

May 1, 2018

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Re: SACE Comments on South Carolina Draft Beneficiary Mitigation Plan for Volkswagen Diesel Emission Settlement

Dear Director Farmer, Ms. Buchanan, and Department of Insurance,

Thank you for this opportunity to comment on our state's draft beneficiary mitigation plan as part of the Volkswagen diesel emission settlement. We appreciate your dedication to a transparent process and willingness to incorporate public opinion into the plan.

The Southern Alliance for Clean Energy (SACE) is a regional nonprofit membership organization that promotes responsible energy choices that create global climate change solutions and ensure clean, safe and healthy communities throughout the Southeast. We have worked to reduce the burden of diesel emissions and advocated for clean transportation fuels and vehicle electrification for 15 years throughout the region, including South Carolina, North Carolina, Georgia, Tennessee, and Florida.

Vehicle electrification has emerged as the most economic transportation-sector technology opportunity to reduce harmful vehicle emissions. As such, we recommend that South Carolina prioritize vehicle electrification as the top priority in our beneficiary mitigation plan. Specifically, we have two recommendations:

1. any bus engine-for-engine swap carried out under the mitigation plan should be electric
2. the plan should maximize the allowable 15% for light duty electric vehicle charging equipment

1. Electric engine swaps for buses

Switching buses from a diesel engine to electric is a more cost-effective option on a total cost of ownership basis than any other fuel option available.

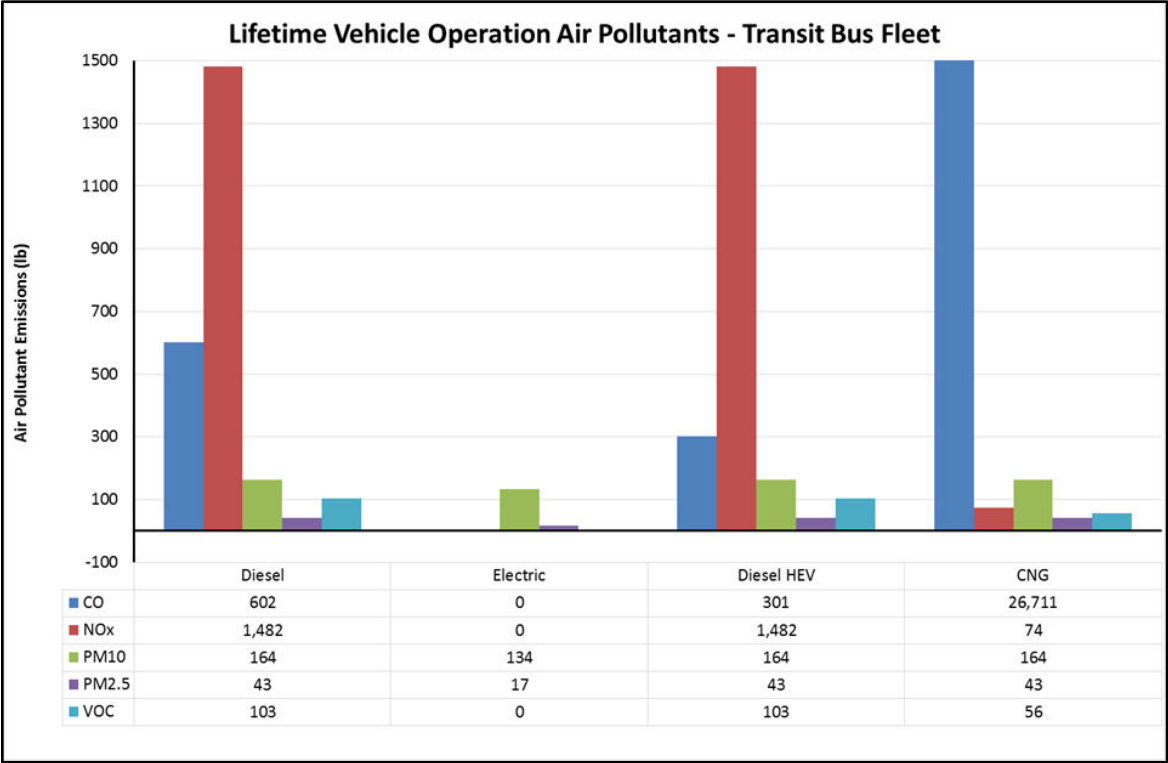
While electric buses have higher upfront prices than diesel, compressed natural gas (CNG), or hybrid buses, the very low operating costs of electric buses make them the most economical option. Currently, a new electric bus costs approximately \$789,000 (for example, a Proterra electric bus). A hybrid bus costs about \$674,000, a CNG bus costs about \$542,000, and a diesel bus costs about \$483,000. Nationwide, per bus annual fuel and maintenance costs are approximately \$55,000 for diesel, \$90,000 for hybrid, and \$72,000 for CNG. By contrast, those costs of electric buses are only \$15,000 a year per bus.

Based on these costs and estimates using the Argonne National Laboratory's AFLEET modeling, the total cost of ownership for an electric bus is 21% lower than a new diesel bus. Maintenance costs for electric buses are also between 70% and 79% lower than for 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 acquired to replace a diesel bus will save the fleet over \$200,000 as compared to a new diesel bus purchase.

Further, the cost premium of electric buses is dropping quickly. As manufacturing scales up, and as battery costs—the most expensive part of an electric vehicle—plummet over time, electric bus prices have and will continue to fall rapidly.

A recent California Air Resources Board (CARB) study shows that every year the price premium for electric buses decreases and, by 2022, they will be at cost parity with and continue to decrease as compared to diesel buses. Therefore, every new bus bought will continue to shift the premium down. Using the VW Environmental Mitigation Trust funds to invest in electric buses now will place additional downward pressure on cost premiums and set the stage for future procurement.

Not only is the lifetime cost lower, electric buses also offer the most cost-effective NOx reductions, as well as the biggest reductions in air pollution and greenhouse gas emissions of available technologies for bus replacement. According to the AFLEET model, there are drastic differences between lifetime emissions of criteria pollutants and greenhouse gases across electric, diesel, and CNG buses (see chart below).



While diesel and CNG buses emit NOx and VOCs, electric buses do not have any tailpipe emissions. While electricity from the grid to charge plug-in vehicles can result in such emissions, electric vehicles are already currently cleaner than any conventional vehicles on the road and will only get cleaner over time as the state

electricity generation shifts to more lower-emitting and non-emitting sources. In addition to South Carolina's efforts to make its grid cleaner, emissions from the grid are also not at street level in densely populated areas, where vehicle exhaust can concentrate.

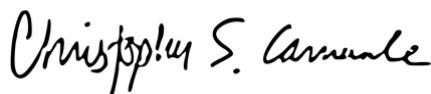
2. Light duty electric vehicle charging equipment

We support the Department's priority to investigate allocating up to 15% of the EMT settlement for light duty vehicle charging equipment. Investing in highly visible electric vehicle charging stations will help build the charging network that will be required for broader deployment of electric vehicles. Publicly accessible and visible charging stations will help improve the experience of electric vehicle drivers by increasing the convenience of charging, and will also help alleviate concerns of range anxiety that prevent car buyers from buying electric in spite of EVs' relative advantages over conventional engines.

Furthermore, deploying electric vehicle charging stations will help build the growing EV economy in South Carolina, where major manufacturers are investing billions of dollars and employing thousands of South Carolinians to bring electric vehicles to market. For example, Volvo is investing \$1 billion into their brand-new Berkeley county plant, creating 4,000 local jobs, where they will make exclusively electric and hybrid vehicles beginning next year. Over the years, BMW has invested \$8 billion in its Spartanburg facility, which now has a battery assembly hall to produce power cells for the X5 hybrids, and currently produces the plug-in hybrid electric X5 xDrive40e iPerformance and will begin producing the all-electric X3 in 2020. Proterra, who employs 200 people at its Greenville facility, has recently captured about 5% of the domestic bus market, and is forecasting a tripling in production this year. Electric vehicles are clearly a growth industry for South Carolina and the deployment of electric charging stations would help grow the EV market locally and provide economic benefits to the state.

Thank you for the opportunity to comment.

Sincerely,



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