



Chairman Bryan Shaw, Ph.D., PE, Mail Code 100
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, TX 78711-3087

October 5, 2017

Dear Chairman Shaw:

Texas Advanced Energy Business Alliance (TAEBA) is pleased to submit recommendations to inform the development of Texas's Beneficiary Mitigation Plan under the Volkswagen (VW) settlement. Funding available through the VW Mitigation Trust presents a rare opportunity for Texas to make new investments in transportation infrastructure and equipment that can unlock a range of benefits, including cost savings for vehicle and fleet owners, increased competition in the transportation sector, economic and employment growth, grid and electricity market benefits, and significant reductions in air pollution.

The potential impact of this funding is even greater because it has come at a pivotal time when advanced vehicle models such as electric, hybrid-electric, and hydrogen fuel cell vehicles have reached technological maturity but have not yet achieved widespread deployment. Several challenges preventing adoption—including fueling and infrastructure needs, range anxiety, and consumer awareness—can be addressed through careful deployment of funding under the VW Mitigation Trust, in coordination with other state and federal efforts.

In developing a Beneficiary Mitigation Plan, Texas faces key choices that will mark the difference between simply achieving emission reductions, or doing so while also laying the groundwork for a transformative shift in the transportation landscape that can produce much deeper reductions in emissions over time while delivering other societal benefits. TAEBA's comments provide recommendations for Texas to make best use of the Mitigation Trust to achieve not only direct, immediate emission reductions, but also lasting and indirect benefits.

As an association of business leaders who are making the global energy system more secure, clean, reliable and affordable, TAEBA supports a transition to a 21st century transportation system. In the advanced transportation sector, our membership includes manufacturers, charging infrastructure providers, grid integration solution firms, and companies providing supporting technologies and software services.

As Texas develops its Beneficiary Mitigation Plan, please consider TAEBA as a resource for recommendations and information on both technology and policy issues. TAEBA and its members look forward to helping Texas in its transition to a 21st century transportation system.

Sincerely,

A handwritten signature in black ink, appearing to read "Suzanne L. Bertin".

Suzanne L. Bertin
Executive Director

Texas Advanced Energy Business Alliance

Email: [REDACTED] | Phone: 512.739.4678

cc: Commissioner Toby Baker
Commissioner John Niermann
Mr. Richard A. Hyde, P.E., TCEQ Executive Director

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Texas Commission on Environmental Quality
Commissioners' Offices

Texas Advanced Energy Business Alliance Comments

Texas Beneficiary Mitigation Plan

In re: Volkswagen "Clean Diesel" Marketing, Sales Practices, and Products Liability Litigation, No. 3:15-md-02672-CRB (N.D. Cal.) (MDL 2672)

Introduction

TAEBA's Perspective on the Beneficiary Mitigation Trust

Innovations in the transportation sector over the past decades have resulted in a wide range of advanced vehicle options, including plug-in electric, hybrid-electric, hydrogen fuel-cell electric, natural gas, and propane-fueled vehicles. These options are market-ready, in some cases widely deployed, and increasingly cost-competitive. Properly managed deployment of these advanced vehicles can deliver multiple benefits, including cost savings for vehicle and fleet owners, increased competition in the transportation sector, economic and employment growth, reduced costs for ratepayers and improvements in the electric grid, and reductions in air pollution.

Insufficient fueling infrastructure, range anxiety, higher upfront vehicle costs, slow fleet turnover, lack of model availability, regulatory hurdles, and lack of consumer awareness are all slowing the transition to an advanced vehicle future. Given the readiness of advanced vehicle and fueling technology, one of the most effective means to facilitate a transition to an advanced vehicle future is to increase funding for deployment of vehicles and infrastructure. These investments can create a virtuous cycle, with rising deployment of vehicles and infrastructure leading to economies of scale that drive down prices so that deployment continues to rise.

As such, the Volkswagen "Clean Diesel" settlement presents a rare opportunity at an opportune time (albeit one that has come at a significant environmental price). Through careful investment of the Mitigation Trust, Texas can fund projects that not only reduce emissions but also increase consumer awareness and confidence, help close crucial fueling infrastructure gaps to address range anxiety, support or incent improvements in grid integration of electric vehicles, and help bring advanced vehicles down the technology learning curve, leading to improvements in cost and performance. By making progress on these challenges, Texas can ultimately unlock opportunities for emission reductions in the transportation sector far beyond the immediate reach of the Mitigation Trust, leveraging limited funds for maximum impact.

In deciding how to allocate funds and prioritize projects under the Mitigation Trust, Texas faces key choices that will mark the difference between simply achieving emission reductions, or doing so while also laying the groundwork for a transformative shift in the transportation landscape that can produce much deeper reductions in emissions along with a number of other societal benefits. Texas Advanced Energy Business Alliance (TAEBA) is pleased to submit comments in support of a Mitigation Trust Plan that will put Texas on a path to a 21st century transportation system.



About Texas Advanced Energy Business Alliance

TAEBA is an association of business leaders who are making the global energy system more secure, clean, and affordable. Advanced energy encompasses a broad range of products and services that constitute the best available technologies for meeting energy needs today and tomorrow. Among these are energy efficiency, demand response, energy storage, natural gas electric generation, solar, wind, hydro, nuclear, advanced vehicles, biofuels, and smart grid—innovations that make the energy we use more secure, clean, reliable and affordable. In the advanced transportation sector, our membership includes manufacturers, charging infrastructure providers, grid integration solution firms, and companies providing supporting technologies and software services.

Comments

Principles to Guide Mitigation Trust Plan Development

TAEBA's comments focus on opportunities for Texas to leverage the significant yet finite funding available through the VW Mitigation Trust to catalyze lasting, transformative change. With this goal in mind, our comments are guided by three important principles. Specifically, in its Beneficiary Mitigation Plan, TAEBA recommends that the Texas Commission on Environmental Quality (TCEQ or Commission):

- **Focus on the big picture** by adopting an integrated and long-term view of the transportation landscape and its emissions profile and avoiding a narrow focus on the near-term cost-effectiveness of emission reductions;
- **Consider a range of goals and project benefits** by accounting for both direct and indirect emission reduction impacts and by looking for opportunities to overcome both price and non-price barriers to the level of advanced vehicle adoption that will transform transportation; and
- **Encourage innovative solutions** that stretch the impact of Mitigation Trust funding by engaging utilities, government agencies, industry representatives, and other key stakeholders, and by exploring opportunities to integrate Mitigation Trust projects with other incentives, programs, and projects.

By following these guiding principles and the recommendations that follow from them, Texas will not only achieve emission reductions in the near-term, but will also accelerate the broader transformation of the transportation sector, driving much deeper emission reductions over the medium- and long-term.

Goals for the Use of the Funds Should Reflect the Full Suite of Potential Benefits

TAEBA urges TCEQ to consider an expansive list of goals and priorities under the Mitigation Trust Plan. Specifically, the Commission should give significant weight to benefits that will contribute to energy, environmental, and economic development goals. These goals and benefits include diversifying the state's transportation sector and fuel mix, accelerating cost declines in advanced vehicle and fueling technology by expanding deployment, reducing co-pollutants beyond NO_x, building infrastructure that will accelerate voluntary adoption of advanced vehicles, increasing consumer awareness of advanced vehicles, growing the state's advanced transportation industry, and improving the electric grid through electric vehicle adoption.

When setting parameters for project selection, TAEBA further urges TCEQ to focus on these and other energy and economic development goals rather than placing a primary focus on direct and near-term



emission reductions. TAEBA supports prioritization of cost-effective projects, but assessing cost-effectiveness on the basis of near term and direct emission reductions achieved would put Texas at risk of overlooking more transformational opportunities. Some projects with a higher upfront cost or a smaller near-term or direct emission reduction impact, such as investment in fueling or charging infrastructure, will ultimately enable much larger emission reductions along with other benefits. By adopting a more inclusive set of parameters for project assessment, Texas can achieve (a) near-term and direct emission reductions by replacing diesel vehicles with lower- or zero-emission vehicles; (b) long-term and indirect emission reductions by accelerating a transformation of the transportation sector and enabling future voluntary emission reductions; and (c) non-emission benefits such as electric grid improvements and reduced fleet maintenance and operations costs.

A plan that achieves emission reductions while failing to support and incent projects that move the state toward an advanced transportation future will have missed a rare opportunity—even more so because this opportunity comes at a crucial time when advanced transportation technologies are ready for widespread deployment, but face significant institutional barriers. The Mitigation Trust Plan should instead focus on projects, such as targeted infrastructure buildout, that address current barriers to advanced vehicle adoption, resulting not only in near-term emission reductions but also long-term emission reductions and other benefits that may dwarf the potential impact of the near-term emission reductions.

Eligible Mitigation Actions Should be Prioritized on the Basis of Need and Opportunity

TAEBA does not have a prescriptive recommendation with regard to the breakdown of funding that should be allocated to each of the Eligible Mitigation Actions, but rather encourages an assessment based on the principles and goals described above. Specifically, Texas should first consider its current transportation landscape, then target investment in Eligible Mitigation Actions that will fill crucial gaps or address key barriers to transportation sector transformation, reducing emissions in the near-term while also unlocking additional emission reductions and other energy and economic benefits in the future.

TAEBA also encourages TCEQ to take advantage of the potential to secure additional funding through the Diesel Emission Reduction Act (DERA) by using funds from the Mitigation Trust as its non-federal voluntary match. However, TAEBA encourages TCEQ to ensure that Mitigation Trust funds applied to DERA projects will be used to stretch and extend the state's anticipated investment in mobile source emission reductions, rather than to free up funds for other purposes.

TCEQ Should Allocate the Maximum Allowable Funds to Light-duty Zero Emission Vehicle Supply Equipment

Increasing electric, hybrid-electric, and hydrogen-electric vehicle adoption through the Mitigation Trust will help address several challenges that currently hamper deployment; namely, a lack of charging infrastructure (which addresses range anxiety), upfront cost premiums (which will continue to fall as deployment ramps up), and consumer awareness. By addressing these challenges through the Mitigation Trust in parallel with other efforts, such as the programs under the Texas Emissions Reduction Plan (TERP), Texas will unlock additional opportunities for voluntary adoption of electric vehicles and the associated further reductions in emissions.



TAEBA therefore encourages Texas to request the maximum Mitigation Trust funding available for light-duty zero emission vehicle supply equipment (EVSE), which is set at 15% of a state's total funds. To get the most benefit from this limited investment, TCEQ should carefully prioritize projects.

With regard to charging stations, TAEBA encourages TCEQ to make investments in new and existing public charging stations that will be accessible all day, every day, and will meet current and future needs by requiring that they:

- Support multiple types of charging standards, including fast charging (CHAdeMO and SAE Combo at a minimum) as well as AC Level 2 charging (SAE J1772 compliant) for vehicles that are not compatible with fast charging;
- Use open standards for communication between the charge points and the central system such as those of the Open Charge Point Protocol (OCPP) so that any charge point installed can connect with any central system;
- Include universal or open standard payment systems to assure consumers that they will be able to pay for charging at any public charging station;
- Allow for third-party access to charging data to improve service and increase customer offerings;
- For fast charging equipment, ensure they are 50 kW minimum and 150 kW ready;
- Ensure charging points are set up so that they enable the potential addition of more charge points at a later date; and
- Encourage the use of chargers with smart metering capability such that the electric vehicles can serve as effective grid assets while lowering rates for consumers.

To maximize the impact of the limited funds available for investment in EVSE, when prioritizing spending on vehicle charging stations and equipment, TAEBA encourages TCEQ to:

- Identify and focus on filling gaps in existing charging infrastructure, including stations with limited charging options (e.g., those only with only CHAdeMO but not SAE Combo), highways with long gaps between fast charging stations, urban fringe areas, and dense urban areas with high vehicle use and insufficient charging options;
- Support charging infrastructure installed at workplaces and multi-family dwellings, with a focus on high population density areas where charging facilities are most likely to be used;
- Identify ways to integrate with and incent the expansion or creation of complementary efforts, such as utility programs, fleet electrification efforts that include infrastructure buildout, and the VW National ZEV Investment plan, so that Texas can leverage other pools of capital; and
- Work with utilities to explore opportunities to maximize the potential benefits to the electric grid of integrating the charging infrastructure.

By starting with an assessment of current gaps in infrastructure and prioritizing new buildout along highways and in high-use areas, Texas can make significant progress toward a robust infrastructure network that will enable more widespread adoption of electric vehicles.

TCEQ should Prioritize Projects that Promote Vehicle Electrification

With regard to the remaining Eligible Mitigation Actions, the Mitigation Trust gives states options to support a range of different fuel sources and vehicle technologies, including plug-in electric, hybrid-electric, hydrogen fuel-cell electric, natural gas, clean diesel, and propane. While each of these options has a potential role in the future, TCEQ should prioritize projects that will have a lasting, transformative impact. As such, TAEBA recommends a strong focus on vehicle electrification and electric and hydrogen fueling infrastructure buildout. Electric, hybrid-electric, and hydrogen fuel-cell electric vehicles are proven



technologies all at a relatively early stage of deployment with unmet infrastructure needs and a significant (but rapidly decreasing) upfront cost premium.

Electric vehicle options (including hybrid and hydrogen fuel-cell vehicles) exist in all vehicle segments from small, low-speed neighborhood and utility vehicles to large, heavy-duty vehicles. The larger medium-duty and heavy-duty electric vehicles, primarily transit busses, have seen less deployment than light-duty models despite the availability of these larger vehicles, making them a particularly good target for projects to increase deployment. After maximizing the funds available to support light-duty EVSE, as recommended above, TCEQ should utilize the remaining 85% of Mitigation Trust funds to prioritize vehicle repower or replacement with electric vehicles and engines (including hydrogen and hybrid-electric vehicles) and related infrastructure. There are several opportunities for Texas to facilitate transportation electrification through relatively small but strategic investments that will have a significant and lasting impact.

In ports, Mitigation Trust funding can be applied to switch from diesel drayage trucks, yard trucks, and delivery trucks to electric alternatives, with infrastructure built in to support the transition. Similarly, with adequate infrastructure, airports can also transition to electric vehicles for ground transport, tarmac operations, and freight transport. Additional projects for TCEQ to consider include the installation of electric infrastructure at ports to allow ships to plug in while in port rather than running their diesel engines, electrification of roadways, and installation of catenary lines that enable on-travel charging of electrified medium- or heavy-duty vehicles.

Similarly, investing in electric school bus fleets and electric public transit bus fleets will yield benefits that go far beyond the initial emission reductions by supporting infrastructure buildout and delivering savings over time from reduced fuel and maintenance costs, benefitting the communities where they operate. Furthermore, converting highly visible and widely used fleets such as school bus fleets and public transit bus fleets to electric vehicles will increase public awareness of their reliability and performance benefits. Public perception of advanced vehicles has been a significant barrier to adoption, with issues such as basic awareness that these vehicle options exist, range anxiety, and lack of knowledge about vehicle capabilities standing in the way of more widespread adoption. Perhaps most importantly, these fleets generally operate in areas with high population density, and often in communities disproportionately impacted by local air pollution.

In addition, investing in electric and hydrogen vehicles and supporting infrastructure to serve government fleets can deliver significant benefits to the state with lasting impact, providing direct emission reductions while also delivering savings over time due to reduced fuel and maintenance costs. These savings can be used by the state, city, municipality, or other fleet owner to invest in further emission reductions, or for other purposes.

To support investments in electric vehicles across these Eligible Mitigation Actions, as noted above with respect to setting goals for state plans, TAEBA encourages TCEQ to avoid evaluating projects primarily on the basis of the cost-effectiveness of direct and near-term emission reductions. It is important to recognize that cost effectiveness evaluations should include the operations and maintenance costs for the lifetime of the investment, at least for those owned by government agencies or funded by public monies. Beyond that, the benefits of installing EVSE and charging infrastructure are difficult to quantify, and cost-effectiveness of such investments will improve as vehicle adoption increases. As stated above, investments in



infrastructure and in zero emission vehicles will accelerate the state's transition to a zero emission transportation future through a virtuous cycle. These investments will help to address range anxiety, increase public awareness, and increase vehicle adoption. The increased adoption will lead to further decreases in price, encourage more investments in infrastructure, and spur regulatory changes to facilitate vehicle charging. In turn, these changes will drive further adoption and initiating the cycle again.

The transformative shift sparked by investments in zero emission vehicles and infrastructure cannot be compared on the same time scale or by the same metrics as the incremental but immediate impacts of a vehicle repower or replacement investment. TCEQ's assessment of Eligible Mitigation Actions should reflect the fundamental differences between project types and account for the impossibility of direct cost-effectiveness comparisons.

TCEQ Should Engage a Range of Stakeholders and Encourage Integrated and Innovative Solutions

In addition to the considerations above, TAEBA urges TCEQ to take an integrated and strategic approach when setting parameters for project eligibility. Doing so will not only lead to better outcomes through stronger integration of efforts, but may also lower costs under the Mitigation Trust Plan, allowing the budget under the Plan to stretch farther than expected. For example, TCEQ should consider:

- Involving additional relevant government agencies, lawmakers, municipalities, and other stakeholders beyond those already engaged in the Mitigation Trust planning process to identify areas for collaboration across existing efforts, or opportunities for new initiatives where such overlap does not already exist;
- Working with utilities, the Public Utility Commission, and industry representatives to explore regulatory barriers and solutions to increase electric vehicle adoption and lower costs of electric vehicle ownership;
- Taking a consumer-centric approach that recognizes that transformation of the transportation sector rests in large part on the choices of consumers and as such, prioritizes projects that eliminate market barriers, making it as easy as possible for individuals to research and purchase clean vehicles and access related incentives and services;
- Incenting innovative solutions such as tying fleet replacement or repowering to other modernization efforts such as more efficient fleet management and use;¹
- Looking to successful funding programs that have accelerated adoption of heavy-duty electric vehicles, including the Federal Transit Administration's Low or No Emission Program and the Hybrid & Zero-Emission Truck and Bus Voucher Incentive Program (HVIP);²
- Prioritizing projects that make use of innovative financing options (e.g., a battery lease for electric busses), to lower upfront costs and enable more efficient spending of the Mitigation Trust funds; and
- Supporting projects that make use of public-private partnerships to bring in private investment dollars that can further stretch the Mitigation Trust funds.

¹ For example, General Electric has launched a pilot project at the Port of Los Angeles to improve shipping logistics and lower costs through shipping data digitization. See General Electric, Port of L.A.: Port Information Portal., <http://www.getransportation.com/port-of-la>.

² These programs have also been replicated at the state level with great success; the CA Zero-Emission Truck and Bus Program, modeled after the Federal Transit Administration's Low or No Emission Program, allows transit agencies to partner with manufacturers to compete for grants for vehicles and EVSE. Similarly, the New York Truck Voucher Incentive Program and Chicago's Drive Clean Truck Voucher Program, both modeled after the HVIP, provide first-come, first-served funding to offset the upfront cost premium of a zero-emission vehicle as compared to a fossil fuel vehicle.



These are just a few examples of ideas for TCEQ to incorporate into its planning and outreach process and its Mitigation Trust Plan eligibility and evaluation guidelines to lower costs and increase the total impact of the available funds. By encouraging creative and integrated solutions, Texas will, over the long term, see greater benefits from the Mitigation Trust funds.

Conclusion

The Mitigation Trust fund provides a unique opportunity for Texas to invest in projects that will reduce transportation emissions across the state. Carefully targeted investment of these funds will not only directly reduce emissions, but also lay the groundwork for a more transformative shift, putting Texas on track to develop a 21st century transportation system. TAEBA recommends a strong focus on vehicle electrification and electric and hydrogen fueling infrastructure buildout to deliver on a wide range of potential benefits, from increased resource and fuel diversity and cost savings for vehicle and fleet owners to reduced emissions and increased public awareness and adoption of advanced vehicle options.

