



## **SECTION 4: CLEAN AIR ACTION PLAN INITIATIVES - OVERVIEW**

This section presents an overview of the Clean Air Action Plan, which consists of six primary elements:

1. Source category control measures for existing operations
2. Standards for new leases and lease renewals negotiations
3. Requirements for construction equipment
4. Comprehensive Technology Advancement Program initiative
5. Infrastructure and operational efficiency improvements initiative
6. Clean Air Action Plan tracking and monitoring

For the Port of Los Angeles there is an additional element associated with the China Shipping Settlement.

### **4.1 Source Specific Control Measures**

Specific source category control measures were developed from both existing Port air programs and the work completed by the City of Los Angeles' (NNI) study and the Port of Long Beach's Green Port Policy. Table 4.1 illustrates how both Ports are considering initial implementation strategies, at this time, for the various measures proposed in the Clean Air Action Plan. These initial implementation strategies 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 addition 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.



**Table 4.1: Control Measures & Initial Implementation Strategies**

SPBP Measure Number	Control Measure	Initial Implementation Strategies	
		Port of Los Angeles	Port of Long Beach
SPBP-HDV1	Performance Standards for On-Road HDV	Incentives/Lease Req SCAQMD Funding	Incentives/Lease Req SCAQMD Funding
SPBP-HDV2	Alternate Fuel Infrastructure for On-Road HDV	Incentives SCAQMD Funding	Incentives SCAQMD Funding
SPBP-OGV1	OGV Vessel Speed Reduction	Tariff (Incentives) Lease Requirements	Tariff (Incentives) Lease Requirements
SPBP-OGV2	OGV Reduction of At-Berth OGV Emissions	Capital/Incentives Lease Requirements	Capital Lease Requirements
SPBP-OGV3	OGV Auxiliary Engine Fuel Improvement Standards	Lease Requirements	Lease Requirements
SPBP-OGV4	OGV Main Engine Fuel Improvement Standards	Lease Requirements	Lease Requirements
SPBP-OGV5	OGV Main and Auxiliary Engine Emissions Improvements	Lease Requirements Incentives	Lease Requirements Incentives
SPBP-CHE1	Performance Standards for CHE	Lease Requirements	Lease Requirements
SPBP-HC1	Performance Standards for Harbor Craft	Incentives	Incentives
SPBP-RL1	Rail Switch Engine Modernization	PHL MOU Agreement Lease Requirements	PHL MOU Agreement Lease Requirements
SPBP-RL2	Operational Controls for Line Haul Railroads	MOU/Lease Req CEQA Mitigations	MOU/Lease Req CEQA Mitigations
SPBP-RL3	Clean Rail Yard Standards	MOU/Lease Req CEQA Mitigations	MOU/Lease Req CEQA Mitigations
	Construction Standards	CEQA Mitigations	CEQA Mitigations
	Technology Advancement Program	Incentives	Incentives
	Infrastructure & Operational Efficiency Improvements Initiative	Incentives	Incentives
	POLA China Shipping Settlement	Settlement Agreement	N/A

It should be noted that control measures SPBP-OGV1, OGV-3, and OGV-4 will be evaluated to determine solutions to various logistical issues to ensure effective measure implementation. These issues include: updating the existing radar range capabilities to 40 nautical miles (nm), working with the Marine Exchange and United States Coast Guard to resolve issues associated with vessels outside the Coast Guard's administrative area, work with the Marine Exchange to track additional fuel compliance data elements for monitoring and



reporting, determine effects of changing VSR zone on areas inside California waters, but beyond 40 nm from Point Fermin, work to get work gang assignments moved to 40 nm, and to evaluate fuel availability and ship tankage issues associated with operating on cleaner fuels. The evaluations and upgrades to the radar system will be completed before the end of 2007.

#### 4.1.1 Control Measures for Heavy-Duty Vehicles

- **SPBP-HDV1** – Performance Standards for On-road HDV. The control measure is focused on maximizing the reductions from frequent (7 or more calls per week) and semi-frequent (3.5 to less than 7 calls per week) caller trucks that service both Ports. This control measure sets forth the following “clean truck” definitions:
  - ✓ All frequent caller trucks, and semi-frequent caller container trucks model year (MY) 1992 and older, calling at the San Pedro Bay Ports will meet or be cleaner than the EPA 2007 on-road emissions standard (0.01 g/bhp-hr for PM) and the cleanest available NO<sub>x</sub> at time of replacement.
  - ✓ Semi-frequent caller container trucks MY1993-2003 will be equipped with the maximum CARB verified emissions reduction technologies installed.

The measure then sets target dates by which trucks meeting the above definitions will be either replaced or retrofitted. In order to accommodate this massive transformation of the existing truck fleet, Port, SCAQMD, and other public funding will be required. The program also sets forth suggested strategies to maximize the use and emissions reductions of “clean trucks” calling at both ports.

- **SPBP-HDV2** – Alternative Fuel Infrastructure for HDVs. Construct LNG or compressed natural gas (CNG) refueling station preferably on jointly owned property, after resolution of logistical issues and site considerations. Funding to build at the recommended locations would come primarily from Port incentive funds (for on-port and near-port infrastructure), SCAQMD alternative fuel funds (for on-port, near-port, and basin-wide infrastructure), and potentially from grants from state and federal regulators or others.

#### 4.1.2 Control Measures for Ocean-Going Vessels

- **SPBP-OGV1** – Vessel Speed Reduction (VSR). Currently a voluntary program under which ships are slowed within the SoCAB over-water boundary out to 20 nm from Point Fermin, reducing NO<sub>x</sub> emissions. The program will be evaluated to determine solutions to various logistical issues to ensure effective measure implementation. These issues include: updating the existing radar range



capabilities to 40 nm, working with the Marine Exchange and United States Coast Guard to resolve issues associated with vessels outside the Coast Guard's administrative area, determine effects of changing VSR zone on areas inside California waters, but beyond 40 nm from Point Fermin, work to get work gang assignments moved to 40 nm, and other operational issues. The evaluation and upgrades to the radar system will be completed before the end of 2007. The associated costs would be shared between the San Pedro Bay Ports.

- **SPBP-OGV2** – Reduction of At-Berth OGV Emissions. Under this initiative, each Port will develop the infrastructure required to eventually provide shore-power capabilities to all container and cruise ship berths. On a case-by-case basis, other vessel types like specially outfitted tankers or refer terminals will be evaluated for the application of shore-power.

In addition, this initiative includes the demonstration and implementation of other shore-side technologies that can be used on vessels unequipped for connecting to shore-power that would provide emissions benefits equivalent to shore-power.

- **SPBP-OGV3** - Auxiliary Engine Fuel Improvement Program. As proposed, this measure would accelerate the phase in of 0.2% S (MGO) fuel in auxiliary engines between 2006 and 2009, with initial implementation driven by lease requirements and potentially tariffs. This requirement would impact vessels calling at San Pedro Bay Ports, within the SoCAB over-water boundary out 20 nm from Point Fermin. As stated above, the program will be evaluated for expansion to 40 nm from Point Fermin.
- **SPBP-OGV4** – Main Engine Fuel Improvement Standards. As proposed, this measure would require OGV owners/operators to make a fuel switch to MGO fuels with sulfur content no greater than 0.2% S in their main engines. Similar to SPBP-OGV3, this measure would also be implemented through lease requirements and potentially tariffs. Initially, similar to SPBP-OGV3 the program would extend out 20 nm from Point Fermin and would be evaluated for expansion to 40 nm from Point Fermin.
- **SPBP-OGV5** – Main and Auxiliary Engine Emissions Improvements. This measure focuses on reducing DPM, NO<sub>x</sub>, and SO<sub>x</sub> emissions from OGV main engines and auxiliary engines. OGV engine standards have not kept pace with other engine standards such as HDVs and CHE. IMO's MARPOL Annex VI is a very weak standard. This measure is coupled with the Technology Advancement Program by incorporating successfully demonstrated technologies



or technologies that have sufficient data that it can be agreed upon by regulatory agencies and the Ports as to what emissions reductions levels can be for a given technology.

#### **4.1.3 Control Measures for Cargo-Handling Equipment**

- **SPBP-CHE1** – Performance Standards for CHE. A program designed to promote or require the replacement of existing 2003 and newer CHE with equipment compliant with either EPA 2007 on-road or Tier 4 non-road emission standards, or retrofit with the highest-level CARB verified emissions reduction technologies. The current state regulation is focused on equipment 2002 and older in 2007 – 2013 and 2003 – 2006 engines in 2010 – 2016. This measure accelerates the modernization of the cargo handling fleet beyond the CARB current requirements.

#### **4.1.4 Control Measures for Harbor Craft**

- **SPBP-HC1** – Rail Switch Engine Modernization. This measure continues the various engine replacement programs led by both Ports, CARB/SCAQMD, and others. The focus will be on harbor craft that have not already been repowered/retrofitted (including construction related harbor craft like dredges and support vessels). When candidate vessels are identified, the Ports will assist/require the owner/operator to repower or retrofit propulsion and auxiliary engines. For non-construction related candidates, Port staff will assist the owners in applying for Carl Moyer Program incentive funding for the cleanest available engine that meets the emissions and cost effectiveness requirements. This measure is fuel neutral. Potential vessel candidates will be identified through the annual emissions inventory process, and the program will be implemented through lease requirements. It should be noted, that several tugs operating at the Port of Long Beach are home-ported on private property (not Port property) and therefore will not be affected by this measure.

#### **4.1.5 Control Measures for Railroad Locomotives**

- **SPBP-RL1** – Pacific Harbor Line Modernization. A voluntary program initiated by the Ports of Los Angeles and Long Beach in conjunction with PHL to modernize switcher locomotives used in Port service to meet Tier 2 locomotive engine standards and initiate the use of fuel emulsion in those engines. The program also includes evaluation of alternative-powered switch engines including LNG and hybrid locomotives. In addition, a locomotive DOC and DPF will be evaluated and based on a successful demonstration; DOC or DPF will be applied



to all Tier 2 switcher locomotives. Finally, this measure restricts future purchases to the cleanest locomotives available.

- **SPBP-RL2** – Operational Controls for Line-Haul Locomotives - This measure calls for the line-haul railroads to maximize the use of Tier 2 locomotives, installation of verified DOCs or DPFs, installation and use of 15-minute idling restrictors, and use of ULSD fuels for rail movements associated with movement of goods to and from the San Pedro Bay Ports. The long-term goal is to expedite the introduction of line-haul engines that are 90% cleaner than the Tier 2 engine standards for PM and NO<sub>x</sub>.
  
- **SPBP-RL3** – Clean Rail Yard Standards - Rail facilities include many emission-producing activities, including the operation of switching and line-haul locomotives, idling of switching and line-haul locomotives, loading and unloading of railcars by CHE, and HDVs servicing the yards. New rail facilities, or modifications to existing rail facilities, will incorporate the cleanest locomotive technologies. A list of these technologies will be provided for project proponents to consider in developing new facilities, and choices will be formalized in lease requirements.

#### **4.1.6 Integration of Non-Regulatory NNI Measures**

Many of the measures proposed in the Clean Air Action Plan advance the requirements and implementation of upcoming regulations, as did several of the NNI measures. Non-regulatory NNI Measures have been incorporated into the Clean Air Action Plan control measures. Regulatory NNI Measures are part of the on-going regulatory programs implemented by the federal, state, and local agencies and are the responsibility of those agencies. Table 4-2 details how each San Pedro Bay Ports Clean Air Action Plan measure relates to the non-regulatory NNI control measures.



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**Table 4.2: Integration of NNI Measures**

SPBP		
Measure #	New Control Measure/Program Name	Non Regulatory NNI Measures
SPBP-HDV1	Performance Standards for On-Road HDV	HDV3, HDV10 HDV12,
SPBP-HDV2	Alternate Fuel Infrastructure for On-Road	HDV-4
SPBP-OGV1	OGV Vessel Speed Reduction	OGV2, OGV15
SPBP-OGV2	OGV Reduction of At-Berth OGV Emissions	OGV3, OGV16
SPBP-OGV3	OGV Auxiliary Engine Fuel Improvement Standards	OGV4, OGV11
SPBP-OGV4	OGV Main Engine Fuel Improvement Standards	OGV9, OGV12
SPBP-OGV5	OGV Main and Auxiliary Engine Emissions Improvements	OGV 7
SPBP-CHE1	Performance Standards for CHE	CHE2, CHE3, CHE4, CHE5, CHE7, CHE8
SPBP-HC1	Performance Standards for Existing Harbor Craft	HC9, HC10
SPBP-RL1	Rail Switch Engine Modernization	R5, R6
SPBP-RL2	Operational Controls for Line Haul Railroads	R10, R11
	Technology Advancement Program	HDV13, HDV14, HDV18, HDV19, OGV7, OGV13, OGV14, HC3, HC7, R7, R9, R12
	POLA China Shipping Settlement	CHE6, HC5

Notes: OGV 6 – This is already being done by shipping companies and will be documented in the upcoming 2005 emissions inventory update.  
 HC11 – “AMP™ Staging Areas” is being modified such that all customers that own/operate tugs will be required to AMP™ while they are at their homeport (the area being leased). This provision was not included in HC measures. Through preliminary analysis, staging areas (locations with the Ports where tugs would wait on shore-power between jobs rather than return to their homeports) are infeasible with current security requirements and wharf availability.

**4.2 Construction Activity**

Construction activity emissions will be assessed through the CEQA evaluation process and control strategies that may be required to meet CEQA mitigation requirements will be incorporated in bid packages for the actual construction work.



Construction equipment includes marine sources (primarily dredges, tugs, crew boats, pile-drivers) and land (excavators, cranes, etc.) sources. Land- and marine-based construction equipment will be required to meet the control strategies that may be required as mitigations in the CEQA document.

The Ports, SCAQMD, and CARB will be developing a list of Best Management Practices (BMP) associated with construction activities by the end of 2007. These BMPs will be incorporated in construction contracts.

### **4.3 Technology Advancement Program**

Another significant initiative of the Clean Air Action Plan is the Technology Advancement Program, which will evaluate, demonstrate, and incorporate new strategies into the suite of control measures that will ultimately result in significant reductions of DPM, NO<sub>x</sub>, and other criteria pollutants. This initiative builds on the success and synergies of the San Pedro Bay Ports, CARB, SCAQMD, EPA, tenants, and other stakeholders working together to find joint solutions. Several successful projects have occurred over the years between these entities, and this program would help to build on those early successes. A coordination committee will be established consisting of funding partners that includes both Ports, SCAQMD, CARB, and the EPA. Other stakeholders may become involved in relation to specific projects, as approved by the coordination committee. There are fundamental areas in which the program will focus its initial work:

- Source Category Reductions
- “Green Container Transport” Solutions
  - ✓ Heavy-duty hybrid trucks
  - ✓ Shuttle systems including magnetic levitation, linear induction motors, etc.
  - ✓ Others as identified and developed
- Emissions Inventory Improvements

The program will be primarily funded by both Ports and the participating agencies. Projects will be developed and implemented under each of the areas listed above. Successful demonstration projects will then be incorporated into the next annual update of the Clean Air Action Plan as control measures or additional emissions reduction strategies.

### **4.4 Infrastructure & Operational Efficiency Improvements Initiative**

This initiative identifies projects at the San Pedro Bay Ports that improve infrastructure and operational efficiencies that have an added air quality benefit. The initiative includes, but is not limited to:



- Focus on on-dock vs. near-dock rail infrastructure
- Grade separations
- Optical character recognition (OCR) gates at terminals
- Terminal cargo handling/configuration efficiency improvements
- Radio Frequency Identification (RFID)
- Virtual Container Yards

The emissions reduced by these projects would be quantified and reported in emissions inventory updates.

#### **4.5 Port of Los Angeles – China Shipping Settlement**

Unique to POLA are the emission reductions associated with the China Shipping Settlement. In February 2003, the Port joined environmental and Harbor-area community groups in a settlement agreement that includes a series of environmental programs designed to improve the area's air quality and quality of life. As part of this settlement, the Port has committed over \$20 million over five years to pay for air quality mitigation projects that reduce Port operation emissions that affect the communities of Wilmington and San Pedro. This program is known as the Port Air Quality Mitigation Incentive Program (PAQMIP). In accordance with the settlement agreement, the PAQMIP expends funds for projects and improvements that reduce emissions from Port operations that affect the communities of Wilmington and San Pedro. All emission reductions resulting from funded projects are retired by the Port of Los Angeles for the benefit of the environment, meaning that the reductions cannot be used as offsets or sold as credits.

The PAQMIP is in its third year<sup>3</sup>, with the most recent Request for Proposals (RFP) planned for issuance in June/July 2006. The primary purpose of this program is to provide financial incentives to assist in the implementation of projects that will accomplish two objectives: (1) reduction of emissions associated with Port operations in the communities of San Pedro and Wilmington, and (2) research and development of specific technologies that can be applied in the San Pedro Bay Port area to achieve the first objective.

#### **4.6 Clean Air Action Plan Tracking and Monitoring**

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

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<sup>3</sup> 3<sup>rd</sup> time an RFP is issued to solicit projects.



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- Expanding the Bay-wide ambient air quality monitoring network to monitor actual air pollution concentrations in and around the San Pedro Bay Ports.
- Updating the Bay-wide air emissions inventories annually to track control measure compliance and emissions benefits.
- Tracking Clean Air Action Plan progress, expenditures, reductions, etc., in a comprehensive database for each Port.
- Using agency approved protocols, the Port of Los Angeles will develop a port-wide health risk assessment in coordination with the air agencies.

Monitoring and tracking of the plan will initially take place either monthly or quarterly (depending on the control measure/program). Results will be briefed to each Port's Board and a detailed annual overall progress reporting of the San Pedro Bay Ports Clean Air Action Plan will also be reported to the Boards and published. The metrics that are tracked and reported will be reviewed annually and adjusted, added to, or removed as needed for greater clarity and accuracy.