

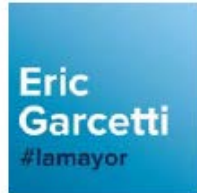


**Eric  
Garcetti**  
#lamayor

**The Port of Los Angeles  
Sustainable Freight Advisory Committee**

**One Year Summary Report  
*June 2016 – June 2017***





## EXECUTIVE SUMMARY

In June of 2016, Los Angeles Mayor Eric Garcetti established the ten-member Sustainable Freight Advisory Committee that includes a balanced roster of stakeholders from a cross section of business, environmental, community, labor, and regulatory sectors. The Committee's purpose is to make recommendations to Port of Los Angeles Executive Director Gene Seroka and to Los Angeles Mayor Eric Garcetti on strategies that will make continual progress in moving cargo more efficiently, utilizing zero emission technology everywhere feasible, and near-zero emission technology with renewable fuels everywhere else to reduce emissions from goods movement, while balancing commercial and economic sustainability.

Between June 2016 and June 2017, the Committee met monthly to study and identify strategies and technologies for zero and near-zero emission goods movement operations, potential partners, public and private financial resources and/or other approaches that can assist in achieving the greatest air quality benefit in the shortest amount of time possible.

During the first meeting, the Committee discussed and identified the initial key priorities of focus: zero emission truck deployment projects; zero emission top handler technology development and deployment; and broad system improvements to increase on-dock and short-haul rail, and reduce empty truck miles. The Committee also finalized a Mission and Vision statement (*see Attachment A*) that outlined goals and guiding principles that became the foundation to guide all subsequent discussions and recommendations.

By the fall of 2016, the Committee approved the first two recommendations; the first urges the Port to issue a Request for Proposal (RFP) for the demonstration of zero emission top handlers, and the second recommends a strategy for the Port to evaluate and demonstrate a meaningful number of zero emission drayage trucks in preparation for a feasibility report in 2020, or sooner.

Later in fall, the joint San Pedro Bay Ports released the Clean Air Action Plan (CAAP) 2017 Discussion Document, which outlined new concepts the Ports were considering for the third iteration of the plan. While the Committee was successfully reviewing, discussing and putting forth recommendations that were meeting the goals and priorities outlined in the first meeting, the developments around the CAAP forced the Committee to shift focus around to review and provide feedback on the concepts included in the Discussion Document.

Over the remaining months, the Committee approved six more recommendations that focused on cargo handling equipment, system efficiencies, a Port of Los Angeles and Los Angeles Department of Water and Power (LADWP) committee to collaborate and prepare for future



electrification, among other things. Summaries of the recommendations can be found on page 5 and the full recommendations can be found in *Attachment B*.

Throughout the first year of monthly meetings, the Committee received guest presentations from various third party experts, including the University of California Riverside, the University of Southern California Marshall Center, LADWP, the California Air Resources Board, the Port of Long Beach, and other Port of Los Angeles departments. The detailed meeting summaries, which includes relevant presentations, attendees, and agendas can be found on the Port's [Sustainable Progress website](#).

While significant progress has been made on several of the priority areas, the Committee is still reviewing and revising additional recommendations on accelerating the adoption of cleaner trucks, increasing the Port's on-dock rail capacity, rail and ocean going vessel emission reduction projects.

All Committee members have confirmed that the dialogue amongst the diverse stakeholder groups represented on the Committee have been extremely productive and valuable; a feeling equally shared by the Port of Los Angeles executive team given the opportunity to engage with the Committee on a consistent basis to work towards these common goals. Several Committee members agree that there is no other venue or opportunity for this kind of diverse stakeholder interaction with a collaborative focus on driving positive environmental progress while maintaining and increasing the competitiveness of the Port and goods movement system and the tremendous economic and job benefits its provides. It was further noted by several of the members that consistent monthly engagement over the last year has built trust amongst the group, and has fostered a collaborative approach to gain consensus on key issues and important recommendations that can be implemented.

With the trust and dialogue that has been developed among the group, there is strong support and consensus among the Committee for the Mayor and the Port to continue this initiative. Moving forward, the Committee and Port leadership recommend that the Committee continue to focus on the implementation of these recommendations made to date; the continued identification of opportunities for further system efficiency improvements, technology innovation and deployment; and the identification of the policies, resources and incentives required to facilitate the implementation of such technologies and systems to ensure the future economic and environmental sustainability of the Port of Los Angeles. A summary of the recommended next steps is found on page 10.



### COMMITTEE MEMBERS



**Louis Dominguez**  
Chair of the Port and Environment Committee, Coastal San Pedro Neighborhood Council



**Michele Grubbs**  
Vice President, Pacific Merchant Shipping Association



**James Jack**  
Executive Director, Coalition for Responsible Transportation



**Joe Lyou**  
President & CEO, Coalition for Clean Air and Governor's Appointee to the South Coast AQMD Governing Board



**Adrian Martinez**  
Staff Attorney, Earthjustice



**Cynthia Marvin**  
Division Chief, Transportation and Toxics California Air Resources Board



**Matt Miyasato**  
Deputy Executive Officer, Science & Technology Advancement Office, South Coast Air Quality Management District



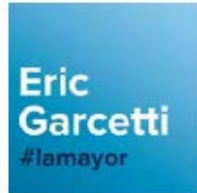
**Peter Peyton**  
Former President, International Longshore & Warehouse Union, Marine Clerks Association



**Jonathan Rosenthal**  
Portfolio Manager, Saybrook Capital



**Elizabeth Warren**  
Executive Director, FuturePorts



## SUMMARY OF APPROVED RECOMMENDATIONS

Between June 2016 and June 2017, the Committee has submitted the following recommendations to Los Angeles Mayor Eric Garcetti and the Port's Executive Director Gene Seroka for moving cargo more efficiently and advancing zero emission goods movement:

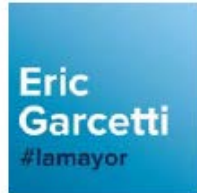
### Zero Emission Top Handler Recommendation

- **Approved:** October 2016
- **Overview:** The Committee recommended that the Port issue an RFP for the demonstration of zero-emission top handlers at one or more port terminals. Furthermore, the Committee proposed that this project be integrated with electric UTRs to demonstrate the potential for these technologies to work as a system. The recommendation also suggested that the Port collect and publish data that includes a comprehensive economic analysis documenting all capital, operating, maintenance and overall life-cycle compared to traditionally fueled equipment and key performance indicators. *Read the full recommendation [here](#).*
- **Progress:** The Port received proposals from several OEMs that are working on developing battery electric top handlers. The Port then submitted and won a grant proposal from the California Energy Commission in January 2017 to fund a demonstration project of two electric top handlers. The Committee also discussed the need for a tracking system of grant applications for clean technology at the Ports to better understand all of the projects proposed, approved and underway. A page on the Port's Sustainable Progress [website](#) was developed to track zero emission vehicle and equipment funding throughout the Port complex.
- **Next Steps:** Delivery of the two electric top picks are expected in the spring of 2018. Additional units have since been awarded grant funding at both San Pedro Bay Ports. The Ports will monitor the demonstration projects and evaluate next steps for additional deployments.

### Zero Emission Drayage Trucks Recommendation

- **Approved:** October 2016
- **Overview:** The Committee recommended that the Port pursue the evaluation and demonstration of zero-emission drayage trucks in preparation for a feasibility report in 2020, or sooner. The recommendation also proposed that the Port develop a publicly available report documenting the assessment and identification of additional needs, which may include an additional deployment of zero emission drayage trucks to move toward a determination of feasibility for a 100 percent zero emission drayage truck fleet throughout the Port by 2035. *Read the full recommendation [here](#).*
- **Progress:** The Port conducted several meetings with OEMs that have developed zero emission drayage trucks to understand the anticipated scope and costs for a large demonstration project. The Committee also asked the Port to identify how many zero emission drayage trucks are already funded for demonstration projects. The Port found that over 670 electric heavy-duty trucks have been funded across California with an additional 204 expected to be funded. Of those, approximately 50 trucks are electric drayage trucks to be deployed throughout several California seaports. Without there being a critical mass of electric trucks scheduled to be deployed from a single location, the Mayor's office and the Port are working together to develop a 50-100 zero





emission drayage truck pilot program that will allow for a deeper understanding of project costs, charging infrastructure, and a wide range of other operational issues.

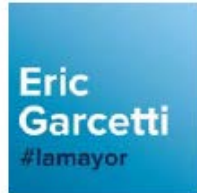
- **Next Steps:** Further scoping of this 50 to 100 unit truck project must be developed to fully detail the potential project approach and costs. Key tasks include, but are not limited to: identifying a host site location; understanding how charging stations can be provided, including costs and utility requirements; determining how these trucks will be driven in regular route service by qualified drivers; operational opportunities and range limitations of the truck technologies; asset ownership, service and asset disposal after the demonstration project; and a number of other technology, infrastructure, and financial considerations. With a fully developed project scope and budget, and assuming the feasibility of such a project is confirmed, appropriate financing will need to be identified to support the deployment and implementation of the project effort.

#### Clean Trucks Program Recommendation

- **Approved:** November 2016
- **Overview:** The Committee recommended that the Port take advantage of the diverse stakeholder group represented within the Committee to further build and lead a coalition of businesses, environmental, community, regulatory agencies, and other stakeholders to advocate for financial resources to fund a transition to a 100 percent zero and near-zero emission truck fleet. This recommendation also suggests that the Port require trucks that receive funding for replacements use low carbon fuels that achieve at least a 40 percent well-to-wheels carbon reduction. The Committee further recommended that the Clean Truck Program, with all of these elements, be implemented no later than April 1, 2018. The Committee also recommended that the City submit a letter to relevant federal, state, and local agencies to request funding support for this important initiative. *Read the full recommendation [here](#).*
- **Progress:** The Port of Los Angeles, together with the Port of Long Beach, submitted a letter on June 9, 2017 to California's Governor Brown, Senate President de Leon, and Assembly Speaker Rendon to request funding support for transitioning the Port's truck fleet to zero and near-zero emission trucks. The Committee continued to provide feedback to the Port on various strategies for the Clean Truck Program, as part of the update to the Clean Air Action Plan throughout the ongoing Committee meetings and discussions.
- **Next Steps:** The joint San Pedro Bay Ports will release the draft CAAP document, which will include the Clean Truck Program, on July 19, 2017 with the final CAAP expected to be adopted in November 2017.

#### POLA-LADWP Committee Recommendation

- **Approved:** February 2017
- **Overview:** The Committee recommended to the Mayor and the Port of Los Angeles to convene a task force consisting of the Executive Director of the Port of Los Angeles, the General Manager of LADWP, and other appropriate staff from each agency, and other city agencies (e.g., LAWA), to identify the infrastructure necessary to support the widespread electrification of the goods movement activities in and around the Port of Los Angeles. Within 180 days of its first meeting, the Committee recommended that this task force should publish a preliminary report that



identifies the need, opportunity, cost, timelines and process by which such infrastructure can be developed. *Read the full recommendation [here](#).*

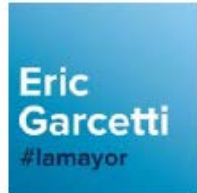
- **Progress:** The Mayor's office organized the first meeting in May between the Port and LADWP.
- **Next Steps:** The task force meetings will continue monthly. The scoping of the initiative is more complex than envisions; therefore, it is anticipated that a preliminary scope of work and budget estimate will be produced within a year (i.e. by Q2 2018).

#### Harbor Performance Enhancement Center (HPEC) Recommendation

- **Approved:** February 2017
- **Overview:** The Committee recommended that the Mayor and the Port of Los Angeles continue to prioritize and advance projects that improve the efficiency and overall performance of the ports and the freight system. One such project that has been proposed is the Harbor Performance Enhancement Center (HPEC). HPEC is effectively a "peel off yard" located in the Port of Los Angeles that will provide an outlet to relieve congestion on the docks in both ports. As part of the development of this project, the Mayor and Port of Los Angeles should ensure that the proposed project analysis demonstrates tangible environmental improvement and net environmental health benefits to the adjacent communities via increased efficiency and the use of zero emission and renewable energy technology. *Read the full recommendation [here](#).*
- **Progress:** A Memorandum of Understanding (MOU) was signed by the Port in March 2017 and the project continues to undergo California Environmental Quality Act (CEQA) procedures and permitting before they can begin construction.
- **Next Steps:** Project permitting and approvals will continue.

#### Multi-Port Clean Tech RFI

- **Approved:** April 2017
- **Overview:** The Committee recommended that the Mayor and the Port of Los Angeles lead the development of Multi-Port Requests for Information (RFI) from manufacturers of zero and near-zero emission drayage trucks, container handling equipment, marine engine / fuel technologies, LED lighting, and other potential equipment. Modeled after the City of LA electric vehicle RFI process, this Clean Tech RFI should seek information from manufacturers on the current and future commercial technology, pricing for such technology, and other relevant information. It should focus on the pieces of equipment that are most common and ubiquitous among port facilities and terminal operators in order to understand the opportunities for leverage with greater volume procurement commitments. It was recommended that an RFI be issued by December 31, 2017. *Read the full recommendation [here](#).*
- **Progress:** The Mayor's office began working on an RFI that will first be directed to West Coast ports and eventually rolled out to other North American ports. The Mayor publicly announced this initiative, now called the "Green Ports Collaborative," during a June 12, 2017 press conference and is beginning outreach to other West Coast ports immediately.
- **Next Steps:** Following the information received from the West Coast Ports, the Mayor's office will continue to coordinate with the Port of Los Angeles and survey other seaports across the nation to demonstrate demand for such advanced technologies.



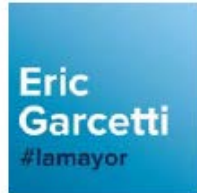
### POLA LED Light Conversion Recommendation

- **Approved:** April 2017
- **Overview:** The Committee recommended that the Mayor and the Port of Los Angeles work with LADWP to aggressively retrofit the lighting in the Port to high efficiency LED technology as soon as possible. It is recommended that this project effort be a top priority within the Port of Los Angeles-LADWP task force being implemented as a result of a prior Committee recommendation. Since it was expected the Port of Los Angeles-LADWP task force would commence its work together in May 2017, the Committee recommended that this task force develop a framework for the LED Light Conversion Program by January 31, 2018, or sooner. *Read the full recommendation [here](#).*
- **Progress:** This concept was discussed in the May 2017 Port of Los Angeles-LADWP task force meeting.
- **Next Steps:** The Port is working with each of their tenants to determine their lightning needs so they can submit a detailed plan to LADWP. From there the Port and LADWP can work collaboratively to develop a timeline and cost to implement LED lights throughout the Port.

### Cargo Handling Equipment Recommendation

- **Approved:** May 2017
- **Overview:** The members of the Sustainable Freight Advisory Committee have reached agreement on proposing a process for identifying opportunities for air pollution and greenhouse gas emission reductions from cargo handling equipment. The process includes an Opportunity Study to determine which terminals have the best potential opportunity for the deployment of zero and/or near-zero emission cargo handling technology and supporting fueling infrastructure. This study should also look at the Port's emissions inventory to identify the largest sources of emissions and to work with fuel providers and LADWP to determine the requirements, costs, timelines, and other key considerations to develop the necessary refueling / charging infrastructure. Second, the Committee recommends that the Port coordinate with industry stakeholders and other ports via the Multi-Port Clean Tech RFI to understand current and future commercial availability of zero and near-zero emission technology. Third, the Committee recommends the Mayor and Port aggressively seek funding for projects that can reduce emissions in the ports. Finally, the Committee recommends that the port publish best practices and lessons learned on the deployment efforts of zero and near-zero emission vehicles and equipment. The Committee noted that the recommendation may not represent a preferred alternative of any individual member of the Committee, but rather a reasonable and viable process on how to address this complicated and controversial issue upon which all Committee member could agree. *Read the full recommendation [here](#).*
- **Progress:** The Port has begun discussions with LADWP, via the POLA-LADWP committee, on the key considerations to develop the necessary charging infrastructure to support electric cargo handling equipment deployments at various terminals. The Mayor's office has begun surveying West Coast ports via the Multi-Port Clean Tech RFI to understand the cargo handling equipment needs to demonstrate the demand for zero and near-zero emission options to OEMs.

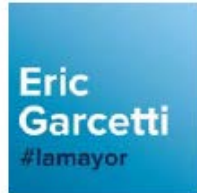




- **Next Steps:** The Port will continue to work with the members of the Committee to continue to refine this process and will begin work on the Opportunity Study in fall of 2017 to identify terminals that have the best potential opportunity for the deployment of zero and near-zero emission cargo handling equipment.

#### Clean Truck Program Acceleration Recommendation

- **Approved:** June 2017
- **Overview:** The SFAC reiterates its prior Clean Truck Program recommendation, which seeks to replace 100 percent of the existing drayage fleet in the San Pedro Bay Ports with equipment that provides zero and near-zero emissions by 2023, which will be dependent upon an aggressive campaign to provide the necessary public incentives, innovative financing programs, and private capital to ensure that the financial burden of clean technology does not become the sole responsibility of the port truck driver, nor result in cargo diversion due to increased costs of trucking from the San Pedro Bay Ports. Furthermore, the Committee recommends that the Port and Mayor set a goal of July 1, 2023 for the San Pedro Bay Ports to be exclusively served by trucks operating with zero tailpipe emissions or meeting the anticipated CARB Ultra-Low NOx emission standard (90% lower than the in-use NOx levels which may equate to 0.02g/bhp-hr NOx). This bold and aggressive goal is consistent with the South Coast AQMD 2016 Air Quality Management Plan (AQMP) which stresses the dire need for near-term emission reductions and (MOB-08) proposes to replace up to 2,000 heavy-duty trucks per year with ones that meet a 0.02 g/bhp-hr NOx emission level or operate with zero tailpipe emissions.
- **Progress:** This recommendation was approved in the final meeting and on the day this report was finalized, so there is no progress to report as of yet.
- **Next Steps:** The update to the CAAP and therefore the Clean Truck Program is expected to be released by the joint San Pedro Bay Ports in July of 2017.

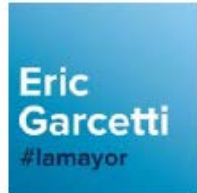


## RECOMMENDED NEXT STEPS

Via a survey of the Committee members prior to the scheduled June 2017 meeting, it was confirmed that there is strong support and consensus among the Committee to continue to work collaboratively as a group. This survey – together with discussion among the Port of Los Angeles leadership team – confirmed that forward efforts of the Committee should focus on: the implementation of the confirmed Committee recommendations to date; the continued identification of opportunities for further system efficiency improvements, technology innovation and deployment; and the identification of the policies, resources and incentives required to facilitate the implementation of such technologies and systems to ensure the future economic and environmental sustainability of the Port of Los Angeles.

A summary of the Committee’s feedback and recommended next steps are below.

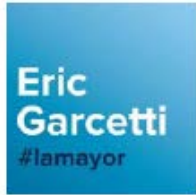
- The vast majority of Committee members agreed that the Committee has been very successful in bringing together differing viewpoints to come up with recommendations that are supported by industry, government, environmental groups, and labor.
- The Committee members feel that they are fairly successful in reaching consensus among all Committee members. It was challenging to reach consensus on some of the ideas and recommendations brought forward by the group. However, where there was not initial agreement, the Committee members continued to discuss the items until the group could find a middle ground. As one member commented, “it was very helpful to have a group like this as it forced us to talk to one another and get beyond the soapbox.” This position was supported by another member of the group in the recommendation for the Committee to continue to meet as it was noted that “it would be a mistake not to continue; otherwise everyone will go back to their same old fights.”
- Some Committee members feel that while some progress has been made on the recommendations submitted to the Port and the Mayor, more time is needed to fully evaluate the success of the recommendations in advancing zero and near-zero emission technology throughout the Port. This feedback drove the recommendation to continue to meet to monitor the progress of the recommendations and work to drive implementation of these ideas to the greatest extent possible.
- With a diverse group of stakeholders which make up the Committee, it was recommended to leverage this diversity to help identify funding programs, grants, incentives and other financial resources to assist the Ports and its tenants to deploy zero and near zero emission equipment in their operations. This concept was raised early on by the Committee in the November 2016 Clean Truck Program Recommendation, where it states, “Take advantage of the diverse stakeholder group represented within the Committee to further build and lead a coalition of businesses (including cargo owners, shipping companies, terminal operators and others), environmental,



community, regulatory agency, and other stakeholders to advocate for this shared vision to the greatest extent possible.”

- In the original vision for the Committee, a core focus of the initiative was to leverage the collective expertise and knowledge of the group to help the Port of Los Angeles to identify, develop and deploy advanced low and zero emission technologies. While the release of the 2017 CAAP Discussion Document somewhat shifted the focus of the Committee over its year term, the Committee members strongly agreed that an increased focus on technology demonstrations should be a priority on a going forward basis. This can be accomplished via “technology tours” to offsite location such as the Pasha Green Omni Terminal, site where AMP or the “bonnet” technology is being utilized, or other such advanced technology projects are underway. Such site visits will provide an opportunity for the Committee members to gain first-hand experience and feedback from end-users on the challenges, successes, and otherwise day-to-day operational issues of these technologies. Other technical engagements can include briefings and meetings with zero and near-zero emission technology manufacturers (such as truck OEMs, as an example), webinars, etc.
- In developing the original roster of individuals invited to serve on the Committee, it was important to keep the group small, but made up of credentialed individuals with subject matter expertise. Going forward, should the Committee continue to meet, some of the Committee members recommended expanding the group to include more representatives from the trucking and rail industries, energy providers, and truck manufacturers. Such an expansion of the Committee group will have to be considered in the context of the “CAAP Implementation Stakeholder Advisory Group” that was included in the joint mayoral declaration on June 12, 2017.
- Other topics members of the Committee recommended be addressed by the group in future meetings include:
  - CEQA and the impacts it has on port-related projects
  - More direct engagement with cargo owners
  - The opportunity for other emerging technologies, including wind energy
  - Support in implementing the Mayor’s Executive Directives
  - Facilitating greater collaboration between EJ groups, industry and agency personnel
  - The long-term vision and evolution of freight logistics
  - Rail emission reducing projects
  - Marine emission reducing projects
  - The real availability of energy to support future truck and equipment technologies
  - Sunsetting older trucks
- The Committee members universally agreed that there is good value in the work and efforts of the Committee and want to expand the term beyond June 2017. It was, however, recommended that the time commitment be reduced from monthly four-hour in-person meetings. Most of the Committee members agreed that a quarterly meeting with discretionary technical engagement opportunities and conference calls/webinars between meetings would strike the right balance.

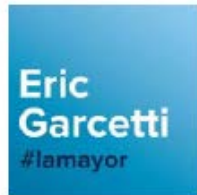




**Attachment A**

**MISSION & VISION STATEMENT**

*Approved by the Committee in July 2016*



## PURPOSE

As stated in the Mayor's letter of invitation, the Committee's purpose is to evaluate technologies and make advisory recommendations to the Mayor Eric Garcetti and Gene Seroka, Executive Director of POLA, for moving cargo more efficiently and advancing zero emission goods movement. Using innovation, market transformation, and other tools, the Committee will also be tasked to help POLA achieve and exceed the goals set forth in the Sustainable City pLAN and the State's Sustainable Freight Action Plan while addressing economic and commercial needs.

## GOALS

The **Sustainable City pLAN** goals of note for the Committee include:

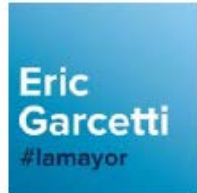
- Increasing the percentage of port-related goods movement trips (defined initially as pieces of equipment over a certain size and utility) that use zero-emission technologies to meet and beat 15-percent by 2025 and to 25-percent by 2035
- Air quality outcomes in pLAN (e.g., zero non-attainment days by 2025)

The State's **Sustainable Freight Action Plan** goals of note for the Committee include:

- Improve freight system efficiency 25 percent by increasing the value of goods and services produced from the freight sector, relative to the amount of carbon that it produces by 2030
- Deploy over 100,000 freight vehicles and equipment capable of zero emission operation and maximize near-zero emission freight vehicles and equipment powered by renewable energy by 2030
- Foster future economic growth within the freight and goods movement industry by promoting flexibility, efficiency, investment, and best business practices through State policies and programs that create a positive environment for growing freight volumes, while working with industry to lessen immediate potential negative economic impacts

## VALUES AND GUIDELINES

- Near term pilots that are scalable, advance zero emission targets, and help transform markets in the years ahead
- Focus on the largest sources of emissions with current and near term available technologies that meet economic and commercial needs
- Cost effective investments with environmental, economic, and technological sustainability that also drive toward long term market transformation

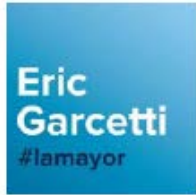


- Zero and near-zero emission technologies must be deployed as quickly as possible to protect human health, especially in port-adjacent communities that are disproportionately impacted by freight emissions

#### **INITIAL PRIORITIES**

- 100 battery electric truck deployment/pilot for short haul network
- Mayor's Electric Vehicle Request for Information (EV RFI) targeting light to heavy duty vehicles with multiple jurisdictions (including West Coast 'green ports initiative')
- Zero or near-zero emission top handler technology development
- Other ideas to be determined by Committee

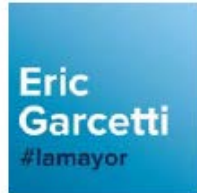




**Attachment B**

**APPROVED RECOMMENDATIONS**

*All recommendations approved by the Committee between June 2016 and June 2017*

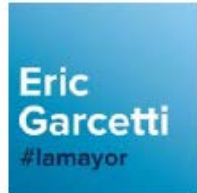


### **Zero-Emission Top Handlers Recommendation:**

The Committee recommends to the Mayor and the Port of Los Angeles that by December 31, 2016, the Port issue an RFP for the demonstration of zero-emission top handlers at one or more port terminals.

The project should include the following elements:

- Demonstration of top handlers from two or more OEMs to provide comparative information on different system technologies.
- Integration of the zero-emission top handlers with electric UTRs in terminal operations to demonstrate the potential for these technologies to work as a system.
- Demonstrate the ability to move containers in rail operations entirely using zero-emission equipment (UTR, top handler, RMG). Following the successful demonstration of the equipment in a rail operation, further demonstrate the technology in all other terminal operations in order to demonstrate the feasibility of the equipment in all applications it could eventually be asked to serve.
- Collection of key performance indicators, including operational, criteria pollutant emissions, energy usage, and GHG emissions data documented in a publicly available report together with a comprehensive economic analysis documenting all capital, operating, maintenance and overall life-cycle compared to traditionally fueled equipment. Performance testing to first take place in rail operations so that an electrified unit can be compared against a traditionally fueled unit (a unit typically consists of 2 top handlers and 6 to 7 UTRs), with additional performance testing in other applications to follow the successful demonstration in the rail operation.
- Identify opportunities and barriers to ensure standardization of charging infrastructure and fittings for both top handlers and UTRs.

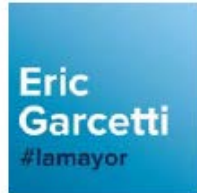


### **Zero-Emission Drayage Trucks Recommendation:**

The Committee recommends to the Mayor and the Port of Los Angeles that the Port pursue the evaluation and demonstration of zero-emission drayage trucks in preparation for a feasibility report in 2020, or sooner. The project should include the following elements:

- Survey and summarize the status of currently funded zero-emission (battery and fuel cell) drayage truck projects in California.
- Assess the likely timeframe that POLA could begin to develop a “second wave” ZE drayage truck deployment based on developments and outcomes from on-going ZE drayage truck projects.
- Identify potential additional needs in on-going projects that relate to types of drayage truck operations, demonstration of feasibility, scale of demonstrations, and/or other such factors.
- Provide a publicly available report documenting the assessment and identification of additional needs.
- Based upon the identified additional needs, support a “second wave” deployment of a meaningful number of units (50 to 100, if not more), with the deployment anticipated in the 2018 – 2019 timeframe. This deployment will be means to augment or expand the existing funded projects and move toward a determination of feasibility for 2020 feasibility report.
- Document in the 2020 feasibility report the next steps for additional ZE drayage truck deployments and feasibility reports in 2025 and 2030.
- Work to commence scaled deployments of ZE drayage trucks in 2020 in order to achieve an ultimate goal of a 100 percent ZE drayage truck fleet in the ports by 2035.





## Clean Truck Program Acceleration Recommendation

The Committee recognizes that the immediate and wide scale implementation of zero and near-zero emission heavy-duty trucks in the South Coast Air Basin and throughout California is a priority focus. Such efforts are required to protect public health, comply with state and federal air quality standards, and avoid Clean Air Act sanctions that could cut off federal transportation funding, result in the potential takeover of local air quality regulatory programs by the federal government, and an increased offset ratio (2:1) that would make it much more difficult for stationary sources wishing to obtain required permits for new or modified equipment. In addition to immediate and large scale criteria pollutant emission reductions, clean trucks and the fuel that powers them must also provide critical greenhouse gas (GHG) emission benefits.

- California's Sustainable Freight Action Plan seeks to improve freight efficiency, transition to zero-emission technologies, and increase competitiveness of California's freight system. Zero and near-zero emission heavy-duty trucks are a cornerstone of the on-highway elements of this plan.
- The City of Los Angeles Sustainability pLAN targets an increase in the percentage of Port-related goods movement trips that use zero-emission technology to at least 15% by 2025 and 25% by 2035.
- The Ports of Los Angeles and Long Beach are considering putting a goal in the updated Clean Air Action Plan that results in 100% zero-emission cargo handling equipment and drayage trucks by 2030 and 2035 respectively.
- CARB's Mobile Source Strategy and State Implementation Plan (SIP) calls for the reduction of NO<sub>x</sub> from mobile sources by 70 percent by 2023 and 80 percent by 2030. To reach these required reductions, and thus federal ozone attainment deadlines, ARB has stated that 900,000 zero and near-zero emission trucks must be deployed by 2030, with a majority of these required by 2023 to meet the major NO<sub>x</sub> emission reductions required by this time.<sup>1</sup>
- In the South Coast Air Basin, significant progress towards federal ozone standard attainment deadlines must be achieved by 2023. The SCAQMD, joined by 17 other air quality agencies across the U.S., has recently filed a petition with the US EPA calling for a 0.02 g/bhp-hr NO<sub>x</sub> heavy-duty emission standard. Without near-term access to and deployment of heavy-duty trucks with emissions at or below a 0.02 g/bhp-hr NO<sub>x</sub> standard, the South Coast Air Basin will be unable to reach its near-term ozone attainment goals by 2023.
- Governor Brown has called for the reduction of petroleum use in California cars and trucks by up to 50 percent by 2030<sup>2</sup>. In addition, California has stated widespread transportation electrification is critical to achieving ambient air quality standards and greenhouse gas emission reduction goals<sup>3</sup>. Significant deployment of non-petroleum fueled heavy-duty vehicles will be required to meet this goal.

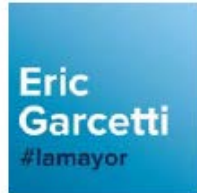
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<sup>1</sup> CARB Mobile Source Strategy, Table 2: On-Road Fleet Transformation (p.50), May 2016.

<https://www.arb.ca.gov/planning/sip/2016sip/2016mobsrsrc.pdf>

<sup>2</sup> <https://www.arb.ca.gov/cc/pillars/pillars.htm>

<sup>3</sup> <https://energycenter.org/blog/senate-bill-350-major-triumph-transportation-electrification>



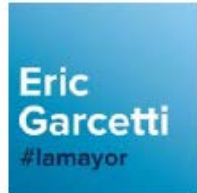
Further, the widespread use of low carbon and renewable fuels that achieve a 40 percent to 80 percent reduction in well-to-wheel based carbon emissions will be critical to the State's efforts to achieve the goals of SB 32 and AB 32, respectively.

The Committee recognizes that the ports have the ability to influence and drive investments in cleaner technologies by virtue of their unique leadership position in the marketplace and ability to develop and implement aggressive clean air programs. As an example, the original Clean Truck Program was a key contributor to moving nearly all of the heavy-duty truck manufacturers to develop and sell natural gas powered trucks as part of their technology portfolio. As the onset of the Clean Truck Program, Cal Cartage's 132 Daimler (Sterling brand) natural gas truck project, co-funded by Proposition 1B bond monies, was the first time a major truck OEM engineered and sold a natural gas truck in the U.S. Kenworth, Volvo, Mack and Peterbilt immediately followed with commercial natural gas products. Since this port-driven catalyst, more than 10,000 heavy-duty natural gas on-road trucks have been sold throughout the U.S. and Canada to fleets such as UPS, Frito Lay, Anheuser-Busch and many others, including more than 8,000 units powered by 12 liter Cummins Westport natural gas engines. The wide scale adoption of this technology by major trucking companies indicates an important level of technological robustness has been achieved in the last decade. The importance and opportunity for the ports to drive such technological innovation and development in the marketplace should not be underestimated.

A near-zero emission 9-liter natural gas engine is now commercially available to the heavy-duty market. A manufacturer expects to request CARB and EPA certification of a 12 liter near-zero engine – fully capable of meeting the needs of a port drayage application - in 2017, with commercial sales of this product starting in Q1 2018. Testing taking place at Southwest Research has raised the possibility of having diesel engines certified to 0.02 g/bhp-hr NOx in the 2023 timeframe. At the same time, new battery and fuel cell electric and hybrid heavy-duty trucks are being built and tested by Volvo, BYD, TransPower, US Hybrid, and others.

Given the need for zero emission and ultra-low NOx heavy-duty engine technology to be immediately deployed on a wide scale, the Committee sees a unique opportunity for the updated San Pedro Bay Ports Clean Truck Program to again provide the catalyst needed to see an acceleration of industry-leading technology in the heavy-duty truck sector in the next three to five years. Given the higher cost of these ultra-low NOx and zero emission technology, it will be imperative that public funding and innovative financing mechanisms be utilized to ensure that the financial burden of clean technology does not become the sole responsibility of the port truck driver, nor result in cargo diversion due to a requirement that would significantly increase the cost of trucking from the San Pedro Bay Ports. The Committee values solutions that advance both the economic and environmental sustainability of the Port.

Provided that the necessary public and private funding and financing are available to the market, replacing 100 percent of the existing diesel powered drayage fleet in the San Pedro Bay Ports with equipment that is zero and near-zero emission is a shared goal of the Committee. The Committee,



therefore, recommends that LA Mayor Eric Garcetti and the Port of Los Angeles executive director, Gene Seroka:

- Take advantage of the diverse stakeholder group represented within the Committee to further build and lead a coalition of businesses (including cargo owners, shipping companies, terminal operators and others), environmental, community, regulatory agency, and other stakeholders to advocate for this shared vision to the greatest extent possible.
- Leverage this coalition to work with federal, state and local agencies, elected officials and others to advocate for the allocation of existing and new financial resources required to implement this vision by the end of 2023.
- Continue to work with Long Beach Mayor Robert Garcia and the Port of Long Beach to develop and implement a series of new measures related to drayage trucks that will cause older and higher emitting trucks to be removed from port drayage service in order that they are replaced with ultra-low emission and/or zero emission technology.
- Ensure that the San Pedro Bay Ports' competitiveness is increased based upon the sum of actions taken.
- Utilize existing and new port resources, public funding, incentives, grants, bulk purchasing collaboratives, and innovative financing to lower the cost to the truck owner to transition to zero and near-zero emission trucks (i.e., those with emissions at or below the 0.02 g/bhp-hr NOx standard) that are commercially available and viable for commercial deployment as fully-capable heavy-duty drayage trucks in a port application.
- Require zero and near-zero emission trucks that receive funding to use a low carbon fuel that achieves at least a 40 percent well-to-wheels based carbon reduction from CARB diesel.
- Provide meaningful support for public, private, and Public/Private joint ventures to develop low carbon fueling and charging infrastructure projects that enhance and/or accelerate the efficacy of zero and near zero emission trucks.

The Committee recommends that a new Clean Truck Program, with the above elements incorporated, be implemented as soon as possible, but no later than April 1, 2018.

It is recommended that a letter be submitted to relevant federal, state and local agencies and elected officials by January 15, 2017 in order to outline the above goals and request funding support for this important initiative. With hundreds of millions of dollars in incentives available in the marketplace today from a variety of other sources, now is the time to demonstrate the leadership needed to focus these resources on the Clean Trucks initiative being recommended by the Port of Los Angeles Sustainable Freight Advisory Committee.

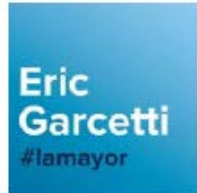


### **POLA - LADWP Committee Recommendation:**

The Committee recommends to the Mayor and the Port of Los Angeles to convene a task force consisting of the Executive Director of the Port of Los Angeles, the General Manager of LADWP, and other appropriate staff from each agency, and other city agencies (e.g., LAWA), to identify the infrastructure necessary to support the widespread electrification of the goods movement activities in and around the Port of Los Angeles.

California recently passed Senate Bill 350, which set forth a goal of "widespread transportation electrification." In addition, the City of Los Angeles' Sustainability pLAN envisions dramatically expanding transportation electrification at the Port of Los Angeles. There needs to be significant coordination between the Los Angeles Harbor Department and the Los Angeles Department of Water and Power to improve reliability and ensure sufficient infrastructure is provided to power this transformation.

Within 180 days of its first meeting, this task force should publish a preliminary report that identifies the need, opportunity, cost, timelines and process by which such infrastructure can be developed. This report should be updated annually, and should also articulate to LADWP customers the benefits of moving to zero emission technologies in the freight sector and develop a plan on how to integrate onsite and offsite renewable power generation and energy storage into this infrastructure to seek truly zero emissions and make the Port more resilient.



## **System Efficiency – Harbor Performance Enhancement Center (HPEC) Recommendation:**

The Committee recognizes that congestion and inefficiencies in the supply chain result in added costs and emissions. The elimination of this “friction” in the system can improve the operational and environmental performance of the goods movement system and provide benefits to all stakeholders. Therefore, the Committee recommends to the Mayor and the Port of Los Angeles to continue to prioritize and advance projects that improve the efficiency and overall performance of the ports and the freight system.

One such project that has been proposed is the Harbor Performance Enhancement Center (HPEC). HPEC is effectively a “peel off yard” located in the Port of Los Angeles that will provide an outlet to relieve congestion on the docks in both ports. The project will increase efficiency and therefore reduce costs and emissions within the system. As the HPEC facility will be on Port of Los Angeles property, it will be subject to the provisions of the Clean Air Action Plan and Clean Truck Program, when adopted. This will help to ensure that the lowest emission equipment and fuels are being utilized at the facility.

The HPEC project will require significant public infrastructure improvements which will benefit the entire San Pedro Bay Port complex, and thus the national supply chain. HPEC will also include an educational component at an on-site facility that will be used as a laboratory to facilitate learning, collaboration and the pursuit of new innovative ideas among the world’s leading stakeholders in the goods movement industry, academia, and other related organizations. The facility will showcase and foster economic and environmental innovation within the supply chain.

Given the national significance of the Southern California Port Gateway, the Committee recommends that the Mayor and the Port of Los Angeles work with officials at the local, state and federal levels to advance the development and implementation of the HPEC project. Additionally, the Committee recommends that the Mayor and Port of Los Angeles explore and facilitate, as appropriate, the use of a public-private-partnership (PPP) model in order to maximize both private and public sector cooperation, support and investment in the project.

As part of the development of this project, the Mayor and Port of Los Angeles should ensure that the proposed project analysis demonstrates tangible environmental improvement and net environmental health benefits to the adjacent communities via increased efficiency and the use of zero emission and renewable energy technology. As peel off yards have the potential to add to the number of “touches” required to handle a container, there is the opportunity to increase emissions if such touches are with traditional diesel-powered container handling equipment. Therefore, the Committee recommends that zero and near-zero emission technologies – such as battery electric trucks, solar panels, and others – be utilized to the greatest extent possible. Ultimately, any assessment of the benefits of the HPEC must consider both the operational changes and the project’s use low emission technologies to mitigate any impacts from additional touches.

The Committee also strongly supports and recommends that the educational component of the HPEC project be aggressively pursued as part of this development effort in order to attract global thought leaders to Los Angeles and the Southern California goods movement industry.





## **POLA LED Light Conversion Recommendation**

The Committee recommends to the Port of Los Angeles and LADWP work to aggressively retrofit the lighting in the Port to high efficiency LED technology as soon as possible. It is recommended that this project effort be a top priority within the Port of Los Angeles / LADWP committee being implemented as a result of a prior Committee recommendation.

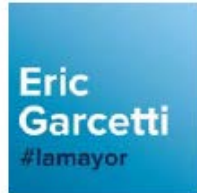
The Port and LADWP should likely focus on the “high mast” lighting installations which typically consist of approximately twelve (12) 1,200 to 1,500 watt fixtures. Retrofitting these large consumers of electricity will likely provide the best opportunity for achieving economically and environmentally sustainable results in the shortest time possible.

It is expected that these “early wins” can likely be achieved relatively quickly and easily. These early wins will help to establish a successful working relationship between the member of the LADWP/Port of Los Angeles committee, which will help in the pursuit of the larger and more complicated study efforts on port electrification.

Beyond the high mast lighting installation, all Port of Los Angeles lighting within the terminals and Port complex should be considered as part of this effort.

Throughout all of these efforts, the Port should work to maximize the opportunity for the investment by LADWP’s Energy Efficiency Solutions Group in these retrofits and upgrades.

With the LADWP/POLA committee expected to commence its work together in May 2017, the Committee recommends that this committee develop a framework for the LED Light Conversion Program by January 31, 2018, or sooner. This framework shall identify key Program milestones, terms, and ultimately, an expected completion date for the successful conversion of all high mast lighting within the Port of Los Angeles.



## Multi-Port Clean Tech RFIs

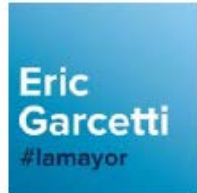
The Committee recommends to the Port of Los Angeles lead the development of multiple Multi-Port Requests for Information (RFI) from manufacturers of zero and near-zero emission drayage trucks, container handling equipment, marine engine / fuel technologies, LED lighting, and other potential equipment.

The RFI should seek information from manufacturers on the current and future commercial availability of zero and near zero emission technology, pricing for such technology, and other relevant information. It should focus on the pieces of equipment that are most common and ubiquitous among port facilities and terminal operators in order to understand the opportunities for leverage with greater volume procurement commitments.

As part of this effort, the Port of Los Angeles and Mayor's office should work to coordinate with other ports, and possibly other world port partners, on strategies, technologies and fuels that can be used to reduce emissions from the commercial marine vessels that call on these ports. Having a common approach to the use of cleaner / lower sulfur fuels compliant with ARB requirements, renewable / alternative fuels, cold ironing / AMP strategies, the increase use of exhaust capture and treatment (i.e. "bonnet") systems, etc. will provide greater opportunities for air quality improvements for all participating ports and surrounding communities.

The Committee recommends that the Port of Los Angeles and Mayor Garcetti use the opportunity of the upcoming American Association of Port Authorities meeting this fall in Long Beach to promote and advance the multi-port RFI initiative.

It is recommended that an RFI be issued by December 31, 2017.

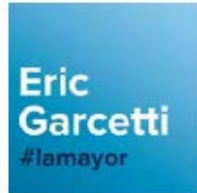


## Cargo Handling Equipment Recommendation

The members of the Sustainable Freight Advisory Committee have reached agreement on proposing the following process for identifying opportunities for air pollution and greenhouse gas emission reductions from cargo handling equipment. Initial positions on cargo handling equipment recommendations varied widely and many members made significant compromises and accommodations to reach a consensus on this proposal. As such, this recommendation may not represent the preferred alternative of any individual member of the committee but a reasonable and viable process on how to address this complicated and controversial issue upon which all committee members could agree.

### 1. Opportunity Study

- a. Complete a detailed study of the terminals within the Port to identify the best potential opportunities for the deployment of zero and/or near-zero emission cargo handling technology and supporting fueling infrastructure.
- b. Work with each Port terminal to identify the equipment to be replaced with zero and/or near-zero emission technologies. Such equipment could include, but is not limited to:
  - (1) Ship to Shore cranes
  - (2) RTGs
  - (3) Forklifts
  - (4) Yard hostlers
  - (5) Pickup trucks
  - (6) Top picks
  - (7) Other TBD
- c. Review the Port emissions inventory to confirm which groups of equipment represents the largest sources of emissions.
- d. Work with fuel providers and LADWP (via POLA/DWP committee) to understand the requirements, costs, timelines and other key considerations to develop the necessary refueling / charging infrastructure, and the anticipated delivered fuel costs to the end-user
  - (1) Provide an infrastructure development plan to document the total costs for each Port terminal facility to transition to zero and/or near-zero emission alternatives
  - (2) Determine the total potential fuel and/or electrical power load for each facility and identify a pathway to serve this fuel/power demand
  - (3) Study how integration of renewables and energy storage could aid in reducing rates and lifecycle emissions
- e. Determine the estimated costs, emission benefits, efficiency improvement, and estimated implementation timeline for a transition to zero and/or near-zero emission alternative technologies, fueling infrastructure and fuel within each terminal facility and overall for the Port.



- f. Develop concepts, cost structures and incentives required to facilitate the aggressive transition of CHE to zero and/or near-zero emission alternatives.

## 2. Multi-Port Clean Tech RFIs

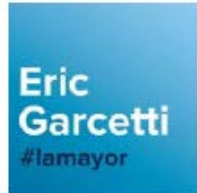
- a. Work with industry representatives to develop an "equipment requirements" document for each major piece of equipment.
- b. Coordinate with other ports to develop and issue an RFI for zero and/or zero emission equivalent technology (prioritize the RFI based upon the findings from Task 1.a., 1.b. and 1.c.).

## 3. Project Development

- a. Advocate to have CARB, CEC, SCAQMD, others allocate funding for port / goods movement zero and zero emission equivalent deployment.
- b. Aggressively seek funding for projects that show promise via Task 1 –Opportunity Study.
- c. Use the Opportunity Study (above), "Score Board" (below) and "gap analysis" to identify best opportunities for new deployments of zero and near-zero emission equipment in on-road and off-road port applications.

## 4. Share Success Stories & Best Practices

- a. Develop and publish a "Score Board" for funded zero and/or near-zero emission truck and CHE projects in on and off road applications. In the scorecard, confirm:
  - (1) Which are port related and which are not.
  - (2) Status: funded; on order; operational; other.
- a. Measure data and showcase projects like Green Omni, Everport and other demonstration efforts to encourage regional learning and replication (i.e. share results).
  - (1) Develop "Best Practices" guide based upon results; POLA to update annually.
  - (2) Uses data from this task to assist in the development of the 2020 and 2025 CHE feasibility studies noted in the Draft CAAP Discussion Document.
- b. POLA to host an annual event on zero and/or near-zero emission deployment efforts in order to share the latest information and successes with Port terminals, equipment providers and other stakeholders. The event should:
  - (1) Showcase success stories and best practices
  - (2) Showcase technology and innovation
  - (3) Share info among terminals



## Clean Truck Program Acceleration Recommendation

*This SFAC recommendation is in response to the Port's CAAP discussion document and the June 12, 2017 joint declaration on "Creating a Zero Emission Goods Movement Future" by the Los Angeles and Long Beach Mayors.*

Zero and near-zero emission technologies are becoming increasingly commercially available in the marketplace and wide scale adoption within and beyond the ports will be required for the region to meet federal Clean Air Act attainment deadlines and provide healthful air for nearby communities. Concurrently, the SFAC recommends the Port continue to work to improve system efficiencies to eliminate unproductive truck moves and lifts where possible.

Given the importance to public health of achieving near-term regional and community air quality goals, the SFAC wishes to reiterate its prior Clean Truck Program recommendation which seeks to replace 100 percent of the existing drayage fleet in the San Pedro Bay Ports with equipment that provides zero and near-zero emissions by 2023, which will be dependent upon an aggressive campaign to provide the necessary public incentives, innovative financing programs, and private capital to ensure that the financial burden of clean technology does not become the sole responsibility of the port truck driver, nor result in cargo diversion due to increased costs of trucking from the San Pedro Bay Ports. It is the goal of the SFAC and should be the goal of the Port and Mayor that the San Pedro Bay Ports are exclusively served by trucks operating with zero tailpipe emissions or meeting the anticipated CARB Ultra-Low NOx emission standard (90% lower than the in-use NOx levels which may equate to 0.02g/bhp-hr NOx) by July 1, 2023.

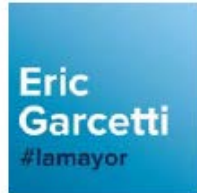
This bold and aggressive goal is consistent with the South Coast AQMD 2016 Air Quality Management Plan (AQMP) which stresses the dire need for near-term emission reductions and (MOB-08) proposes to replace up to 2,000 heavy-duty trucks per year with ones that meet a 0.02 g/bhp-hr NOx emission level or operate with zero tailpipe emissions.

The achievement of such a goal would provide tremendous air quality improvement within the region and in the communities most impacted by drayage truck emissions.

As previously noted, the SFAC strongly recommends that the Mayor and the Port work aggressively to seek public funding to support the successful implementation of such a goal. Leveraging the reach and influence of the Los Angeles Mayor's Office, the Port of Los Angeles, and the diversity of stakeholders which serve on the SFAC will be critical to successfully advocate for the allocation of existing and new financial resources from federal, state and local sources to implement this vision by July 1, 2023.

As the necessary public funding is secured and available, the SFAC recommends that the Port update its Clean Truck Program or develop other programs that will ensure the purchase and deployment of trucks that operate with zero tailpipe emissions or meet a 0.02 g/bhp-hr NOx emission level within the San





Pedro Bay Port complex. The SFAC recommends that the Port consider the Surplus Off-Road Opt-In for NOx (SOON) provision of the Statewide In-Use Off-Road Fleet Vehicle Regulation as a potential model for such provisions.

While “front loading” the deployment of zero and near zero emission trucks as part of the Clean Truck Program will provide significant air quality and public health benefits, and should thus be the goal of the Clean Truck Program, for a number of reasons, it will be important that this transition be implemented in an even and measured manner between the commencement of the new Clean Truck Program (expected in 2018) and the July 1, 2023 target date.

- Such an approach will allow for the establishment of program milestones and measurement in order to best ensure the success of the program.
- It provides greater certainty to OEMs, technology developers, trucking companies, infrastructure providers, funding agencies, etc., and thus market stability. This will allow for greater investment in the market by all parties.
- It is important that multiple engines are available from multiple manufacturers in order to maintain a competitive market environment and allow drayage truck drivers to select from a range of technologies. A five year implementation window may provide sufficient time for technology developers and OEMs to develop new technology options to meet the stated program goals.
- The measurement year for the US EPA 2023 8- hour ozone attainment deadline is 2022, therefore, the replacement of the port drayage fleet with units powered by technology operating with zero tailpipe emissions or meeting a 0.02 g/bhp-hr NOx emission level cannot wait until 2023 – significant deployments of zero and near-zero emission technology must occur in the years leading up to 2022. Getting early emission reductions will be critical to protecting and improving public health as well as avoiding Clean Air Act sanctions.
- “Truck manufacturers need to be capable of meeting the market demand for the required volume of trucks and infrastructure / fuel providers must be able to build the necessary stations required to meet the fleet’s increasing fueling/charging requirements.
- As is the case with any new advanced automotive technology, there will be certain unforeseen “growing pains.” The increased deployment of advanced technologies during a five year period will allow for unforeseen technological problems and complications to be appropriately addressed by the manufacturers and/or industry participants. Should insurmountable issues arise, it will provide the opportunity to reassess the Clean Truck Program as necessary.
- Given the significant financial requirements of an advanced technology-based Clean Truck Program, it will be important to spread these financial requirements out over the anticipated five year period. This will likely allow for greater potential investment of public incentives, as well as private sector capital as the market continues to mature.

It is critical that the capacity and availability of the San Pedro Bay Ports truck drayage fleet be maintained in a “work ready” and competitive state. The SFAC therefore continues to recommend that the Ports focus on developing a series of new measures that will aggressively encourage and incentivize



the removal of older and higher emitting trucks from service in order that they are replaced with ultra-low emission and/or zero emission technology over the estimated five year period.

Any near-term activities should be consistent with the joint declaration of the Los Angeles and Long Beach Mayors.