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**VIA ELECTRONIC MAIL** May 14, 2018

New Mexico Environment Department

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**Comments of the Sierra Club Regarding New Mexico’s draft Plan for the Use of**

**The Volkswagen Partial Consent Decree Environmental Mitigation Trust Funding**

New Mexico Environment Department and Mr. Singleton:

The Sierra Club appreciates the opportunity to provide its comments on the Draft Beneficiary Mitigation Plan for the State of New Mexico (draft plan) prepared by the New Mexico Environment Department (NMED) regarding the use of funding allocated to the State from the Volkswagen Partial Consent Decree Environmental Mitigation Trust (EMT).

Volkswagen’s installation of defeat devices on diesel vehicles driven in New Mexico resulted in emissions of nitrogen oxides (NOx) far exceeding the limits established under the Clean Air Act. As a primary component of ground-level ozone (smog), as well as a source of fine particulate matter, the excess NOx emissions contributed to diminished air quality levels in New Mexico. The funding provided in the Mitigation Trust is intended to support programs that mitigate and reduce emissions of NOx. To maximize the effect of the use of the Mitigation Trust funds, Sierra Club submits the following comments and recommendations:

COMMENTS.

* Sierra Club strongly supports using the maximum allowable portion (15%) of the available EMT funds for investments in electric vehicle supply infrastructure (“EVSE”) for the charging of light duty vehicles.
* Sierra Club supports priority for projects in areas that receive a disproportionate share of the air pollution burden, especially supporting the inclusion of environmental justice areas in this priority and areas of NAAQS nonattainment.

RECOMMENDATION.

* Sierra Club **strongly recommends** that NMED shift its goal as stated in the draft plan to focus on funding projects that repower or replace older diesel-fueled with electric only. Diesel engines should not be replaced with diesel engines.

The Sierra Club appreciates the work NMED put into the plan and looks forward to continued consideration of air quality goals and improved public health and safety for NM residents as NMED goes forward in the selection of projects to receive EMT funds. New Mexico has a unique opportunity to reduce NOx and other polluting vehicle emissions, to improve the health of all NM residents, and to accelerate the transition of our transportation sector towards cleaner, more cost-effective vehicles NMED should ensure that investments made through the EMT are forward looking, transformative, and cost-effective over vehicles’ useful lives, while meaningfully reducing NOx and other polluting emissions. Given those objectives, Sierra Club reiterates that it that it finds a number of elements of the draft plan to be positive, but request careful consideration of its recommendations. Further discussion on Sierra Club recommendations and comments is set out below.

1. Mitigation of NOx and Particulate Matter from On-road Fleet Projects.
2. The Mitigation Plan should clearly allocate settlement money to subsidize the purchase of electric buses and bus charging infrastructure, focusing first on school buses to protect the health of New Mexico’s children.

The Clean Air Act is a public health law. A core driver of the success of the Clean Air Act is its requirement that up-to-date science be the basis for decisions and actions to protect public health.[[1]](#footnote-1) The EPA uses six criteria pollutants as indicators of air quality, and has established for each a maximum concentration above which adverse effects on human health have been shown to occur. Two criteria pollutants are prevalent in diesel emissions- NOx and Particulate Matter (PM). NOx pollution contributes to the formation of harmful smog and soot, exposure to which is linked to a number of respiratory- and cardiovascular-related health effects as well as premature death. Children are particularly at risk for health effects related to smog or soot exposure. Yet, as they commute to school in their cheery yellow buses, they are exposed to as much as 4 times the level of diesel exhaust as passengers in the cars around them.[[2]](#footnote-2)

Albuquerque Public Schools transported 40,980 students to and from school, averaging 31,965 miles daily, with an annual mileage of 5,689,823 in school year 2016-2017. The Santa Fe Schools have over 80 bus routes which include regular pick up and drop off of K-12 students, special education and transportation for three and four year olds to Early Childhood Center. And statewide, the legislative Council Service reported that data from FY17 showed 2,038 to-and-from school buses are used by districts and traveled more than 29.6 million miles. New Mexico’s children are being dosed with diesel emissions – and it is injurious to their health. According to the EPA and International Agency for Research on Cancer, diesel exhaust from the buses is "highly likely" to cause lung cancer.[[3]](#footnote-3) Additionally, the American Academy of Pediatrics points out that the particles in diesel vehicles also worsen allergic and inflammatory responses to conditions such as asthma.

Each year the American Lung Association publishes the *State of the Air* report an annual national "report card" on air quality. The report uses the most recent air pollution data, compiled by the U.S. Environmental Protection Agency (EPA), for the two most widespread types of pollution—ozone (smog) and particle pollution (PM2.5, also known as soot). The report grades counties and ranks cities and counties based on their scores for ozone, year-round particle pollution and short-term particle pollution and the following:

|  |  |  |  |
| --- | --- | --- | --- |
| County  | Grade | Population under 18 | Cases of pediatric asthma |
| Bernalillo | C | 151,807 | 14,988 |
| Dona Ana | F | 53,748 | 5307 |
| Eddy  | C | 15,259 | 1507 |
| San Juan | C | 29,703 | 2,933 |

And even though other counties such as Santa Fe were graded an “A” because there were no high ozone days recorded, there remains the same vulnerable populations being exposed to diesel exhaust.

1. Electric buses cost less that diesel when the Cost Analysis reflects the Total Cost of Ownership.

 Despite their greater purchase price, current analysis using Argonne National Laboratory’s AFLEET Model demonstrates that zero emission electric buses have a total cost of ownership 18% lower than new diesel buses. Maintenance costs for electric buses are between 70% and 79% lower than for compressed natural gas (CNG) and new diesel buses respectively, contributing to significant cost savings over the lifetime of a bus. Based on currently reported data, each all-electric bus will save New Mexico’s transit agencies over $200,000 as compared to a new diesel bus purchase. Moreover, as this electric bus technology continues to develop, all-electric bus up-front capital costs will continue to drop, whereas CNG and diesel bus capital cost trends are continually increasing.[[4]](#footnote-4) In addition, although reliable, current publicly available data on hybrid diesel-electric buses are lacking, a lifecycle analysis using data compiled by the California Air Resources Board in 2016 shows that hybrid diesel electric buses have a total cost of ownership of $1,909,847, over $700,000 greater than an electric bus.



Source: Argonne National Laboratory’s AFLEET Model (2017); fuel and electricity costs adjusted for Albuquerque, New Mexico

The total cost of ownership is derived from Argonne National Laboratory’s AFLEET Model (2017). Fuel prices are adjusted for the Albuquerque, New Mexico region. Model inputs are populated using averages of fuel economy and maintenance costs reported directly by transit agencies from the years 2014 to 2017.

Maintenance and fueling expenses typically account for a significant portion of transit bus’s lifetime costs. An investment in zero-emission vehicles will dramatically reduce this figure. As highlighted above, all-electric bus maintenance and repair costs are 79 and 70% lower than the maintenance and repair costs for new diesel and CNG respectively.[[5]](#footnote-5) Moreover, all-electric buses are fueled by regionally generated electricity, which has demonstrated far more reliable pricing as compared to diesel oil and natural gas.[[6]](#footnote-6)

1. The best project for NOx reduction per dollar spent is the replacement of eligible diesel buses with electric zero emission buses.

Specific to the Volkswagen Settlement, agencies are instructed to demonstrate their anticipated NOx reductions as a result of their state’s environmental mitigation transportation investments. Many agencies are in search of the investment that results in the greatest NOx lb. /$ ratio, but they are only considering the upfront purchase costs in these calculations. If the total lifetime costs are considered, the bus technology with the greatest NOx lb. /$ ratio is a zero-emission bus.

|  |  |  |
| --- | --- | --- |
|  | Fuel Economy (MPGDE) | Maintenance and Repair ($/mi) |
| Electric | 19.44 | $0.17 |
| Diesel | 4.16 | $0.80 |
| CNG | 3.87 | $0.56 |



1. NMED could increase the number of electric buses using EMT funds if the EMT funds subsidized only the cost of the bus being electric rather than diesel.

The New Mexico statute at 22-8-27 NMSA, 1978 states in part:

A. The [Public Education] department shall establish a systematic program for the purchase of necessary school bus transportation equipment.

B. In establishing a system for the replacement of school-district-owned buses, the department shall provide for the replacement of school buses on a twelve-year cycle.

The draft plan uses as its base in its calculations a comparison of a 2002 diesel school bus to a 2018 diesel bus. No school district should be using any bus older than 2006 at the end of FY 2018 on June 30, 2018, according to state statute. Thus, there is one model year left before all school buses must meet the “clean diesel” EPA national standards which EPA began in 2007. The EPA promulgated a Final Rule to reduce emission standards for 2007 and subsequent model year heavy-duty diesel engines (66 FR 5002, January 18, 2001). These emission standards represent a 90 percent reduction of oxides of nitrogen emissions, 72 percent reduction of non-methane hydrocarbon emissions, and 90 percent reduction of particulate matter emissions compared to the 2004 model year emission standards. This standard was phased in– 50 percent of the new engines sold in MYs 2007 through 2009 are to meet the new NOx emission standard of 0.2 g/bhp-hr, with full compliance required commencing in MY 2010. The new rule reduced allowable PM emissions to 0.01 g/bhp-hr, to take full effect for diesels in MY 2007. Therefore, the majority of the 2038 school buses in the state are as clean as they are going to get, and they still pollute the air. Diesel buses today are still exposing children inside the buses to 4 times the level of NOx and PM when compared to just outside the bus. Electric buses have no emissions and do not create a polluted environment either inside or outside the bus.

The draft plan is projecting spending $5,360,000 of the EMT funds on school buses -44 diesels and 4 electric. Even though the draft plan and the approved consent decree allow for 100% coverage for government entity electric buses, Sierra Club questions whether outright full purchase of school buses is the best use of the EMT funds. School buses and payment for school bus contractors is legislated each year in the capital outlay bill. Each year 1/12th of the school bus fleet must be replaced and either the school district (from the general fund through its legislator’s request in capital outlay) or the Public School Capital Outlay fund pays for the acquisition of the new buses. Why should a school district or the NM Public Education Department not have to spend its capital outlay already earmarked for new buses? That would be a windfall with little real NOx mitigation and does not meet the intent of the Consent decree in reducing NOx pollution. Sierra Club suggests that the final Mitigation plan not interrupt the ongoing school bus replacement cycle. Rather, the EMT funds could be used to pay the difference between the cost of a diesel school bus and the cost of an electric bus. In that way, the EMT funds that NMED is proposing to spend on the acquisition of school buses could facilitate the purchasing of at least 21 electric buses to replace the oldest diesel school buses MY 2007 and younger. As an added benefit, NMED could require that the first electric buses are earmarked for services to children in environmental justice communities.

1. New Mexico needs to spend the 15% of EMT funds for light duty zero emission vehicle supply equipment on charging equipment for public use, focusing on DC fast chargers along the I-25, I-40 and I-10 interstates between the state’s major cities.

Electrification of the vehicle fleet is the most effective way to mitigate emissions from this source category. And access to electric vehicle charging is a key barrier that must be overcome in order for electric vehicle (“EV”) adoption in New Mexico. The Sierra Club recommends that the charging infrastructure investments target access to fast chargers on major highways between urban areas as well as final destinations in the urban areas, such as workplaces, malls and colleges. Currently, there appears from online apps to find charging stations that 21 public stations exist in Albuquerque and just one high speed charger has been installed along I-25 between Albuquerque and Santa Fe. This is not conducive to increased EV purchase and use. The same scarcity of high speed charging capability applies to include the I-10 corridor between Las Cruces and El Paso, along with I-40 east and west of Albuquerque.

The VW settlement consent decree directed that $2,000,000,000 be invested over a 10-year period to support increased use of technology for EVs and could include investments related to EV infrastructure, access to EVs, and EV education. Electrify America LLC was created by the Volkswagen Group of America to accomplish this effort. Though Electrify America intends to develop a national network of electric vehicle charging stations along highly traveled highways, New Mexico is not yet involved as this first effort is centered more or less on the east coast. Sierra Club endorses EV adoption. To more fully meet the needs of EV drivers, Sierra Club encourages NMED to not only promote the fastest EV charging stations along travel corridors to enable extended travel but also to provide at least Level 2 charging in places where people naturally park for extended periods.

Conclusion

New Mexico’s portion of the VW settlement presents the state with a unique opportunity to reduce its transportation sector emissions now and for years to come. As set forth herein, the Sierra Club recommends that this funding be used to accelerate the adoption of electric transportation across a suite of end uses. To effectively drive light-duty NOx emissions downward, Sierra Club recommends that NMED invest the full allowable 15 percent on charging infrastructure that enables long distance EV corridor travel and unlocks light-duty EV growth in areas underserved by the current charging station market. We strongly recommend NMED seek opportunities to electrify transportation in on-road fleet projects, first and foremost by assisting in the procurement of electric school buses, as well as other planned heavy duty trucks. The Sierra Club’s overarching aim in going forward with the EMT funded projects is to ensure that New Mexico invests the EMT funds in ways that are forward looking, transformative, and cost-effective over vehicles’ useful lives, while meaningfully reducing NOx and other pollutants. Thank you.

Sincerely,



Camilla Feibelman

Director

Sierra Club: Rio Grande Chapter Director

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1. American Lung Association – State of the Air 2018 report [↑](#footnote-ref-1)
2. American Academy of Pediatrics [↑](#footnote-ref-2)
3. EPA Clean buses fact sheet [↑](#footnote-ref-3)
4. California Air Resources Board. (2016) T*otal Cost of Ownership to Advance Clean Transit*. Presentation Prepared for the 4th Meeting of the Advanced Clean Transit Working Group. https://www.arb.ca.gov/msprog/bus/4thactwgmtng\_costs.pdf> [↑](#footnote-ref-4)
5. Metrics derived from Argonne National Laboratory’s AFLEET Model (2017) and Zero Emission Bus transit studies [↑](#footnote-ref-5)
6. https://www.afdc.energy.gov/fuels/prices.html [↑](#footnote-ref-6)