell) | 40 Years | 10/31/2006 | 1st Quarter 2007 |
| Liquid Bulk | Petro-Diamon | 20 Years | 9/30/2022 | Not in 5 yr period |
| Liquid Bulk | VOPAK | N/A (private) | N/A (private) | N/A (private) |



### New Technology Integration

New emissions reduction technologies are constantly emerging. The Technology Advancement Program seeks to support development of these new technologies in the port environment. Technologies available today can be incorporated into terminal leases as they are renegotiated. However, most facility leases are issued for long periods (e.g., 20 to 30 years). Once a lease is issued, there may be limited opportunity for the Ports to require tenants to adopt new technologies. However, there may be an opportunity to require or incentivise tenants to adopt these technologies through tariffs (i.e., requirements and/or fees), lease amendments, incentives, agency regulation, voluntary adoption, or other mechanisms. Ports will form a working group to identify and evaluate these and other options and report to each Port's Board.

## THE CONTROL MEASURES AND INITIATIVES

Specific source category control measures were developed from both existing Port air programs and the work completed by the City of Los Angeles' No Net Increase (NNI) Task Force report and the Port of Long Beach's Green Port Policy. The table below illustrates how both Ports are considering initial implementation strategies at this time for the various measures proposed in the Clean Air Action Plan. The recognition program and voluntary measures will be implemented across all measures. These initial implementation strategies identified in the table are thought by the Ports to be ready for use to initiate the control measures. Depending on the performance of these initial strategies, they will be adjusted, removed, enhanced, or other additional strategies will be utilized in order to maximize timely emissions reductions. In addition, the Ports are looking to what extent strategies like tariff changes can be effectively utilized to expedite emissions reductions.

Details of the individual control measures and initiatives, including implementation milestones, are provided in the Final 2006 San Pedro Bay Ports Clean Air Action Plan Technical Report. However, further explanation on the measures is provided below.

| SPBP Measure Number | Control Measure | Initial Implementation Strategies |
|---|---|---|
| SPBP-HDV1 | Performance Standards for On-road Heavy-Duty Vehicles | Incentive/Lease Req/ Tariff/Impact fees/CEQA |
| SPBP-HDV2 | Alternate Fuel Infrastructure for Heavy Duty Natural Gas Vehicles | Incentives (Ports & SCAQMD Funding) |
| SPBP-OGV1 | OGV Vessel Speed Reduction (VSR) | Tariff /Incentives Lease Requirements/ CEQA |
| SPBP-OGV2 | Reduction of At-Berth OGV Emissions | Lease Requirements CEQA |
| SPBP-OGV3 | OGV Auxiliary Engine Fuel Standards | Lease Requirements Tariff (if applicable)/ CEQA |
| SPBP-OGV4 | OGV Main Engine Fuel Standards | Lease Requirements Tariff (if applicable)/ CEQA |
| SPBP-OGV5 | OGV Main and Auxiliary Engine Emissions Improvements | Lease Requirements Incentives/CEQA |
| SPBP-CHE1 | Performance Standards for CHE | Lease Requirements CEQA |
| SPBP-HC1 | Performance Standards for Harbor Craft | Incentives Lease Requirements/ CEQA |
| SPBP-RL1 | PHL Rail Switch Engine Modernization | Second Amendment to Operating Agreement |
| SPBP-RL2 | Exisiting Class 1 Railroad operations | MOU/Lease Req CEQA |
| SPBP-RL3 | New and Redeveloped Rail Yards | MOU/Lease Req CEQA |
| | Contruction Standards | CEQA |
| | Technology Advancement Program | Incentives |
| | Infrastructure & Operational Efficiency Incentive | Incentives |
| | POLA China Shipping Settlement | Settlement Agreement (Port of Los Angeles Only) |

## Control Measures for Heavy Duty Vehicles (Trucks)

By far the single most challenging component of the Clean Air Action Plan will be the implementation and funding associated with the mass turnover of frequent caller trucks (and ultimately all trucks) calling at both Ports in order to meet the proposed "clean truck" standards. This is not to say that implementing the rest of the standards will be easy. On-road heavy-duty diesel vehicle (truck) travel is an integral part of port operations, moving containers from the Ports into the SoCAB and beyond. The primary goals of the two measures addressing HDVs are: 1) the replacement or upgrade of all frequent and semi-frequent caller trucks, and all older (MY 1993 and older) trucks that call at both Ports by the end of 2011, and 2) developing alternative fuel infrastructure to provide additional options for cleaner trucks (request for proposal to be released no later than 1st quarter 2007).

To accelerate the emission reductions from the heavy duty truck sector, the Ports are proposing an extensive fleet modernization program currently focused on two paths: alternative fuels and cleaner diesel. To highlight the importance of this strategy in achieving near-term emission reductions, the Ports and SCAQMD are proposing to commit over $200 million over the next five years to replace and retrofit heavy-duty trucks. The current cost projections (detailed in the San Pedro Bay Ports Clean Air Action Plan Technical Report) call for a total investment from all funding sources of more than $1.8 billion dollars on HDV replacements or upgrades (installation of emission controls) over the five-year period covered by the Plan.

This measure focuses on making significant emissions reductions related improvements to the approximately 16,800 individual frequent and semi-frequent caller trucks that account for around 80% of all truck visits at the Ports (averaging 7.7 visits per week per truck). Several scenarios were developed (and further detailed in the Technical Report and its appendices) and the current favorite scenario (Budget Scenario 7) calls for all frequent caller trucks and semi-frequent trucks MY1992 and older to be replaced and semi-frequent caller trucks MY1993 to 2003 to be retrofitted with DPM and NOx reduction equipment. The Ports envision tackling this measure using several potential approaches, including: incentives with an impact fee component (targeted as close to the beneficial cargo owner as possible) to replace trucks, lease requirements to require the use of "clean trucks", and an emblem program to phase out "dirty trucks."

## Control Measures for Ocean-Going Vessels

Another primary focus of the Plan is reducing the emissions from ocean-going vessels (OGV) during transit (arriving and departing the San Pedro Bay Ports) and hotelling (tied up at berth transferring cargo) at terminals. To reduce transit emissions, the Ports will utilize a combination of operational and technology strategies targeted at: 1) vessel speed reduction (VSR), 2) at-berth emissions reductions, 3) cleaner fuels in auxiliary and main engines, and 4) integrating emission reduction technologies into OGV applications. The successful VSR program will be continued with compliance targets of 95% or better and enhanced by 1st quarter 2008 to extend to 40 nautical miles from Point Fermin. The Port of Los Angeles will adopt a similar program to the Port of Long Beach's successful Green Flag Program (compliance rate 87% as of August 2006) which provides recognition for participating vessels and dockage rebates for carriers that meet defined VSR goals.

Both Ports currently have separate and distinct programs, however, they share a common ultimate goal of moving all container berths, cruise ship operations, and other frequent visitors calling in San Pedro Bay to shore-power, and to move other vessel types towards alternative hotelling emissions reduction technologies. The Clean Air Action Plan focuses on two primary approaches for reducing at-berth emissions: (1) shore-power (transferring the electrical generation needs for OGVs while at berth from onboard diesel-electric generators to the cleaner shore-side power grid, which generates power through regulated/controlled stationary sources) and (2) hotelling emissions reduction requirements through alternative technologies, for ships that do not fit the shore-power model. Finally, both Ports will also build plugs-ins such that all port dredging can be accomplished using electric dredges.

The Port of Long Beach's program is referred to as shore-side power or cold ironing, while the Port of Los Angeles' program for shore-power is called Alternative

Maritime Power (AMP™). With regard to shore-power, the Ports are in significantly different positions from an infrastructure standpoint. Generally, the Port of Los Angeles has the main electrical trunk lines in place from which to "step-down" and condition power for ships. The Port of Long Beach, on the other hand, needs to bring new electrical service lines from Interstate 405 into the Harbor District to supply the appropriate power, which will require significant infrastructure improvements and thus delay implementation timelines compared with the Port of Los Angeles.

Over the next five years, the Port of Los Angeles will conduct a massive infrastructure improvement program to equip a number of berths at container and cruise terminals with AMP™ infrastructure. The following draft table presents the berths at the Port of Los Angeles that are currently planned to be improved and operational by the end of the fifth year of the Clean Air Action Plan.

POLA AMP™ Infrastructure by Berth Over the Next 5 Years **Note: LTT – Long Term Tenant**

| Site | Number of Berths | Date Operational |
|---|---|---|
| B90-93 (Cruise Terminal) | 2 Berths (2 Vessels) | 2008 |
| B100-102 (CS) | 1 Completed, 1 To Go | 2005 / 2009 |
| B121-131 (WBCT) | 2 Berths | 2011 |
| B136-147 (TraPac) | 2 Berths | 2009 |
| B175-181(Pasha) | 1 Berth | 2011 |
| B206-209 (LTT) | 1 Berth | 2011 |
| B212-218 (YTI) | 1 Completed | 2006 |
| B224-236 (Evergreen) | 1 Berth | 2008 |
| Pier 300 (APL) | 1 Berth | 2011 |
| Pier 400 (APM) | 1 Berth | 2011 |
| Pier 400 (Liquid Bulk) | 1 Berth | 2011 |
| **Total AMP'd Berths** | **15 Berths** | |

Over the next five years, the Port of Long Beach currently plans to have crude oil Berth T121 and nine container berths operational with shore-power. In addition, the Port will be undergoing a massive electrical infrastructure improvement program to construct an additional 6.6 kV sub-transmission line to serve the Harbor District, and complete infrastructure improvements for the remaining container terminals, electric dredge plug-ins, and additional infrastructure for electrification of certain types of yard equipment.



POLB Shore–power Infrastructure by Berth Over the Next 5 Years

| Site | Number of Berths | Date Operational |
|---|---|---|
| Pier C (Matson) | 2 Berth | 2011 |
| Piers D, E, F (Middle Harbor) | 1 Berth | 2011 |
| Pier G (ITS) | 3 Berths | 2011 |
| Pier S | 3 Berths | 2011 |
| Pier T, berth T 121 (BP) | 1 Berth | 4th Quarter 2007 |
| **Total Shore Power Power Berths** | **10 Berths** | |

In addition to the ten berths shown in the preceding table, the Port of Long Beach is committed to provide cold ironing infrastructure at all container and one crude oil terminal within the next ten years. The Port is also committed to work to incorporate cold ironing at terminals within the next five years where no lease renewal opportunity exists to mandate cold ironing. The Port will collaborate with the leaseholders and City of Long Beach to implement cold ironing at the additional berths shown in the following table.

POLB Potential Additional Shore-Power Berths Over the Next 5 Years

| Site | Number of Berths | Date Operational |
|---|---|---|
| Pier A (SSA) | 1 Berth | 2011 – 2016 |
| Piers H (Carnival) | 1 Berth | 2011 – 2016 |
| Pier J (SSA) | 1 Berth | 2011 – 2016 |
| Navy Mole (Sea–Launch) | 2 Berths | 2011 – 2016 |
| Pier T (TTI) | 1 Berth | 2011 – 2016 |
| **Total Shore Power Power Berths** | **6 Berths** | |

Finally, both Ports are exploring the purchase of "green-power" for their respective shore-power programs.

For vessels that do not fit the shore-power model, hotelling emission reductions will be required through alternative technologies that achieve equivalent emissions reductions. These alternative technologies are in various states of development from design to operational. Some examples of these alternative technologies include: exhaust gas scrubbing technologies (capture vessel stack emissions while at berth and remove pollutants from exhaust streams either on-shore or on a barge), emerging emissions reduction technologies (such as sea water scrubbers, selective catalytic reduction, etc.), and shore-powered dockside electrical pumps for tankers which reduce onboard pumping loads (generally these pumps are driven by steam power).

Some of these technologies can potentially achieve equivalent emissions reductions of shore power, while others have the potential for significant reduction of hotelling emissions.

The third goal is to integrate cleaner fuels into OGV auxiliaries and main engines, such as marine gas oils ≤0.2% sulfur content. Initially, the Ports would work with fuel suppliers, shipping lines, and other ports to accelerate the introduction of these lower sulfur fuels abroad so that ships calling San Pedro Bay Ports would have the fuel readily available prior to arrival. As proposed, these measures would phase in the use of ≤0.2% S MGO fuels in auxiliary and main engines with initial implementation driven by lease requirements and potentially with tariffs.

The final goal of the Clean Air Action Plan with respect to OGVs is to incorporate emission reduction technologies into OGVs to get further emissions reductions from the largest port-related source category (by mass emissions). These technologies would target all modes of operations and would be validated through the Technology Advancement Program.

## Control Measures for Cargo Handling Equipment

The Clean Air Action Plan's CHE control measure sets performance standards for equipment and accelerated fleet turnover beyond the CARB's rule.

## Control Measures for Harbor Craft

The Clean Air Action Plan's harbor craft control measure focuses on identifying candidate vessels for repowering under the Carl Moyer Program, utilization of shore power for assist tugs while fleeting (at their home-port location), and the accelerated engine turnover to Tier III standards, once the engines become available.

## Control Measures for Railroad Locomotives

The Clean Air Action Plan includes a three prong approach to rail locomotive emissions. First, all existing PHL switch engines will be upgraded to Tier II engine standards by end of 2007, emission reduction technologies will be demonstrated, and evaluation of alternative-powered switch locomotives. Second, existing Class 1 switcher, helper, and long haul locomotives operating on Port property will be aggressively reduced through idle restrictions, use of Tier III equivalent locomotives, cleaner fuels, and retrofit controls. Finally, stringent standards for new or modified rail yards will be incorporated via the CEQA process to ensure significant reductions from locomotives, CHE, and truck operations at rail yards on Port property.

# TECHNOLOGY ADVANCEMENT PROGRAM

The Clean Air Action Plan's Technology Advancement Program is an integrated component that will evaluate, demonstrate, and incorporate new strategies and technologies into the suite of control measures that will ultimately result in significant reductions of DPM and criteria pollutants. Demonstrations will include technologies that utilize "green" and renewable energy sources. This initiative builds on the success and synergies of the San Pedro Bay Ports, CARB, SCAQMD, EPA Region 9, and customers/tenants working together to find joint solutions. Several successful projects have been completed over the years between these entities, and this program would help to build on that success.

The Technology Advancement Program will be the forum where needed research and development, evaluations of emissions strategies, as well as demonstration and pilot projects will be coordinated between both Ports and with the regulatory agencies. This coordination is focused on 1) mutual agreement on the methods by which emissions reduction strategies and technologies are tested/demonstrated, 2) consensus agreement on the emissions reductions from particular strategies and technologies that are tested and evaluated, and 3) opportunities for the regulatory agencies to co-fund projects that they are interested in. In addition to regulatory agencies, other co-funding entities, particularly other ports, shipping lines, and tenants will be able to partner in specific research and development (R&D), demonstrations, and pilot projects.

It is envisioned that the Technology Advancement Program would be the catalyst for identifying, evaluating, and demonstrating/piloting new emissions reduction technologies/strategies that could then be utilized in future updates to the Clean Air Action Plan as new control measures, alternatives to existing strategies, or as additional mitigation options for new projects.

## Existing/Emerging Technology Technology Advancement Program Implementation

**There are four fundamental areas in which the program will focus its initial work:**

- Specific Control Measure Requirements
- "Green-Container" Transport Systems
- Emerging Technology Testing
- Emissions Inventory Improvements

## Specific Control Measure Requirements

Several of the Clean Air Action Plan's control measures identify technologies that need demonstration, evaluation, and testing. These are detailed in Section 5 in the Technical Report.

## "Green-Container" Transport Systems

This component of the program is focused on finding the next generation of transport solutions for goods movement. The ultimate goal is a 21st Century electric powered system that will move cargo from docks to destinations within 200 miles that today are moved by truck. It may take 20 years to complete such a system but it will always be 20 years away unless in the next five years a demonstration prototype is built and tested and a detailed plan is perfected for widespread construction.

It is the goal of this effort to find and demonstrate innovative technologies that can be utilized for more efficient and greener movement of cargo. This includes renewable energy technologies, hybrid technologies, and broadening the use of electrification (from "green energy" sources) in port-related sources. In the face of growing cargo throughput and activity, the ultimate goal is to move to pollution-free technologies and strategies. The program will not only evaluate innovative strategies, but will provide funding for pilot programs to demonstrate their feasibility.

The Ports are committed to this endeavor and have already released a joint request for proposal (RFP) for advanced cargo transportation technology evaluation and comparison with regard to container transport to near dock rail facilities. Advance technologies included for evaluation include: linear induction motor systems, electric container conveyor systems including "mag-lev," freight shuttle systems, aerospace freight options, etc. In addition to this first RFP, the Port of Los Angeles will out reach to other Pacific Rim ports for their ideas and collaboration on green transport solutions. The Port will do this through its Pacific Ports Air Quality Collaborative initiative developed with the Shanghai Municipal Port Administrative Center.

## Emerging Technology Testing

The emphasis of this portion of the Technology Advancement Program is to facilitate testing of emerging technologies that can be used to reduce emissions associated with the five port-related source categories. As new technologies emerge, promising technologies that are beyond the R&D phase will be evaluated by the Ports and regulatory agencies as to their likely successful use on port-related emissions sources. If funding a demonstration project is deemed appropriate, then the technology/strategy would be implemented under this part of the program and if found to be successful and implementable, then the technology/strategy would be incorporated into existing control measures, made its own control measure, or used as an alternative to existing technologies/strategies.

## Emissions Inventory Improvements

This portion of the Technology Advancement Program focuses on increasing the accuracy of the key monitoring and tracking element which is the emissions inventory. Under this effort, the goal will be to improve the emissions inventories so that they are reflective of ever changing working conditions as well as to improve the turnaround time of the inventories.

## Funding and Organization

The Technology Advancement Program will be primarily funded by both Ports with additional funding from participating agencies, other interested ports, and interested shipping lines and tenants. Projects will be developed and implemented under each of the areas listed above. Results from evaluations, R&D, testing, demonstrations, and pilot projects will be included in the annual update to the Clean Air Action Plan and reported to each Port's Board of Harbor Commissioners on a regular basis.

The structure of the program will be developed by a Coordination Committee consisting of both Ports and funding partners. When other entities are co-funding specific projects then they will be included in the Coordination Committee for their specific project. The Coordination Committee's initial task will be to develop guidelines on how the program will function, how decisions will be made, how evaluation, testing, and demonstrations will be organized, and how reporting of progress will be made. Details of the general operation of the Technology Advancement Program will be presented to both Port's Executive Directors periodically starting 1st quarter 2007. The Committee would also develop fact sheets on various technologies and post those fact sheets to a Clean Air Action Plan website.

## TRACKING AND MONITORING

To track, monitor, and demonstrate the progress of the Clean Air Action Plan, both Ports will enhance existing monitoring programs to encompass the breadth of actions proposed in the Clean Air Action Plan. These include:

- Expand the Port-wide real-time air monitoring network to improve continued monitoring of actual air pollution concentrations in and around the San Pedro Bay Ports.
- Update Port-wide air emissions inventories annually to track control measure compliance and emissions benefits.
- Using CARB's latest health risk assessment estimates, the Port of Los Angeles will develop Port-wide health risk assessments (individual and joint) in coordination with CARB and SCAQMD.
- Track Clean Air Action Plan progress, expenditures, reductions, etc. in comprehensive databases for each Port.
- Report on overall progress of the San Pedro Bay Ports Clean Air Action Plan to each Port's Board annually and additionally as required.
- Post progress reports prepared for each Port's Board on the Clean Air Action Plan website.

Progress related to each of the source specific standards will be tracked and monitored to determine how the Clean Air Action Plan's implementation is progressing versus the goals of the Plan. Regular updates to each Port's Board will be made on the various elements of the program. Upgrades to the emissions inventory and implementation databases are currently being conducted such that monitoring key elements of the Clean Air Action Plan can be presented to the Boards and public on a regular and routine basis. Currently, staff of each Port is planning to develop a San Pedro Bay Ports Clean Air Action Plan page on each of their websites to provide the public the status of the implementation progress, port emissions and reductions, and other key elements including what is happening in the Technology Advancement Program. These websites will also be a clearinghouse for documents, fact sheets, schedules, and provide links to get Board meeting schedules and agendas.




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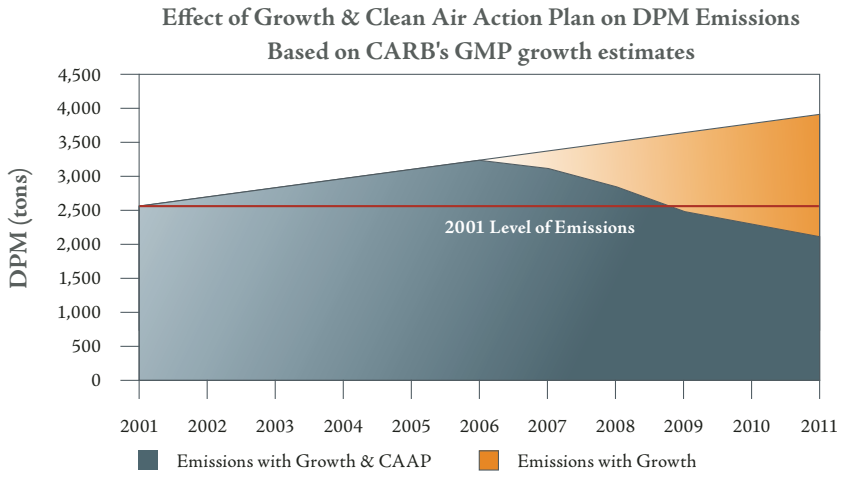
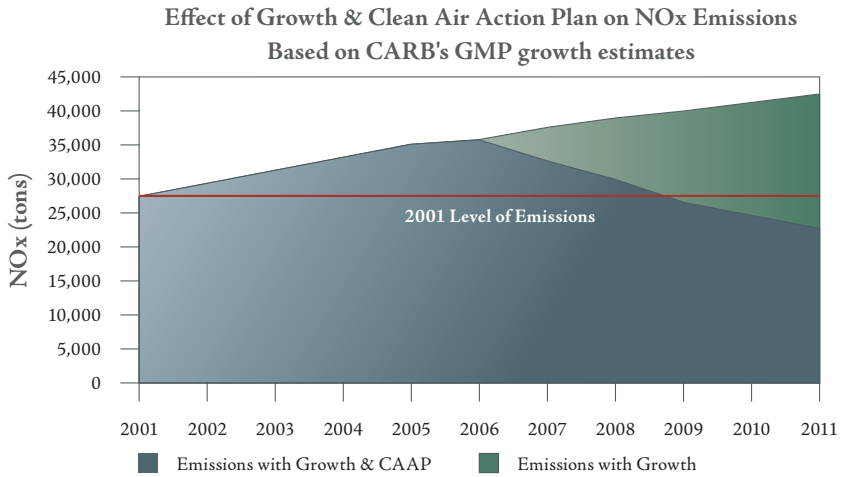
## FUTURE EMISSIONS PROJECTIONS

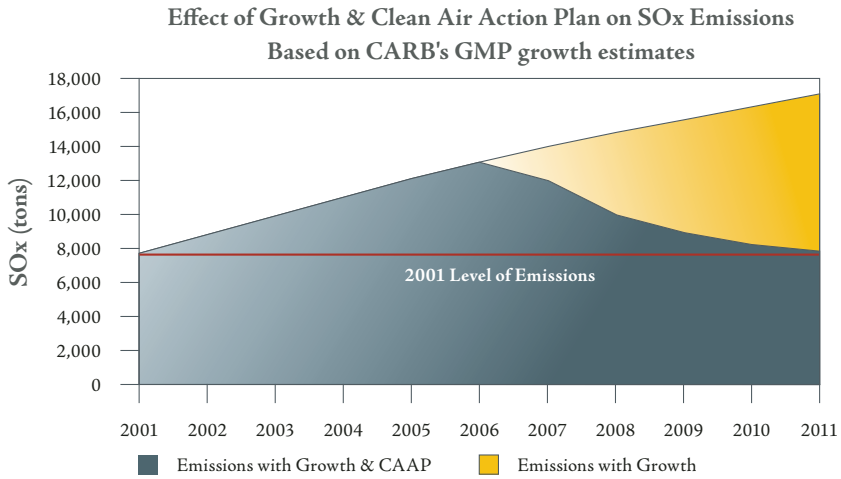
Initial implementation of the Clean Air Action Plan measures focuses on heavy-duty trucks, cargo handling equipment, and ocean going vessels. With respect to growth, the Clean Air Action Plan's measures were developed with two basic approaches: 1) emission reductions based on defined levels of funding, and 2) emission reductions based on phased-in lease requirements.

One issue that affects the presentation of emission reductions over a multi-year period is that of growth in port operations and the resulting change in emissions. The growth in emissions is the net change in emissions over time due to changes in port activity (usually an increase) and changes in emissions per unit of activity (an increase or decrease depending on the effectiveness of emission control requirements, fleet turnover, and efficiencies/inefficiencies in operations from one year to the next). It is difficult to reliably estimate the change in emissions related to port operations over the period covered by the Plan because of significant unknowns such as new technology and technology implementation rates, operational changes that can affect operating efficiencies, emission reduction programs implemented voluntarily by the private businesses operating within the Ports, and other factors. For example, initial findings from the 2005 emissions inventories for the Ports indicate that for some source categories, even with the increase in cargo throughput over the past few years, emissions are lower due to purchases of new equipment, more efficient operations, and application of emission control technologies.

The following figures compare the forecast emission reductions of the Clean Air Action Plan with the growth in emissions that would occur with the growth rate projections used in the GMP. The starting points in terms of emissions are the "assumed base emissions," which are the base emissions from which the Clean Air Action Plan reductions have been calculated. Growth of these emissions is based on the emission growth rates in CARB's GMP projections of changes in emissions without the GMP measures (the "emissions with growth" scenario). Applying the growth assumptions from CARB's GMP to the Clean Air Action Plan, by the fifth year (2011), emissions reduction due to implementation are 47% reduction in DPM, 45% reduction in NOx, and 52% reduction in SOx from OGV, CHE, and HDV source categories.





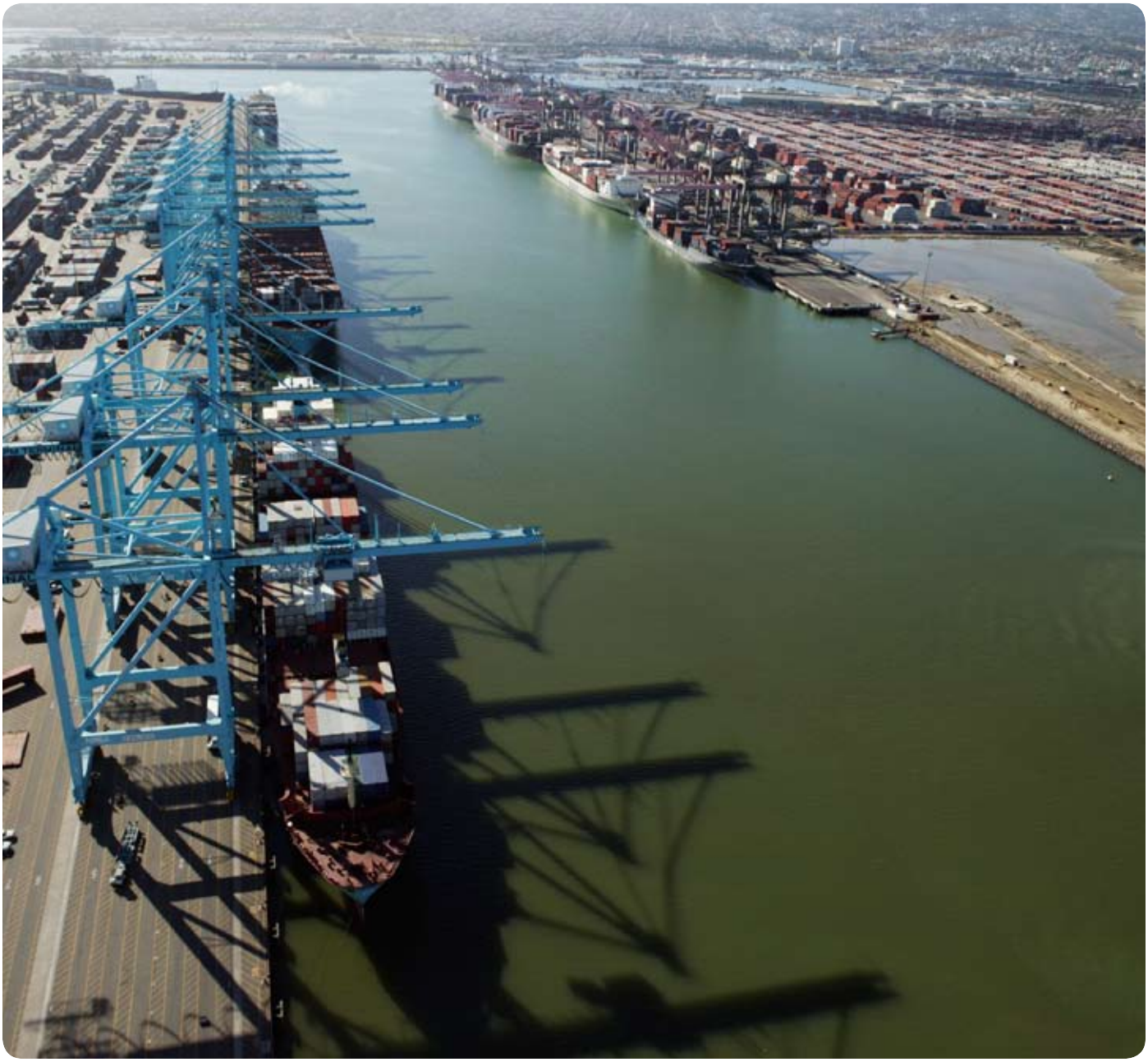

The emission reductions in the above figures, which are based upon the assumed Clean Air Action Plan implementation schedule, can be considered as annual mass emissions targets to be tracked and reported. The following table shows annual emissions reduction targets for each of the pollutants of concern from the grown levels it would be without the Plan.

| Annual Emissions Reduction Targets | | | | | |
|---|---|---|---|---|---|
| DPM | 4% | 17% | 31% | 40% | 47% |
| NOx | 10% | 21% | 33% | 39% | 46% |
| NOx | 10% | 21% | 33% | 39% | 46% |
| SOx | 14% | 30% | 42% | 48% | 52% |

# COMPARISON WITH OTHER PROGRAMS

This section compares the relative emissions reductions achieved in the first five years of initial implementation (2007 to 2011) of the San Pedro Bay Clean Air Action Plan, the CARB's state-wide GMP, and the City of Los Angeles' NNI Task Force Report. The tables present the Ports assessments based on (a) Source Categories, (b) Control Strategies, and (c) Overall Source Category Emissions Reductions for DPM and NOx.

A comparison of the first five years' overall emission reductions is also provided in each table. Relative evaluations are tabulated with respect to CAAP compared to the other plans, so that CAAP reductions are either "greater than" (>), "equal to" (=), or "less than" (<) projected GMP or NNI reductions. Multiple indicators are used (e.g., >>) to represent large differences between the plans. Where appropriate, "TBD" appears in the tables to denote a comparison "To Be Determined" at a future date when additional information becomes available.



## Ports' Comparison of Clean Air Action Plan (CAAP) and CARB's Near-Term GMP Strategies

| Source Categories Control Strategies / Overall Reductions | CAAP Compared w/ Near-Term GMP (Cumulative Benefits 2007-2011) | Comments |
|---|---|---|
| **Heavy-Duty Vehicles (Trucks)** | | |
| Modernization & Retrofits | > | CAAP focuses on replacing all frequent caller & older semi-frequent caller trucks to MY2007+ |
| Overall DPM Emission Reductions | = | CAAP and GMP are basically the same reductions |
| Overall NOx Emission Reductions | >> | CAAP replaces all of frequent callers & ⅓ of semi-frequent callers w/MY2007 trucks |
| **Ocean-Going Vessels** | | |
| Vessel Speed Reduction | > | CAAP boundary goes to 40nm by 1st quarter 2008; GMP goes out to 24nm |
| At-Berth Emission Reductions | = | CAAP has earlier implementation |
| Aux Engine Fuel Changes | > | CAAP first 4-years lower sulfur fuel than GMP, has no exemptions for shore power, & 40nm |
| Main Engine Fuel Changes | >> | CAAP has lower sulfur fuels & starts sooner than GMP |
| Advanced Technologies | > | CAAP includes comprehensive & funded Technology Advancement Program |
| Overall DPM Emission Reductions | > | CAAP reductions are greater within the first five years of implementation |
| Overall NOx Emission Reductions | > | CAAP reductions are greater within the first five years of implementation |
| **Cargo Handling Equipment** | | |
| Modernization | > | CAAP & GMP work together, CAAP targets CHE not in GMP & focuses on modernization |
| Overall DPM Emission Reductions | > | CAAP has earlier implementation |
| Overall NOx Emission Reductions | > | CAAP has earlier implementation |
| **Harbor Craft** | | |
| Performance Standards | = | CAAP & GMP similar reductions; HC has been significantly reduced through Carl Moyer |
| Overall DPM Emission Reductions | TBD | CAAP probably same levels as GMP in first five years |
| Overall NOx Emission Reductions | TBD | CAAP probably same levels as GMP in first five years |
| **Rail Locomotives** | | |
| PHL Switch Engine Modernization | N/A | |
| Exisitng Class 1 Rail Operations | = | CAAP & GMP consistent for switchers & helpers |
| New Class 1 Rail Yard Standards | N/A | CAAP has stringent new rail yard standards |
| Overall DPM Emission Reductions | TBD | CAAP probably greater reductions then GMP |
| Overall NOx Emission Reductions | TBD | CAAP probably greater reductions then GMP |
| **5-Year Reductions** | | |
| Overall DPM Emission Reductions | > | CAAP higher reductions over first five years than GMP |
| Overall NOx Emission Reductions | > | CAAP higher reductions over first five years than GMP |

## Ports' Comparison of Clean Air Action Plan (CAAP) and City of Los Angeles' NNI Task Force Report

| Source Categories Control Strategies / Overall Reductions | CAAP Compared with NNI (Cumulative Benefits 2007-2011) | Comments |
|---|---|---|
| **Heavy-Duty Vehicles (Trucks)** | | |
| Modernization & Retrofits | >> | CAAP focuses on replacing all frequent & older semi-frequent caller trucks to MY2007+ |
| Overall DPM Emission Reductions | > | CAAP focuses on replacing all frequent & older semi-frequent caller trucks to MY2007+ |
| Overall NOx Emission Reductions | >>> | CAAP focuses on replacing all frequent & older semi-frequent caller trucks to MY2007+ |
| **Ocean-Going Vessels** | | |
| Vessel Speed Reduction | = | CAAP & NNI basically the same |
| At-Berth Emission Reductions | = | CAAP & NNI basically the same |
| Aux Engine Fuel Changes | < | NNI assumed faster fuel implementation based on % call targets; CAAP evaluating tariffs |
| Main Engine Fuel Changes | < | NNI assumed faster fuel implementation based on % call targets; CAAP evaluating tariffs |
| Advanced Technologies | > | CAAP & NNI call for aggressive reductions; CAAP has funded Technology Advancement Prog. |
| Overall DPM Emission Reductions | < | NNI reductions keyed to high % of calls being at 0.2% S starting in 2007 through first five years |
| Overall NOx Emission Reductions | < | CAAP technologies through lease changes; NNI assumes quick introduction of retrofit technology |
| **Cargo Handling Equipment** | | |
| Modernization | = | CAAP primary focus DPM then NOx; NNI primary focus NOx then DPM |
| Overall DPM Emission Reductions | > | CAAP has slightly more DPM reductions in first five years |
| Overall NOx Emission Reductions | < | NNI has slightly more NOx reductions in first five years |
| **Harbor Craft** | | |
| Performance Standards | = | |
| Overall DPM Emission Reductions | TBD | CAAP probably will achieve the same levels as NNI in first five years |
| Overall NOx Emission Reductions | TBD | CAAP probably will achieve the same levels as NNI in first five years |
| **Rail Locomotives** | | |
| PHL Switch Engine Modernization | = | CAAP & NNI basically the same |
| Exisitng Class 1 Rail Operations | = | CAAP & NNI basically the same |
| New Class 1 Rail Yard Standards | > | CAAP incorporates stringent requirements on new or modified rail yards on Port properties |
| Overall DPM Emission Reductions | TBD | CAAP probably similar to NNI until new/modified rail yard standards take effect |
| Overall NOx Emission Reductions | TBD | CAAP probably similar to NNI until new/modified rail yard standards take effect |
| **5-Year Reductions** | | |
| Overall DPM Emission Reductions | < | NNI fuel change penetration assumptions much higher then CAAP in first five years |
| Overall NOx Emission Reductions | = | CAAP & NNI basically the same |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## BUDGET SUMMARY

There are several types of costs and funding sources associated with the implementation of the Clean Air Action Plan, including:

- Costs borne by the industries/terminals affected by the Plan's requirements
- Costs borne by the Ports in developing required infrastructure improvements, funding incentives, and implementing control measures
- Costs borne by regulatory agencies to fund incentives

The Clean Air Action Plan is a tool developed expressly for the Ports to implement a comprehensive plan that will reduce both health-risk and mass emissions associated with port operations. Both Ports have a five-year fiscal planning horizon and the Clean Air Action Plan identifies costs that will be incurred by the Ports from the implementation of various measures and elements of the Plan. Costs that need to be borne by the Ports must be identified to ensure that the programs that the Ports are taking funding responsibility for can be budgeted. Potential available funding from regulatory agencies are also included for planning purposes.

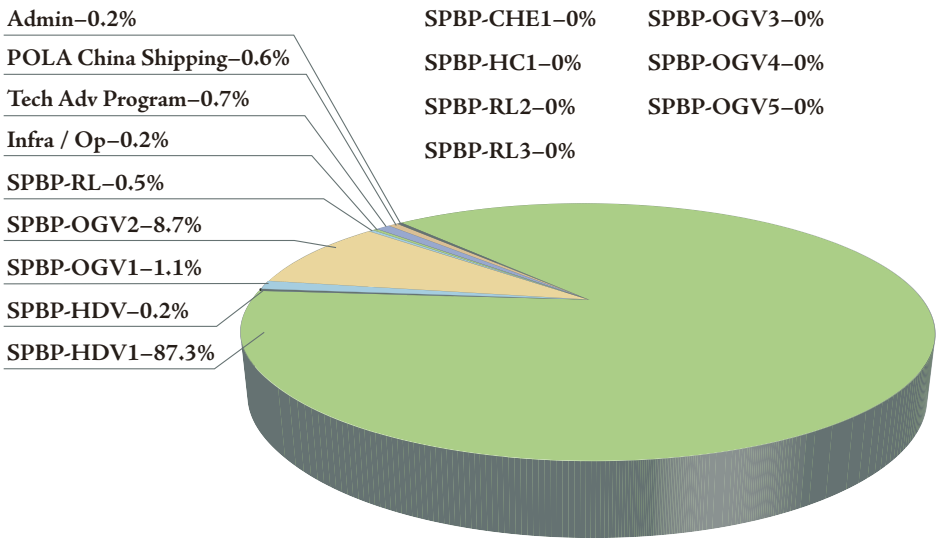
Both Ports are committing significant direct funding to the Clean Air Action Plan. For budgetary planning purposes, the Ports need to identify available funding streams from the air agencies, other entities, etc., and to identify Port-related funding that will be dedicated to the Plan over the next five fiscal years and beyond. Incentive funding includes impact fees to accelerate the replacement and retrofit of "dirty" trucks servicing the Ports. The fee would be charged as close to the BCOs as possible (which could inlcude the licensed motor carrier) such that any shortfalls in funding for SPBP-HDV1 are covered. Both Ports have similar contributions to the Clean Air Action Plan, however, the Port of Long Beach's cost associated with SPBP-OGV2 will be significantly higher than Port Los Angeles due to greater electrical infrastructure improvement needs. Current total monetary commitments for each funding entity over the next five years:

Port of Los Angeles ..... $177,500,000
Port of Long Beach..... $240,400,000
SCAQMD (initial commitment)..... $47,000,000
Bond/Impact Fee Funding..... $1,602,900,000

The summarized costs by fiscal year for all control measures and initiatives for the first five years of the Clean Air Action Plan are presented below.



**Clean Air Action Plan Percent Total Costs by Control Measure & Initiative**



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