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Recirculated Draft Supplemental Environmental Impact Report (DSEIR) for the Berths 97-109 [China Shipping] Container Terminal Project (SCH No.: 2003061153)

The South Coast Air Quality Management District (SCAQMD) staff appreciates the opportunity to comment on the above-mentioned document for the China Shipping Container Terminal Project (Project). Approved by the Los Angeles Harbor Commission (LAHC) 10 years ago, the Port of Los Angeles (Port) was committed to implementing mitigation measures that would reduce significant air quality impacts from the Project. However, in 2017, the Port released the original DSEIR proposing to revise 10 of 52 mitigation measures that were approved for the Project in 2008, six of which were directly targeted towards reducing significant air quality impacts. SCAQMD staff has consistently expressed concern, including in our September 29, 2017 comment letter[1], regarding the Port's failure to enforce the mitigation measures from the 2008 EIR, as well as other concerns regarding the analysis. Now, with this Recirculated DSEIR, the inadequate mitigation and underestimation of impacts remain a serious concern and a violation of CEQA.

The Recirculated DSEIR acknowledges the Project results in significant regional air quality impacts[2]; exceeds localized ambient air pollutant concentrations[3]; and results in exposure to significant levels of toxic air contaminants (TAC)[4]. The Recirculated DSEIR is severely lacking in enforceable mitigation measures and fails to make a commitment towards the adoption of all feasible measures. SCAQMD staff is concerned that the Project has been allowed to continue to operate in flagrant violation of the conditions from the 2008 Project and that any delay in certifying this Recirculated DSEIR continues to exacerbate the problem. At the same time, SCAQMD staff is concerned that this Recirculated DSEIR, if certified as it is, will permanently result in a weakening of the Port's commitment and CEQA obligation to implement all feasible measures to mitigate air quality impacts from the Project. As mentioned in our previous comment letter, SCAQMD staff seek a Project that ensures implementation of all feasible

[1] South Coast Air Quality Management District. September 29, 2017. *Staff Comments*. Accessed at: http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2017/dseir-chinashipping-092917.pdf
[2] Criteria Pollutants: CO 2012-2023, NOx 2014-2036, VOC 2014-2045
[3] Ambient Concentrations: NO_2- Federal one-hour 2014-2018, state one-hour 2014, PM10- annual and 24-hour 2014-2045
[4] Health Risk: 25.4 in a million, 25.9 in a million, and 21.4 in a million, for residential, occupational, and other sensitive receptors, respectively.

measures, as required by CEQA, such as zero or near-zero emission trucks and cargo handling equipment to mitigate significant air quality impacts. More details are discussed as follows.

As a preliminary matter, the Port must explain how the lease will be amended to incorporate adopted mitigation measures. The Recirculated DSEIR explains that many of the mitigation measures are triggered by the "effective date of a new lease amendment", which is anticipated around 2019, but the existing lease, Permit No. 999, does not terminate until 2045. The Port acknowledged that many of the 2008 mitigation measures were not implemented because China Shipping refused to amend Permit No. 999 to incorporate the requirements. The Port does not explain the legal mechanism for now requiring an amendment to Permit No. 999, and without an ability to require a lease amendment, the Port may again be unable to fully implement adopted mitigation. CEQA requires that mitigation measures must be "required, in, or incorporated into, the project." (*Federation of Hillside & Canyon Associations v. City of Los Angeles* (2000) 83 Cal.App.4th 1252, 1260 citing Pub. Res. Code § 21081). The requirement for enforceability ensures "that feasible mitigation measures will actually be implemented as a condition of development, and not merely adopted and then neglected or disregarded." *Id.* at 1261. Without assurance that the Port can require the mitigation measures be put into this lease, or another enforceable mechanism, the Port is unable to meet this standard.

The China Shipping Container Terminal Project is a major project for the Port, with significant air quality impacts to the nearby environmental justice communities and the region as a whole. As shown in Table 3.1-9 and 3.1-10 of the Recirculated DSEIR, the 2014 NOx emissions are substantially higher (1,200 lbs/day) than emission estimates from the 2008 Project largely due to a failure to implement mitigation measures. The Recirculated DSEIR should take more aggressive actions to accelerate zero-emission vehicles and equipment that are currently and/or expected to be commercially available during the life of the Project, instead of relaxing and removing key air quality mitigation measures with no replacement measures, resulting in even less mitigation than the 2008 EIR. This is in spite of major technological advances since the 2008 EIR. As the lead agency, the Port must adopt all feasible mitigation measures that can substantially lessen the project's significant impacts. (Pub. Res. Code § 21002, CEQA Guidelines § 15002(a)(3).)

Removal of mitigation, and failure to provide adequate substitute measures, will increase emissions in and around the Port and delay the implementation of zero or near-zero emission trucks and equipment at China Shipping, and potentially throughout the Port. The critical attainment date for federal ozone ambient air quality standard (AAQS) of 2023 is quickly approaching and the efforts of the Port are vital for SCAQMD to fulfill the goals set-forth in the AQMP and our obligation under the Clean Air Act (CAA). If NOx emission levels continue to increase, the Project will potentially hinder the SCAQMD's ability to meet 2023 federal ozone AAQS. SCAQMD is required to attain the federal and state AAQS 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, the mitigation measures associated with the 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.

Furthermore, the removal of key air quality mitigation measures from the 2008 EIR, and the failure to implement adequate substitute measures, is inconsistent with the Port's overall

objectives towards emissions reductions in the 2017 Final Clean Air Action Plan (CAAP) Update. Also, reducing health risks from individual port development project's by establishing an incremental cancer risk of 10 in a million was one of the original and fundamental objectives of the CAAP[5]. Therefore, the Port must do more to mitigate the air quality and health risks impacts from the Revised Project, to the maximum extent that is feasible and practicable. Specifically, the Port should keep the commitment to zero and near-zero emission trucks and equipment, and pursue integration of zero-emission technologies into Port-related goods movement by adopting a new phase-in schedule. As shown in Attachment B, SCAQMD is supporting many ongoing demonstration projects that are expected to demonstrate the commercial feasibility of zero-emission cargo transporting equipment, such as drayage trucks and cargo handling equipment. Maintaining the commitment to demonstrate and deploy zero and near-zero emission trucks and equipment is necessary to mitigate the project's significant air quality impacts. Without this commitment, the increased emissions resulting from the Revised Project could have detrimental consequences to the entire region, including the ports, by contributing towards the region's nonattainment of federal and state standards. The Port must contribute in facilitating towards the advancement of a zero-emissions goods movement future. This further demonstrates the Port's commitment towards implementing the CAAP and helping the region meet clean air standards. More detailed comments are provided in the Attachments.

The Port must aggressively look at all options and opportunities for emissions reductions from the Project to offset the foregone reductions from the lack of implementation of mitigation measures previously committed to and reduce emissions into the future. Thank you for the opportunity to provide comments on the Recirculated DSEIR. We look forward to working with the Port to address the comments raised herein and any other questions that may arise. We recommend setting up a meeting with SCAQMD staff, the project applicant, and Port staff to address these concerns expressed in this letter. Please feel free to call me at (909) 396-3176, if you have questions or wish to discuss our comments.

Sincerely,

Jillian Wong

Jillian Wong, Ph.D.
Planning and Rules Manager
Planning, Rule Development & Area Sources

Attachments
LAC181002-11
Control Number

[5] 2017 Final Clean Air Action Plan Update, Page 26. "The initial CAAP also made reducing health risk from individual port development projects an important objective by setting an increment threshold of 10 in a million excess residential cancer risk for new projects.
For the 2017 CAAP Update, the Ports remain committed to this 10 in a million threshold to manage health risk from individual port development projects, as well as to achieving the 2020 Bay-wide health risk reduction goal. At the same time, the Ports will continue to work with State, regional and local regulators and stakeholders to determine how continued reductions in emissions and an ever-improving baseline, and recent changes made by the State Office of Environmental Health Hazard Assessment (OEHHA) to procedures for calculation of health risk, could affect the way these goals are evaluated by the Ports in the future. The Ports will continue to evaluate whether this health risk threshold should be modified on a case-by-case basis for future redevelopment projects, particularly if new information or guidance arises."

ATTACHMENT A

SCAQMD Staff's Summary of Project Description

SCAQMD staff understands that the Revised Project involves continued operation of the China Shipping Container Terminal under new or modified mitigation measures previously approved in the 2008 Final EIS/EIR. Modifications are proposed for 10 of the 52 mitigation measures that were approved in 2008, including six that are related to air quality. The Revised Project also assumes an increase in the projected cargo throughput of 147,504 twenty-foot equivalent units (TEUs) from the 1,551,000 TEUs projected in the 2008 Final EIR to 1,698,504 TEUs estimated for years 2030 and 2036-2045 in the Recirculated DSEIR. The China Shipping Container Terminal lease with the Port will expire in year 2045.

SCAQMD Staff's Comments on Mitigation Measures (MM)

The emissions from the Revised Project already exceed the emissions projected in 2008 and will continue exceeding SCAQMD's CEQA significance thresholds into the future, negatively impacting the region and surrounding environmental justice communities. Therefore, SCAQMD staff recommends the Port set emissions reductions targets for the Project that are more aggressive than the originally approved mitigation measure reductions, and that are consistent with SCAQMD's recommended revisions to mitigation measures and the air quality attainment goals of the 2016 AQMP. The Project-based emissions reductions targets should use more recent Port growth projections, 2016 AQMP emissions inventories, and updated technology assessments to help determine the Project's fair share of emissions reductions. The emissions reductions targets will also help monitor the progress of emissions reductions by the Project, and ensure necessary actions by the Terminal operator and tenant for successful and effective implementation of the CAAP's Technology Advancement Program (TAP) and Clean Trucks Program (CTP), particularly zero or near-zero emission heavy-duty trucks.

Feasibility Determination

SCAQMD staff is concerned with the Port's feasibility determination used to propose modifications to the approved mitigation measures in the 2008 EIR. For example, the mitigation measures in the 2008 approved Project included MM AQ-22 - Periodic Review of New Technology and Regulations, requiring a new technology review no less than every seven years, which would have subsequently prompted the implementation of new equipment, if proven feasible. Accordingly, a review of different new technologies should have been completed by 2015, seven years after the Project was approved. Without this required technology review, the proposed mitigation measures MM AQ-15, MM AQ-16, MM AQ-17, and MM AQ-20 should not be dismissed on the grounds of infeasibility.

The Recirculated DSEIR states that failure to implement the mitigation measures committed to in 2008 was due to a lack of feasibility determined by China Shipping. To illustrate this point, page 1-11 of the Recirculated DSEIR states that Cosco Shipping lost $1.44 billion in 2016. This is approximately equal to the 9,906,003,000 RMB loss found on page 3 of Cosco Shipping's 2016 Annual Report[6], using a conversion rate of 6.95 Chinese yuan to 1 US dollar[7]. While this financial loss occurred in the same year of Cosco's significant merger with China Shipping, other years demonstrate that this one-time loss is not indicative of long-term profits. For

[6] Cosco Shipping 2016 Annual Report. Available Here: http://en.chinacosco.com/attach/0/2016%20Annual%20Report.pdf
[7] Unit conversion rate. Accessed November 28, 2018. https://www.bloomberg.com/quote/USDCNY:CUR

example, Cosco's most recent annual report shows that it made a profit of 2,661,936 RMB (~$382 million) in 2017[8] and also recorded annual profits since at least 2013[9].

Further, when the Port makes the finding that the recommended mitigation measures are not feasible, the Port should describe the specific reasons for rejecting them in the Final SEIR (CEQA Guidelines Section 15091).

Effective Start Date of Mitigation Measure Modifications

Under CEQA Guidelines section 15126.4(a)(2), "Mitigation measures must be fully enforceable through permit conditions, agreements, or other legally binding instruments." SCAQMD staff is concerned with the enforceability of the modified mitigation measures that are scheduled to take effect one year after the effective date of a new lease amendment between the tenant and the Port. If issues are raised in the signing of the lease amendment, potentially delaying the scheduled implementation of these mitigation measures, then emissions reductions foregone since 2008 will continue to occur and impact the surrounding environmental justice communities, who are already affected by poor air quality resulting from activities at the Port. Therefore, SCAQMD staff recommends that all mitigation measures stating it will take effect after "the effective date of a new lease amendment between the Tenant and the LAHD," be revised to, "the date of certification of the Final Supplemental Environmental Impact Report (SEIR)." This recommendation will expedite the implementation of the modified mitigation measures by binding the effective start date to the earliest possible date and ensure a more timely compliance schedule, reflecting a similar date as the originally proposed date of effect of January 1st, 2019, in the 2017 DSEIR. Further, contingency measures should be put in place with approval of the Final SEIR to ensure that even if mitigation is not implemented on the SEIR's schedule that emissions reductions will occur. These measures should be crafted to provide sufficient motivation to ensure that commitments are followed through by the Port and China Shipping.

Mitigation Measures Modifications

In order for the Project, and the Port as a whole, to ensure timely implementation of a zero-emission goods movement future, aggressive deployment of zero and near-zero emission CHE, cleaner trucks, and stringent mitigation, where feasible, is a must. Since the approval of the Project, a number of mitigation measures have been foregone, generating a substantial increase in emissions that were already at a level considered significant and unavoidable. The further weakening of the commitment to emissions reductions has harmful implications on the nearby communities. Therefore, SCAQMD staff strongly recommends that the Port maintain the original commitment to emissions reductions and has the following suggestions on how to achieve these reductions.

MM AQ-20 LNG-Fueled Drayage Trucks

The Port excluded this measure in the Revised Project. The complete removal of this mitigation measure, which previously required the Port to phase in LNG-fueled drayage trucks entering

[8] Cosco Shipping 2017 Annual Report. Available Here: http://en.chinacosco.com/attach/0/2017%20Annual%20Report.pdf
[9] Cosco Shipping 2013-2015 Annual Reports. Available here: http://en.chinacosco.com/col/col1096/index.html

and/or exiting the terminal, has substantial implications to air quality in the areas surrounding the Ports. Notably, LNG-fueled trucks made only six percent of truck calls operated by WBCT, including the Revised Project, while a Port-wide average of LNG-fueled drayage trucks was 10 percent.[10] The Port fell short of the commitment of 70% by 2014 and 100% by 2018 set forth in the 2008 approved Project, by a large margin.

SCAQMD staff disagrees with the LNG-fueled drayage trucks feasibility determination and urges the Port to re-commit to the mandate with a revised schedule. The complete removal of this measure shows a lack of commitment on the Port's behalf, in achieving a zero-emission goods movement future. Since the approval of this mitigation measure in 2008, near-zero natural gas-fueled drayage technology has advanced beyond the prototyping stage and has become commercially available and in-use today. Therefore, SCAQMD staff recommends the Port adopt a target phase-in schedule for near-zero (e.g., low-NOx natural gas) or zero-emission trucks, such as, but not limited to, the one included below, rather than removing a truck measure completely.

> Implementation of near-zero or zero-emission heavy-duty trucks entering the Berth 97-109 Terminal could be targeted in the following percentages.
>
> - 10 percent in 2019
> - 25 percent from 2020 through 2022
> - 50 percent from 2023
> - 100 percent by 2029

Since China Shipping typically does not contract directly with truck fleets entering the Berth, other feasible alternatives to facilitate this goal should be analyzed. One approach could include China Shipping establishing a preferred rate structure or other operational benefits for beneficial cargo owners (BCO) that contract with trucking fleets that utilize near-zero and zero-emission truck fleets first, then other alternatively fueled drayage trucks. This would incentivize BCOs to contract with cleaner truck fleets and contribute to the deployment of cleaner drayage trucks. Additionally, the Port should consider initiating a clean air fund with the approval of the Revised Project to pay for emissions reductions nearby that would be feasible should other emissions reduction approaches prove infeasible. This approach has been used by other projects in the region, and should be pursued again for the Revised Project. This fund could incentivize the purchase of near-zero and zero-emission trucks elsewhere, vessel retrofits, etc. Even if it is not feasible to fund the entirety of foregone emissions reductions, the Final SEIR should commit to the level of funding that is feasible. As another option, the Port could require China Shipping to provide incentives for zero or near-zero emission heavy-duty trucks entering their property through financial incentives, such as reduced rates, or operational benefits, such as a fast-track system.

MM AQ-9 Alternative Maritime Power

The Port is proposing to decrease the rate of compliance of OGVs calling in to China Shipping connecting to shore power, which reduces emissions primarily from auxiliary engines otherwise maintained in the on position throughout the berthing process, from 100% to 95%. SCAQMD

[10] *Ibid*. Chapter 2, *Project Description*. Page 2-5.

staff found that the Port Inventories showed that 99% of vessel calls to the China Shipping Terminal connected to AMP in 2016, and 96% in 2017. Therefore, proposing a lower compliance rate than what has been achieved in previous years on the grounds that implementation of the approved mitigation measure requiring 100% compliance is infeasible, is not supported. SCAQMD staff recommends that the Port require at least 99% of vessel calls to connect to AMP immediately after Final SEIR certification, or no later than January 1, 2020, as it has been demonstrated achievable and feasible in 2016 at the same terminal.

MM AQ-10 Vessel Speed Reduction Program (VSRP)

The Port is proposing to modify the VSRP measure, which currently requires 100% of ocean going vessels to comply, to only require 95% compliance. Considering the Port's 98% compliance rate in 2015, and 96% compliance rate in years 2014 and 2016, the Port should require a 98% compliance rate immediately after Final SEIR certification, or no later than January 1, 2020, which was achieved in 2015. The Port currently gives a discount to ships that comply with the VSRP, meaning ships are incentivized to comply, not required. Another option to achieve a higher compliance rate would be to require a mitigation fee for non-compliance on those vessels choosing not to participate. Additionally, ships choosing not to comply on poor air quality days should have an increased mitigation fee to further offset the hazardous localized risk of emissions resulting from activity at the ports.

MM AQ-15 Yard Tractors at Berth 97-109

The Port is proposing an alternative phase-in schedule for yard tractors being turned over from Liquefied petroleum gas (LPG) to engines with emission standards of 0.02g/bhp-hr for NOx and Tier 4 final for all other criteria pollutants. The Port is proposing a five-year phase-in schedule for all LPG 2011 and older yard trucks to be replaced. However, five years is far too long considering the federal ozone critical attainment date of 2023 is only five years from the date of recirculation, much less from an effective start date of the modified measures. Natural gas and zero-emission yard tractors have moved past the prototyping stage and are commercially available for deployment today. To help expedite the emissions reductions needed to attain the federal ozone AAQS, the Port should require that all LPG yard trucks 2011 and older be replaced within one year of Final SEIR certification with zero-emission yard tractors. Otherwise, they should be replaced with low-NOx engines at 0.02 g/bhp-hr or lower. In addition, 2012 and newer LPG yard tractors should be replaced within two years of Final SEIR certification with zero-emission yard tractors.

MM AQ-17 Yard Equipment at Berth 97-109 Terminal

The Port is proposing an alternative phase-in schedule for the replacement of forklifts, top picks, RTGs, sweepers, and shuttle buses ranging from three years to seven years. SCAQMD staff is not only concerned with the effective start date of the scheduled implementation, as mentioned above, but also with the overarching delay of phasing in new equipment over a seven-year timeframe. Therefore, SCAQMD staff recommends that the Port optimize emissions reductions by speeding up the phase-in schedules of each type of equipment. Detailed comments on each equipment type provided below.

Aside from the phased replacement of yard equipment, the second requirement of the originally approved MM AQ-17 was to conduct a one-year electric yard tractor pilot project, in which two electric yard tractors were to be deployed at the terminal within one year of lease approval, subsequently prompting a feasibility determination that could have potentially phased-in electric yard tractors, replacing half of the terminal's fleet within five years. While the Revised Project includes a commitment to a similar project, referred to in the Recirculated DSEIR as a one-year zero-emission demonstration project, the window of potential benefit from the project approved in 2008 has passed. SCAQMD staff urges the Port to commit to completing the project as expeditiously as practicable.

Additional comments regarding the modifications to the phase-in schedule of various equipment types are provided below.

Forklifts

The phase-in schedule being proposed would not replace 18-ton diesel forklifts, with engines 2007 or older, until three years after the effective start date. SCAQMD staff recommends speeding up the implementation schedule and require engines to meet the low NOx emission standard of 0.02 g/bhp-hr, if commercially available within one year of Final SEIR certification. In the event low NOx is not commercially available, forklifts with Tier 4 final engines shall be deployed as quickly as possible. The 5-ton diesel forklifts should be replaced with zero-emission forklifts within one year of Final SEIR certification.

Top Picks

The phase-in schedule being proposed would not replace top picks of model years 2014 or older, until five years after the effective start date. SCAQMD staff recommends speeding up the replacement schedule and require engines, model year 2007 or older within one year of Final SEIR certification, and model year 2014 or older within two years of Final SEIR certification, be replaced with top picks that meet the low NOx emission standard of 0.02 g/bhp-hr, if commercially available. In the event low NOx is not commercially available, top picks with Tier 4 final engines should be deployed under the same phase-in schedule.

Rubber Tired Gantries

The phase-in schedule being proposed would not start replacing RTGs, with diesel engines 2005 or older, until seven years after the effective start date. The last step of implementation includes the installation of four all-electric RTGs and one diesel-electric hybrid meeting engine standards of Tier 4 final for PM and NOx. The electrical infrastructure necessary to support the installation of four all-electric RTGs is already in place[11]. Therefore, SCAQMD recommends speeding up the implementation schedule through a step down approach for the replacement of remaining diesel RTGs within two years of Final SEIR certification in the following order: 1) all electric RTGs, if technically and operationally feasible, 2) hybrid-electric RTGs that meet or exceed emissions standard 0.02g/bhp-hr for NOx if commercially available, and 3) hybrid-electric RTGs that meet or exceed Tier 4 final for all other criteria pollutants.

[11] *Ibid.* Section 3.1, *Air Quality and Meteorology.* Page 3.1-54

Sweepers

The Port is proposing to replace all current sweepers with alternatively fueled sweepers, or the cleanest available technology, within six years of the effective start date. SCAQMD staff recommends expediting the implementation schedule by requiring all sweepers to be alternatively fueled, or cleanest available technology, within one year of Final SEIR certification.

Shuttle Buses

The Port is proposing to replace all current shuttle buses with zero-emission shuttle buses within seven years of the effective start date. SCAQMD staff recommends expediting the implementation schedule by requiring all shuttle buses to be zero-emission within one year of Final SEIR certification.

Supplemental Mitigation Measure Recommendations

Ship Retrofits

SCAQMD staff recommends that the Port include a new mitigation measure for ocean going vessels which would require the demonstration of feasible NOx and PM retrofit technologies, working with the tenant, and providing incentives for implementation of these technologies. The potential for emissions reductions associated with OGVs is substantial since a significant portion of the Project's emissions are coming from OGVs due to an increase in the projected cargo throughput. Implementation of these measures would help offset the emissions reductions already foregone from 2008 to the present.

Turn Times

The Port should consider alternative measures to address foregone emission reductions and existing significant air quality impacts. One possibility is to incentivize greater efficiency of the terminal. For example, a recent article[12] found that the West Basin Container Terminal (including China Shipping) had the worst turn times (111 minutes) in either the port of LA or LB. It is not clear how these slow turn times are consistent with MM AQ-21 from the original EIR that requires idling of less than 30 minutes when trucks visit the terminal, among other requirements. This inefficiency increases the cost to the entire supply chain, increases emissions as trucks idle waiting for their loads, and makes mitigation more expensive to implement by decreasing the number of turns each truck can make. Measures that get at rewarding faster turn times, and that disincentivize slower turn times should be included in the Recirculated DSEIR and subsequent lease amendment.

This mitigation measure would increase operational efficiency and facilitate the goal of the 2017 Final CAAP Update, in which a one-hour turn time from in-gate to out-gate is achieved through integration and optimization of a reservation system, ensuring each truck is on-site for less than one-hour for a dual-transaction. Additionally, a fee or penalty for missing designated

[12] https://www.ttnews.com/articles/harbor-truckers-express-cautious-optimism-turn-times-2017

appointments or reservations, whether it be due to China Shipping or WBCT, should be imposed on the party at-fault to further disincentivize excessive turn times.

SCAQMD Staff's Comments on Technical Air Quality and Health Risks Analyses

Health Risk Assessment and Air Quality Modeling

Significant Cancer Risk

The Recirculated DSEIR found that the Revised Project results in incremental individual cancer risks of 25.4 in a million, 25.9 in a million, and 21.4 in a million, for residential, occupational, and other sensitive receptors, respectively. This would exceed the CEQA significance threshold of 10 in a million[13], whereas the FEIR Mitigated Scenario would have resulted in an incremental cancer risk below CEQA significance thresholds[14]. Although there is an increase in potential health risks as a result of the Revised Project, the Port has not proposed any additional mitigation measures to minimize health risks. Instead, the Port is proposing to operate the Terminal under less stringent mitigation measures, which lessen emissions reductions from those approved in the 2008 EIR. As such, SCAQMD staff recommends the Port provide additional mitigation measures to minimize increased health risks associated with the Revised Project. Specific comments on the mitigation measures is provided later in this Attachment.

Air Dispersion Modeling-Locomotive Release Height

Based on a review of Table B2-1: AERMOD Source Parameters, the analysis included separate sources for locomotives operating during the day and during the night. Release heights for locomotives operating at night were set higher than for locomotives operating during the day (e.g. 5.6 meters for Offsite-Day and 14.6 meters for Offsite-Night). The Port referenced CARB's 2004 Roseville Rail Yard Study to justify the use of different release heights to account for daytime and nighttime conditions. However, the study used Industrial Source Complex Model Short Term Version 3 (ISCST3) to conduct the dispersion modeling, which did not have the ability to account for variations in atmospheric conditions. Here, the Port used AERMOD to conduct dispersion modeling, which already accounts for the diurnal patterns. By using a higher release height for nighttime locomotives, the analysis has likely underestimated health risks. SCAQMD staff recommends the Port include additional mitigation measures to reduce the underestimated health risks.

Based on Table B2-1: AERMOD Source Parameters footnote a, SCAQMD staff found that the Port has adjusted release heights for volume, area, and line sources higher than the actual exhaust release heights. However, the Port has not provided the methodology to justify these adjustments. By using higher release heights, it is likely that the Port has underestimated health risks due to an increased rate of dispersion at the increased release height. SCAQMD staff recommends the Port include additional mitigation measures to reduce the underestimated health risks.

[13] *Recirculated DSEIR.* Appendix B3, Table B3-6. Maximum Health Impacts Estimated for the Revised Project, Page B3-24.
[14] *Ibid*. Page B3-29.

Additionally, for locomotives, the Port has divided the release height by 2.15, instead of 4.3, to obtain the initial vertical dimension. Per Table 3-2 of the AERMOD User Guide[15], the initial vertical dimension for elevated sources not on or adjacent to a building is equal to the vertical dimension, which in this case is the release height, divided by 4.3. With a higher initial vertical dimension, it is likely that the Port has underestimated health risks. SCAQMD staff recommends that the Port include additional mitigation measures to reduce the underestimated health risks.

Mitigation Measure Assumptions

MM AQ-9 Alternative Maritime Power Assumptions

The Port is proposing to modify MM AQ-9, which required 100% of vessel calls to connect to Alternative Maritime Power (AMP), to only require 95% of vessel calls to comply. However, in the air quality methodology section, the Port states, "peak day of OGV emissions for years 2023-2045 assume usage of AMP for all vessels at berth during the peak day, based on mitigation requirements from both the Revised Project and the FEIR Mitigated scenario."[16] Assuming both scenarios comply with the original AMP commitment is failing to analyze the difference between emissions resulting from the FEIR mitigated scenario and the Revised Project scenario. To be consistent with the assumption for MM AQ-9, SCAQMD staff recommends the Port provide additional information clarifying the AMP assumptions in both the FEIR Mitigated and Revised Project scenarios and include additional mitigation measures to reduce the additional impacts.

MM AQ-20 Liquefied Natural Gas (LNG)-Fueled Drayage Trucks Assumptions

In the Revised Project scenario, the Port assumed that LNG would fuel 8.2% of drayage trucks entering and/or exiting the terminal, on the basis that 8.2% was the Port's LNG-fueled truck average in 2014. SCAQMD staff is concerned with this assumption, considering the Revised Project was below average in LNG-fueled trucks entering and/or exiting the terminal in 2014 (six percent). Since the Port is proposing to remove MM AQ-20, the air quality analysis should reflect this and assume LNG will fuel 0% of drayage trucks entering and/or exiting the terminal, regardless of port-wide averages, to analyze a true worst-case scenario, and additional mitigation measures should be included to reduce the additional impacts.

Air Quality Management Plan (AQMP) Consistency Analysis

The air quality analysis in the Recirculated DSEIR concluded that the Revised Project is consistent with the AQMP. The 2016 AQMP did not take the Revised Project into account when calculating its emissions inventory. Additionally, the Revised Project has already resulted in foregone emissions reductions since 2008. The AQMP relies on commitments made by the Port and others to ensure that emissions reductions occur on time to meet federal and state standards. Since the Revised Project is a setback on the previous air quality commitments, the consistency of the Revised Project with the AQMP should be fully analyzed in the air quality section. Because of the precedent the Revised Project is setting by failing to meet previous commitments,

[15] U.S. EPA. April 2018. AERMOD User Guide. Accessed at: https://www3.epa.gov/ttn/scram/models/aermod/aermod_userguide.pdf

[16] *Recirculated DSEIR.* Appendix B1, Section 3.1.5, Page B1-11

SCAQMD staff recommends that the Port analyze the consistency of the Revised Project with the AQMP in the air quality section by addressing the emissions reductions foregone in past years and the estimated increase in emissions resulting from the Revised Project's mitigation measure modifications, and disclose these results in the Final SEIR.

ATTACHMENT B

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 such as overhead catenary wires, as is currently used for light rail and some transit buses. 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, SCAQMD 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.

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

Project Description

In August 2014, SCAQMD 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.

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.

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 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 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.

Cost
Cost estimates are not available for these trucks although with incentives the cost to customers 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
The demonstration phase of this project was started in Q2 2018 with two trucks, one each from TransPower and US Hybrid and the other trucks to start demonstration in Q1 and Q2 of 2019. The project is set be completed by Q3 2019 although talks have begun with the DOE to extend the project by an additional year. The commercialization process will continue in other projects for two of the technologies demonstrated by Kenworth. The Kenworth CNG Hybrid will continue to be developed in the CARB Zero Emission Drayage Truck Demonstration Project described below and the Kenworth Fuel Cell Range Extended truck will continue developed with a recently CARB awarded project with the Port of Los Angeles.

CARB Zero Emission Drayage Truck Demonstration Project

Project Description
SCAQMD 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 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: BAAQMD, Sacramento Metropolitan AQMD, SJVAPCD and SDAPCD. SCAQMD has contracted with three major U.S. OEMs and an international OEM, with necessary resources and networks to support future commercialization efforts, to 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 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. BYD will utilize 80 kW on-board charger to fully recharge the truck within 3 hours. These trucks are already eligible for incentive funds under CARB's HVIP.

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 trucks will be designed to provide 65 miles in range, powered by a 215 kWh

battery pack to support near-dock drayage operations, and four longer range BETs will incorporate a new battery design that allows for 120 miles of operation per charge with a 320 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.

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 150 miles with approximately 30-40 miles of all-electric range to operate in zero emissions mode in sensitive areas and disadvantaged communities.

d. Volvo will build on the success of past projects to develop three commercially attractive, highly-flexible hybrid trucks, with all-electric mode capability of up to 30 miles for zero emission operations and total daily range of up to 200 miles in hybrid electric mode. 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 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.

Cost

Cost estimates are not available for these trucks, although with incentives the cost to customers 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

The demonstration phase of this project started in Q2 2018 with 3 BYD trucks that have highlighted the need for some design modifications, Q3 2018 with Peterbilt trucks, and Kenworth and Volvo trucks to follow in 2019. This project is set be completed by Q2 2020 and the commercialization of these truck technologies will continue into the near term.

BYD Prototype Drayage Truck

Volvo PHET

CEC Sustainable Freight Transportation Project

Project Description

SCAQMD 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.

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 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.

Cost

Cost estimates are not available for these trucks, although with incentives the cost to customers 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 2021 and the commercialization process of these truck technologies can be expected to continue into the near term.

Daimler Zero Emission Trucks and EV Infrastructure Project

Daimler Trucks North America (DTNA) was awarded $15,670,072 by SCAQMD with an equal amount of matching funds the project total will be $31,340,144 to develop battery-electric heavy-duty trucks. DTNA will demonstrate these trucks in real-world commercial fleet operations in and around environmental justice communities for a period of two years within SCAQMD's jurisdiction. 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. DTNA will supply five Class 6 trucks with a gross vehicle weight rating (GVWR) up to 26,000 pounds and 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.

The drivetrain of the Class 6 electric trucks is capable of delivering over 220 horsepower, and the design allows for a burdened load with GVWR up to 26,000 pounds. Each charge of the battery can give operators 150-200 miles of service range, and the medium-duty design comes with a 4x2 axle configuration with a day cab of 106 inches. The batteries that come equipped with the Class 6 truck design will have a capacity of 225-300 kilowatt hours (kWh). The truck is capable of being charged with a Combined Charging Standard Type 1 (CCS T1).

The Class 8 truck model will be designed to have a range of 150-200 miles between charging. The electric drivetrain is capable of delivering over 455 horsepower and is designed to meet the needs and specifications of transportation of a GVWR of up to 80,000 pounds. The vehicles will have a 6x4 axle configuration with a 116-inch day cab, and the battery system will provide 400-600 kWh of usable power. The Class 8 vehicles will also use the CCS T1 charging systems.

DTNA will install DC fast charger stalls at four fleet locations providing an adequate number of chargers to support their fleet of 20 trucks. Each fast charger will be equipped with an SAE J1772 Combo (CCS T1) interface and will be capable of charging at up to 160 kW. The chargers will also be connected remotely for troubleshooting, management and data collection. Each DC fast charger will be paired with multiple battery energy storage systems (ESS) to optimize utility costs and reduce infrastructure enhancements required to support the chargers. DTNA will deploy the battery-based ESS paired with each high power vehicle charger. 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. Deploying two chargers per site will result in potential peak power demands of approximately 335 kW. The ESS will be comprised of two or more modular units paired with a single charger. Each unit will be capable of delivering 60-70 kW at 480 volts AC power and will store 110-120 kWh of energy. Utilizing grid-aware scheduling algorithms, the ESS will charge from the grid during low-cost periods and over extended periods of time. This allows the ESS to recharge from the grid at a much lower peak power demand, reducing utility and facility infrastructure requirements and reducing or eliminating utility demand charges.

Cost
Cost estimates are not available for these trucks, although with incentives the cost to customers 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
With funding support from SCAQMD, 20 battery-electric heavy-duty trucks will be immediately built and deployed in order that incredible amounts of data and information can be gathered from the diverse end-users and applications that will be run by these units. Funding from SCAQMD will accelerate the development and scaling of commercially available all-electric heavy-duty trucks in the marketplace. The timeline for the project is for the trucks are to be deployed starting in Q4 2018 and all 20 trucks and EV infrastructure fully deployed by the end of Q1 2019. The demonstration will begin immediately following deployment and continue through Q3 2021.

Volvo's Zero Emissions Heavy-Duty Trucks, Freight Handling Equipment Project

SCAQMD has received a $44,839,686 award from CARB in partnership with Volvo Group North America, LLC, (Volvo) to conduct a freight facility project that will realize commercialization and market penetration of heavy-duty battery electric vehicles (HDBEVs) in California and throughout North America. With an additional $41,655,308 in cash and cost share from Volvo, SCAQMD and partners, the total project cost will be $87,246,900.

Volvo will develop and demonstrate the following on-road and off-road vehicles, EV Infrastructure and solar power for deployment at up to five sites within the cities of Chino, Fontana, La Mirada, Ontario and Placentia:

- 23 on-road pre-commercial and commercial Heavy Duty Battery Electric Vehicles (HDBEV) operating in and around disadvantaged communities;
- 29 off-road BEVs used to load and unload containers and freight at warehouses and freight facilities;
- 58 nonproprietary chargers both DC fast charging and Level 2 electric vehicle supply equipment (EVSE) with SAE approved connectors; and
- 1,860,462 watts of solar power.

The project includes a total of up to 23 HDBEVs and will begin with up to 8 multiple-configuration, pre-commercial truck deployments. The first three demonstration trucks will not be fully approved for U.S. operation and will therefore operate under CARB exemption waivers. The subsequent 5 demonstration units as well as up to 15 commercial/pre-commercial vehicles, will be approved for the U.S. market. Volvo will begin commercial introduction of the HDBEV rigid trucks and use mobile fast charging for fleets throughout the state to gain freight experience with battery electric trucks.

Based on Volvo's proposal, the three electric truck configurations to be delivered are anticipated to be equipped with the following driveline items:

- Two electric motors with 370 kW max power (260 kW continuous power) with a Volvo two-speed transmission.

- Average electric range is 170 miles depending on drive cycle. Throughout the course of this project, vehicles will be able to go 150-350 miles.
- Lithium-ion batteries for energy storage will have a minimum capacity of 200 kWh for the first two demonstrators, later increasing to four and then six battery pack configurations for a capacity of 320 kWh.

Volvo will deliver new lithium-ion battery chemistries for increased electrical 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 HDBEVs to fleets throughout the state to accelerate adoption. Additionally, Volvo will coordinate the development of energy management systems to optimize vehicle charging by balancing the requirements of the vehicle, facility and grid. Vehicle charging will use SAE J1772 connectors for Level 2 charging and SAE J3068 or SAE CCS connectors for fast charging. Charging infrastructure includes 150 kW DC or 22 kW AC for the first two demonstration units and 250kW DC or 44 kW AC for subsequent and commercialized units. The freight facility sites will each feature standards-based, open architecture and interoperable charging infrastructure for off-road electric equipment, on-road electric trucks and employee workplace charging. Two standards-based, open architecture and interoperable charging stations along a key freight corridor for use by project fleets and the public will also be deployed. Up to 58 chargers will be installed ranging from 7.2 kW up to 150 kW.

Cost

Cost estimates are not available for these trucks, although with incentives the cost to customers 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

The Volvo project is planned to begin in the Q1 of 2019 and be completed in Q1 of 2021.