Submitted by Electronic Mail

Texas Commission on Environmental Quality
Air Quality Division
PO Box 13087
Austin, TX 78711-3087
Attn: VW Settlement

RE: Comments Regarding the Use and Distribution of Volkswagen Air Emission Reduction Settlement Funds

Dear Texas Commission on Environmental Quality:

Golden Spread Electric Cooperative, Inc. (Golden Spread) respectfully submits these comments addressing the allocation and use of the Volkswagen Mitigation Trust Fund (Trust), specifically to demonstrate the environmental, health, and economic advantages these funds could foster in the Texas Panhandle.

I. Introduction

Golden Spread is a non-profit electric generation and transmission (G&T) cooperative headquartered in Amarillo, Texas. Its corporate purpose is to supply reliable wholesale electric power at the lowest optimal cost to its 16-member, non-profit distribution cooperatives (Members) while complying with all applicable regulatory requirements. Golden Spread’s Members provide service to 290,000 retail electric meters serving their Member-Consumers located over an expansive area, including the South Plains, Edwards Plateau, and Panhandle regions of Texas (covering 24 percent of the state), the Oklahoma Panhandle, and portions of Southwestern Kansas and Southeastern Colorado. Golden Spread supplies wholesale electric power to its Members in both the Electric Reliability Council of Texas (ERCOT) and the Southwest Power Pool (SPP). Golden Spread supports the development and encouragement of Electric Vehicles (EVs) as a cleaner technology over fossil fuel vehicles. This is especially true in Golden Spread’s geographic area full of vast wind and solar generation. As discussed below, Texas Commission on Environmental Quality (TCEQ) should not limit participation to urban counties where EV densities will more likely support EV infrastructure, but should commit a portion of the statewide share of the Trust for use in rural Texas, where the environmental, health, and economic benefits will prove to surpass expectations relative to a program funding urban areas only.
II. Golden Spread’s Comments on Texas’ Beneficiary Mitigation Plan

A. Utilize a Portion of the 15% Allowed Toward Mitigation Action 9 to Support EV Infrastructure in Rural West Texas

While there is much focus on EVs that are used to commute to a workplace and return home nearly every evening to charge, a major barrier to EV adoption is the difficulty in taking an EV on extended multi-day trips due to the relatively sparse distribution of charging stations across the vast land mass of North America. This adds to “range anxiety,” which is the fear that one will run out of battery charge in between these sites. In fact, taking an EV across the country is more akin to flying an airplane from airport to airport than it is a road trip. This issue is particularly evident in Golden Spread’s service territory (see Figure 1), where charging stations are sparse. For this reason, Golden Spread supports fully utilizing the entire 15% allowed toward Mitigation Action 9 and recommends that a portion of the funds be used to support EV infrastructure in the Texas Panhandle.

The density of urban populations, the shorter commutes, and urban mandates for clean air will result in large urban markets to support the development of EV charging stations as EV purchases increase within their city limits. The rural areas of Texas, however, will need support beyond natural EV market forces and thus could benefit greatly from Mitigation Action 9. The proliferation of these chargers throughout rural Texas would reduce regional NOx emissions through increased EV adoption which would result from 1) easing range anxiety of electric travelers; and 2) encouraging local drivers to consider EVs as their next light duty vehicle. EV charging stations would economically benefit rural West Texas by helping guide the decision of EV drivers to travel along Texas’ reliable, electric highways while decreasing rates through increased load. As discussed further in Section D below, EVs would provide environmental, health and economic benefits as well as assist in easing local transmission congestion.
B. Utilize Mitigation Action 2 for Electric School Bus Opportunities in Rural West Texas

Golden Spread encourages and supports the use of Mitigation Action 2 as a pathway to rural electrification of school buses for three main reasons. First, children in rural America commute longer distances\(^2\) and thus may be disproportionally exposed to NOx emissions from diesel school buses. As studies in California and Connecticut show, children’s exposure to harmful diesel emissions, which include NOx and potentially carcinogenic particulate matter, may be higher inside a bus cabin than it is standing outside next to the bus. In some cases, particulate concentrations on school buses were 5-15 times higher than background concentrations.\(^3\) It should be noted that there is no known “safe” exposure limit to diesel exhaust.\(^4\) Under this funding opportunity, rural school districts could work to replace aging diesel vehicles with electric ones, thus reducing students’ diesel emission exposure to zero.

Second, electric vehicles in general have far fewer operation and maintenance costs than a comparable internal combustion model. According to Tesloop, an L.A.-based “city to city mobility service that utilizes Tesla vehicles,” their first car, a Tesla model S, has reached 300,000 miles. During this time,

---


\(^2\) 85% of rural elementary school students have bus rides of 30 minutes or longer, and 25% have a commute of longer than an hour. See Howley, Craig. The Rural School Bus Ride in Five States: A Report to the Rural School and Community Trust August 20, 2001: available at http://oak.cats.ohiou.edu/~howleyc/howleyc.htm


\(^4\) Id
"The total combined maintenance and fuel costs of the Tesla Model S were $10,492, with a total of 12 days in the ship. Of these costs, $6,900 was scheduled maintenance and $3,500 was headlight damage due to driving through deep water. Had this been a Mercedes S class, the scheduled routine maintenance and fuel would have been $86,000 ($52,000 maintenance and $36,000 fuel) with 112 days of servicing, or for a Lincoln Town Car [$70,000] ($28,000 maintenance and $42,000 fuel) with around 100 days of servicing."\(^5\)

Electric buses can save schools in rural West Texas money in fuel and maintenance expenses, as efficient electric motors can offer a higher fuel economy than diesel school buses, thus making them less expensive to operate.\(^6\) This in turn benefits all citizens in the communities in which the electric buses serve, especially by offering low-cost transportation opportunities to rural school districts. However, operating cost savings do not cover the high capital cost of the bus.\(^7\) As a result, access to external funding, such as the Trust, is essential to advance this technology.

Third, use of the electric buses would provide an opportunity to advance the market through education and advocacy opportunities. We know from previous experience with alternative vehicle technology development that the best way for citizens to understand alternative vehicle technologies is to experience them. Both electric transit and electric school buses provide this opportunity, which like the buildout and support of infrastructure development, provides second- and third-order benefits that extend beyond direct funding.

C. Utilize Mitigation Action Items 1, 6, and 8 to Electrify Fleet Vehicles

For the same reasons discussed above in Section B, Golden Spread asks TCEQ to allocate funds toward Mitigation Actions 1, 6, and 8, and afford rural West Texas the opportunity to apply for them. Much like the school buses in Mitigation Action 2, these actions would incentivize and make economical the replacement of older diesel municipal fleet vehicles with electric powertrains. The gradual electrification of rural fleets would reduce NOx emissions, keep our workers safe from harmful pollutants, and provide economic benefit by decreasing rates to ratepayers and decreasing localized transmission congestion when the fleets are charging at night (see Section D for more detail). Rural West Texas municipalities could become the standard for green electrification as they minimize their emission footprint and maximize the integration of renewable energy into the grid.

D. The Trust can bolster the Environmental, Health and Economic Benefits of an Electrified Rural Texas

Rural West Texas enjoys some of the highest potentials for utilizing renewable energy generation in the United States. As of 2017, Texas has 21,450 MW of installed wind capacity and 1,220 MW of installed solar capacity.\(^8\) In the SPP footprint covering most of rural West Texas, renewables (baseload wind and peaking solar) make up 23.5% of the total generation mix, with wind being the

---

\(^5\) Tesloop. “Tesla Model S Hits 300,000 Miles with less than $11,000 Maintenance Costs:” August 30, 2017. Available at http://www.tesloop.com/blog/2017/8/30/tesla-model-s-hits-300k-miles-with-less-than-11k-maintenance-costs


\(^7\) Id, p 1.

dominant (99%) renewable resource (See Figure 2). What is not supplied by an abundance of wind and solar power is provided by roughly 25% natural gas (both peaking and baseload) and 60% of coal (baseload). Wind capacity is expected to grow annually by 10% to 20%, provided the United States Production Tax Credit (2.3 c/kwh tax benefit for first 10 years that the wind is generating) is extended, and similar for solar. The wind (and solar) growth rates for rural West Texas are much higher, because it is a very high wind zone in the continental US (see Figure 3). By 2030, the DOE Wind Vision Scenario projects Texas wind could produce enough energy to power 15.4 million homes. We ask TCEQ to support investing funds in rural Texas, thus leveraging the renewable power infrastructure to maximize the environmental return on supporting EVs, and not simply look at population density.
In addition to the overall potential for emission reduction and environmental benefits, it is also a great deal cheaper to electrify the wind-rich regions of Texas (see Figure 4). Under this plan, the majority of electric vehicles (light-duty vehicles, school buses and fleet vehicles) would charge at night, when wind speeds are generally highest yet demand is at its lowest. This often results in a “negative pricing” scenario, in which wind farms are generating more energy than is either required or desired. Another way to look at it is energy is so plentiful and undesirable that it is effectively “dumped” onto the grid and other market players (i.e. load) are paid to take it. This trend is not expected to decrease, but only increase. Thus, wholesale energy prices are lowest during these times, and what is known as a “time-of-use” or TOU pricing strategy would be most beneficial for EV customers. Additionally, as electrified fleets charge at night, the energy congestion caused by this “negative pricing” could be relieved by the additional load, thus reducing both wholesale and retail energy prices.

---

13 “United States – Land-Based and Offshore Annual Average Wind Speed at 100m.” AWS Truepower, 2013. Available at https://www.nrel.gov/gis/images/100m_wind/awstwspd100onoff3-1.jpg
14 “With the prolific growth of wind generation in the SPP market, the frequency of intervals experiencing negative prices continues to increase. On an annual basis, the total percentage of negative price intervals the real-time market has increased from 2.6 percent in 2015, to 3.5 percent in 2016, and to 7.0 percent in 2017 (through November).” See SPP Marketing Monitoring Unit, “State of the Market Fall 2017,” January 22, 2018. Available at https://www.spp.org/documents/56353/spp_mmu_quarterly_fall_2017_v2.pdf.
Both real-time and day-ahead prices are shown in this price “heat map,” which demonstrates the low cost of energy ($/MWh) in the Texas Panhandle.

E. Historically there is Limited Access to Beneficial Electrification Funding in Rural West Texas

As it stands now, rural Texas has not had the statewide funding programs designed to encourage electrification in order to reduce emission rates. With the exception of the Texas Clean School Bus Program—a program designed to retrofit school busses with low-emission technology and not necessarily for fleet electrification—most of the programs under the Texas Emissions Reduction Plan (TERP) have been restricted to applicants in urban counties. While it is understandable that those counties struggling to meet National Ambient Air Quality Standards (NAAQS) would receive a majority of these funds, rural Texas was virtually excluded from participation. If left open for statewide participation, however, the Trust could provide needed assistance toward modernizing and electrifying the heretofore-overlooked aging vehicle fleets (buses, medium- and heavy-duty municipal vehicles) in rural West Texas. Electrifying the vast areas of Texas to support EV will do more for EV penetration than adding redundant charging stations in urban settings. As stated above, the detrimental effects of acute NOx exposure, particularly to those more vulnerable (for example, the elderly, children, and those with compromised respiratory systems), is not only a widespread urban problem. Everyone from fleet operators to kids lined up next to a school bus would benefit from the reduction of NOx emissions from combustion engines. With access to the Trust, rural Texans could finally electrify their municipal fleets and school district busses, thus reducing the health effects of NOx exposure.
III. Conclusion

There is a great deal of focus on emissions reductions in the urban areas of our State. With the electrification of urban areas, emission reductions will follow as light duty, municipal fleet vehicles, and school buses convert to electric powertrains. The natural proliferation of EVs and the associated infrastructure is not likely to move out to the rural areas of the State without support and incentives to overcome the economic hurdles associated with low consumer densities. The environmental, health, and economic benefits of electrifying rural Texas far outweigh its population density, but that potential is in danger of languishing in the High Plains of West Texas without additional help from the Trust. Increased infrastructure, such as charging stations, will reduce “range anxiety” for long-distance EV drivers, thus guiding them through this part of the country with a capable “electric highway.” With an abundance of wind energy—much of which is curtailed during the evening hours when most fleet and local EVs would be charging—the emission rate per kWh is extremely low, and if the trend continues as predicted, will continue to drop. In addition, the increased load will help reduce localized transmission congestion during high production/low demand scenarios, which in turn could lower retail rates across service areas and integrate greater amounts of renewable energy into the grid that would have otherwise more or less been wasted. School buses and other fleet vehicles are a major focus for a rural electrification initiative. Rural school children have longer commute times are exposed to harmful diesel emissions for extended periods of time. With the help of the Trust, these buses could be replaced with zero emission electric buses, thus eliminating exposure to harmful NOx and volatile organic compounds. Currently, it is more economic to simply replace these vehicles with internal combustion models, as the capital cost of EVs is too high to justify. While there have been other grant opportunities to encourage electrification under the TERP, they have largely been restricted to certain counties where air quality and pollution are worst. If rural entities were allowed to take advantage of the Trust, however, the economics of electrified vehicles could become justifiable, and rural Texas could serve as an example of the many benefits to electrification and charging infrastructure.

Thank you for the opportunity to comment on this matter. Please feel free to contact me with any questions at 806-349-5205 or rvalle@gsec.coop.

Sincerely,

Ruth Valle
Environmental Policy Manager & Regulatory/Legislative Specialist
Golden Spread Electric Cooperative, Inc.