



October 7, 2018

The Lion Electric Co. - USA

RE: Comments on Texas' Use of Environmental Mitigation Trust Funds

To whom it may concern:

The Lion Electric Co. Team would like to thank you for this opportunity to provide comments to the request for public comment on how the Volkswagen Settlement funds should be appropriated in Texas. We would like to bring awareness of the need to transition the largest form of public transportation from a 95% reliance on diesel fuel to a fully all-electric zero-emission fleet as quickly as possible.

We appreciate the opportunity to provide comments on the draft Beneficiary Mitigation Plan ("BMP") plan, which describes the state's overall intentions and plan for spending about \$200M of Texas' VW allocation funding.

The Volkswagen settlement provides a great option to address Texas' huge ZEV opportunity and demonstrate that available zero-emission technologies offer lower owner costs, improved maintenance and performance, and better serve a diverse range of communities' public transit needs, including reduction of NOx and elimination of GHG and criteria emissions.

Why Texas Should Prioritize School Buses

All sources of diesel pollution are dangerous to our health, but pollution from school buses are particularly dangerous because of the population they serve and where they operate.

School buses are the largest form of public transportation, with approximately 480,000 operating in the United States every school day transporting some **26 million children**.

We have known the **dangers** of **diesel pollution** for decades. The US EPA and the World Health Organization have listed diesel pollution as a class 1 carcinogen. The US EPA has never determined any safe level of diesel emission exposure for children.

Diesel emissions contain fine and ultra-fine particulate matter which can enter one's airways and blood stream, causing damage to internal organs like your liver, heart, and lungs. Populations that live in areas of poor air quality have been shown to have short life expectancy and higher rates of chronic illnesses like asthma. Asthma rates among children are at unacceptable levels. The national average is 1 in 10 children have some form of asthma, and in highly polluted areas, the asthma rate can be as high as 1 in 4 children.





Children are more susceptible to the dangers of diesel pollution **because** “they breathe 50 percent more air per pound of body weight than do adults.”

Electric School Buses Make Sense Economically

There are currently 150 electric school buses in North America, more specifically in New York, Massachusetts, Minnesota and California, that have been carrying kids to school every day safely for the last 3 years. School districts and operators have shared data and have found 80% improved fuel savings, 40% fuel cost reduction and 60% cost saving in maintenance when switching to electric. This average is compiled with information from approximately 2.5 million miles driven. The return on investment in most cases is under 7 years without any governmental funding or grants; making this zero-emission technology a no-brainer. Needless to say that this clean technology has now passed the pilot phase and has been tested in all environments and climates in the last few years.

The benefits of electric school buses are extensive; they are quiet, reliable, require less maintenance and make sense economically. Additionally, both **Bloomberg New Energy Finance** and **USPIRG** have published reports showing that, over the lifetime of large fleet vehicles, electric vehicles even at a higher cost of entry will cost less to operate over their expected 15 to 20 year operational life. They predict that an electric school bus is as much as \$6,000 cheaper to run each year due to lower cost of electricity vs diesel and lower maintenance. It has been estimated that school buses uses over 822,857,000 gallons of diesel fuel at an **annual cost** of \$3,184,457,000 (\$3.2 billion).

Electric motors are inherently more efficient than combustion engines. Whereas over 70% of the energy created during the combustion cycle is wasted as heat energy, electric motors can turn over 80% of their energy use into motion. While diesel buses often get between 4 or 5 mpg, electric buses can get 12 to 14 mpg equivalent.

A pilot program in California that incorporated vehicle-to-grid technology has shown that, with proper planning, a school bus can generate up to \$6,000 a year in revenue for a school. The buses can charge at night when electricity rates are low and then supply electricity to the school or grid during the day when rates and consumption are higher and the buses are not in use. This type of use is even more beneficial during the summer, when a large portion of school bus fleets are left idle, allowing more of their battery capacity to be utilized to support the grid.

Battery storage of electricity becomes increasingly important as areas rely more on wind and solar for energy production. Since these types of energy production are cyclical and vary in output, the ability to store excess energy during times of high production and supplement the grid during times of low production is vital.

Why in Electric over Propane School Buses





We disagree that VW settlement funds should be allocated to other alternative fuel buses (propane, clean diesel, CNG, etc.). While propane or CNG buses are cleaner than diesel, nothing is cleaner than electric school buses.

Texas' electrical grid is getting cleaner, with a lot of power created by wind and much more solar capability. As the electrical grid gets closer to zero emissions the benefits of using electric school buses will increase. No other form of vehicle propulsion has the potential to get cleaner as the bus ages. Buying an alternative fuel bus today might seem like a good option, but you have to remember that the life expectancy of a school bus can be more than 20 years.

It will be cheaper and easier to increase refueling stations for electric school buses than alternative fuels. Alternative refueling stations are not widely available in the United States in general, or specifically in Texas. According to the U.S. Department of Energy, there are **only 469 propane refueling stations** in the United States and about 30 in all of Texas. There are already **18,969 electric vehicle charging stations** in the US and hundreds of publicly available electric charging stations in Texas. Also, up to 15% of the VW Settlement can be used to increase the available to number of electric vehicle charging stations. Because school buses and passenger vehicles can use the same chargers, it is more beneficial to increase electric vehicle charging stations. Propane fueling stations would only benefit a limited number of vehicles, which should also be moving towards electrification.

How the Money Should be Spent

With over \$200 million at its disposal and Texas being the USA's second largest school bus market, the Commission has a tremendous opportunity to accelerate the adoption of electric vehicles if the VW Settlement funds are spent properly. To ensure that most funds are used to promote adoption of electric vehicles, Texas should endeavor to keep administrative costs as low as possible and put a cap at no more than 10% of the total funds.

The Commission should endeavor to allocate the funds through a voucher system instead of a tax rebate program. Voucher systems makes it easier for individuals and companies to make purchases because the savings are made at the time of purchase. This allows the initial cost to be lower, so the purchaser does not have to take on the full cost of the product and wait for a refund.

The Commission should set aside up to 75% of the VW Settlement for class 4–8 trucks, which include school buses and semi-trailers. 50% of these funds should be used to transition school buses to all-electric buses. In order to see a quick and rapid adoption of electric school buses, we recommend covering the entire cost of the electric school bus or covering at least 80% of the cost of the electric school bus through a voucher program. Without that purchase incentive, school districts will not want to go through the hassle of changing their fleet to electric. We have witnessed this pattern in different states where only the incremental cost of the electric school bus was covered; the adoption results were poor and unsuccessful. Additionally, offering additional funding for purchase will reduce the burden on school districts and allow them to opt for higher mileage buses; this will expand the number of routes they can





electrify without the cost associated with higher mileage. In fact, batteries are the most expensive components of an electric school bus, therefore it is thus crucial that extra funds are allocated to cover the additional batteries to meet the school districts needs in terms of mileage per day. It is important to note that the more an electric school bus is used, the cleaner it is.

Infrastructure is a crucial component of purchasing an electric school bus for school districts. Based on previous experiences and the biggest deployment of electric school buses in North America, we recommend allocating a minimum of \$5,000 per electric school bus for charging infrastructure. This will cover the cost of 1 electric school bus charger and installation. It may also cover the electrical infrastructure upgrade the school will need to power their buses; however, in most cases, and to deploy more than 1 electric school bus, trenching and upgrades to the current system may be needed to power bigger fleets. In that case, we recommend allocating additional funding to school districts willing to electrify a bigger portion of their fleet.

We also recommend targeting areas most impacted by higher pollution, aged fleets as well as disadvantaged communities. The state should rank school districts based on the age of the fleet, disadvantaged communities and highly polluted areas. School districts will then apply for funding and based on their ranking, be awarded an electric school bus. The school districts will then pick their vendor and funds will be distributed to the vendor upon delivery of the school bus. We recommend making the application process as simple as possible to increase the number of applicants.

We would like to thank you for allowing the public the opportunity to provide comments during this process. We look forward to reading the next iteration of the draft mitigation plan in Texas.

