



August 27, 2018

John Niermann
Commissioner
Texas Commission on Environmental Quality
Air Quality Division
Implementation Grants Section, MC-204
12100 Park 35 Circle
Austin, TX 78753

By Email: vwsettle@tceq.texas.gov

Dear Mr. Niermann:

On behalf of the Diesel Technology Forum, I submit these comments regarding the draft Beneficiary Mitigation Plan ("Plan") published by the Texas Commission on Environmental Quality (TCEQ) concerning the use of \$209 million in Environmental Mitigation Trust revenue.

We commend TCEQ in prioritizing projects according to cost effectivity in NO_x reduction while stating the intended goal of the program is to maximize NO_x reduction for priorities communities across Texas.

However, the Plan does not allocate funding towards off-road equipment and locomotives that are responsible for 38% of heavy-duty mobile source NO_x emissions in the State. In addition the plan fails to allocate funding for the DERA option to leverage additional resources to help replace older and higher emitting off-road equipment and engines and deliver many more emission reductions.

By way of background, the Diesel Technology Forum represents manufacturers and suppliers of diesel engines, vehicles and equipment. The Forum is a not-for-profit educational organization dedicated to raising awareness of the clean air and economic benefits of clean diesel technology. More information on the Forum is at www.dieselforum.org.

The Draft Plan Appropriately Seeks to Maximize NO_x Emission Reductions

The sole purpose of the Environmental Mitigation Trust for state beneficiaries is to reduce NO_x emissions and to do so quickly. The draft Plan published by TCEQ seeks to accomplish this goal by funding those technology and fuel types that demonstrate the greatest cost effectivity for NO_x reduction.

Clean diesel technology is among the most cost effective available technologies. Clean diesel will provide the most emissions reductions for these communities by allowing many more older and higher emitting trucks and buses to be replaced. This has been confirmed by TCEQ analysis provided in Table D-3 of the draft Beneficiary Mitigation Plan. Across the spectrum of eligible projects, clean diesel will do the most to deliver needed emission reduction benefits by replacing more older and higher emitting trucks and buses.

Table D.3 Example NO_x Emissions Reduction and Cost Effectiveness (replacement of 2000 model year)

Vehicle/Equipment	New Fuel ¹	Total 5-yr NO _x Reduction (tons)	Estimated Cost	Example Grant Amount	Cost Per Ton of NO _x Reduced
School Bus (assumes govt. only)	Diesel	0.5905	\$90,000	\$54,000	\$91,448
	Alt. Fuel	0.6183	\$109,333	\$65,600	\$106,097
	Electric	0.6216	\$290,000	\$174,000	\$279,923
Class 8a Refuse Truck (assumes govt. only)	Diesel	2.1804	\$210,000	\$126,000	\$57,692
	Alt. Fuel	2.2830	\$240,000	\$144,000	\$63,075
	Electric	2.2951	\$560,000	\$336,000	\$146,399
Transit Bus (assumes govt. only)	Diesel	2.7857	\$300,000	\$180,000	\$64,616
	Alt. Fuel	2.9168	\$355,000	\$213,000	\$73,025
	Electric	2.9323	\$650,000	\$390,000	\$133,001
Class 8b Local Freight Truck (assumes non-govt. only)	Diesel	3.5905	\$140,000	\$35,000	\$9,748
	Alt. Fuel	3.7594	\$168,333	\$42,083	\$11,194
Class 6 Local Freight Truck (assumes non-govt. only)	Diesel	0.7663	\$75,000	\$18,750	\$24,468
	Alt. Fuel	0.8023	\$103,000	\$25,750	\$32,095
	Electric	0.8066	\$190,000	\$114,000	\$141,334
Cargo Handling Equipment	Electric	3.7560	\$150,000	\$90,000	\$23,962
Airport Ground Support Equipment (aircraft tug)	Electric	2.2910	\$90,000	\$54,000	\$23,570

¹Alt. Fuel means Alternative Fuel, which may include natural gas or propane.

When compared to emerging and alternative fuel technologies, clean diesel will deliver the most NO_x emission reductions. These benefits can accrue to communities immediately and do not require additional costly investments in charging or refueling infrastructure.

Expanding Project Eligibility to Off Road Applications Will Expand Benefits

The draft Plan fails to include as eligible for funding - off-road equipment, switchers, marine workboats and off-road equipment -- that are responsible for 38% of heavy-duty mobile source NO_x emissions in Texas. Texas should expand eligibility to these project types in order to greatly increase NO_x emission reduction benefits for designated priority communities across Texas. Recent research confirms that replacing older engines that power marine workboats and switch locomotives, that are responsible for 14% of heavy-duty mobile source NO_x emissions, are among the most cost effective projects. A single marine engine replacement project can deliver as much NO_x reductions as nearly 100 Class 8 truck replacements. These projects are the most cost effective projects.

Many switch locomotives and marine workboats operate nearly 24 hours a day and are frequently in operation in disadvantaged communities. Replacing older engines that power these large applications will have a large and direct emission reduction benefit to these communities. A summary of the cost effectivity of these large engine replacements is included as an appendix to this comment.

The Draft Plan Fails to Leverage Additional Resources Offered Under the DERA Option

The draft plan does not take advantage of the Diesel Emission Reduction Act (DERA) matching fund opportunity and denies Texas additional revenue for emission reduction projects. The DERA option may be used to replace or repower the large variety of off-road equipment types that are responsible for 38% heavy-duty mobile source NO_x emissions. Allocating funding towards the DERA option would allow TCEQ to leverage additional resources to repower or replace a wide variety of off-road equipment types found in-use on construction sites and may generate further emission reductions.

Texas has received about \$60 million in DERA funds since funding was appropriated to the program beginning in 2008 and funding has been used to help replace a wide variety of vehicles and equipment from trucks, to

construction equipment and marine engines¹. While appropriations for the program has fluctuated, Congress has consistently funded the program with a significant increase in funding over the last two cycles. Failing to take advantage of the expanded funding for the DERA program would exclude many communities from realizing the emission reduction benefits of the latest clean technologies in the wide variety of off-road equipment types including the most used agricultural and constructions machines.

Conclusion

While the draft Plan meets the spirit of the Environmental Mitigation Trust – to reduce NOx emissions, it fails to allocate funding to address the largest sources of NOx emissions – off road engines, marine and locomotive engines and equipment. Failing to prioritize cost effective technology types across eligible categories for funding, the Plan falls short on its potential to maximize emission reductions, and will be getting “less clean air for the dollar invested.”

TCEQ should

- Include as eligible categories of funding, switchers and marine workboats, and make funding allocations to these large engines that will be in service for decades to come. Replacing these older and much larger engines with new cleaner models can deliver significant and direct emission reduction benefits to disadvantaged communities; and
- Take advantage of the DERA option that would leverage additional funding to replace or repower off-road equipment that is represents about one third of heavy-duty mobile source NOx emissions.

Very truly yours,



Allen R. Schaeffer
Executive Director

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ATTACHMENTS

¹ Diesel Emission Reduction Act, National Grant Recipients. <https://www.epa.gov/cleandiesel/clean-diesel-national-grants-awarded>

The most cost-effective upgrades make the biggest health impact

New Tier 4 engines for tug boats reduce NOx emissions by 91%

The \$2.9 billion VW Environmental Mitigation Trust provides funding to upgrade older vehicles and equipment to rapidly reduce nitrogen oxide (NOx) emissions, which contribute to hazardous smog pollution. Upgrading just one of the oldest, dirtiest tug boats is like taking tens of thousands

of passenger vehicles off the road per year, bringing substantial health benefits to at-risk communities. With states now deciding how to invest these funds, repowering these older vessels with cleaner Tier 4 engines is a game-changer for delivering immediate and cost-effective air quality benefits.



Upgrading old engines means cleaner air for all

EPA estimates that by 2020, only 3% of tug boats will be replaced with cleaner Tier 4 engines. The VW Environmental Mitigation Trust provides a rare opportunity to retire the oldest diesel engines still in operation, which can last 50 years or longer. Tier 4 or Tier 3 engines will deliver cleaner, healthier air faster to at-risk communities. These new engines also improve fuel efficiency, which reduces CO₂ and black carbon emissions, two important greenhouse gas pollutants.

Tug projects are a better value



1 ton of NOx reduction costs



1. Ramboll, 2018. Emission reductions and cost effectiveness for marine and locomotive projects
2. EPA, 2016. National Port Strategy Assessment
3. Tier 2 car driven 15,000 miles per year
4. FHWA, 2018 CMAQ Cost-Effectiveness Report



The most cost-effective upgrades make the biggest health impact

New Tier 4 engines for switchers reduce NOx emissions by 95%

The \$2.9 billion VW Environmental Mitigation Trust provides funding to upgrade older vehicles and equipment to rapidly reduce nitrogen oxide (NOx) emissions, which contribute to hazardous smog pollution. Upgrading just one of the oldest, dirtiest switchers is like taking tens of thousands

of passenger vehicles off the road per year, bringing substantial health benefits to at-risk communities. With states now deciding how to invest these funds, repowering these older switchers with cleaner Tier 4 engines is a game-changer for delivering immediate and cost-effective air quality benefits.



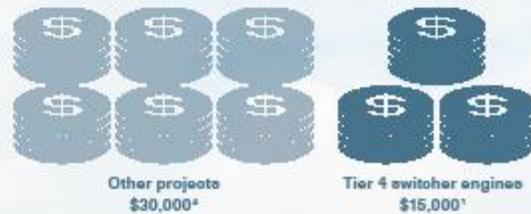
Upgrading old engines means cleaner air for all

EPA estimates that by 2020, only 5% of switcher engines will be replaced with cleaner Tier 4 engines. The VW Environmental Mitigation Trust provides a rare opportunity to retire the oldest diesel engines still in operation, which can last 70 years or longer. Tier 4 engines will deliver cleaner, healthier air faster to at-risk communities. These new engines also improve fuel efficiency, which reduces CO₂ and black carbon emissions, two important greenhouse gas pollutants.

Switcher projects are a better value



1 ton of NOx reduction costs



1. Ramboll, 2016, Emission reductions and cost effectiveness for marine and locomotive projects
2. EPA, 2016, National Port Strategy Assessment

3. Tier 2 car driven 15,000 miles per year
4. FHWA, 2015 CMAG Cost-Effectiveness Report