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Commissioner Jon Niermann
Texas Commission on Environmental Quality
Air Quality Division
Implementation Grants Section, MC-204
P.O. Box 13087
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April 25, 2018

RE: Comments on Texas's Volkswagen Settlement Beneficiary Mitigation Plan

ChargePoint is pleased to provide written comments to the State of Texas regarding the best use of funds stemming from the VW settlement and the State's allocation from the Environmental Mitigation Trust. The Trust funds provide a significant opportunity for the State to mitigate the environmental harm VW diesel vehicles caused, as well as advance key transportation segments that produce long-term benefits to the State and its communities.

In summary, ChargePoint recommends that Texas prioritize investment of Environmental Mitigation Trust funds into projects utilizing electricity as a fuel and that utilize a standard connector. We strongly recommend that Texas commit the maximum allowable 15% of its Trust allocation towards smart, light-duty electric vehicle (EV) charging infrastructure. We believe that this investment in transportation electrification significantly contributes to the NO_x mitigation goals of the Environmental Mitigation Trust, and NO_x reductions from charging sessions are easily and empirically calculable. Moreover, funding for EV infrastructure is needed to meet the demands of today's 25,000 EV drivers in Texas, let alone support the exponential growth of EVs forecast for the years to come. In a state that currently has just 2,400 public charging ports, this small portion of the investment could lead to thousands of charging stations deployed in communities across Texas, potentially more than doubling the number of ports available in the State.

ChargePoint is the world's leading electric vehicle (EV) charging network, with charging solutions for every charging need and all the places EV drivers go: at home, work, around town and on the road. With more than 47,800 independently-owned charging spots and thousands of customers nationwide, ChargePoint drivers have completed more than 36 million charging sessions, all powered by the local grid, and more than 834 million miles have been driven on charges from our network. In addition, there are currently more than 1180 public ChargePoint charging spots in the State of Texas.

Bottom-line reasons to commit to 15% for charging infrastructure in Texas

1. 15% for charging infrastructure would deploy thousands of charging stations across Texas.
 - Charging infrastructure is the most cost-efficient category for investment under the trust.
 - EV charging stations can be deployed flexibly, with deployments easily tailored to State priorities and leveraging strong private sector demand.
 - Smart charging can give the State real-time insights into EV charging and transportation trends.

- Within months hundreds of charging stations would be installed and fully operational, update constantly over air.
2. 15% for charging infrastructure would provide a measurable and significant annual NOx mitigation.
 - EV charging is the only category that offers real-time NOx mitigation measures.
 - Captures data on kilowatt-hours consumed, which can be easily converted to electric miles driven.
 - Charging infrastructure is the only eligible mitigation action that will increase NOx mitigation over time with greater EV adoption and a cleaner electric grid.
 3. 15% for charging infrastructure will make Texas a leader in advanced transportation technologies.
 - 23 States have already determined EVSE as part of their draft or final beneficiary mitigation plans.
 - Current infrastructure is not adequate to meet the needs of today's EV drivers and prepare for future projected growth.
 - States are currently competing for preparedness in electrification, and Trust funds provide a unique opportunity Texas to lead and become a target for investment.
 4. 15% for charging infrastructure is part of a resilient transportation sector.
 - Charging is powered by the grid and keeps transportation fuel local.
 - Transportation fuel diversity mitigates risks for Texas and its drivers.
 - Infrastructure is currently needed along evacuation routes, in order to address range security at a time of emergency.

Demand for electric vehicles is surging in Texas

In prioritizing electric drive in its Beneficiary Mitigation Plan, including 15% for EV charging, Texas could become a national leader and major target for private investment in transportation electrification. The shift to electrified transportation is already underway, and Texas should meet the demands of today's driver and prepare for future growth.

Globally, major automakers have made several high-profile announcements to introduce dozens of electric vehicle models. More choices for consumers will mean greater adoption of electric vehicles that will only accelerate in the coming years. Behind this trend is a steep decline in battery prices for vehicles, which according to some reports could drop as much as 70% by 2030. Battery optimization will lower electric vehicle costs overall, which forecasts show will lead to EVs accounting for 54% of new car sales by 2040.¹

Increased electric vehicle adoption is already playing out in Texas's market. There are over 25,000 EVs registered in the State, and year-over-year growth is 34%.² Forecasts for Texas indicate that the rate of

¹ Bloomberg New Energy Finance. "Electric Vehicle Outlook 2017." July 2017.

² IHS/Polk 2017.

adoption will increase 6-fold between now and 2026.³ Still, even with healthy growth rates in recent years, EVs represent only .05% of all vehicles in Texas.

There are many reasons for the State of Texas to commit to advancing electric vehicle adoption:

- EVs are powered by the local grid and fueled by local energy, making a more reliable and secure transportation system.
- EVs require less maintenance, saving customers an estimated \$13,000 over the life of the vehicle.
- EVs have zero tail-pipe emissions, and can reduce annual mobile source emissions from conventional vehicles by more than half.

Many communities in the State are already adopting electric bus models, and as more electric truck and forklift models become available over the 10-year investment horizon of the Trust, greater adoption is expected in those categories as well. Dallas Area Rapid Transit recently moved forward with a purchase of a small fleet of electric buses. Other municipalities in Texas are exploring a similar procurement, recognizing the benefits of moving public transportation to electric models. For example, electric buses get the equivalent of 21 miles per gallon (MPG), compared to 4 MPG in conventionally-fueled buses. Every mile driven in an electric bus will save taxpayers about 60-70% of what they would have paid with a diesel engine, per mile.

More charging Infrastructure is needed, and VW Trust funds present a key opportunity

To meet the needs of today's electric vehicle drivers more charging infrastructure is needed. There are currently 2,400 public charging stations in Texas.⁴ Studies show that by 2030, the State will need more than 32,000 public, non-residential charging stations.⁵

There is currently not enough fast charging along the corridors to allow Texas drivers to travel to-and-from the Dallas-Fort Worth-San Antonio-Houston triangle cities, enabling refueling in a matter of minutes. Similarly, Level 2 chargers, which are best for destinations with longer dwell times, are not widely available at many workplaces, retail establishments, and multi-unit dwellings around the State. Most critically, not enough charging infrastructure is available along evacuation routes, leaving EV drivers vulnerable in times of emergency. A strategic deployment of charging stations across the State of Texas is required to meet and sustain EV growth long term and ensure the safety of drivers.

Nationally, the market for EV charging has expanded rapidly with the exponential growth of electric vehicles, and there are over 46,000 public charging ports. There are also thousands of private, or limited-access charging stations around the country, at workplaces, retail establishments, and fleet operations. In our business model, site hosts invest in, own, and operate charging infrastructure on their properties. There are many reasons why site hosts make the decision to invest in smart charging infrastructure, but a principle reason is that infrastructure brings EV drivers onsite. For a retail establishment, attracting more drivers could mean increased revenue in a store, as EV drivers charge while shopping. For a workplace, employers offer charging as an amenity to their EV driver employees, so that they may charge while at work. In any case, the demand for EV charging services is inherently connected to join the growing

³ Navigant 2017.

⁴ Alternative Fuels Data Center. U.S. Department of Energy. www.afdc.energy.gov. January 2018.

⁵ National Renewable Energy Laboratory. "National Plug-In Electric Vehicle Infrastructure Analysis." September 2017. <https://www.nrel.gov/docs/fy17osti/69031.pdf>

population of EV drivers in Texas. Moreover, more EV infrastructure, both Level 2 and DC fast charging, is required to meet the demands of today's drivers and set the foundation for tomorrow's drivers. The Environmental Mitigation Trust funds can work towards satisfying both of those demands.

EV charging station site hosts are directly involved in the operation of the charging stations. As the number of EVs in Texas increase, the hosts will be in the best position to determine the cost effectiveness of the stations for their own parking lots. As utilization increases, hosts may be motivated to invest in additional charging stations. A one-time investment of Environmental Mitigation Trust funds will seed the market and promote future infrastructure investment and expansion by the private sector.

Committing Environmental Mitigation Trust funds to electric vehicle charging deployments will lead to the fastest and most efficient use of those funds. A number of charging station providers already operate in Texas in a highly competitive market, and establishing a funding program can leverage the existing market's activities. While some eligible categories may require months or years of project and selection diligence, the EV charging market is already setup to fully deploy within a prequalified grant program structure in a matter of months.

Under the terms of the Environmental Mitigation Trust, funds used for electric buses and medium-duty transit vehicles may cover the cost of the vehicle and associated charging infrastructure. ChargePoint notes that some electric buses and trucks have the ability to charge on standard DC fast charging stations, which may also be used for light-duty vehicles. Investing in those models and associated infrastructure will allow public light-duty fast charging stations to be leveraged for bus charging and other fleet needs. Possible bus electrification programs could support regional, municipal, and school bus fleets.

Designing the right EV charging program for Texas under the Trust

Light-duty electric vehicle infrastructure funding programs can be flexible in how they are distributed, whether they are solely responsive to the demand from the market and site hosts, targeted to specific use cases and geographically-based allocations, or a hybrid of factors for distribution.

Light-duty electric vehicle charging infrastructure projects can align with the State's goals for the EV charging sector and complement existing infrastructure. Existing deployments in Texas have focused around key municipalities and areas of higher density, but there are gaps to address in order to promote broader EV adoption in all communities. TCEQ should determine that a funding program be designed to target areas that will drive the greatest near- and long-term utilization of charging assets. Focusing on utilization will significantly contribute to the success of the State's deployment. Additionally, the program can be structured to concentrate on local emissions reductions and prioritize specific non-attainment zones.

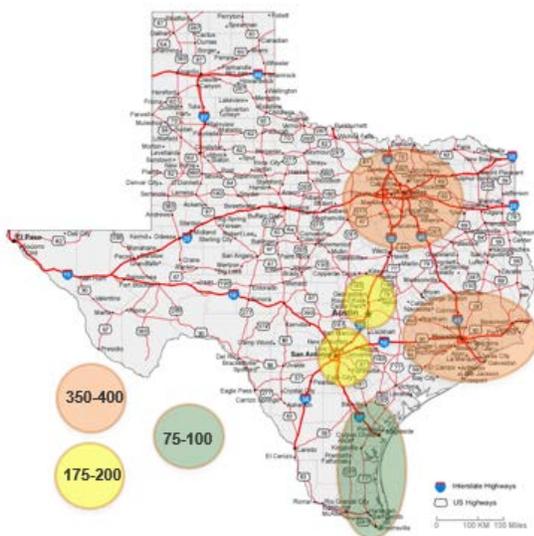
In general, ChargePoint recommends that TCEQ focus on Level 2 charging stations for municipalities and local points of interest, where people may dwell for longer periods of time. For DC fast charging stations, we suggest targeted sites at regular intervals along the major corridors, specifically those that are designated as FHWA Alternative Fuels Corridors under the FAST Act, notably I-35, I-45, and I-10. We can also assess traffic patterns to determine the right corridors for development.

ChargePoint supports flexible incentive programs, designed to accommodate a range of project sizes and types of EVSE. For smaller EVSE installations, we recommend rebate programs. Rebate programs are effective in expediting charging station deployments and attracting a wide variety of site hosts. Rebate programs can be targeted to specific areas such as county, zip code, or city. Eligible regions or areas can be prioritized by NO_x emissions estimates, socioeconomic factors, traffic flows, and other factors. Rebate programs are typically first-come, first-served and support expedited deployment with low administrative effort.

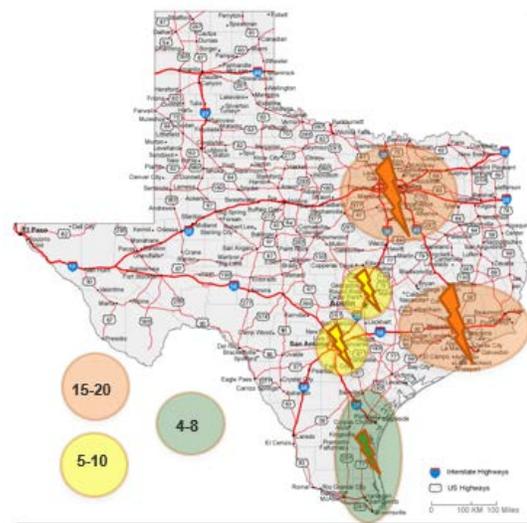
Large deployments should be evaluated on a case-by-case basis. Detailed evaluation criteria should be included in a competitive solicitation. For example, competitive solicitations for DC fast charging projects can target specific corridors or areas. We believe these program designs will allow the competitive market for charging infrastructure to drive demand from eligible site hosts, while remaining responsive to the State's priorities for Trust funding.

Analysis shows where charging stations are most needed and can be located

ChargePoint has completed an extensive analysis of potential sites for EV charging throughout the State. The analysis takes into account a range of factors that drive EV adoption and State prioritization of funds: population density, existing infrastructure, evacuation routes, existing Federal and State clean transportation zones and corridors, and traffic patterns. We also use a statewide network model as a proxy, in which the State issues a competitive Request for Proposal (RFP) to vendors to build out in certain zones. Based on this preliminary analysis, ChargePoint identifies the following distributions for both DC fast charger (DCFC) and Level 2 charging station deployments in a combined program.



Map 1: Level 2 Deployments under competitive RFP for EVSE. Numbers in zones represent potential total ports in each zone.



Map 2: DCFC Deployments under competitive RFP for EVSE. Numbers in zones represent potential total sites in each zone, with multiple charging stations in each.

Map 1 shows the results of the preliminary analysis for Level 2, and overall, a program providing 80% of total project funds for Level 2 would result in approximately 1,400 ports. Those ports would primarily be East of the I-35 corridor. There are other deployments outside of the zones shown, and the map is designed to show areas of high concentration.

Similarly, Map 2 shows the distribution of DCFC throughout Texas under a Beneficiary Mitigation Plan with 15% for light-duty EV charging infrastructure. We anticipate 55-60 locations for DCFC with at least two stations each. Given this distribution, we believe that investment in these concentrated zones would significantly ease travel for EV drivers, decrease range anxiety, address availability along evacuation routes, increase EV adoption, and future-proof these corridors for continued growth.

Importantly, the projected deployment figures in this analysis reflect a statewide RFP-based investment model. In ChargePoint’s experience a more open, first-come, first-serve rebate could deploy hundreds, if not thousands more charging spots across Texas. The models differ in the amount of match funding provided, especially as applied to the Level 2 segment. TCEQ may decide to do a mix of different funding models to address different parts of the market – this program flexibility is an asset that only this eligible mitigation category can provide.

A vast majority of states that have released beneficiary mitigation plan details include 15% for charging

States with EVSE in Mitigation Plans -chargepoint+



*As of April 25, 2018

Conclusion

Thank you for your consideration of ChargePoint's comments. ChargePoint looks forward to being a resource to TCEQ as it charts a course for Environmental Mitigation Trust funds to meet the needs of Texas's communities.

Sincerely,



David Schatz
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ChargePoint

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