

Evolv-Electric Transportation Inc.

October 1, 2018

Texas Commission on Environmental Quality's
Texas Volkswagen Environmental Mitigation Program
P.O. Box 13087
Austin, TX 78711-3087

Commissioners Bryan W. Shaw, Toby Baker, and Jon Nierman

RE: Evolv-Electric Transportation, Inc. Comments on Texas' Use of Environmental Mitigation Trust Funds

To whom it may concern:

We the staff of Evolv-Electric Transportation, Inc.¹ are writing this letter in response to your request for public comment on how the VW Settlement funds should be appropriated. We started the Electric School Bus Campaign² 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.

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.

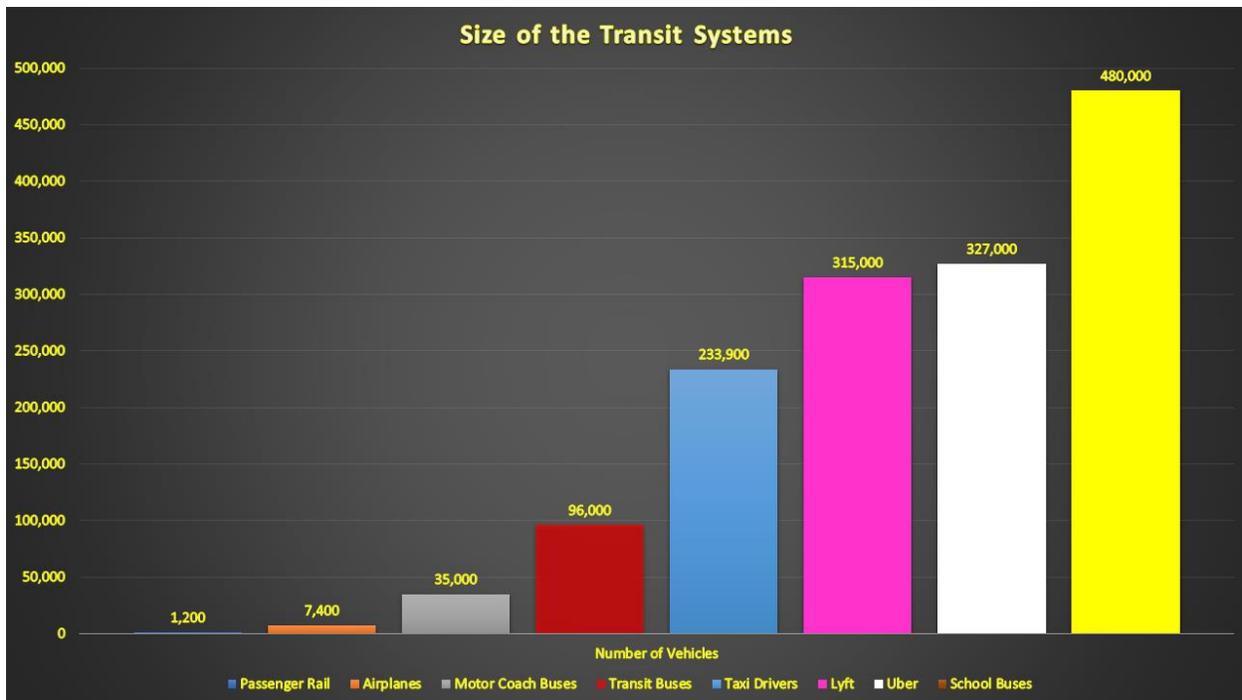
School buses are the largest form of public transportation with approximately 480,000 operating in the United States every school day transporting some 26 million children³. Children are more susceptible to the dangers of diesel pollution because "they breathe 50 percent more air per pound of body weight than do adults."⁴ Because school buses mainly operate near our homes and in our communities which increase exposure to individuals.

¹ <http://evolv-electric.org>

² <http://electricschoolbuscampaign.org>

³ American School Bus Council: Environmental Benefits – Fact: You can Go Green by Riding Yellow. <http://www.americanschoolbuscouncil.org/issues/environmental-benefits>

⁴ United States Environmental Protection Agency, "Diesel Exhaust in the United States" June 2003. <https://nepis.epa.gov/Exe/ZyPDF.cgi/P1001T82.PDF?Dockey=P1001T82.PDF>



We have known the dangers of diesel pollution for decades⁵. 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 shorter 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.

Electric school buses will save school districts money

While there is limited real-world experience with electric school buses, the benefits of electrification have been proven with passenger vehicles and

⁵ NRDC school bus study, No Breathing in the Aisles: Diesel Exhaust Inside School Buses published January 2001. <http://electricschoolbuscampaign.org/wp-content/uploads/2018/03/NRDC-No-Breathing-in-the-Aisles-Diesel-Exhaust-inside-School-Buses.pdf> and Yale University school bus study, Children's Exposure to Diesel Exhaust on School Buses published February 2002. <http://electricschoolbuscampaign.org/wp-content/uploads/2018/03/Childrens-Exposure-to-Diesel-Exhaust-on-School-Buses.pdf>

transit buses. Both Bloomberg New Energy Finance⁶ and USPIRG⁷ have published reports showing that switching transit and school buses to electric, even at the higher cost of entry, will cost less to operate over their expected 15 to 20-year operational life of those vehicles. They predict that an electric school bus is as much as \$6000 cheaper to run each year due to lower cost of electricity vs diesel and lower maintenance. It has been estimated that school buses nationwide use over 822,857,000 gallons of diesel fuel at an annual cost of \$3,184,457,000⁸.

Electric motors are inherently more efficient than combustion engines. More than 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 or be powered by rooftop solar 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 electric 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.

⁶ <http://electricschoolbuscampaign.org/wp-content/uploads/2018/07/Bloomberg-New-Energy-Finance-Electric-Buses-in-Cities-Final-Report-March-29-2018.pdf>

⁷ <http://electricschoolbuscampaign.org/wp-content/uploads/2018/06/US-PIRG-Electric-Bus-Report-May18.pdf>

⁸ American School Bus Council: Environmental Benefits – Fact: You can Go Green by Riding Yellow.
<http://www.americanschoolbuscouncil.org/issues/environmental-benefits>

Why Texas should invest in Electric over Propane School Buses

We disagree with the letters from ROUSH CleanTech⁹ and Blue Bird¹⁰ supporting the use of propane buses as the best use of the VW Settlement funds. Blue Bird says they have over 9,500 propane buses on the road, but that is less than 2% of the market. Every major manufacturer of school buses are or will be offering electric school buses by 2019. In fact, Blue Bird has recently delivered their first order of electric buses to the Bellflower Unified School District¹¹. While propane 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 coming online daily. 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 a propane bus today might seem like a good option but consider that the life expectancy of a school bus can be more than 20 years. This means that any action today must not just consider the short-term gains but the full life of the vehicle.

It will be cheaper and easier to increase refueling stations for electric school buses than propane. Propane refueling stations are not widely available in the United States in general or specifically in Texas. According to the U.S. Dept of Energy there are only 469 propane refueling stations in the United States and about 30 in all of Texas¹². There are already 18,969 electric vehicle charging stations in the U.S. and hundreds of publicly available electric charging stations in Texas¹³. Also, up to 15% of the VW Settlement can be used to increase the available 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.

⁹ ROUSH CleanTech letter, Re: Using Volkswagen Settlement Funds to fund propane-fueled school buses dated June 1, 2017. https://www.tceq.texas.gov/assets/public/implementation/air/terp/VW/VW%20Comments/VW-01-005_Roush_Clean_Tech_Redacted.pdf

¹⁰ Blue Bird letter, Re: Volkswagen Settlement Funds for Propane-Powered Buses dated December 2, 2016. https://www.tceq.texas.gov/assets/public/implementation/air/terp/VW/VW%20Comments/VW-01-004_Blue%20Bird_Redacted.pdf

¹¹ School Bus Fleet News, First Blue Bird Electric School Buses Delivered, dated September 27, 2018. <https://www.schoolbusfleet.com/news/731416/first-blue-bird-electric-school-buses-delivered>

¹² United States Department of Energy Alternative Fuels Data Center map - Propane. https://www.afdc.energy.gov/fuels/propane_locations.html#/find/nearest?fuel=LPG&location=texas

¹³ United States Department of Energy Alternative Fuels Data Center map - Electric. https://www.afdc.energy.gov/fuels/electricity_locations.html#/find/nearest?fuel=ELEC&location=Texas

How the Money Should be Spent

With over \$200 million at your disposal and Texas being the U.S.'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 the 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 make it easier for individuals and companies 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. New York State had a successful voucher program that distributed over \$10 million dollars to update diesel trucks with the latest technology and electrify others¹⁴. California's voucher program has also been very successful and is the reason they have over 150 electric school buses on the road today in various pilot programs¹⁵.

The Commission should allocate the 15% maximum to increasing electric charging stations throughout the state. We recommend that one quarter should be used to help reduce the cost of home charging stations. These are the least costly and is where most people would charge their cars. One quarter of the funds should be used to install charging stations at schools. These chargers can be used for school buses, teachers and the local community. Another quarter should be used to install chargers in large public venues like malls, stadiums and public parks. The last quarter should be used to place chargers along major highways and highly trafficked routes.

The Commission should set aside up to 50% 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 vehicles. Vouchers should be able to reduce the incremental cost of electric school buses compared to a similar diesel school buses. Therefore, if a diesel bus costs \$200,000 and an electric version is \$300,000, then the voucher can cover up

¹⁴ <https://truck-vip.ny.gov/>

¹⁵ <https://www.californiahvip.org/>

to \$100,000 of the initial purchase price. This will allow the funds to purchase a large number of school buses without making it a burden on school districts.

We do not agree with the UPS's comment letter¹⁶ that private entities should get an equal share of the funds as government entities. These funds were granted to the government because of a breach of the public trust by VW and should be used to benefit the public to the largest extent possible. Private entities already make a profit and do not need as much financial help as governmental entities such as schools. Schools do not generate a profit and are severely underfunded throughout the nation. School bus fleets are some of the oldest in the nation because the funds given to schools must be split between paying teachers, provided materials needed for children to learn, school lunches, building maintenance and providing transportation.

We do agree with UPS's argument that organizations that have experience with electric vehicles should be given priority, but they should also be required to share their expertise with governmental organizations and smaller private fleets to help to speed the transition to electric propelled vehicles. Private entities should also be able to negotiate smaller reimbursement on electric vehicles in order to make the most out of the available funds.

Thank you again for allowing the public the opportunity to provide comments during this process and including Evolv-Electric Transportation, Inc. and other stakeholders in the review of this draft plan. We are encouraged and excited to see the next iteration of plan and public engagement around it.

Sincerely,

s/Tevin C. S. Grant, President

Evolv-Electric Transportation, Inc.

¹⁶ UPS's September 6, 2018 comment letter. VW-03-16_UPS.pdf
https://www.tceq.texas.gov/assets/public/implementation/air/terp/VW/VW%20Comments/VW-03-016_UPS.pdf