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SENT VIA E-MAIL AND USPS:

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Draft Program Environmental Impact Report (Draft PEIR) for the Proposed Port Master Plan Update (SCH No.: 2018081024)

South Coast Air Quality Management District (South Coast AQMD) staff appreciates the opportunity to comment on the above-mentioned document. The following comments are meant as guidance for the Lead Agency and should be incorporated into the Final PEIR.

The Port of Long Beach (Port) is updating the Port Master Plan, which was last comprehensively updated and certified in 1990 (Proposed Project). The Proposed Project is a long-range plan to establish development goals, policies, guidelines, land and water use designations, and coastal development permitting procedures for future projects within the Long Beach Harbor District. Over the next 20 years, the container cargo throughput is expected to grow at the Port from 6.9 million twenty-foot equivalent units (TEUs) in 2015 to 18.5 million TEUs[1]. Non-container cargo export and import volumes are also expected to grow at an annual rate of one to four percent[2].

The Proposed Project is a blueprint for the Port's future. It plays an important role in supporting and implementing the Port's commitments to zero emission goods movement. To that end, the Port should make reducing air quality and health risks a development goal for the Proposed Project and use this Proposed Project as an opportunity to take more aggressive actions to accelerate implementation of the cleanest technologies and advancing the objectives of the San Pedro Bay Ports 2017 Updated Clean Air Action Plan[3] (CAAP). The Port must do more to mitigate the air quality and health risks impacts. With a planning horizon of 2040, the Proposed Project should employ the latest engine equipment technology and fuel strategies that may be available in any subsequent updates to the CAAP. The Port must aggressively look at all options and opportunities for emission reductions and commit to cleaner trucks, engine equipment, and infrastructure.

On March 3, 2017, the South Coast AQMD's Governing Board adopted the 2016 Air Quality Management Plan (2016 AQMP)[4], which was later approved by the California Air Resources Board on March 23, 2017. Built upon the progress in implementing the 2007 and 2012 AQMPs, the 2016 AQMP provides a regional perspective on air quality and the challenges facing the South Coast Air Basin (Basin). The most significant air quality challenge in the Basin is to achieve an additional 45 percent reduction in nitrogen oxide (NOx) emissions in 2023 and an additional 55 percent NOx reduction beyond 2031 levels for ozone attainment.

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1 Port of Long Beach. *Draft Port Master Plan Update 2020*. Page 4-4. Accessed at: http://www.polb.com/civica/filebank/blobdload.asp?BlobID=15173.
2 *Ibid*. Page 4-5.
3 San Pedro Bay Ports. November 2017. *Final Clean Air Action Plan Update*. Accessed at: http://www.cleanairactionplan.org/documents/final-2017-clean-air-action-plan-update.pdf/.
4 South Coast AQMD. March 3, 2017. *2016 Air Quality Management Plan*. Accessed at: http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan.

The Proposed Project is critical to helping the Basin attain the federal ozone standards. The efforts of the Port are vital for South Coast AQMD to fulfill the goals set-forth in the AQMP and our obligation under the Clean Air Act. If NOx emission levels continue to increase, the Proposed Project will potentially hinder the South Coast AQMD's ability to meet the 1997 federal 1-hour ozone standard by 2022, the 1997 8-hour ozone standard by 2023, and the 2008 8-hour ozone standard by 2031. South Coast AQMD is required to attain the federal and state ambient air quality standards as expeditiously as practicable, and the failure to do so will result in negative repercussions, including strict implementation of contingency measures and backstop measures affecting the entire region, especially the ports. Therefore, mitigation measures required by the Proposed Project play a vital role in reducing emissions through timely implementation of the cleanest available technology and should be aimed at decreasing future emissions from goods movement.

A stronger commitment to deploying zero and near-zero emission trucks and equipment and building infrastructure is necessary to mitigate the Proposed Project's significant air quality and health impacts. Without it, the increased emissions resulting from the Proposed Project could have detrimental consequences to the entire region, including the ports, by contributing towards the region's nonattainment of federal and state standards. It is also important to expand on-dock rail capacity at the Port to transition to an environmentally sustainable freight transport system by promoting the shift to containers moved by rail at on-dock facilities, which is preferable to the use of trucks to move containers to near- or off-dock facilities.

The Proposed Project is surrounded by communities that are already heavily affected by the existing truck activities to and from the Port. The South Coast AQMD's Multiple Air Toxics Exposure Study (MATES IV), completed in May 2015, concluded that the largest contributor to cancer risk from air pollution is diesel particulate matter emissions, and that the areas around the San Pedro Bay ports are significantly impacted with some of the highest risks from air pollution in the region with a maximum estimated cancer risk of 1,057 in a million[5]. When the health impacts from future projects that are anticipated to implement the Proposed Project at the Port are added to those existing impacts from ongoing and approved Port projects, residents living in the communities surrounding the Port will face an even greater exposure to air pollution and bear a disproportionate burden of increasing health risks.

Additionally, the Proposed Project is within the West Long Beach Community that is disproportionately impacted by air pollution generated by the port (e.g., heavy-duty diesel trucks and ocean going vessels) and other sources. As a result, the community of West Long Beach is part of the South Coast AQMD AB 617 Community Emission Reduction Program. Through this program the Wilmington, Carson, West Long Beach community has developed a Community Emissions Reduction Plan that identifies air quality priorities and actions to reduce air pollution in the community. Therefore, South Coast AQMD staff recommends that the Lead Agency review the Community Emissions Reduction Plan for additional measures to reduce air quality impacts from the Proposed Project[6].

The Port must contribute in facilitating the advancement of a zero emissions goods movement future to meet or exceed the goals and timelines in the 2017 CAAP and any subsequent CAAP updates, and helping the region meet clean air standards. South Coast AQMD is supporting many ongoing demonstration projects on the commercial feasibility of zero emission trucks. Please see Attachment A for more information on zero emission truck technologies.

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[5] South Coast Air Quality Management District. May 2015. *Multiple Air Toxics Exposure Study in the South Coast Air Basin*. Accessed at: http://www.aqmd.gov/docs/default-source/air-quality/air-toxic-studies/mates-iv/mates-iv-final-draft-report-4-1-15.pdf.

[6] The Wilmington, Carson, West Long Beach Community Emissions Reduction Plan is available at: http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2019/2019-sep6-025c.pdf.

South Coast AQMD staff has reviewed the air quality impacts analysis in the Draft PEIR. The CEQA baseline that was used to determine the level of significance for the Proposed Project's operational air quality impacts improperly credits the Proposed Project with emission reductions that will occur independent of the Proposed Project and has likely underestimated the Proposed Project's operational emissions. The Port is committed to incorporating all applicable clean engine equipment technologies and fuel strategies to meet the goals identified in the 2017 CAAP (Mitigation Measure AQ-8[7]). However, since the Proposed Project is a long-range plan, the Port should not tie this mitigation to the 2017 CAAP only but should also include future updates to the CAAP. Mitigation measures must be feasible and fully enforceable. The Port should include specific details for Mitigation Measure AQ-8 such as timelines, interim milestones, phase-in schedules, fee- and/or rate-based incentives, and funding mechanism to explain how the Proposed Project will meet the goals and strategies outlined in the 2017 CAAP. If specific details are impractical or infeasible to include in the Final PEIR, the Port should adopt specific performance standards and identify types of potential actions that can feasibly achieve the performance standards for Mitigation Measure AQ-8 in the Final PEIR. Since the Proposed Project is a long-range plan, additional information for Mitigation Measure AQ-8 can be incorporated into the Proposed Project plan, policy, regulation, or project design (CEQA Guidelines Section 15126.4). Please see Attachment B for more information.

Pursuant to California Public Resources Code Section 21092.5(a) and CEQA Guidelines Section 15088(b), South Coast AQMD staff requests that the Lead Agency provide South Coast AQMD staff with written responses to all comments contained herein prior to the certification of the Final PEIR. In addition, issues raised in the comments should be addressed in detail giving reasons why specific comments and suggestions are not accepted. There should be good faith, reasoned analysis in response. Conclusory statements unsupported by factual information will not suffice (CEQA Guidelines Section 15088(c)). Conclusory statements do not facilitate the purpose and goal of CEQA on public disclosure and are not meaningful, informative, or useful to decision makers and to the public who are interested in the Proposed Project. Further, when the Lead Agency makes the finding that the additional recommended mitigation measures are not feasible, the Lead Agency should describe the specific reasons for rejecting them in the Final PEIR (CEQA Guidelines Section 15091).

Thank you for the opportunity to provide comments on the Draft PEIR. We look forward to working with the Port to address the comments raised herein and any other questions that may arise. Please feel free to contact me at lsun@aqmd.gov, if you have questions or wish to discuss our comments.

Sincerely,

Lijin Sun

Lijin Sun, J.D.
Program Supervisor, CEQA IGR
Planning, Rule Development & Area Sources

Attachments
JW:LS
LAC190815-02
Control Number

[7] Draft PEIR. Page ES-14.

ATTACHMENT A

ZERO EMISSION TRUCK TECHNOLOGIES

Overview

Zero emission trucks, including heavy-duty trucks, are developing rapidly with some of the technologies ready for near-term deployments. Zero emission trucks can be powered by grid electricity stored in a battery, by electricity produced onboard the vehicle through a fuel cell, or by "wayside" electricity from outside sources. All such technologies eliminate fuel combustion and utilize electric drive as the means to achieve zero emissions and higher system efficiency compared to conventional fossil fuel combustion technologies. Hybrid electric trucks with all-electric range (AER) can provide zero emission operations in certain corridors and flexibility to travel extended distances powered by fossil or renewable fuels (e.g. natural gas) or hydrogen for fuel cells. In collaboration with regional stakeholders and partners as well as leveraging funding support from both federal and state agencies, South Coast AQMD has been supporting a number of projects, as described below, to develop and demonstrate zero emission cargo transport technologies to promote and accelerate its market acceptance and deployment.

2012 DOE Zero Emission Cargo Transport Demonstration Project (ZECT I)

Project Description

With an award of approximately $4.2 million from the DOE in 2012, South Coast AQMD has contracted two local EV integrators, TransPower and US Hybrid, to develop and demonstrate a total of 11 zero emission capable heavy-duty drayage trucks, based on four different architectures, consisting of two battery electric vehicles and two plug-in hybrid electric drivetrains with AER capability. These trucks are deployed in real world drayage operations with fleet partners operating at the Ports of Los Angeles and Long Beach for demonstration up to two years. Vehicle performance and operational data is being collected and analyzed by National Renewable Laboratory (NREL) to evaluate both technical feasibility and market viability of the technologies to support drayage operations. The project conclusion has been extended twice from September 2018 to March 2020 to allow both TransPower and US Hybrisd to completed development and demonstration of their second plug-in hybrid electric and battery-electric trucks, respectively. The four demonstration technologies are summarized as follows:

Battery Electric Trucks (BETs)

a. TransPower developed four Class 8 BETs on International Prostar chassis, incorporating improvements and lessons learned from the operation of their prototype, ElecTruck. The drive system is powered by a dual motor unit, rated at 300 kW and the trucks are equipped with an innovative Inverter-Charger Unit (ICU) that combines the function of both vehicle inverter and battery charger. TransPower has installed an automated manual transmission with proprietary software to control the transmission shift mechanism, enabling operation in multiple gears to maximize vehicle efficiency. The battery pack can provide 215 kWh of energy to support 70-100 miles in operating range and can be fully recharged within 3 hours. These trucks have been in revenue service, meeting the daily duty cycle needs of the trucking companies. NREL data analysis reports an average efficiency of 2.13 kWh/mi for these BETs.

b. US Hybrid (USH) also developed two BETs on International Prostar chassis. Each vehicle is equipped with a 320kW traction motor, powered by a 240 kWh battery pack with lithium-ion cells for highly efficient and reliable performance, capable of 70-100 miles of operating range per charge. A 60 kW on-board charger is capable of fully recharging the truck within 3-4 hours. USH's first BET employs Enerdel Li-ion Hard Carbon/Mixed Oxide battery modules, designed for light duty applications. Although these batteries were integral to the performance of BET-1 and showed an average energy efficiency of 2.17 kWh/mi (NREL data collection and analysis),

USH reports that the Enerdel batteries experienced premature loss in capacity and did not deliver the power densities specified by the manufacturer resulting in lower than expected all electric range and operator acceptance. BET-1 utilized 220 kWh of on-board storage. Development of BET-2 was recently completed and deployed to fleet operator TTSI. BET-2 is using higher energy density NMC batteries manufactured by A123. The NMC batteries have 40% higher energy density relative to the Enerdel batteries on BET-1. BET-2 utilizes 280kWh of on-board storage in less space than on BET-1. USH expects the NMC batteries from A123 to have three times the lifespan of the Enerdel batteries. Data from the demonstration of these vehicles shows an average efficiency of 2.17 kWh/mile.

Plug-In Hybrid Electric Trucks (PHETs)

c. Two Class 8 PHETs are being developed by TransPower with a targeted operating range of 150-200 miles, including 30-40 all-electric miles. TP's PHET is a series hybrid configuration and is based on the ElecTruck™ system TransPower developed for their BETs, augmented with a behind-the-cab CNG auxiliary power unit for extended range and power. TransPower is utilizing commercially available and widely used components, including Ford 3.7L CNG engine-generator, to ensure that these trucks are cost-competitive and well-positioned for commercialization. As in their BETs, these trucks are equipped with a 300 kW traction motor with an automated transmission. A 115 kWh battery pack on-board will support zero emission operations when traveling through the communities around the Ports that are heavily impacted by diesel traffic and activities. TransPower's PHET design was impacted by not being able to fully access the power potential of the 3.7-liter gen-set. As a result on-board electric power generation is limiting the vehicle to more near-dock operations. In addition, the CNG-powered auxiliary engine had experienced overheating issues due to insufficient cooling air. TP improved air flow to the engine and developed an algorithm to reduce load on the engine based on engine temperature to prevent overheating and engine shutdown. PHET-2 is also utilizing NMC batteries which is expected to improve all-electric driving range. PHET-2 is currently being demonstrated by TTSI.

d. US Hybrid is also developing three Class 8 PHETs for demonstration in this project. US Hybrid converted exiting LNG trucks with 8.9L ISLG engine into PHETs with all-electric range capability. The parallel-hybrid system is designed to provide comparable power and torque to those from larger Cummins 12L engines to support a full range of drayage operations. The trucks are capable of providing a combined power of 600 HP between the LNG engine and a 223 kW traction motor, with a targeted operating range of 250 miles, including 30-40 miles in all-electric range. Two of these trucks are currently deployed in drayage service with local fleet operators. Data from the demonstration of these vehicles shows an average efficiency of 3.8 kWh/mile.

Cost

The incremental cost of the BETs over a natural gas truck is approximately $200,000, and the incremental cost of the PHETs is estimated to be around $250,000. These estimates are based on limited productions, and the costs are expected to be substantially reduced in larger volume production.

Timeline and Commercialization

Eight of the 11 demonstration trucks have completed demonstration with participating fleets at the Ports. Two of the three remaining trucks are being demonstrated currently with TP's first PHET undergoing modifications comparable to PHET-2. The project will be completed by Q2 2020. Overseas truck OEMs have commercial products that are already eligible for incentive funding from the state, such as the HVIP, and other truck OEMs are anticipating commercialization pathways by 2019.

TransPower BETs

TransPower PHET

US Hybrid PHET

US Hybrid BET

2014 DOE Zero Emission Cargo Transport Demonstration Project (ZECT II)

Project Description

In August 2014, the South Coast AQMD received an award of approximately $9.7 million from the DOE to develop and demonstrate seven zero emission drayage trucks in real world drayage operations at the Ports of Los Angeles and Long Beach. Six of them will be of fuel cell range extended electric trucks and the remaining truck will be built on a hybrid electric drive platform using a CNG auxiliary power unit as described below:

Fuel Cell Range Extended Trucks (FCREs)

a. Under project management by Center for Transportation and Environment, Kenworth and BAE Systems are developing a battery electric truck with hydrogen fuel cell range extender. This project will leverage the expertise of BAE Systems to test their hybrid electric fuel cell propulsion system, currently used for transit buses, in drayage applications. The power output of the electric drivetrain is comparable to currently used Class 8 truck engines power output. AC traction motors will be mounted one on each rear drive axle and the electric drivetrain in the architecture is set up to be fully redundant. The vehicle will operate primarily from the batteries, engaging the fuel cell system only when the batteries reach a specified state of charge. BAE anticipates that the 30 kg of hydrogen (25 kg usable) will provide approximately 110 to 120 miles of range between re-fueling. The vehicle was deployed February 2019 and under final test by local fleet operator.

b. Hydrogenics will develop a hydrogen fuel cell drayage truck powered by their latest advanced fuel cell drive technology (Celerity Plus fuel cell power system) and Siemens' ELFA electric drivetrain, customized for heavy duty vehicle applications. The proposed fuel cell drayage truck is designed to be capable of delivering over 150 miles of zero emission operation with 10-15 minutes fast refueling of hydrogen. The fuel cell drivetrain will be customized, tested and optimized for port applications. The design of the vehicle has been modified and improved from previous demonstration project and deployment of the vehicle is expected in December 2019.

c. TransPower will develop two battery electric trucks with hydrogen fuel cell range extenders. The fuel cell range extender project is to use TransPower's proven ElecTruck™ drive system as a foundation and add fuel cells provided by Hydrogenics, one of the world's leading suppliers of hydrogen fuel cells. The proposed project will result in the manufacturing and deployment of two demonstration trucks, one with a 30 kW fuel cell and one with a 60 kW fuel cell, enabling a direct comparison of both variants. The higher power output of the 60 kW systems is expected to be better suited for trucks carrying heavy loads over longer distances that might exceed the average power capacity of the 30 kW systems. The first truck was deployed in December 2017 and the second one was deployed in April 2019. Two of these trucks are currently deployed in drayage service with local fleet operator. The system will store 25-30 kg of hydrogen onboard based on an estimated 7.37 miles per kg fuel economy. TransPower's system also includes a bi-directional J1772-compliant charger that can recharge the vehicle batteries or provide power export.

d. U.S. Hybrid will develop two battery electric trucks with an onboard hydrogen fuel cell generator. U.S. Hybrid has been involved with fuel cell-powered vehicles for several years (including cargo vans, transit/shuttle buses and heavy-duty military vehicles) and believes the technology and product has reached maturity beyond feasibility and is ready for commercial demonstration deployment. The truck is powered by a lithium-ion battery with an 80 kW hydrogen fuel cell generator in charge sustaining mode, eliminating the need for charging. The fuel cell power plant is sized to sustain continuous operation based on average power demand for drayage applications. As a result, the battery size is significantly reduced, as is the required charging infrastructure. The proposed technology will provide a 150-200 mile range between refueling. Each truck will carry approximately 20 kg of hydrogen storage at 350 bar with an estimated fueling time of less than 10 minutes. The first truck has been under operation of drayage service with local fleet operator since it was deployed in July 2018 and the second truck was delivered to fleet operator in May 2019.

The fuel cell Class 8 trucks are expected to initiate demonstration at local trucking fleets over the next 3-18 months.

Plug-In Hybrid Electric Trucks (PHETs)

e. Under project management by Gas Technology Institute, Kenworth and BAE Systems will develop a PHET with a CNG range extender. The proposed technology is capable of providing a well-balanced blend of all electric and CNG-based hybrid operations. The electric drivetrain will be based on BAE Systems HybriDrive® Series (HDS) propulsion system hardware. The electric drivetrain will be capable of combined propulsion power output of 320 kW (430 hp) continuous using two AC traction motors. The power output of the electric drivetrain is comparable to currently used Class 8 truck engines power output. The truck will be designed to provide an operating range of 150 miles with 30 all-electric miles. The vehicle has undergone debugging and modification and the deployment is expected in July 2019.

Cost
The incremental cost of the FCREs and the PHET over 8.9 L natural gas truck is estimated to be $250,000 or higher. These estimates are based on limited productions, and the costs will be substantially reduced in full production, and state incentives funds are anticipated for the trucks and associated refueling infrastructure.

Timeline and Commercialization
The demonstration phase of this project has started from Q1 2018 with two trucks, one each from TransPower and US Hybrid and now total five trucks have been deployed to local fleet operator. The project extension was requested to be completed by Q3 2021 for further demonstration and analysis of data collected from the vehicles. The commercialization of these truck technologies can be expected after 2021.

Kenworth/BAE FCRE

TransPower FCRE

UsHybrid FCRE

Kenworth/GTI PHET

CARB Zero Emission Drayage Truck Demonstration Project (ZEDT)

Project Description
South Coast AQMD received an award of approximately $23.6 million to develop and demonstrate zero emission drayage trucks under CARB's Low Carbon Transportation Greenhouse Gas Reduction Fund Investments Program in 2016. The project is to develop a total of 44 Class 8 drayage trucks based on a portfolio of the most commercially promising zero and near-zero emission truck technologies for statewide demonstrations, across a variety of real world drayage applications in and around the Ports of Long Beach, Los Angeles, Oakland, Stockton and San Diego, in collaboration with four other air districts: Bay Area AQMD, Sacramento Metropolitan AQMD, San Joaquin Valley APCD and San Diego APCD. The South Coast AQMD has contracted with three major U.S. OEMs and an international OEM, with necessary resources and networks to support future commercialization efforts, develop and demonstrate four different types of battery and hybrid electric drayage truck technologies in this project, including:

two battery electric platforms (BYD and Peterbilt), and two plug-in hybrid electric platforms (Kenworth and Volvo) as summarized below:

Battery Electric Trucks (BETs)

a. BYD, a global company with over $9 billion in revenue and 180,000 employees, will develop 25 battery electric drayage trucks for demonstration with multiple fleet partners across the state. The Phase 1 BET is optimized to serve near-dock and short regional drayage routes with a range of 70-100 miles, supported by 207 kWh batteries on board. The truck is designed to provide similar operating experience compared to equivalent diesel and CNG trucks with matching or exceeding power and torque, powered by two 180 kW traction motors. The 80 kW on-board charger to fully recharge the truck within 3-4 hours. The five Phase 1 BETs were deployed in June 2018 and are eligible for incentive funds under CARB's HVIP. The Phase 2 BET has a larger 435 kWh battery pack with a range of 125 miles (full loaded) or 166 miles (half load), and is able to charge at 40 kW AC (11 hour charge time) or 150 kW DC (3 hour charge time). BYD is currently deploying 11 Phase 2 BETs in June 2019 and anticipates deploying 9 BETs in August 2019 to additional fleets.

b. Peterbilt, in partnership with TransPower, will develop 12 BETs in this project, building on a platform developed under the DOE ZECT I project, incorporating lessons learned from ongoing demonstrations to further refine and optimize the electric drive system. Eight Phase 1 BETs were designed to provide 80 to 100 miles in range, powered by a 215 kWh battery pack to support near-dock drayage operations, and four longer range Phase 2 BETs will incorporate a new battery design that allows for 120 to 150 miles of operation per charge with a 311 kWh battery pack at the same system weight with similar volume as the 215 kWh battery pack. These longer range BETs will be well suited for regional drayage routes such as from port terminals to Inland Empire and from the Port of Oakland to Sacramento and the San Joaquin Valley. Due to range concerns, Phase 1 trucks were equipped with a new a battery subsystem design based on the nickel manganese cobalt batteries used in the Nissan Leaf. Peterbilt is incorporating truck and drive system improvements into the Phase 2 trucks including an improved battery pack installation design and installation of a separate AC charger.

Plug-In Hybrid Electric Trucks (PHETs)

c. Kenworth expands its partnership with the BAE Systems to develop four PHETs with natural gas range extenders, leveraging the prototype development under the DOE-funded ZECT II project. These vehicles will target longer regional drayage routes. The team will continue refining the hybrid drivetrain to provide a system that can operate in a zero emissions (all-electric) mode and in a conventional hybrid electric mode to meet customer range needs and flexibility. The powertrain includes a 200 kW genset using a recently-certified 8.9L NZ CNG engine and two AC traction motors that produce 320kW (430 hp) continuous, with comparable power output to what is typically found in Class 8 truck engines. The hybrid system will be designed for an operating range of 250 miles with approximately 30-40 miles of all-electric range to operate in zero emissions mode in sensitive areas and disadvantaged communities. Due to delays in procuring certain high voltage components, Kenworth will be releasing two Phase 1 trucks in June 2019 and two Phase 2 trucks in August 2019.

d. Volvo will build on the success of past projects to develop three commercially attractive, highly-flexible hybrid trucks, with all-electric mode capability for zero emission operations in the most heavily emissions-impacted communities. Volvo offers a unique approach to system-focused hybrid powertrain improvements, utilizing a suite of innovative technologies such as energy and emission optimized driveline controls; aerodynamics and weight improvements; vehicle energy management and driver coaching systems optimized for port drayage operation; and a complete

suite of NOx reduction technologies, including engine and exhaust after-treatment innovations. Furthermore, Volvo, in partnership with LA Metro and UC Riverside, will also integrate ITS connectivity solutions, such as vehicle-to-infrastructure and vehicle-to-vehicle communication technologies, to improve dynamic speed harmonization and reduce idling, for better fuel economy and reduced emissions. Volvo is completing the one year deployment of truck #1 in California and this truck will be undergoing baseline and PEMS testing before returning to Volvo's east coast facility. Truck #2 will be deployed with all of the ultralow NOx technologies and the mini-burner system and will undergo chassis dynamometer and PEMs testing at West Virginia University and controlled testing on local road cycles designed to replicate drayage duty cycles for 2-3 months.

Cost
The incremental cost of the BETs over 8.9 L natural gas truck ranges from $150,000 to $200,000. No estimate is available for the Kenworth or Volvo PHETs. As noted earlier, the cost estimates are based on limited production, and the costs are expected to be substantially reduced once these trucks reach a full-production phase.

Timeline and Commercialization
The demonstration phase of this project started in Q2 2018 with BYD trucks, with the remaining trucks deployed in 2018 and 2019. This project will be completed in Q2 2020 and the commercialization of these truck technologies can start as early as 2019 for BYD trucks with the rest taking place in the 2020-2021 timeframe.

BYD Prototype Drayage Truck

Volvo PHET

CEC Sustainable Freight Transportation Project

Project Description
South Coast AQMD recently received a $10 million award from the CEC under the Alternative and Renewable Fuel and Vehicle Technology Program to develop and demonstrate zero and near-zero emission freight transportation technologies. One of the awarded technologies is electric drayage trucks, to be built on the PowerDrive™ platforms developed by Efficient Drivetrains, Inc., (EDI), a global leader and innovator of advanced, high-efficiency electric drivetrains and vehicle control software.

Battery Electric and Hybrid electric Trucks
Under project management by Velocity Vehicle Group, this project is to develop and demonstrate four electric drayage trucks, consisting of one BET and three PHETs, with EDI –acquired by Cummins

serving as the technical lead and vehicle integrator, and Freightliner providing necessary engineering resources and expertise in vehicle design and glider manufacturing. Both battery electric and hybrid electric drive platforms will be designed to meet end-user fleet requirements. The platforms will be also designed so that it can be easily integrated by post-production truck modification service companies and serviced by Freightliner dealerships. Based on the proposed technical concept, the BET will be capable of 100 miles in operating range and the PHETs will utilize Cummins 8.9L natural gas engine as a range extender to provide 250 miles in operating range per fueling with up to 35 miles in all-electric range. Negotiations with major transmission supplier and internal discussions with other Cummins engineering group is taking longer than expected. Release of updated project schedule is under discussion.

Battery Electric Top Handler

Together with project partners, WAVE and CALSTART, Hyster will scale their already prototyped modular electrified power systems to validate and demonstrate a pre-pilot Hyster® 1150-CH electric container handler – known as a Top Handler - at POLA's APM Terminals (APM). The equipment will be driven via electric power and all lifting functions will be powered by electric motors engaging hydraulic pumps. The 384 kWh battery will use high-powered wireless opportunity charging to match terminal operations. While retrofits have been performed, fully electrified off-road heavy cargo handling equipment is not available today in this weight class from a major OEM. The introduction of such equipment represents a major step forward in emissions-free options for port operators. Top Handlers are one of the largest contributors of NOx and greenhouse gas (GHG) emissions from mobile source goods movement equipment used at the San Pedro Bay Ports. The deployment of the vehicle is expected in Q4 2019.

Cost

Cost estimates are not available for these trucks but it is expected to be in line with other similar technologies, and the costs are expected to be substantially reduced once these trucks reach a wide-scale deployment and full-production phase.

Timeline and Commercialization

This project is to be completed by Q4 2020 and the commercialization of these truck technologies can be expected in the 2021-2022 timeframe.

Daimler Zero Emission Trucks and EV Infrastructure

Project Description

Under the Daimler Zero Emission Trucks and EV Infrastructure Project, Daimler Technologies North America (DTNA) will develop battery-electric heavy-duty trucks and demonstrate them in real-world commercial fleet operations in and around environmental justice communities within the South Coast AQMD's jurisdiction to gather data and information from the end-users including performance under specific duty-cycle applications. DTNA will utilize the data and information to move toward the commercial production and sales phase. DTNA will supply five (5) Class 6 trucks with a gross vehicle weight rating (GVWR) up to 26,000 pounds and fifteen (15) Class 8 trucks with a GVWR up to 80,000 pounds, including associated EV charging infrastructure. Fleet partners will be identified and the trucks integrated into a range of services and applications to gather operational data to improve each charging and utilization scheme, with seven of the Class 8 trucks to be used in port drayage operations, supporting the goods movement industry.

EV (DC) fast charging will include an SAE J1772 Combo (CCS T1) interface and will be capable of charging at up to 160 kW. The chargers will be connected remotely for troubleshooting, management and data collection. DC fast charging is to be paired with battery energy storage systems (ESS) to optimize utility costs and reduce infrastructure enhancements required to support the chargers. The proposed

chargers will allow an 80% state of charge for the Class 6 trucks in two hours and the Class 8 trucks in three hours.

Cost
The total cost for the Daimler Zero Emission Trucks and EV Infrastructure Project is $31,340,144. Funding portions: DTNA will contribute $15,670,072, the South Coast AQMD will provide $13,170,072, the Ports of Los Angeles and Long Bach will each provide $1,000,000 and the US EPA $500,000.

Timeline and Commercialization
During the demonstration DTNA will gather data and information from the end-users including performance under specific duty-cycle applications during the demonstration. DTNA will utilize the data and information to move toward the commercial production and sales phase. Deployment of the first truck is expected in August, 2019 with a complete rollout of all 20 trucks expected in December, 2019. The vehicles will then be demonstrated in service for a period of two years with Penske and drayage operator NFI.

Class 8 prototype and EV Infrastructure at Penske, La Mirada, April 2019

Class 8 Cascadia and Class 6 M2

Volvo LIGHTS Project

Project Description
Under the Volvo LIGHTS project, Volvo will develop and demonstrate 23 on-road pre-commercial and commercial Class 8 BETs operating in and around the Ports and disadvantaged communities and 29 off-road battery electric yard tractors and forklifts to load and unload containers and freight at warehouses and freight facilities. To support these on-road and off-road vehicles, 13 DC fast chargers, 43 Level 2 chargers, and solar installations producing up to 1.86 kWh of energy at the freight handling facilities. Volvo will produce 8 multiple-configuration, pre-commercial demonstration BETs and then 15 commercial/pre-commercial BETs. These BETs will have an average electric range of 170 miles depending on the drive cycle, with BETs capable of traveling 150-350 miles, two electric motors with 370 kW maximum power, and lithium-ion batteries for energy storage with a minimum capacity of 200 kWh for the initial demonstration BETs, increasing to a capacity of 320 kWh. As part of the project, Volvo will deliver new lithium-ion battery chemistries for increased energy densities at reduced cost, self-learning control algorithms which optimize energy usage in EVs, smart technologies to improve vehicle uptime, and deployment of long-term rentals of BETs to California fleets to accelerate adoption of Class 8 BETs. Freight handling facilities will include energy management systems to optimize vehicle charging by balancing the requirements of the vehicle, facility, and grid, as well as standards-based, open architecture and interoperable charging infrastructure using SAE J1772 connectors for Level 2 charging and SAE J3068 or CCS connectors for fast charging.

Cost
The total cost for the Volvo LIGHTS project is $91,246,900, with CARB providing $41,591,592 in ZANZEFF funding, and Volvo ($45,455,308), South Coast AQMD ($4,000,000), and UCR ($200,000) providing match funding.

Timeline and Commercialization
During the demonstration project, UCR will gather data and information from the end-users including performance under specific drayage duty cycles. Volvo will utilize the data to move toward commercial production of Class 8 BETs, seeking zero emission powertrain certification and qualification for incentive funding under the HVIP and other available funding sources. Deployment of the 23 trucks for this project will begin in December 2018 and completed in December 2020. The vehicles will then be demonstrated in service for a period of three years.

ATTACHMENT B

South Coast AQMD Staff's Summary of Air Quality Analysis

1. In the Air Quality Analysis, the Lead Agency found that construction activities under the Proposed Project would result in significant and unavoidable air quality impacts after incorporating Mitigation Measures AQ-1 through AQ-6[8]. While the Lead Agency found that the Proposed Project's operational air quality impacts will be significant and unavoidable after incorporating Mitigation Measures AQ-7 through AQ-10, Table 3.10 in the Draft PEIR showed that the Proposed Project's long-term NOx and SOx emissions will be [-4,319 pounds per day (lbs/day)] and (-9 lbs/day), respectively (See Table A). The Lead Agency also found that construction and operation of the Proposed Project would expose the public to significant levels of toxic air contaminants. "With mitigation, impact of the localized health risks associated with construction and operation of the Proposed Plan would be significant for individual cancer risk, cancer burden, and chronic and acute noncancer [sic] health effects[9]."

CEQA Baseline for Operational Air Quality Impact Analysis

2. The Lead Agency used a CEQA baseline year of 2017 for determining the Proposed Project's long-term operational air quality impacts. The 2017 baseline was held constant (i.e. using emission rates from 2017) and compared to the emissions in the future horizon year of 2040 (i.e. using emission rates from 2040). This approach of using a comparison between the Proposed Project's air quality impacts in future years (using emission rates from 2040) and a 2017 baseline (using emission rates from 2017) improperly credits the Proposed Project with emission reductions that will occur due to adopted state and federal rules and regulations, and improving vehicle and fuel technologies, since these rules, regulations, and technologies are expected to improve air quality, even in the absence of the Proposed Project. For example, the California Air Resources Board's (CARB) current regulation for trucks and buses will provide significant near-term and long term reductions (e.g., 124 tons per day of NOx for 2014 and 98 tons per day for 2023) from trucks and buses[10]. Therefore, the methodology used to analyze the Proposed Project's long-term operational air quality impacts in the Draft PEIR may have led to an under-estimation of ***actual*** emission increases from the Proposed Project, by taking credit for emission reductions that have been and are expected to be achieved due to state and federal rules and regulations, independent of the Proposed Project. As shown in Table A, the use of the 2017 baseline comparison is misleading because it showcases the Proposed Project as an emissions reduction project.

   Notwithstanding the general rule that baseline conditions exist at the time of the environmental review is initiated and that a project's environmental impacts are assessed by limiting the examination to changes in the existing physical conditions in the affected area as they exist at the time the Notice of Preparation (NOP) is published, if there is a published NOP, the use of future baseline is proper in some cases, supported by substantial evidence in the record. Consideration of future conditions in determining whether a project's impacts may be significant is consistent with CEQA's rules regarding baseline, especially when the project has a long-term buildout schedule. "[N]othing in CEQA law precludes an agency … from considering both types of baseline—existing and future conditions—in its primary analysis of the project's significant adverse effects." (*Neighbors for Smart Rail v. Exposition Metro Line Construction Authority* (2013) 57 Cal.4th 439, 454.). "Even when a project is intended and expected to improve conditions in the long term—20 or 30 years after an EIR is prepared—decision makers and members of the public are entitled under CEQA to know the short-

[8] Draft PEIR. Pages ES-12 to 15 and 3.2-42 to 45.

[9] *Ibid*. Page 3.2-62.

[10] California Air Resources Board. July 14, 2017. Trucks and Bus Regulation: On-Road Heavy-Duty Diesel Vehicles (In-Use) Regulation. Accessed at: https://www.arb.ca.gov/msprog/onrdiesel/onrdiesel.htm, and https://www.arb.ca.gov/msprog/onrdiesel/documents/truckrulehealth.pdf.

and medium-term environmental costs of achieving that desirable improvement. … [¶] … The public and decision makers are entitled to the most accurate information on project impacts practically possible, and the choice of a baseline must reflect that goal." (See also *Communities for a Better Environment v. South Coast Air Quality Management Dist*. (2010) 48 Cal.4th 310).

Table A: Copy of Table 3.2-10. Peak Day Criteria Pollutant Operational Emissions: Unmitigated Proposed Plan, 2040

TABLE 3.2-10. PEAK DAY CRITERIA POLLUTANT OPERATIONAL EMISSIONS; UNMITIGATED PROPOSED PLAN, 2040

Emission Source	Peak Day Emissions (lb/day)[1]					
	VOC	CO	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Ocean-Going Vessels						
OGVs in Transit[2]	2,319	4,665	24,535	1,263	785	737
OGVs at Berth[3]	331	681	5,135	536	204	191
Harbor Craft[4]	670	4,534	4,806	4	223	206
Cargo Handling Equipment	376	8,874	2,652	19	94	86
Locomotives						
Switchers On-Port	2	42	26	0	0	0
Line Haul Locomotives On-Port	35	843	889	3	13	13
Line Haul Locomotives Off-Port[5]	91	2,221	2,343	9	33	35
Heavy-Duty Vehicles						
HDVs On-Terminal Exhaust[6]	83	1,768	1,735	3	1	1
HDVs On-Terminal Tire and Brake Wear	0	0	0	0	5	2
HDVs On-Terminal Road Dust	0	0	0	0	168	25
HDVs Off-Terminal Exhaust[7]	49	657	7,710	35	61	58
HDVs Off-Terminal Tire and Brake Wear	0	0	0	0	364	132
HDVs Off-Terminal Road Dust	0	0	0	0	268	40
Automobiles						
Auto Exhaust	13	570	29	2	1	1
Auto Tire and Brake Wear	0	0	0	0	50	20
Auto Road Dust	0	0	0	0	75	11
Transport Refrigeration Unit Gensets[8]	16	247	182	0	1	1
Total, Proposed Plan	**3,987**	**25,102**	**50,042**	**1,874**	**2,345**	**1,559**
CEQA Impacts						
Total, 2017 Baseline	**2,303**	**11,633**	**54,361**	**1,883**	**1,438**	**1,058**
Proposed Plan minus 2017 Baseline	**1,684**	**13,469**	**-4,319**	**-9**	**907**	**501**
SCAQMD Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	No	No	**Yes**	**Yes**

Key: CEQA = California Environmental Quality Act; CO = carbon monoxide; Gensets = generation sets; HDVs = Heavy-Duty Vehicles; nm = nautical miles; lb/day = pounds per day; NO_x = nitrogen oxides; OGVs = Ocean-Going Vessels; PM_{10} = particulate matter less than 10 microns in diameter; $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter; Port = Port of Long Beach; SCAB = South Coast Air Basin; SCAQMD = South Coast Air Quality

The purpose of CEQA is to disclose environmental impacts from the Proposed Project to the public and decision makers in order to provide the public and decision makers with the actual changes to the environment from the activities involved in the Proposed Project. By taking credit for future emission reductions from existing air quality rules, regulations, and emissions reductions strategies, the

Proposed Project's air quality impacts are likely underestimated. Therefore, using the interim years 2020, 2025, 2030, 2035, and 2040 for the container cargo growth projections, South Coast AQMD staff recommends that the Lead Agency revise the air quality operational impact analysis to include a comparison between the emissions in years 2020, 2025, 2030, 2035, and 2040 with the Proposed Project and the emissions in the same years without the Proposed Project, and use this comparison to determine the level of significance for the Proposed Project's long-term operational air quality impacts.

Mitigation Measures

3. As described in Comment No. 2 above, the Proposed Project's operational emissions from VOCs, CO, NOx, PM10, PM2.5, and SOx would have exceeded South Coast AQMD's air quality CEQA significance thresholds, resulting in significant and unavoidable long-team air quality impacts, had the Lead Agency used a proper CEQA baseline to calculate emissions. CEQA requires that the Lead Agency considers mitigation measures to minimize significant adverse impacts and that all feasible mitigation measures that go beyond what is required by law be utilized. Mitigation measures must be fully enforceable. In the case of the adoption of a plan, policy, regulation, other public project, mitigation measures can be incorporated into the plan, policy, regulation, or project design (CEQA Guidelines Section 15126.4). To reduce the significant adverse operational air quality impacts from the Proposed Project, South Coast AQMD staff recommends that the Lead Agency strengthen the existing air quality Mitigation Measures AQ-1 and AQ-2 and include additional information for in Mitigation Measure AQ-8 in the Final PEIR.

Mitigation Measure AQ-1: Cleaner Trucks Beyond 2010 Model Year Trucks

4. Mitigation Measure AQ-1 requires that all on-road, heavy-duty trucks to meet U.S. Environmental Protection Agency (EPA) 2010 on-road heavy-duty diesel engine emission standards. South Coast AQMD staff recommends that the Lead Agency strengthen Mitigation Measure AQ-1 to require the use of zero emission or near-zero emission heavy-duty trucks during operation, such as trucks with natural gas engines that meet CARB's adopted optional NOx emission standard of 0.02 grams per brake horsepower-hour (g/bhp-hr). At a minimum, the Lead Agency require that operators of heavy-duty trucks visiting the Proposed Project during operation commit to using 2010 model year[11] or newer engines that meet CARB's 2010 engine emission standards of 0.01 g/bhp-hr for particulate matter (PM) and 0.20 g/bhp-hr of NOx emissions or newer, cleaner trucks. The Final PEIR should include analyses to evaluate and identify sufficient power available for zero emission trucks and supportive infrastructures in the Energy and Utilities and Service Systems Sections of the Final PEIR, where appropriate.

   To monitor and ensure zero emission, near-zero emission, or 2010 model year or newer trucks are used at the Proposed Project, the Lead Agency should require that operators maintain records of all trucks associated with the Proposed Project's operation, and make these records available to the Lead Agency upon request. The records will serve as evidence to prove that each truck entering the Proposed Project during operation meets the minimum 2010 model year engine emission standards. Alternatively, the Lead Agency should require periodic reporting and provision of written records by truck operators or tenants, and conduct regular inspections of the records to the maximum extent feasible and practicable.

[11] CARB adopted the statewide On-Road Truck and Bus Regulation in 2010. The Regulation requires diesel trucks and buses that operate in California to be upgraded to reduce emissions. Newer heavier trucks and buses must meet particulate matter filter requirements beginning January 1, 2012. Lighter and older heavier trucks must be replaced starting January 1, 2015. By January 1, 2023, nearly all trucks and buses will need to have 2010 model year engines or equivalent. More information on the CARB's Truck and Bus Regulations is available here: https://www.arb.ca.gov/msprog/onrdiesel/onrdiesel.htm.

Mitigation Measure AQ-2: Cleaner Construction Equipment Beyond Tier 4 Emission Standards

5. Mitigation Measure AQ-2 requires that all land-based, diesel-fueled off-road construction equipment 25 horsepower or greater to meet USEPA/CARB Tier 4 off-road engine emission standards. South Coast AQMD staff recommends that the Lead Agency strengthen Mitigation Measure AQ-2 to require the use of off-road diesel-powered construction equipment that meets or exceeds the USEPA and CARB Tier 4 Final off-road emissions standards for equipment rated at 50 brake horsepower or greater during construction of the Proposed Project. Such equipment will be outfitted with Best Available Control Technology (BACT) devices including a CARB certified Level 3 Diesel Particulate Filter (DPFs). Level 3 DPFs are capable of achieving at least 85 percent reduction in particulate matter emissions[12]. A list of CARB verified DPFs are available on the CARB website[13].

   To ensure that Tier 4 Final construction equipment or better would be used during the Proposed Project's construction, South Coast AQMD staff recommends that the Lead Agency include this requirement in applicable bid documents, purchase orders, and contracts. Successful contractor(s) must demonstrate the ability to supply the compliant construction equipment for use prior to any ground disturbing and construction activities. A copy of each unit's certified tier specification or model year specification and CARB or South Coast AQMD operating permit (if applicable) shall be available upon request at the time of mobilization of each applicable unit of equipment. Additionally, the Lead Agency should require periodic reporting and provision of written construction documents by construction contractor(s) to ensure compliance, and conduct regular inspections to the maximum extent feasible to ensure compliance.

Mitigation Measure AQ-8: Incorporation of the 2017 CAAP Goals, Technologies, and Strategies

6. Mitigation Measure AQ-8 incorporates the 2017 CAAP Update by listing all applicable clean vehicles, equipment technology, and fuels strategies with deadlines. All of the strategies will have to be achieved by 2035. Since the Proposed Project is a long-range plan with a planning horizon to 2040, the Lead Agency should tie this mitigation to the 2017 CAAP, and any future updates to the CAAP.

7. Mitigation Measure AQ-8 merely lists the clean vehicles and equipment technology and fuels strategies with deadlines (e.g., 2030); however, there are no timelines or any other "check-ins" to track and evaluate achievement status or progress in meeting the deadlines. The Lead Agency should also include specific details for Mitigation Measure AQ-8, including timelines, interim milestones, phase-in schedules, fee- and/or rate-based incentives, and funding mechanisms in the Final PEIR to explain how the Lead Agency will implement the Proposed Project in a way that will achieve the goals and strategies outlined in the 2017 CAAP. If the specific details for Mitigation Measure AQ-8 are impractical or infeasible to include in the Final PEIR, then the Lead Agency should adopt specific performance standards that this mitigation will achieve, and identify the types of potential actions that can feasibly be achieved through the performance standards for Mitigation Measure AQ-8 in the Final PEIR.

8. South Coast AQMD staff recommends that the Lead Agency include the following specific details for Mitigation Measure AQ-8 in the Final PEIR. Including these details demonstrates the Lead Agency's commitment to implementing the 2017 CAAP, provides useful information to decision makers and the public on how the Lead Agency will achieve the goals and strategies outlined in the 2017 CAAP

[12] CARB. November 16-17, 2004. *Diesel Off-Road Equipment Measure – Workshop*. Page 17. Accessed at: https://www.arb.ca.gov/msprog/ordiesel/presentations/nov16-04_workshop.pdf.
[13] *Ibid*. Page 18.

through the implementation of the Proposed Project and the subsequent projects that will implement the Proposed Project, complies with the CEQA requirements on mitigation measures, and fulfills the Port's legal obligation under CEQA as Lead Agency for the Proposed Project to identify and enforce feasible measures to reduce significant adverse environmental impacts. The specific details for Mitigation Measure AQ-8 can be incorporated into the Proposed Project plan, policy, regulation, or project design (CEQA Guidelines Section 15126.4).

1) Offer funding to incentivize zero or near-zero emission drayage trucks before year 2023.
2) Develop specific timelines for transitioning to zero emission cargo handling equipment (CHE). For example, South Coast AQMD staff recommends that the Lead Agency develop a step-down program to require any off-road equipment to be zero emissions first, followed by near-zero emission, then Tier 4 alternative fuels, and then Tier 4 engine as a floor. The criteria for a step-down program can be based on availability of equipment at the time of purchase and cost of equipment compared to the Tier 4 floor after considering available incentive funds.
3) Develop interim milestones with a minimum amount of CHE replacement each year to ensure that the Lead Agency is making adequate progress towards the target of replacing all equipment by 2023. The interim milestones should support the recommended timelines as described No. (2).
4) Offer incentives to encourage the use of on-dock rail with a similar step-down program as described in No. (2). For example, the Lead Agency should provide the highest incentives for electric locomotives and then locomotives that meet Tier 5 emission standards with a floor on the incentives for locomotives that meet Tier 4 emission standards.
5) Develop incentives to gradually ramp up the usage of shore power.
6) Develop an infrastructure plan to identify and meet current and future infrastructure needs, support the deployment of zero emission trucks and equipment, and provide necessary shore power envisioned in the 2017 CAAP. The Proposed Project should discuss how it will provide the appropriate charging infrastructure and shore power. Electrical hookups should be appropriately sized to allow for future, expanded use. Given that infrastructure at berth is a critical component, it is recommended that the Lead Agency include additional discussions on at berth infrastructure improvements and readiness in the Final PEIR. The Lead Agency should also include analyses to evaluate the sufficiency of shore power and the availability of necessary infrastructure in the Energy and Utilities and Service Systems Sections of the Final PEIR, where appropriate.
7) Develop a purchasing policy to require that all new equipment and vehicles after 2022 be zero emission.
8) Provide additional details in the Final PEIR on how the Port will maximize participation in the Vessel Speed Reduction Program for all vessels transiting within 40 nautical miles of Point Fermin.
9) Provide additional details in the Final PEIR on how the Port will achieve 100 percent compliance for all ocean-going vessels by 2030.
10) Provide additional details in the Final PEIR on the improvements in operational efficiency that the Port will make and what emission reduction technologies the Port will introduce as part of the Green Ship Incentives.
11) Provide additional details in the Final PEIR on the mechanisms and/or incentives that the Lead Agency will provide to encourage calls by cleaner ships at the Port as part of the Clean Ship Program.
12) Provide additional details on the strategies for harbor craft such as tugboats that the Lead Agency will implement for the Proposed Project.

13) Develop timelines for setting and assessing performance and emission reduction targets, implementation schedules for each new mitigation measure, and the process for evaluating the effectiveness of any proposed mitigation measure.