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Todd R. Campbell
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March 22, 2018

Mr. Peter Christiansen
California Air Resources Board
1011 I Street
Sacramento CA 95821

Re: Comments addressing ARB's Draft Discussion Document on California's Allocation of the Volkswagen Environmental Mitigation Trust

Dear Mr. Christiansen:

Clean Energy would like to thank ARB staff for providing us with the opportunity to comment on the draft Discussion Document concerning California's allocation of the Volkswagen Environmental Mitigation Trust.

Californians continue to live and breathe in some of the nation's worst air quality conditions and these conditions are directly caused by nitrogen oxide (NOx) emissions from both mobile and stationary sources. This is especially the case for the South Coast and San Joaquin Valley air basins given their extreme nonattainment status with tropospheric ozone. In fact, both regions desperately will need to find access to tens of billions of dollars over the next decade to reduce significant NOx emissions if they ever hope to reach attainment. Fortunately, California's large allocation of the Volkswagen Environmental Mitigation Trust (EMT) provides a genuine opportunity for air quality challenged regions a greater probability to move closer to their federal attainment goals if this money is spent without much delay and with a focus on maximum NOx reductions through cost effectiveness.

Overview of Recommendations to Immediately Maximize NOx Reductions in Non-Attainment Areas While Investing in Transformational Technologies

The following recommendations are explained in greater detail throughout this letter but are summarized here for ARB staff's convenient reference. The guiding principles used to develop these recommended changes are to:

- (1) Reduce NOx emissions quickly (avoid stretching funding over the full life of the program) and aggressively address such NOx emissions far beyond the minimum requirements of the EMT as the state possesses two extreme nonattainment zones impacted by NOx emissions;
- (2) Place greater focus on NOx emissions reductions for disadvantaged communities heavily impacted by mobile sources within non-attainment areas as these populations need meaningful NOx reductions now;
- (3) Apply cost-effectiveness principles to ensure the EMT maximizes NOx emissions from the available funding; and,

(4) Adopt a balanced approach that both support the state’s goals for transformational technologies and the advancement of the immense public health need for NOx reductions now in many parts of our state.

California’s Allocation of Volkswagen Environmental Mitigation Trust Should Maximize the Mitigation of Nitrous Oxides and Diesel Exhaust from Mobile Sources

California is home to over 39 million people and over half of this population lives in air quality identified by the U.S. Environmental Protection Agency as being in extreme non-attainment of the federal ozone standards. In addition to these very high and unhealthy levels of smog, both the South Coast and San Joaquin Valley are heavily impacted by high levels of air toxics that mostly come from diesel exhaust. In fact, diesel exhaust particulate is listed as a toxic air contaminant by the Office of Environmental Health Hazard Assessment and diesel exhaust itself has been classified as carcinogenic by the World Health Organization. It is therefore not surprising to observe high levels of air toxicity around ports, airports, warehouses, freeways and major trade corridors. In fact, the highest level of diesel driven air toxics within the South Coast Air Basin, thanks to the South Coast Air Quality Management District’s Multiple Air Toxics Studies, is found at the San Pedro Bay Port Complex. In other words, our nation’s two largest ports possess the highest levels of air toxicity in the basin despite being in a location that would otherwise benefit from offshore breezes. Hence the reason why many local residents engaged in Port planning call the area the “diesel death zone”.

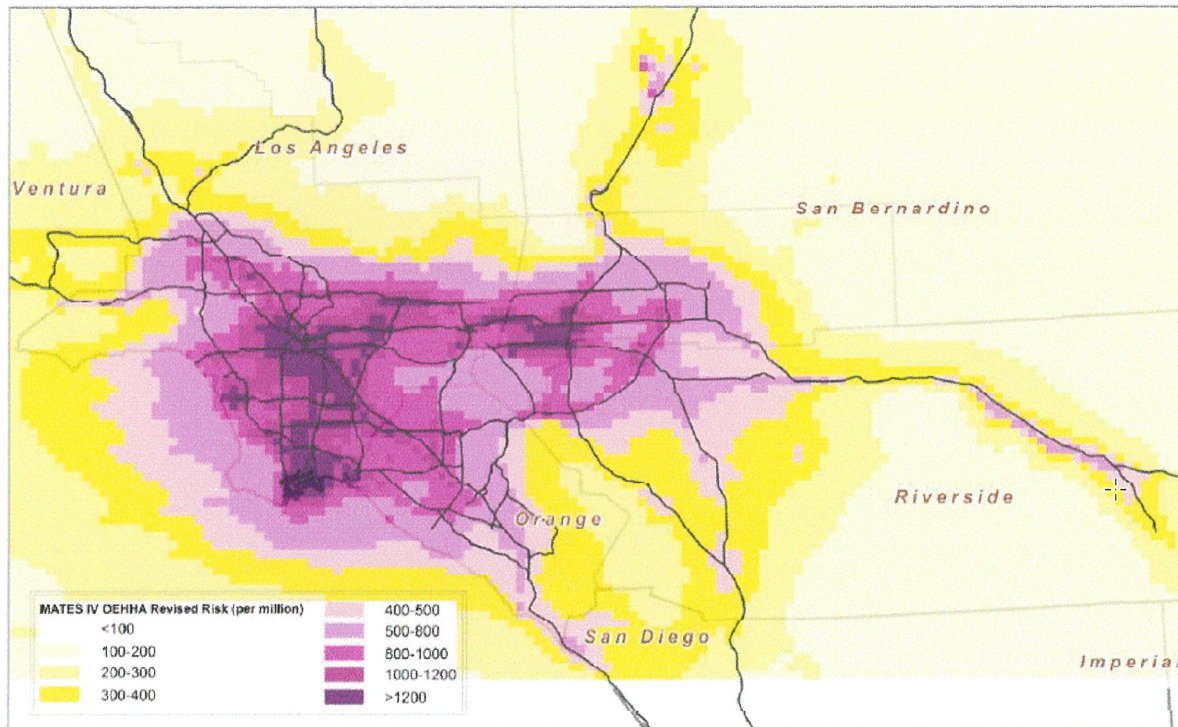


Figure ES-7
MATES IV Modeled Air Toxics Risks Estimates Using Updated OEHHA Methodology

Additionally, the EMT was established due to Volkswagen’s intentional actions to modify its diesel engines to outsmart both the US Environmental Protection Agency’s and the California Air Resources Board’s emissions tests for certification. In other words, the EMT was specifically designed to mitigate the real harms borne by the general public caused by Volkswagen’s manipulation of diesel vehicles. Such actions

have placed a significant burden upon local air districts who have little to no authority over mobile sources. This is particularly bad news for the South Coast and San Joaquin Valley air districts as they struggle the most from mobile source pollution, have insufficient authority over such sources, and already possess a substantial diesel pollution problem that is well documented.

It is for all of these reasons Clean Energy believes that the majority of the Volkswagen EMT should focus on mitigating on-road mobile source pollution as quickly as possible. More specifically, given that class 8 heavy-duty trucks make up less than 2% of the vehicles on the road but are the highest source category of NOx emissions for both of California's extreme non-attainment zones based on their own inventories, it makes the most sense for ARB staff to focus these one-time funds on reducing these emissions to the greatest extent feasible. **We therefore support ARB staff's proposal to focus most of these funds on both freight and heavy-duty Class 8 truck emissions categories but would recommend:**

(1) Increasing the allocation of funding toward these two categories from 52 percent to a minimum of 70 percent of the total dollars received;

(2) Placing funding for class 8 heavy-duty trucks for both zero and near zero strategies under one category;

(3) Applying the same percentage of incentive dollars to both zero and near zero class 8 heavy-duty truck strategies (i.e., up to 100% of the total vehicle cost for government fleets and up to 75% of the total vehicle cost for private fleets);

(4) Taking into consideration a cost-effective approach for at least 50% of the class 8 truck funding; and,

(5) Expend the Volkswagen EMT within the first five (5) years of the program versus dragging out the expenditure over the full ten (10) years to help our regional air districts meet pressing non-attainment deadlines that threaten public health, federal transportation dollars, and local control.

In this way, ARB would create a program that has the potential to deliver a more optimal and cost-effective use of these one-time mitigation funds by tackling the largest source of NOx emissions – diesel trucks – and still provide a clear preference for ZEV strategies as these vehicles are expected to be much more expensive than their near zero counterparts.

Cost-Effective Spending of the Volkswagen Environmental Mitigation Trust Monies would Ensure Significant and Much Needed NOx Mitigation for Extreme Non-Attainment Zones and Statewide

Given the urgent need to immediately reduce hundreds of tons of harmful NOx emissions per day in California's non-attainment areas and that ARB already has other incentive programs designed specifically to accelerate zero tailpipe emission strategies like HVIP, it seems more appropriate to focus this specific set of one-time funds toward projects that can make an immediate, significant and lasting reduction in NOx emissions statewide but most importantly in areas designated as disadvantaged communities.

More specifically, unlike incentive programs like HVIP or AB 118 funds that have a technology or advanced fuels focus, the Volkswagen EMT was designed specifically to address NOx emission impacts that have already occurred and will continue to occur in our state from faulty VW diesel vehicles that were intentionally designed to circumvent U.S. EPA's and ARB's stringent engine emission standards. While we realize that ARB staff possesses a strong desire to accelerate zero tailpipe emission strategies as soon as

possible, we do not believe pursuing demonstration projects that may not work or take many more years to commercialize is an appropriate expenditure of this funding. The primary goal of these funds should rather mitigate human health impacts caused by excessive NOx driven smog not just from VW defeat devices but from mobile sources in general. To overly focus and spend these one-time mitigation funds on strategies that are far less cost-effective and are potentially years out from commercialization is inefficient and will deny Californians who are currently in harm's way of improved public health.

Specifically, many air quality management districts favor projects under \$50,000 per ton to maximize finite dollars to achieve healthful air quality goals, especially when it comes to NOx mitigation. Further, ARB has a history of using cost-effectiveness for NOx mitigation and yet, based on the draft *Discussion Document*, it seems that staff is now foregoing this prudent approach with the hope that these funds could advance transformational technologies to commercialization.

ARB staff's justification of pursuing a heavy-weighted zero-tailpipe strategy is that it supports the state's goals for climate, air pollution, petroleum displacement, zero tailpipe emission vehicle deployment and disadvantaged community policies. Such strategies, however, do not directly advance the state's short-term climate pollutant goals and overlooks the fact that near-zero emission technologies also can advance these same goals that ARB hopes to achieve with the added bonus of bringing us closer to attainment faster and at a far lower cost. In fact, we would argue that allocating so many resources toward zero-emission strategies actually jeopardizes many of the state's goals because it is highly unlikely that the Volkswagen EMT monies will measurably commercialize these strategies or result in any significant penetration of the market given their per unit price.

To make this case, ARB staff estimates the cost-effectiveness for each category. For Class 8 Freight and Port Drayage Trucks, ARB is proposing to spend \$90 million on zero emission class 8 trucks with an estimated cost-effectiveness of \$80,000 to \$95,000 per ton, achieving 100-150 tons per year. Highlighting the significant NOx reduction objectives, this is what the South Coast Air Basin needs in one day alone.

Assuming this category is fully subscribed, and the average subsidy per zero emission truck is \$200,000 based on ARB's proposal or \$280,000 based on a recent CEC grant that funded 5 electric yard hostlers at \$375,000/unit, this would put roughly 321-450 trucks on California's roads. However, if near zero emission trucks were given the same level of incentive based on the CEC grant of \$168,150/unit, one could put approximately 713 trucks on the road with a \$126,000 incentive per vehicle. Such an action would practically result in nearly a doubling of much needed NOx reductions and whether or not these figures are accurate (there is little data available to validate the actual cost of future battery-electric trucks)

At a minimum we strongly urge ARB staff to run at least two scenarios to allow the public to understand the very real trade-offs of over-emphasizing transformational technologies over commercially ready zero-equivalent strategies for NOx and GHGs when using a lifecycle lens:

- (1) A scenario that maximizes NOx emission reductions with these funds over the next four years;
and
- (2) A scenario that uses all of the funding that ARB staff proposed for Class 8 Freight and Port Drayage Trucks category plus the "combustion freight" funding proposed for ultra-low NOx (0.02g) Class 7-8 trucks to demonstrate the total NOx reductions that can be achieved over the next 4 years.

This is not to say that we are recommending that ARB not spend any money on transformational technology with VW funds, but the public deserves to know how many NOx emission ton reductions we are foregoing by investing over \$90mm of VW funds on transformational technologies that are nowhere close to being commercially and operationally viable.

ARB Should Streamline Categories and Allocate Volkswagen Environmental Mitigation Trust Monies to Each District based on Population to better address regional NOx mitigation Needs

While ARB staff's draft *Discussion Document* bases its funding design on certain state goals and a list of "guiding principles," it is the first guiding principle that should matter most:

"...fund actions that offset the Volkswagen NOx impacts as well as reduce risk to children and other sensitive populations, including dedicating at least 35 percent of the funds for investment in or benefiting disadvantaged or low-income communities."

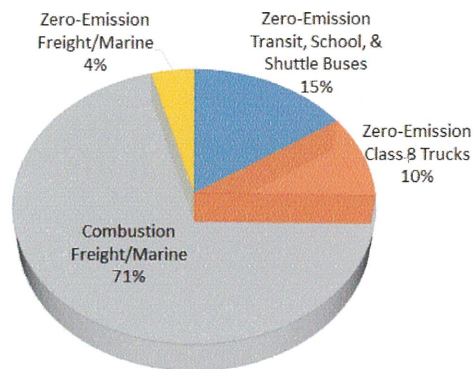
That said, we do not think ARB staff goes far enough on the NOx mitigation front. Specifically, we think the Volkswagen EMT monies should be used to help local air districts reach attainment by focusing these dollars on projects that can maximize NOx emission reductions in our communities well beyond ARB staff's most conservative estimate of 10,000 NOx tons, especially since these estimates are based on assumptions, risks, and other elements of uncertainty. In fact, we would argue that it is imperative that a more balanced mix that focuses more on immediate NOx mitigation and less on transformational technologies is more appropriate given that California has two extreme non-attainment zones that are dangerously close to failing federal ozone attainment by 2023.

We recommend that staff therefore consider the following set of recommendations:

- (1) Re-draft the funding categories to prioritize NOx mitigation by establishing the following:
 - One Class 8 Truck category that supports both zero and near zero emission strategies on an equal footing. Add an additional constraint that at least half of these funds must prioritize cost-effective NOx reductions to maximize the immediate health benefits generated by the Volkswagen settlement funds not to exceed \$50,000/ton.
 - One Freight/Marine category that supports both zero and near zero strategies on an equal footing for non-road applications (i.e., LNG locomotives, yard hostlers, harbor craft). Add an additional constraint that at least half of these funds must prioritize cost-effective NOx reductions to maximize the immediate health benefits generated by the Volkswagen settlement funds not to exceed \$50,000/ton.
 - One Transit Bus, School and Shuttle Bus category that supports both zero and near zero strategies on an equal footing. Add an additional constraint that at least half of these funds must prioritize cost-effective NOx reductions not to exceed \$50,000/ton.
- (2) Allocate these funds to the local air districts based on population and non-attainment status. This will insure that local air districts who know firsthand what the pressing needs are of their respective region can channel these funds toward projects that will deliver the highest results of NOx mitigation.
- (3) Share the Administrative Reserve funds with the local air districts to help cover their program administration costs.

By designing the Volkswagen EMT monies in this way, ARB will be in a better position to support state goals, accelerate transformation technologies and advance near zero technologies in a balanced way to promote healthy competition while assisting local air quality agencies that are dealing with both looming and overwhelming federal ozone attainment deadlines. As the program is designed now, it is abundantly clear that the \$60 million “Combustion Freight/Marine” category will provide over 70% of benefits in very concentrated areas of the state whereas the remaining \$300 million allocated to transformational strategies (not including the Administrative Reserve Funds) may ultimately produce very little mitigation to a state struggling to reach clean air.

Figure 2: Estimated NOx Reduction Distribution by Recommended Project Category



Near Zero Incentive Funding Insufficient in both Allocation and Amount

As we have stated in other incentive discussions with other programs, we are very concerned that the incentive value offered to purchase a near zero class 8 truck is insufficient to draw a meaningful number of applications when the goal for each program should be to fully allocate these funds as quickly and cost effectively as possible. Unfortunately, not only is it unclear as to how much of the \$60 million will flow to near zero class 8 truck grants under the proposed Combustion Freight/Marine category (which is why we would like to have one class 8 category benefiting both zero and near zero emission technologies) but also the \$60,000 incentive amount for a 12L truck is once again too low, especially when the applicant must scrap a qualifying engine.

For example, we believe the Prop. 1B funds and the Carl Moyer program funds provide a greater incentive by offering up to \$100,000 per applicant for scrapping a qualifying engine. For VW, ARB could provide up to 100% of the cost associated with a near zero truck for public fleets and up to 75% of the cost for private fleets much like it appears ARB is proposing for zero emission trucks. We would like to have the same opportunity with at least half of the funds that are being made available to trucks and buses, bringing a private fleet incentive up to approximately \$124,000. Comparatively, we have seen incentives for zero emission buses upwards of \$300,000 per unit demonstrating ARB’s desire of preference for transformational technologies.

Finally, we reject the argument that there are other programs administered by ARB that are better suited to support near zero truck purchases like Prop. 1B and Carl Moyer. This argument was used most recently during the December 2017 ARB Governing Board hearing covering the HVIP program to justify why ARB staff did not provide an adequate level of funding for the 8.9L near zero natural gas engine. While on its

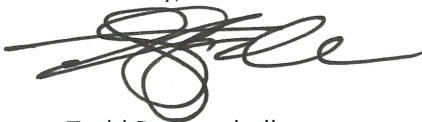
face this argument sounds reasonable, all of the programs referenced by ARB staff also provide very generous incentive allocations to both electric and fuel cell platforms. Unfortunately, this argument also ignores the fact that older truck engines on California's roads are difficult to locate and typically owned by smaller fleets or independent owner operators that may not be able to justify a clean truck purchase or operate in a location that supports one whereas the HVIP program allowed for any California-based applicant within the state to purchase a truck without any engine scrapping requirements.

This brings us to our final point that the incentive amount must be enough to attract applicants. Our Industry has most recently provided a letter with a number of OEM truck providers requesting that the incentive level provided for the 11.9 liter truck under the HVIP program be raised to \$80,000/truck which does not have an engine scrapping requirement. For the Volkswagen EMT monies – a program that is designed specifically to directly address NOx emissions and requires the scrapping of an engine – we would like to see, at a minimum, the identical percentage of incentive funding applied to near zero class 8 truck applicants as zero emission platforms under the ARB staff proposal. Applying the same percentage of incentive funds for zero and near zero emission class 8 trucks still shows a preference for zero emission strategies because they cost more than near zero trucks and therefore will receive more Volkswagen grant money per unit. That said, it is critical that ARB staff dedicate at least half of this program toward the deployment of ultra-low NOx class 8 trucks which would require the Volkswagen program to provide a comparable and equivalent incentive recommended for zero emissions strategies. Anything less than that we feel will result once again, in yet another program, the perception that the Volkswagen EMT monies could fund a near zero emission class 8 truck but in reality the funds are insufficient to attract applicants when this is not the case for zero emission truck platforms.

Not only would an outcome that artificially fails to incentivize the market for near zero emission class 8 trucks mislead the public on the need and viability for this technology to be placed on California's roads, but also it would further jeopardize the Volkswagen EMT's ability to provide the necessary NOx emission reductions required by the program and do little to help the South Coast, San Joaquin Valley, and other local air quality management districts from reaching meaningful and timely attainment.

Thank you for your time and consideration of Clean Energy's comments on ARB staff's *Discussion Draft* on California's Allocation of the Volkswagen Environmental Mitigation Trust.

Sincerely,

A handwritten signature in black ink, appearing to read 'Todd R. Campbell', with a stylized, cursive flourish.

Todd R. Campbell