


To: **Liane M. Randolph, Chair**
Honorable Board Members

From: Steven S. Cliff, Ph.D., Executive Officer 

Date: April 24, 2023

Subject: Update to Volkswagen (VW) Beneficiary Mitigation Plan (BMP) and Oxides of Nitrogen (NOx) Emission Reduction Target NOx Target for VW 2.0-Liter Appendix D

California Air Resources Board (CARB or Board) Resolution 18-21 directs CARB staff to update the Board on implementing California's Beneficiary Mitigation Plan (BMP) under Appendix D of the VW Consent Decree. This memo serves as an update to the Board on changes to improve implementation of the incentive program, following the guiding principles identified in the BMP. These modifications include updating the original projected NOx emission reduction target and making minor modifications to the BMP to align the incentive funding amounts with other CARB incentive programs. A summary of changes is provided in Attachment I.

Background

Appendix D established the Environmental Mitigation Trust, intended to fully mitigate all past and future excess NOx emissions from the vehicles subject to the settlement, by requiring VW to pay about \$2.7 billion into a national mitigation trust fund. California's allocation of the trust is about \$423 million. On May 25, 2018, the CARB Board approved, after a public process, a BMP that describes the projects California will fund with its allocation. The Consent Decree defines the eligible mitigation actions; most are scrap-and-replace projects for the heavy-duty sector.

California's allocation was split into five funding allocations and each of these allocations of funding is administered on a statewide basis and overseen by one of three air districts.

San Joaquin Air Pollution Control District oversees the bus allocation of \$130 million which allows for the replacement of school, transit and shuttle buses.

South Coast Air Quality Management District (AQMD) oversees the zero-emission class 8 truck allocation of \$90 million that allows for the replacement of combustion class 8 freight and drayage trucks, waste haulers dump trucks and concrete mixers. South Coast AQMD also oversees the combustion freight and marine allocation of \$60 million that allows for the replacement or repower of class 7 and class 8 trucks, freight switcher locomotive replacements and repowers, and ferry, tug, and towboat repowers.

Bay Area AQMD oversees the zero-emission freight and marine allocation of \$70 million that allows for replacement of airport ground support equipment (GSE), forklifts, port cargo handling equipment, oceangoing vessel shore power and repowers, and ferry, tug and

towboat repowers. Bay Area AQMD also oversees the light-duty charging infrastructure allocation of \$10 million which allows for the installation of light-duty electric and hydrogen infrastructure. This allocation was split \$5 million for electric and \$5 million for hydrogen. The hydrogen portion is managed by the California Energy Commission.

California’s Beneficiary Mitigation Plan Implementation (Appendix D) Overview

California’s BMP describes the project funding categories (eligible mitigation actions) California will fund with its allocation. The BMP also includes detailed implementation requirements that are unique to each mitigation action.

Table 1 shows the project funding categories, allocations, and statewide project administrators in the BMP approved by the Board.

Table 1: Beneficiary Mitigation Plan Project Funding Categories and Allocations

Eligible Mitigation Action Project Funding Category	Project Allocation (millions)	Benefiting Low-Income or Disadvantaged Communities	Statewide Administrator
Zero-Emission Transit, School, and Shuttle Buses	\$130	50%	San Joaquin Valley Air Pollution Control District
Zero-Emission Class 8 Freight and Port Drayage Trucks	\$90	50%	South Coast AQMD
Zero-Emission Freight and Marine Projects	\$70	75%	Bay Area AQMD
Combustion Freight and Marine Projects	\$60	50%	South Coast AQMD
Light-Duty Zero-Emission Vehicle (ZEV) Infrastructure	\$10	35%	Bay Area AQMD
Reserve (for administrative costs and additional projects)	\$63		
Total	\$423	>50%	

Updates to the BMP

CARB staff is making the following adjustments to the BMP to reflect updated projections on required NOx reductions and to increase participation by better aligning VW incentives with other programs, which should increase demand and expedite our ability to achieve NOx reductions. The changes were developed based on lessons learned during the first years of implementation, feedback from stakeholders and ongoing coordination with implementing air districts. These updates align with the guiding principles outlined on in the BMP, which are:

- Fund actions that offset the VW 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.
- Align with State priorities as required by Senate Bill 92 (Committee on Budgets and Fiscal Review Chapter 26, Statutes of 2017 codified at Health and Safety Code section 39614).
- Focus on zero-emission technologies where available; cleanest combustion everywhere else.
- Prioritize expenditures that are surplus to regulatory requirements and complementary and additional to other investments being made by government and the private sector in California.
- Invest across a variety of geographic regions of the State while transforming the heavy-duty sector through focused implementation of advanced technologies.
- Implement projects using known methods of public process and project management, including competitive solicitations where appropriate, as successfully demonstrated with Low Carbon Transportation Investments.
- Ensure accountability and transparency to help determine effectiveness of programs and identify implementation, durability, and maintenance issues.

Updated NOx Emission Reduction Target

CARB originally estimated the excess NOx emissions from non-compliant VW passenger vehicles in California was approximately 10,000 tons. This estimate assumed 85 percent of the subject vehicles met recall or buy-back requirements by mid-2019 and 15 percent of the vehicles would remain on the road and took into account the uncertainty in the heavy-duty advanced technology vehicle market demand, mix of projects within the project funding categories that could be funded, infrastructure needs. Staff used this estimate to determine the project funding categories and allocations included in the BMP.

Since the BMP was approved in 2018, the actual percentage of vehicles that met recall or buyback requirements was substantially higher than anticipated, and the number of noncompliant vehicles that remained on the road was significantly less than originally estimated. Current data indicate that only two percent of the 2.0 liter and Generation 1 of the 3.0 liter vehicles remained on the road and four percent of the Generation 2 3.0 liter vehicles remained on the road.

This increased recall and buyback rate significantly reduces the excess NOx to be mitigated in California. As a result, new modeling indicates that the excess emissions is approximately 6,550 tons.

Table 2 shows the original and proposed NOx reductions associated with each funding category. The necessary emission reductions needed to achieve the new NOx emission target decreased by approximately one third and remained consistent amongst the project

categories. The NOx reductions achieved directly from the projects funded by VW will be complemented by reductions from new regulations adopted since the approval of the BMP in 2018. Including the Zero-Emission Airport Shuttle Regulations, Innovative Clean Transit Regulation, and the upcoming Advanced Clean Fleets Regulation.

Table 2: Project Funding Category and Associated NOx Reductions

Project Funding Category	Project Allocation (millions)	Original Estimated NOx Reductions (tons)	Original % of NOx Reductions	New Estimated NOx Reductions (tons)	New % of NOx Reductions
Zero-Emission Transit, School, and Shuttle Buses	\$130	1,650	16%	1,050	16%
Zero-Emission Class 8 Freight and Port Drayage Trucks	\$90	1,500	15%	1,000	15.5%
Zero-Emission Freight and Marine Projects	\$70	250	2.5%	150	2%
Combustion Freight and Marine Projects	\$60	6,750	66.5%	4,350	66.5%
Light-Duty ZEV Infrastructure	\$10	N/A	N/A	N/A	N/A
Total	\$360	10,150	100%	6,550	100%

Program Changes to Zero-Emission Transit, School, and Shuttle Buses

- Expand funding options by allowing for stacking of funds for transit, school and shuttle buses with Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP) and other CARB and State programs that do not claim NOx emission reductions. This change helps provide funding flexibility for public agencies.
- Expand eligibility by allowing for the scrapping of 2010-2012 buses. When the BMP was approved in 2018 there were significantly more 2009 or older shuttle and transit buses on the road and CARB wanted to ensure that the oldest buses were being retired from fleets. The vast majority of the 2009 and older buses have already been retired.
- Expand eligibility by removing limits funding allocations to specific bus types beginning in 2024. The BMP states “to ensure that no one category receives most or

all of the funding, no more than 50 percent of the available funds in each increment will be allocated to a single bus category.”

- Increase maximum funding amounts by up to 20 percent for transit and shuttle buses to better align with funding in other programs and account for inflation.

Table 3 shows the old and new funding maximums. CARB is not increasing maximum funding levels for school buses since the second installment of \$65M for school bus had been oversubscribed at the current maximum funding level.

Table 3: Zero-Emission Bus Funding Levels

Category	Original Max Incentive	New Max Incentive
School Bus	\$400,000	\$400,000
Transit Bus - Electric	\$180,000	\$216,000
Transit Bus – Fuel Cell	\$400,000	\$480,000
Shuttle Bus	\$160,000	\$192,000

Program Changes to Zero-Emission Class 8 Freight and Port Drayage Trucks

- Expand funding options by allowing for stacking of funds for Zero-Emission Class 8 Port and Drayage Trucks with HVIP and other CARB and State programs that do not claim NOx emission reductions. The rationale behind this change is to help unlock additional funding for fleets to keep up with fleet turn-over compliance dates and choose zero-emission over combustion technology.
- Increase maximum funding amounts by up to 20 percent to account for inflation.

Table 4 shows the old and new funding maximums.

Table 4: Zero-Emission Class 8 Freight and Port Drayage Truck Funding Levels

Category	Original Max Incentive	New Max Incentive
Class 8 Truck	\$200,000	\$240,000

Program Changes to Zero-Emission Freight and Marine Projects

- Expand funding options by allowing for stacking of funds for Zero-Emission Freight and Marine with Clean Off-Road Equipment voucher program and other State programs that do not claim NOx emission reductions.
- Increase funding options by establishing a new cost-effectiveness threshold and increase maximum funding amounts by up to 20 percent.

- All projects utilizing cost-effectiveness with a funding level over one million dollars will require pre-approval from CARB prior to entering into a contract with the Air District.
- Remove the incremental cost administrative requirements from GSE and replace it with an average cost-effectiveness as stated above.

Table 5 shows the new incentive amounts keeping in mind that all equipment types listed in zero-emission freight and marine can also opt to a cost-effectiveness threshold.

Table 5: Zero-Emission Freight and Marine Funding Levels

Category	Original Max Incentive	New Max Incentive*
Airport GSE	Incremental Cost	Cost-Effectiveness Threshold
Heavy-lift Forklift	\$175,000	\$210,000
Port Cargo handling Equipment	\$175,000	\$210,000
Shore Power	\$2,500,000	\$3,000,000
Ferry, Tug and Towboat Repowers	\$2,500,000	\$3,000,000

*All categories have the option to use cost-effectiveness or the new max funding levels.

Program Changes to Combustion Freight and Marine Projects

- Expand funding options by allowing stacking of funds for combustion freight and marine with other CARB and State programs that do not claim NOx emission reductions on a case-by-case basis. The rationale behind this change will unlock additional funding for smaller entities to turn their fleets over to cleaner technology.
- Expand funding options by allowing the scrapping of pre-Tier 4 switchers with Tier 4 or better technology, including zero-emission, as allowed in the Consent Decree. Allowing replacement with “Tier 4 or better” opens the door to funding zero-emission technology in this category.
- Expand funding options by allowing the replacement of all locomotives (switcher, short and line haul) that are used for switching operations with rail car movers if it is determined, on a case-by-case basis, that the rail car mover will perform the same job as the switcher locomotive. This is consistent with the definition of “freight switcher” in the 2017 Moyer Guidelines.
- Increase maximum funding amounts by up to 20 percent to account for inflation.

Table 6 shows the old and new funding maximums.

Table 6: Combustion Freight and Marine Funding Levels

Category	Original Max Incentive	New Max Incentive
Class 7 and 8 New Truck	\$85,000	\$102,000
Class 7 and 8 Repower	\$50,000	\$60,000
Switcher (locomotive or rail car mover)	\$1,350,000	\$1,620,000
Ferry, Tug, and Towboat Repowers	\$1,000,000	\$1,200,000

Program Changes to Light-Duty Zero-Emission Vehicle Infrastructure

No program changes are anticipated for this product category. All funds associated with Light-Duty ZEV Infrastructure have been awarded and no funds remain.

Other Changes not Specific to Individual Project Funding Categories

- Clarify the language on page 15 of the BMP from in regard to double counting NOx emission reductions. The term "could" is ambiguous and is causing issues with combining funds from other programs.
 - The revised language will be "California's VW Mitigation Trust funds are not to be combined with any other CARB-implemented funding or other funding program where any portion of the resulting NOx reductions ~~could~~ will be double-counted."

As implementation on California's BMP progresses, CARB staff will continue to work with the statewide air district administrators and will provide necessary status updates to the Board.

If you have questions about this memo or need further clarification, please contact me at (916) 322-7077, or by email at Steven.Cliff@arb.ca.gov.

Attachment(s):

Summary of changes to the Beneficiary Mitigation Plan

California's Beneficiary Mitigation Plan