

Shuman, Justin

From: Chris Campbell <Clcampbell@dearmanmoving.com>
Sent: Wednesday, February 07, 2018 8:54 AM
To: EPA DERG
Subject: Team 88: Call to Action!

Chris Campbell
961 N. Main St.
Mansfield, OH 44903

February 7, 2018

Dear EPA Representative,

I am writing to you today to encourage your support of the trucking industry by delegating funds from the Volkswagen Emissions Grant to over-the-road trucking.

In the state of Ohio, trucking provides 1 out of every 15 jobs. Trucks transport 75% of the total manufactured tonnage in the state, and 82.2% of Ohio communities depend exclusively on trucks to move their goods. This sheer volume of product and impact that the industry has on daily life warrants support from multiple communities, as without trucks, all Ohioans would be greatly impacted in every aspect of their world. While other industries claim their need for this money over trucking's need for these funds is essential, the simple fact is that, without trucking, many of these other industries would simply cease to be productive because of the absence of the supplies of materials and services they need that would be carried by trucks, but may not be if not given adequate funding.

Trucking also already supports other industries by supporting the roads that they use with passenger vehicles every day: the trucking industry pays 37% of all taxes owed by Ohio motorists, but trucks only represent 10% of vehicle miles traveled within the state. Since trucking is carrying its weight three times over, it is not unreasonable to ask for support of the industry so that it can better serve all industries. The trucking industry also participates in the SmartWay Transport Partnership, which works with government and businesses to quantify greenhouse gas emissions, taking steps to reduce them. The trucking industry supports the environmental industry and wishes that, through continued financial collaboration, both industries can continue to improve environmental conditions for all citizens within the state of Ohio.

In continued support of the environment, trucks continue to improve energy and environmental efficiency, even while increasing mileage. In 2014, trucks used 97 billion fewer gallons of fuel than passenger cars, and through advancements in engine technology and fuel refinements, new diesel truck engines produce 98% fewer particulate matter and nitrogen oxides emissions than a similar manufactured engine.

If you have any questions, please feel free to contact me. I want to thank you for your continued support of this very important industry.

Sincerely,
Chris Campbell

Shuman, Justin

From: Suzie Schindewolf <suzie@schindewolfexpress.com>
Sent: Wednesday, February 07, 2018 8:54 AM
To: EPA DERG
Subject: Team 88: Call to Action!

Suzie Schindewolf
5584 N St Rt 235
Conover, OH 45317

February 7, 2018

Dear EPA Representative,

I am writing to you today to encourage your support of the trucking industry by delegating funds from the Volkswagen Emissions Grant to over-the-road trucking.

In the state of Ohio, trucking provides 1 out of every 15 jobs. Trucks transport 75% of the total manufactured tonnage in the state, and 82.2% of Ohio communities depend exclusively on trucks to move their goods. This sheer volume of product and impact that the industry has on daily life warrants support from multiple communities, as without trucks, all Ohioans would be greatly impacted in every aspect of their world. While other industries claim their need for this money over trucking's need for these funds is essential, the simple fact is that, without trucking, many of these other industries would simply cease to be productive because of the absence of the supplies of materials and services they need that would be carried by trucks, but may not be if not given adequate funding.

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If you have any questions, please feel free to contact me. I want to thank you for your continued support of this very important industry.

Sincerely,
Suzie Schindewolf

February 6th, 2018

Carolyn Watkins
Office Chief, OEPA
50 W Town St, Suite 700
Columbus Ohio 43216

RE: Draft Beneficiary Mitigation Plan

Dear Ms. Watkins,

The City of Cincinnati has reviewed the materials posted by the OEPA concerning the Draft Beneficiary Mitigation Plan which summarizes how the State of Ohio plans to use funds allocated to it from the recent Volkswagen diesel emissions settlement. The City has discussed the draft plan with City leadership and regional partners and recognizes the potential to transform the transportation structure of the Cincinnati Fleet and the Greater Cincinnati Region.

The City of Cincinnati would like to offer the following comments to the Draft Beneficiary Mitigation Plan:

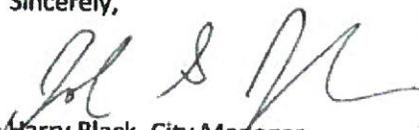
- 1) The City of Cincinnati applauds much of work that OEPA has done on the proposed draft plan and would recommend that the final plan is issued and implemented as quickly and efficiently as possible. Avoiding unnecessary delays is essential to removing polluting vehicles and reducing NOx as required by the VW settlement. To this point, the City would recommend accelerating the proposed EV infrastructure timeline making funding available in 2018 and keep the NOx reduction timeline as proposed.
- 2) Air pollution is an environmental justice issue and disproportionately impacts lower income individuals and people of color. The City of Cincinnati in particular has air pollution issues which ranks it as one of the worst in the country according to the American Lung Association. The unique topography of Cincinnati and the high number of vehicles traveling along the interstates, and Cincinnati's industry causes air pollution to concentrate in specific locations in the City. Cincinnati has a large number of residents that may be vulnerable to environmental justice issues. According to the US Census Bureau, roughly 50% of the City is non-White and 20% of the population lives at or below poverty levels. Cincinnati supports the proposed priority areas and recommends it not be expanded. However, Cincinnati proposes OEPA target funds further. The City recommends that scoring weight should be added to areas where census data identifies concentrations of disadvantaged residents and health data shows disproportionate impacts of air pollution.
- 3) The City of Cincinnati would like to request that the VW settlement funds be distributed equitably between the 3 priority regions. The current plan, as structured, places the

Southwestern Ohio region at a disadvantage compared to the other priority areas. Southwestern Ohio contains no major airports, shore power facilities and has minimal opportunity for ferries and tugs. The City recognizes the NOx reduction potential of these categories and is not opposed to their inclusion but would request that efforts to fund regional priorities for the Greater Cincinnati area, which include transit, school buses and class 4-8 diesel vehicles, are made by OEPA.

- 4) The City requests language clarification around the category of local freight. Many municipal vehicles are not local freight trucks but highly specialized vehicles such as fire trucks, bucket trucks, garbage trucks and snow plows. The City does not want to be placed in a situation where these vehicles are inadvertently ineligible for funding. The City requests the language is changed from "local freight trucks" to "Class 4-8 vehicles".
- 5) The City of Cincinnati supports the competitive process and the cost share requirement for most of the categories outlined in the Beneficiary Mitigation Plan. However, the City would recommend that cost share not be required for EV infrastructure. The EV infrastructure needs to be placed in strategic locations throughout the state along transportation corridors and within public parking facilities in the dense urban core. Requiring a cost share will limit deployment and speed at which these charging stations can be deployed. To increase deployment, the City of Cincinnati would recommend a direct allocation to the major cities located in the priority counties for the zero emissions infrastructure. This direct allocation would ease administrative burden on the OEPA and on the cities who would apply for the grant. In addition, a direct allocation will allow for faster and more strategic deployment within cities to place infrastructure where it is needed to support zero emissions vehicles.
- 6) This funding opportunity represents a chance for municipal fleets to drastically change what technologies and fuels their vehicles use. To encourage outside of the box thinking and adoption of modern technologies, the City proposes allowing the purchase of light duty electric vehicles and fuel use reduction technologies not currently supported through the VW program, to count as match or additional points for municipal fleets. Specifically, EV vehicles and idle reduction technology have potential to reduce fuel consumption and improve overall air quality but tight budgets have prevented many Cities from implementing these technologies. Lack of real-world experience prevents adoption in Fleets. Further, having municipalities highlighting EV's and other technologies provides social proof to residents and normalizes the technology increasing comfort and uptake throughout the region.

Thank you for the opportunity to provide comments to this program. This Beneficiary Mitigation Plan is a good opportunity to strategically place infrastructure and transform the fuels we utilize to support our region. Please let us know if you have any questions or need anything further from the City of Cincinnati.

Sincerely,


For Harry Black, City Manager
City of Cincinnati

**HAMILTON COUNTY
ENVIRONMENTAL
SERVICES
Air Quality • Solid Waste**

February 7, 2018

Carolyn Watkins
Ohio EPA-OEE
P.O. Box 1049
Columbus, OH 43216-1049

Dear Ms. Watkins:

Thank you for the opportunity to provide comments on Ohio EPA's Draft Beneficiary Mitigation Plan. Having reviewed the draft plan, I commend you and your team on developing a targeted approach to using these dollars to improve air quality. Hamilton County Department of Environmental Services (HCDOES) respectfully submits the following comments that are focused on four areas: priority regions for funding, balance of funding, matching funds, and electric vehicle charging stations.

Priority Areas

HCDOES applauds Ohio EPA's plan to allocate funding to those areas of the state that will soon be designated non-attainment of US EPA's ozone standard (southwest, central, and northeast Ohio). Targeted funding to these areas will have a significant impact in reducing NOx emissions, a precursor pollutant for the formation of ground-level ozone. Ohio EPA is encouraged to keep these priority areas in the final plan.

Balance of Funding

HCDOES hopes that the available funding will meet the needs of southwest Ohio which includes new transit and school buses and class 4-8 vehicles. This point is raised because there are several categories of eligible projects that are not applicable to southwest Ohio (ferries, airport ground support equipment, port cargo handling equipment, and ocean going vessels). To address this, Ohio EPA is encouraged to ensure a fair distribution amongst the priority areas. The draft plan mentions that Ohio EPA may use factors such as a balance of funding amongst geographic regions of the state. HCDOES would like to see this language strengthened in the final plan to ensure an equitable distribution of funding.

Matching Funds

In the draft plan, there is a 25 percent match requirement for local government projects. HCDOES understands and appreciates that Ohio EPA included this requirement in an effort to stretch the dollars to provide for additional emissions reductions. However, this will be a challenge, in particular, when applying for electric vehicle charging stations. To overcome this barrier, it is recommended to waive the match for the charging stations. Absent this, it would be beneficial to clarify that certain costs can be used as a match (i.e., partnering with a local utility company who will provide the necessary infrastructure to the stations).

Electric Vehicle Charging Stations

As stated in the draft plan, electric vehicle charging infrastructure was the third most requested use of the settlement funds. Ohio EPA is encouraged to retain this eligible category in the final plan. These dollars, coupled

with the investments by Electrify America and other private sector entities, have the potential to make a big impact in Ohio.

Thank you again for your efforts to develop a strategic plan that will reduce NOx emissions. Please feel free to contact me with any questions.

Sincerely,

A handwritten signature in cursive script that reads "Holly Christmann". The signature is written in black ink and is positioned above the printed name.

Holly Christmann

Director, Hamilton County Department of Environmental Services



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Matthew L. Spranz, P.E., PMP, Director
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Robert A. Stefanik, Mayor
City of North Royalton

Ex Officio Member:
Kurt Pringle, District Chief Northeast District
Office, Ohio Environmental Protection Agency

Executive Committee Members
Grace Gallucci, NOACA Executive Director

February 7, 2018

Ms. Carolyn Watkins
Ohio Environmental Protection Agency
Office of Environmental Education
P.O. Box 1049
Columbus, OH 42316-1049

Subject: Comments on Ohio Environmental Protection Agency (Ohio EPA) Draft
Beneficiary Mitigation Plan for Volkswagen Settlement

Dear Ms. Watkins:

The Northeast Ohio Areawide Coordinating Agency (NOACA) is the metropolitan planning organization (MPO) for Cuyahoga, Geauga, Lake, Lorain and Medina Counties. Additionally, NOACA serves as the air quality planning agency of the Cleveland-Akron-Lorain Maintenance Area for the 2008 ground-level ozone National Ambient Air Quality Standard (NAAQS), which also includes Ashtabula, Portage, and Summit Counties. NOACA appreciates the opportunity to provide comments and input on the Ohio EPA's *Draft Beneficiary Mitigation Plan* for the Volkswagen (VW) "Clean Diesel" Settlement.

NOACA appreciates the thoroughness of Ohio EPA's Draft Beneficiary Mitigation Plan and the way in which the Agency has solicited input, including from MPOs, over the past year. However, NOACA would like to see the following changes made to the draft plan:

1. On-Road Fleet and Equipment Projects – Transit Bus Replacements

In its *Ohio Statewide Transit Needs Study*, the Ohio Department of Transportation (ODOT) noted that, due to the state's underinvestment in public transportation, Ohio's public transit authorities had 1,168 transit vehicles requiring replacement in 2014.¹ The total cost of this backlog is nearly \$300 million. Moreover, ODOT concluded the backlog will increase to 5,002 vehicles in 2025, forcing transit agencies to spend another \$1.1 billion on their aging fleets.

While the funds from the VW settlement alone cannot bridge that gap, the proposed \$15 million allocation for transit bus replacements does not appear sufficient given the scale of the problem. In our initial comments on this subject, which we provided in December 2016, NOACA requested that Ohio EPA dedicate fully half of the total settlement funding to transit buses: \$37.5 million. We encourage the Agency to increase the funding available for transit buses from the current \$15 million closer to that initial request. The set-aside would also

¹ ODOT, *Ohio Statewide Transit Needs Study: Final Report* (Columbus: ODOT, 2015): 56-57, <https://www.dot.state.oh.us/Divisions/Planning/Transit/TransitNeedsStudy/Documents/OhioStatewideTransitNeedsStudyFinalReport.pdf> [Accessed December 30, 2016].

bolster existing critical funding streams, such as the Diesel Emissions Reduction Grant (DERG) and Congestion Mitigation and Air Quality Improvement (CMAQ) programs.

Moreover, NOACA urges Ohio EPA to prioritize funding requests from the Greater Cleveland Regional Transit Authority (GCRTA). While GCRTA provides fully 40% of all unlinked passenger trips and passenger miles in the State of Ohio. GCRTA also has a more diverse array of capital assets that require maintenance and replacement, including paratransit, over-the-road motorbuses, bus rapid transit, light rail, and heavy rail vehicles.

2. On-Road Fleet and Equipment Projects – Local Fleet Replacements

NOACA supports Ohio EPA's decision to set aside funding for local fleet vehicle repower and replacements; however, we do not agree with their decision to only make this funding available to private sector fleet owners. There are 172 communities in the NOACA region, and many of these operate public fleets, including refuse trucks and snow plows. Several NOACA communities have expressed an interest in retrofitting or replacing these diesel-powered vehicles for alternatives, and some of them have applied for CMAQ funding to complete this process. Accordingly, given the existing need and demand for such projects, NOACA believes that public fleets should have equal access to this funding tranche.

3. Light-Duty Zero Emission Vehicle (ZEV) Supply Equipment

In its plan, Ohio EPA proposes to consult with MPOs and electric utilities to determine appropriate locations for ZEV charging infrastructure in the priority counties. Ohio EPA had initially proposed allowing the MPOs to take on a larger share of the ZEV infrastructure planning process, a decision which it has since reversed. NOACA remains committed to playing an active role in the selection of ZEV infrastructure sites within its region. NOACA encourages Ohio EPA to work closely in coordination with the MPOs throughout this process. MPOs possess a unique expertise and skillset to facilitate between Ohio EPA and our constituent communities.

In November 2017, NOACA partnered with our partners at the Miami Valley Regional Planning Commission (MVRPC), the Mid-Ohio Regional Planning Commission (MORPC), and the Ohio-Kentucky-Indiana Regional Council of Governments (OKI) to submit two alternative fuel corridor design applications to the Federal Highway Administration (FHWA). Both applications identified existing gaps in the state's EV charging infrastructure along these corridors, which provide clear priority locations. Moreover, NOACA is a key stakeholder in the Cuyahoga County EV Task Force, which has brought together a number of important public and private sector partners working on EV infrastructure in Northeast Ohio. We are uniquely positioned to identify local priorities for public EV infrastructure, both along and outside of freeway corridors.

Accordingly, NOACA strongly encourages Ohio EPA to include it in any and all decisions regarding ZEV infrastructure projects in the Northeast Ohio region.

NOACA thanks Ohio EPA for inviting feedback on its draft plan. We look forward to playing an active role in the planning and distribution of the VW settlement funds going forward.

Sincerely,

A handwritten signature in black ink, appearing to read 'Grace Gallucci', with a stylized flourish at the end.

Grace Gallucci
Executive Director
NOACA

February 6th, 2018

Carolyn Watkins
Office Chief, Ohio EPA
50 W. Town Street, Suite 700
Columbus, Ohio 43216

Dear Ms. Watkins,

In conjunction with local partners, the Cincinnati USA Regional Chamber has reviewed the Ohio EPA's draft that lays out Ohio's plan to allocate the Volkswagen settlement funds.

The Cincinnati Chamber is committed to supporting transportation investments and policy changes that grow our economic prosperity, connect people to jobs, healthcare and education, and attract and retain a vibrant regional talent base. We believe this is a transformative opportunity for the Cincinnati region and our transportation system, and we appreciate the opportunity to weigh in on the draft plan.

There are multiple public and private entities within our region that can compete for and benefit from these funds. Major project opportunities in our region include transit bus replacement, fleet and municipal vehicle replacement, vehicle electrification, and others.

We strongly encourage Ohio EPA to ensure that eligible project types allow for regional parity and do not prioritize any one region over another, especially because each region is unique in the assets it has and the specific challenges that the funds can help improve. Without such regional parity, the plan's effectiveness would decrease considerably.

We would also stress how urgently these funds are needed. As you know, the City of Cincinnati's air pollution issues rank among the worst in the country and require immediate attention. Additionally, partners in both the public and private sector have been engaged in critical conversations about the future of transportation in our region. As we work to modernize our system and better connect people to jobs, education and healthcare, this infusion of funds can be catalytic.

The Cincinnati USA Regional Chamber appreciates the work the Ohio EPA has done to date and looks forward to working together with our local partners to bring to bear new investments and projects that improve the region's environmental outlook and transform our transportation system.

Thank you,



Pete Metz
Transportation Policy & Coalition Manager

3 East Fourth Street
Suite 200
Cincinnati, Ohio 45202-3728
phone 513.579.3100
fax 513.579.3101



CARDINAL BUS SALES & SERVICE, INC.
NEW AND USED BUSES
6280 HARDING HWY., ST. RT. 309
LIMA, OHIO 45801 (419) 225-5552

February 7, 2018

Carolyn Watkins
Ohio EPA-OEE
P.O. Box 1049
Columbus, OH 43216-1049

Attn: VW Comment

Dear Ms. Watkins,

The Environmental Mitigation Trust (EMT) and the \$75 million it will yield for Ohio represent an unprecedented opportunity to support long-term investments toward a zero-emission transportation sector and healthy air for our communities. Attached is a list of school districts looking forward to participating in Ohio's EMT funding in order to modernize their school bus fleets with the purchase of new Blue Bird all-electric school buses.

I urge Ohio to dedicate funds to support these types of innovative and transformative projects. Doing so will reduce harmful nitrogen oxide (NOx) and greenhouse gas (GHG) emissions, deliver air quality benefits to the young student riders who are exposed to diesel pollution from buses on a daily basis, and provide total cost of ownership benefits so that they may better direct funds to education opportunities.

Most relevant to the Volkswagen funds, we find it important to first focus on the settlement's main objective: reducing NOx emissions. The medium- and heavy-duty diesel transportation sector is the leading source of mobile source NOx emissions from diesel vehicles in Ohio.¹ While aging diesel-fueled vehicles generate the most mobile source NOx emissions, some fleets have turned to alternative gaseous fuels to help mitigate NOx emissions. These, however, are temporarily solutions. Fortunately, technology advancements in the electric vehicle market have allowed OEMs to build vehicles with the range and durability necessary to run a reliable school bus fleet while also reducing tailpipe emissions to zero.

These emissions reductions correlate directly with air quality and public health benefits. According to the EPA's Diesel Emissions Quantifier, the replacement of just one diesel school bus with an all-electric model will generate \$20,000 in public health benefits each year.² These benefits represent the dollar

¹ "2014 National Emissions Inventory (NEI) Data". United States Environmental Protection Agency. <https://www.epa.gov/air-emissions-inventories/2014-national-emissions-inventory-nei-data>.

² "Diesel Emissions Quantifier." U.S. Environmental Protection Agency, <https://www.epa.gov/cleandiesel/diesel-emissions-quantifier-deq>. Analysis assumes MY 2000 diesel school bus; annual diesel fuel consumption of 1,360 gallons, annual VMT of 14,084, and 107 idling hours per year (these are EPA DEQ default values).

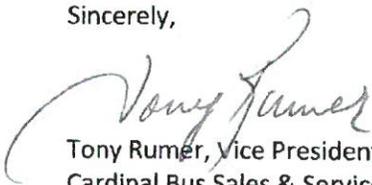
value of health benefits generated from reducing the population's exposure to PM2.5 emissions and include the reduction of asthma and asthma emergencies, chronic bronchitis, and other health problems which often result in school absenteeism. These emissions reductions are particularly important in school bus applications, given that children and operators' exposures to harmful air pollutants may be 5-15 times higher inside the vehicle.³ As districts responsible for the daily well-being of our students, we find it a priority to minimize their exposure to avoidable toxins within the learning environment.

All-electric school buses also deliver total cost of ownership benefits that far exceed any of their conventional and alternative fuel competitors. For example, based on the average operational cost of a conventional diesel bus, an electric bus can provide \$10,521 in annual maintenance and fuel cost savings.

We believe that all-electric school bus projects will provide the most comprehensive suite of benefits. These benefits include zero emission vehicle operations in direct proximity to sensitive receptors and disadvantaged communities, reduced operating costs for budget-constrained school districts, no need for diesel fuel storage or procurement, and improvements to public health, particularly among children. Further, for every dollar invested in all-electric school buses, Ohio can generate tremendous savings for our districts and taxpayers while also meeting the EMT's goal of mitigating emission-caused public health concerns for the most susceptible communities.

We hope to participate in Ohio's continued transition to a better air quality future with the purchase and deployment of all-electric vehicles and offer our support as the planning process moves forward. Should you have any follow-up questions please contact me at 419-225-5552 or trumer@cardinalbussales.com.

Sincerely,



Tony Rumer, Vice President
Cardinal Bus Sales & Service, Inc.
6280 Harding Hwy
Lima, OH 45801

³ "Electric School Buses Feasibility in Vermont". Vermont Energy Investment Corporation, May 2016. <https://www.veic.org/docs/resourcelibrary/veic-electric-school-bus-feasibility-study.pdf>, page 6.



February 7, 2018

Carolyn Watkins
Ohio EPA-OEE
P.O. Box 1049
Columbus, OH 43216-1049

RE: VW Mitigation Plan Comments

Dear Ms. Watkins:

Duke Energy would like to commend Ohio EPA for conducting an "open, robust, and transparent" process to draft Ohio's Mitigation Plan. Ohio EPA has been receptive to input and provided several opportunities for comments, including the very informative presentation on January 22 in Cincinnati. Duke Energy would like to provide the following comments:

Targeting 14 priority counties that have ozone ambient air quality concerns, including southwest Ohio, is a laudable goal and the funds being used in the areas in need of NOx reductions will decrease the burden caused by emissions from the mobile source sector. We support the use of the funds primarily in the targeted counties.

At the January 22 event, Ohio EPA presented specific funding amounts or "buckets" for the different types of projects eligible for funding. This appears to disadvantage southwest Ohio's ability to compete with the other priority areas for equivalent funds, since Cincinnati does not have an airport, on shore support equipment, or Lake Erie vessels. We recommend that Ohio EPA make more funds targeted in the other eligible projects (buckets) in the Cincinnati area to keep the funding geographically proportional.

While we understand the rationale for supporting as many replacement projects as possible and proposing a matching fund requirement for public entities to "stretch" the limited funds further, we believe it may become a barrier to some projects in priority counties because of the economic hardship for matching fund requirements for some governments and schools. We recommend that if funds are under requested in some priority counties during the initial grant cycle, Ohio EPA should consider granting to requests with no matching funds (submitted at the same time as requests with matching funds). Requests with matching funds would obviously score higher, but if more funds remain for a priority area, they should not be diverted to other areas because there is a need for air quality improvements equally in each priority area.

Ms. Carolyn Watkins
February 7, 2018
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We support the full 15% be targeted to increase EV infrastructure. Advanced EV adoption in Ohio will alleviate range anxiety and facilitate cross-state travel. The network should be robust and comprehensive. Since Electrify America is providing interstate EV charging locations in 2018, the funds from the Mitigation Plan can focus on priority counties and cities. We recommend that if matching funds are required for EV infrastructure, utility costs for supporting EV charging locations be considered as matching funds and also considered as capital investment in our distribution system.

If you have any questions, please contact me at 513-287-3604 or dick.brewer@duke-energy.com.

Sincerely,

Handwritten signature of Richard D. Brewer in cursive script.

Richard D. Brewer, Director
Energy Affairs & Stakeholder Engagement
Duke Energy Ohio



February 7, 2018

Carolyn Watkins
Ohio EPA-OEE

RE: Proterra Comments on Ohio's Draft Beneficiary Mitigation Plan (BMP)

Proterra, the leading U.S. manufacturer of electric, zero-emission transit buses, appreciates the opportunity to provide comments on the proposed BMP, which describes Ohio's overall intentions and plan for spending ~ \$75 million of Ohio's VW allocation funding.

Our mission is simple: to deliver clean, quiet transportation to all communities by replacing heavy-duty, fossil-fueled transit buses with zero-emission public transit buses. The harmful effects of vehicle exhaust from medium and heavy-duty trucks are on the rise and have been for years. The EPA reports that medium and heavy-duty vehicles account for 20% of GHG emissions and oil use in the United States' transportation sector, but represent only 5% of the vehicles on the road. Similarly, GHG emissions from heavy-duty vehicles across the globe are growing rapidly and are expected to surpass emissions from passenger vehicles by 2030. There is thus a strong need to not only mitigate past criteria pollutant emissions, but to continue to reduce toxic air pollutants in the medium and heavy-duty sector.

The Volkswagen settlement provides a much-needed opportunity to address this growing environmental concern and further demonstrate that commercially available zero-emission technologies have the lowest cost of ownership, improved maintenance and performance, and better serve a diverse range of communities' transit needs, including the reduction of NOx and the elimination of GHG and criteria emissions.

The proposed BMP makes clear the public importance of using the trust funds to "[e]xpedit[e] deployment and widespread adoption of zero-emission" vehicles. Further, the proposed plan appropriately prioritizes projects that (i) "improve air quality by providing cost-effective reduction of NOx emissions"; (ii) "maximize emission reductions where they are most needed, while also considering environmental justice considerations associated with historical emission levels and concentrations"; and (iii) "support Ohio's statewide energy, environmental and economic development goals."

Consistent with these sentiments, Proterra supports the 45-50 funding percentage proposed for On-Road Fleet and Equipment Projects. But it strongly urges the EPA to allocate the full amount to Class 4-8 school buses and transit buses. As the BMP indicates, the two most requested uses of the VW Mitigation funds were school bus replacements, followed by transit bus replacements. Not surprisingly, "school-age children are among the most vulnerable populations to the harmful pollutants in diesel exhaust." Further, the state's "public transit systems support Ohio's most vulnerable individuals by increasing access to health care, human services, job training and education, employment and quality of life." More money is needed to meet the state's unmet needs in both areas across Ohio.

Further, we urge the EPA to limit funding to battery electric, zero emission transit and school buses. We certainly agree with the statewide focus on achieving significant reductions in diesel emission exposures in priority air quality areas and areas that receive a disproportionate share of the air pollution from diesel vehicles. The state can accomplish both by investing heavily in battery electric buses. Replacing diesel buses with electric buses is simply one of the best investments the state can make to help electrify public transportation and improve air quality. The purchase of "new diesel," however,

www.proterra.com



will not achieve this important goal. Rather than merely replacing current buses with new buses with **lower** emissions (*i.e.*, “near-zero technology”), we recommend that the State replace its current buses with new buses with **zero** emissions.

Nationally, 7,461,458 tons of NO_x, or 55% of the 13,489,110 tons of NO_x emitted derive from mobile sources; 35% attributable to on-road sources.¹ In the state of Ohio, 261,196 tons of NO_x, or 57% of the 457,982 tons of NO_x emitted are from mobile sources.² On this basis alone, we urge the EPA to use its VW funding to advance the electrification of transit buses in those areas disproportionately impacted by the VW diesel vehicle emissions. By doing so, Ohio will help achieve its program goals, including the reduction of NO_x, greenhouse gases and other pollutants.

Specifically for public transit, we propose that Ohio adopt two specific funding programs that have significantly accelerated the adoption of heavy duty EVs and, as a direct result, helped reduce NO_x and GHG emissions. First, we urge Ohio to adopt the competitive funding programs in place in California and at the federal level. The CA Zero-Emission Truck and Bus Program is a competitive funding program³ that allows all manufacturers of zero-emission technology to partner with transit agencies and compete for project funding. It is very much modeled after the highly competitive Federal Transit Administration’s Low or No Emission Program, which has helped fund the purchase of zero-emission transit buses across the US. The CA program is important in that it allows newcomers to receive funding for not only buses, but also chargers (EVSE). Additionally, we suggest that the state pay 110% of only the incremental costs of the buses and required charging infrastructure, much like the state of Colorado has proposed in its draft mitigation plan. This approach will help spur the adoption of a greater number of electric buses among transit agencies, airports and universities. See Exhibit A for a 30-bus project proposal (the State could potentially double the number of buses funded as part of this proposed project if uses the funds from the VW trust to fund the incremental cost of a new electric bus).

Second, we request the EPA to adopt the successful voucher/incentive programs that are helping to accelerate the adoption of heavy-duty EV buses. California’s Hybrid & Zero-Emission Truck and Bus Voucher Incentive Program (HVIP) is a pool of money that is used by transit agencies on a first come, first served basis to bridge the gap between purchasing a fossil fuel vehicle and a zero-emission vehicle. For example, the transit bus OEM can receive a voucher for up to \$160,000 per EV vehicle, which amount is then deducted from the cost of the bus. New York City (New York Truck Voucher Incentive Program) and Chicago (Drive Clean Truck Voucher Program) have implemented similar programs. These programs have proven valuable in allowing agencies (and commercial properties) to grow their fleets of zero-emission buses.

The electrification of heavy duty vehicles offers a pathway towards achieving the numerous benefits associated with zero emission transit, including significant cost reductions. Indeed, Park City, Utah’s recent deployment of Proterra buses is the poster child for why states should emphasize the electrification of transit buses with their VW mitigation funding. In June 2017, Park City Transit deployed six battery electric buses. Since that time, the electric fleet has traveled more than 160,000 miles using 269,400 of kWh electricity, resulting in an average fuel efficiency of 1.7 kWh/mile, or just over 22 MPGe (compared to 4 MPG for Park City’s diesel buses). The electric buses have displaced the use of ~ 32,000 gallons of diesel fuel in their first four months alone, while eliminating more than 801,000 lbs. of GHG emissions. Additionally, the

¹ <https://www3.epa.gov/cgi-bin/broker?polchoice=NOX& debug=0& service=data& program=dataprog.national 1.sas>

² <https://www3.epa.gov/cgi-bin/broker? service=data& debug=0& program=dataprog.state 1.sas&pol=NOX&stfips=39>

³ If applicable, Proterra also supports a sole-source grant award^{www.proterra.com}



PROTERRA

electric buses have saved Park City Transit money through the savings in fuel and maintenance. In fact, the cost per mile of operation has dropped from a high of \$0.63 a mile using diesel to a low of \$0.30 using electricity. Not surprisingly, Park City has seen an increase in ridership on those routes utilizing zero emission buses, causing other municipalities to determine how they too can add and/or increase the number of zero emission buses on the road.

Lastly, Appendix D of the VW Settlement allows each beneficiary to invest up to 15% of its allocation of Trust Funds on costs associated with deploying new, light duty EVSE. Proterra recommends that Ohio dedicate its entire 15% towards electric vehicle charging infrastructure. Proterra's newly-introduced extended range bus, the E2, supports SAE J1772 CCS charging, which is also the standard adopted by many light duty OEMs. Accordingly, the additional investment in charging infrastructure has the added benefit of accelerating EV adoption across the light duty sector as well.

Thank you for the opportunity to provide comments on eligible mitigation projects that will reduce emissions of NOx from vehicles. Please feel free to contact me directly at 864-214-2668 or emccarthy@proterra.com.

Sincerely,

Eric J. McCarthy

SVP, Government Relations, Public Policy and Legal Affairs
Proterra Inc.

www.proterra.com

The Public Transit Electrification Project: Sustainable Mobility for Ohio

Project Application Information

Proterra Inc.

Eric J. McCarthy

Private Corporation (Non-Government)

1 Whitlee Court, Greenville, SC 29607

864-214-2668

emccarthy@proterra.com

PROJECT SUMMARY

Zero-emission public transit buses are ripe for immediate scaling and investment from the Environmental Mitigation Trust to help carry out the goals of Ohio's mitigation plan to achieve significant and sustained reductions in diesel emissions and expedite deployment and widespread adoption of zero-emission vehicles. *The Public Transit Electrification Project* will initially deploy 30 zero-emission, battery-electric transit buses and 30 multi-use depot charging stations at one or more Ohio municipalities to provide electric mobility for all Ohio residents and serve as a strong spark to accelerate the deployment of ZEVs, reduce diesel emissions and eliminate toxic air pollutants. The size of the project, however, can easily scale to accommodate other interested transit agencies.

Proterra, the leading U.S. provider of zero-emission, all-electric transit solutions, designs and manufactures the world's most fuel-efficient battery electric bus and features on-route, fast-charge technology that offers functionally unlimited range, as well as an extended range version that enables transit agencies to travel 350 miles on a single charge. Proterra's CATALYST™ bus achieves 22+ MPGe performance, 500%+ better than diesel and CNG buses, eliminating toxic diesel particulate matter and reducing carbon emissions by 70% or more compared to CNG or diesel buses. To date, Proterra's buses have logged 3+ million miles of service in cities across the United States. With over 38 transit customers and over 400 buses on order, Proterra has become the zero-emission technology provider of choice for transit agencies nationwide.

Proterra will manufacture and deploy the commercial zero-emission buses and depot charging stations and will work closely with the participating Ohio municipality or municipalities to successfully implement *the Project*. *The Public Transit Electrification Project* will demonstrate the economic and environmental benefits of accelerating the transition to commercially available ZEV technology, increase ZEV access and education, and eliminate toxic diesel exposures – achieving the goals of Ohio's mitigation plan to improve and protect ambient air quality.

The Public Transit Electrification Project: Sustainable Mobility for Ohio

The goals of this Project are to:

- Reduce NO_x emissions to improve air quality and provide health benefits.
- Launch a zero-emission public transit bus pilot project to demonstrate concepts of sustainable mobility in one or more municipalities.
- Increase zero-emission vehicle awareness and access.
- Accelerate scaled zero-emission vehicle deployment.
- Demonstrate the economic and environmental benefits of accelerating the transition to commercially available zero-emission technology to a large cluster of transit routes.
- Provide zero-emission buses to benefit those areas and vulnerable communities that bear a disproportionate share of the State's air pollution burden, eliminating toxic emissions and providing zero-emission miles.
- Lead the transformation and technology transfer for a wide range of commercial fleets.
- Help drive down per-vehicle zero-emission bus costs with the Project's scale.

The objectives of this Project are to:

- Deploy 30 zero-emission, battery-electric transit buses and 30 multi-use depot charging stations to show that commercially available battery electric transit buses better serve communities' transit needs, substantially reduce greenhouse gas emissions, and provide substantial localized air quality benefits for disadvantaged communities.
- Reduce greenhouse gas emissions by up to ~ 3,336 metric tons CO_{2e}/year.
- Eliminate ~ 2.9 tons/year of weighted criteria pollutants and PM emissions.
- Provide scalable lessons learned to drive additional deployments of zero-emission heavy-duty technologies throughout Ohio.
- Deploy Proterra buses that charge using the J 1772 CCS standard.

PROJECT DETAIL

The *Public Transit Electrification Project* will deploy 30 zero-emission, battery-electric transit buses and 30 multi-use depot charging stations at the participating Ohio municipality or municipalities. To this end, Proterra is in discussions with some of the largest transit agencies in Ohio. These agencies are located in areas that receive a disproportionate quantity of air pollution from diesel fleets and from highway diesel NO_x.

The VW settlement provides a much-needed opportunity to further demonstrate that commercially available zero-emission technologies have the lowest cost of ownership, improved maintenance and performance, and better serve a diverse range of communities' public transit needs, including the reduction of diesel emissions and the elimination of criteria emissions.

The Public Transit Electrification Project: Sustainable Mobility for Ohio

Proterra – Technology Manufacturer and Project Coordinator

Proterra's zero-emission, battery-electric technology is being deployed in revenue service throughout the nation. Transit agency early adopters, such as Foothill Transit and San Joaquin RTD in California, have demonstrated the technology readiness of Proterra's battery all-electric solutions on urban as well as mixed suburban routes – and now major metropolitan agencies such as SEPTA (Philadelphia) and King County Metro (Seattle) are placing larger orders - 25 and 73 buses respectively. Nevertheless, there is a need for more deployments to demonstrate the economic, performance and lasting environmental benefits of deploying commercially available, cost-saving, zero-emission battery electric buses. The *Public Transit Electrification Project* will accelerate the deployment and adoption of commercially viable, immediately scalable zero-emission public transit buses in similar fleets throughout Ohio and beyond.



For the proposed project, Proterra will offer its extensive experience and expertise in manufacturing, deploying, operating, and maintaining commercial zero-emission buses and infrastructure – working closely with one or more participating transit agencies. To date, Proterra's buses have logged 3+ million miles of service in cities across the United States. Proterra has zero-emission buses operating in revenue-generating service in the following cities: San Joaquin RTD in Stockton, CA, Foothill Transit in Pomona, CA, VIA Metropolitan in San Antonio, TX, University of Montana in Missoula, MT, WRTA in Worcester, MA, TARC in Louisville, KY, LexTran in Lexington, KY, Nashville MTA in Nashville, TN, PVTA in Springfield, MA, Star Metro in Tallahassee, FL, King County Metro, WA, RTC in Reno, NV, Jones Lang LaSalle in Chicago, IL, CATBus in Seneca, SC, Park City Transit, Park City, UT, Sportran in Shreveport, LA, DDOT in Washington, DC and soon at MTA in New York, NY and SEPTA in Philadelphia, PA.

The battery-electric buses and charging infrastructure for this project will be manufactured at Proterra's manufacturing facility in Greenville, SC. The close proximity to the transit agency partner will ensure collaboration and ease of maintenance for any needed repairs to the vehicles and charging infrastructure during the 12-year vehicle lifespan.

Eligible Technologies to be Implemented

- **Battery-Electric Bus:** Proterra will replace Class 8, diesel heavy-duty transit buses at one or more transit agencies with 30 Proterra E2 battery-electric buses. Proterra is proposing its 40-foot Catalyst E2 battery-electric bus. The proposed Catalyst E2 bus has a total of 440kWh of on-board energy storage; more than 25% more capacity than other 40' battery electric

The Public Transit Electrification Project: Sustainable Mobility for Ohio

buses on the market. Importantly, the Catalyst was designed from the start exclusively as an electric vehicle. It delivers remarkable route flexibility and has a stellar track record in operational performance. The bus body is made with advanced carbon composites that are extremely light, durable, and resistant to corrosion. The bus body is then paired with an advanced, scalable energy storage system and the most efficient drivetrain on the market. With its durability and corrosion resistance, this platform is designed to safely and to quietly withstand nearly two decades of service. The curb weight of the vehicle is 29,849 lbs. and the Gross Vehicle Weight is 39,050 lbs. The maximum speed is 65 mph (6000 RPM).

- Plug-In Charging System: Proterra is proposing 30 62.5 kWh depot chargers that can be combined to charge a Catalyst E2 440kWh bus from 0% to 100% State of Charge (SOC) in ~ four (4) hours.

Management/Implementation Capacities

Proterra will work directly and collaboratively with a municipality to ensure the successful planning, manufacturing, deployment, operation, and maintenance of the zero-emission public transit buses and charging infrastructure throughout the Project. Proterra will provide significant executive staff resources and a dedicated maintenance employee to ensure a successful deployment of zero-emission vehicles and charging infrastructure and proper training for all existing service and maintenance employees.

The Proterra team members have extensive backgrounds in project management, manufacturing, vehicle deployment, vehicle maintenance and operations, vehicle and infrastructure training, and permitting and other on-site operational needs. The Proterra team will ensure this project is on time and within budget.

Project Objectives and Work Plan

The Project will demonstrate that zero-emission technologies can achieve significant and sustained reductions in diesel emissions in areas that receive a disproportionate quantity of air pollution from diesel fleets - perfectly capturing one of the primary goals of Ohio's mitigation plan. The Project will also help accelerate the deployment and increase the awareness of electric vehicles, as well as provide the opportunity for all state residents to ride in an electric vehicle. It will serve as a major component of a citywide ecosystem that increases awareness of the many options for zero-emission mobility. In turn, this Project will significantly accelerate the adoption of zero-emission vehicles that will reduce greenhouse gas emissions, eliminate criteria pollutants, and provide the opportunity for all residents to go electric today and realize the many associated health benefits.

The Project tasks are divided into four major phases that are necessary to prepare for and conduct the proposed *Public Transit Electrification Project*: 1 – Project Kick-Off, 2 – Production and Delivery, 3 – Entry into Service, and 4 – Reporting and Feedback. Each phase is described below and in further detail, including identifying the entity is performing each task.

The Public Transit Electrification Project: Sustainable Mobility for Ohio

Phase 1 – Project Kick-Off [9 months]

Phase 1 lays the foundation for the success of the *Public Transit Electrification Project*, which includes finalizing all necessary documents and agreements and attending the kick-off meeting and pre-production meetings with end-users.

Phase 2 – Production and Delivery [up to 12 months]

In Phase 2 the zero-emission buses are manufactured and delivered and the charging infrastructure are ordered, delivered, and installed. This includes the site design, permitting, production and installation of each charging station, as well as the status report of the vehicle production and delivery.

Phase 3 – Entry into Service [3 months]

In Phase 3, Proterra will initiate the customer launch process that ensures that the buses are effectively and efficiently received, inspected, accepted and deployed with confidence. About 6 weeks before the delivery of the first bus, Proterra initiates the launch process, which includes providing an overview of the vehicle, the end-user training, and coordination to ensure the end-user to ready for delivery and deployment of the vehicles into service.

Phase 4 – Reporting and Feedback [ongoing]

Throughout the Project, Proterra will provide quarterly status reports to the state and the transit agency. Each vehicle is equipped with an on-board data logger that provides data on bus performance and Proterra will ensure that all necessary data is compiled and reported to both entities.

Project Vehicles, Equipment and Service

Proterra will work directly with a transit agency to ensure a successful execution and completion of the project – including vehicle operation, charging, vehicle maintenance and repair, and data collection. Proterra has worked with multiple transit agencies across the United States. This vast experience will ensure successful implementation.

Proterra will install on-board data loggers in each vehicle to provide performance data on a quarterly basis. Data will include, but not be limited to: fuel/electricity consumption, fueling/charging times, state of charge, battery and odometer readings, relevant telematics, GPS data, hours of operation, temperatures, etc.

Proterra has developed extensive driver and maintenance technician training to ensure successful execution and completion of the proposed pilot project – including, but not limited to, training for vehicle operation, charging, vehicle maintenance and repair, and data collection. The training for both drivers and maintenance technicians includes classroom instruction and hands-on/in-the-seat training. The training will be performed at each end-user location with the appropriate materials available to the participants. The training includes tests that are administered after each classroom session and a certificate of completion after the participants have successfully finished the course. All drivers, maintenance technicians, and transit managers for this proposed project will receive classroom instruction and hands-on training. In addition, Proterra has created a series of “YouTube” style videos that provide an easy reference tool and more background on procedures – such as

The Public Transit Electrification Project: Sustainable Mobility for Ohio

docking the bus successfully, towing the bus safely, using the diagnostic tool, and high-voltage safety.

The Proterra battery-electric bus and charging infrastructure that will be used in the *Public Transit Electrification Project* is the Catalyst E2 extended-range, battery electric vehicle for use on all routes. The Catalyst E2 vehicle, which offers energy capacity of 440 kWh and a nominal range of ~ 250 miles per charge, uses a 62.5 kWh Plug-in Depot Charger that is commercially available with dual charging connectors. Proterra is the only EV bus manufacturer to invest in the standard SAE J1772 CCS for depot charging. This unique offering allows transit agencies to charge their fleet of light duty electric vehicles or offer public charging when the transit buses are not utilizing the chargers.

Using a sophisticated computer model, Proterra can analyze each transit route to ensure that the infrastructure and vehicles are designed and engineered to match the specific minimum charging needs of the 30-bus fleet. The inputs to the route simulation tool include: route distance, speed, stops, layovers, duration, and grade, as well as passenger loading, ambient temperature/HVAC loads, and other accessory devices that use power for the safe and efficient operation of the vehicles. This simulation provides information on charging station needs and location planning, route performance, gradeability and feasibility, fuel savings/cost of operation evaluation, route schedule, and harmful emission reduction calculations.

Proterra has extensive experience installing depot chargers, securing necessary permits with local entities, and addressing electrical needs and grid impacts throughout the country. Proterra will work directly with the end-user in the *Public Transit Electrification Project* and associated utility to ensure that the patiating municipality obtains all permits and approvals necessary for the infrastructure, as well as address any grid impacts or electrical needs at the charging location.

Potential Emission Reduction Benefits/Expected Proposed Project Benefits

At Proterra, we're continually refining designs and looking for innovative ways to reduce impact on the environment. Proterra buses produce zero tailpipe emissions and decrease dependency on fossil fuels. Emissions are reduced by an astounding ~ 200,000 lbs. of CO₂ annually each time a dirty diesel vehicle is replaced by a zero-emission bus. Particulate matter from traditional transit buses contains numerous harmful gases and upwards of 40 cancer-causing substances.

A typical diesel bus emits ~ 200,000 lbs. of greenhouse gases annually, while a CNG bus emits ~ 175,000 lbs./year and a diesel hybrid emits ~140,000 lbs./year. A switch to zero-emission buses, which emit no tailpipe pollution, presents a critical opportunity to cut pollution, reduce oil dependence and make Earth a better place.

The Public Transit Electrification Project: Sustainable Mobility for Ohio

Annual Tailpipe Emissions

Emission (lbs/bus/yr)	Proterra	CNG	Hybrid	Diesel
CO	0	1,822	20.59	41.18
CH4	0	792	4.11	4.03
CO ₂	0	169,488	140,976	198,000
GHG (CO _{2e})	0	190,080	141,083	198,105
NO _x	0	46.73	92.66	92.66
VOC	0	3.82	3.82	3.82
PM (2.5+10)	0	3.52	3.52	3.52
BC	0	0.15	0.15	0.15

<https://greet.es.anl.gov/>

Assumes 36k miles driven per bus per year.

The well-to-wheel GHG emissions avoided for 30 zero-emission transit buses is approximately 3,336 metric tons CO_{2e}/year. Based on a conservative 12-year lifespan of the zero-emission, battery-electric buses – the project's lifetime well-to-wheel GHG emissions avoided is up to 40,035 metric tons CO_{2e} (for a 30-bus deployment).

All the vehicles in the proposed project are zero-emission battery-electric vehicles that do not have any tailpipe emissions; therefore, there are no additional NO_x, ROG or PM₁₀ emissions associated with the project. The total tailpipe emission reduction for 30 zero-emission transit buses is 1.26 tons NO_x/year, 0.0519 tons of ROG/year and .0479 of PM₁₀/year. Combined tailpipe weight emission reductions for criteria pollutants is 1.36 tons/year and 16.33 tons over the lifetime of the project. That reduction more than doubles when well-to-wheel criteria pollutants are considered, reducing ~ 3.0 tons/ year and 34.76 tons over the lifetime of the project.

The estimated cost-effectiveness of the total project dollars per ton of combined criteria pollutant and weighted PM emissions reduced, and dollars per ton of GHG emissions reduced during a 12-year operation for all 30 vehicles are the following:

- Total Cost Effectiveness of GHG Emission Reductions
 - (Capital Recovery Factor x Project Cost)/Annual GHG Emission reductions

The Public Transit Electrification Project: Sustainable Mobility for Ohio

- $(.095 \times \$24,100,000.00)/3,336$ metric tons of CO₂e = \$686.30/metric tons of CO₂e
- Total Cost Effectiveness of Criteria Pollutants¹
 - (Capital Recovery Factor x Project Cost)/Annual criteria pollutant emissions reductions
 - $(.095 \times \$24,100,000.00)/1.26$ metric tons weighted criteria pollutants = \$1,817,063.49/metric tons of weighted criteria pollutants

Proterra used the Carl Moyer Program Guidelines for the cost calculations.

<https://www.arb.ca.gov/msprog/moyer/guidelines/current.htm>.

Economic and Environmental Benefits

The *Public Transit Electrification Project* is both located within and provides direct economic and environmental benefits to one or more municipalities. The proposed project addresses common economic needs of communities, including increasing job readiness and career opportunities, improving transit service, and creating further quality jobs. Proterra will provide on-the-job training and certifications for driver and maintenance technicians to operate, maintain and repair zero-emission heavy-duty vehicles. This will increase job readiness and career opportunities in the growing electric vehicle market and further career opportunities. In addition, Proterra's state-of-the-art zero-emission public transit vehicles will eliminate toxic diesel and other criteria pollutant exposures to passengers – improving transit service within communities. The *Project* will increase quality jobs – including a dedicated Proterra employee to oversee the project, construction jobs to deploy the electric charging stations and other indirect jobs from vehicle component suppliers.

By combining performance, efficiency and design, Proterra's zero-emission, battery-electric transit buses offer the lowest total cost of ownership as compared to conventional diesel transit buses. Proterra's zero-emission transit buses operate with fewer moving parts – reducing maintenance costs associated with oils, filters, fluids, particulate filters, and brakes. In addition, electricity is much less expensive and less volatile than traditional diesel or other petroleum fuel – helping to reduce costs and provide more certainty for operating costs. Proterra's buses have significantly higher fuel efficiency, an average of 1.7 kWh/mile or 23.4 mpg equivalency, which also helps provide significant economic benefits for the participating municipality.

These operational advantages yield at least \$135,000 savings in maintenance costs and \$290,000 in fuel savings as compared to diesel fuel. Therefore, the economic benefits are over \$400,000/bus in savings during the 12-year Federal Transit Agency (FTA) mandated lifetime of the vehicle for the transit agency or agencies participating in the *Public Transit Electrification Project*.

¹ NO_x is included in the criteria pollutants and comprises the majority of those pollutants.

The Public Transit Electrification Project: Sustainable Mobility for Ohio

Lastly, we estimate that, over 12 years of operation, the 30 Proterra buses will reduce ~ 3 million gallons of diesel fuel. On a per bus basis this equates to 100,000 gallons of diesel saved each year in typical transit operation (e.g., ~36,000 miles per year).

Estimated Project Cost

The estimated total project cost for 30 zero-emission, battery-electric transit buses and 30 multi-use depot charging stations is **\$24,100,000.**² Funding is needed now to further demonstrate that commercially available zero-emission technologies have the lowest cost of ownership, improved maintenance and performance, and better serve a diverse range of communities' public transit needs, including the reduction of GHG and the elimination of criteria emissions.

<u>Item</u>	<u>Cost</u>	<u>Quantity</u>	<u>Subtotal</u>	<u>Taxes</u> <u>0%</u>	<u>Total</u>
Proterra Bus	\$749,000.00	30	\$22,470,000.00	0.00	\$22,470,000.00
Depot Charger	\$50,000.00	30	\$1,500,000.00	0.00	\$1,500,000.00
Regional Service Representative and fringe benefits	\$130,000.00	1	\$130,000.00		\$130,000.00

The above costs assume that OEE would fund 100% of the purchase price of an all-electric bus and charger. However, the State could potentially double the number of buses funded as part of this proposed project if it uses the funds from the VW trust to fund 110% of the incremental cost of a new electric bus and associated charging infrastructure.

Increase ZEV Awareness and Education

To increase the exposure of the vehicles in the *Public Transit Electrification Project*, Proterra will develop project-specific webpages that will provide information on emission savings, vehicles deployed and funding sources to showcase the environmental and air quality benefits of the *Project* as a model deployment for other regions throughout Ohio and across the nation. Additionally, Proterra will work with the transit agency or agencies to customize bus wraps to include messages that highlight the zero-emission technology and acknowledging the funding sources for the successful deployment.

In addition, Proterra will work directly with any participating municipality and its transit agency to implement an outreach strategy to the community to help raise awareness and education about the health, air quality and other benefits of zero-emission technology. In conjunction with the end-users,

² This cost may vary slightly depending on the applicable tax rate, if any, and how the buses are configured and optioned by the participating transit agency. Finally, installation costs for the depot chargers are not included as they vary widely.

The Public Transit Electrification Project: Sustainable Mobility for Ohio

Proterra will launch a direct mail and email marketing campaign to generate awareness about the zero-emission transit bus technology in their communities. In addition, Proterra will provide a demonstration bus to circulate prior to the project deployment to help raise awareness and provide education about the vehicle technology. At the launch of service, Proterra will work with the local transit partner to execute a local public relations strategy – including press releases, media outreach and a launch event. Proterra will also offer an option to publicly display emissions savings and environmental benefits information on the transit agency's website.

Other

In addition to the above, Proterra strongly recommends that Ohio direct 85% of the VW settlement funds to incentivize the deployment of zero emission, battery electric transit buses and medium duty vehicles to help reduce NOx and GHG emissions and vehicle miles traveled, as well as provide other health and associated benefits throughout Ohio. We also recommend that Ohio dedicate 15% towards EV charging infrastructure.

Beyond this specific project, we propose that Ohio adopt two specific funding programs that have significantly accelerated the adoption of heavy duty EVs and, as a direct result, helped reduce NOx and GHG emissions. First, we urge Ohio to adopt the competitive funding programs in place in CA and at the federal level. The CA Zero-Emission Truck and Bus Program is a competitive funding program that allows all manufacturers of zero-emission technology to partner with transit agencies and compete for project funding. It is very much modeled after the highly competitive Federal Transit Administration's Low or No Emission Program, which has helped fund the purchase of zero-emission transit buses across the US. The CA program is important in that it allows newcomers to receive funding for not only buses, but also chargers. Second, California's Hybrid & Zero-Emission Truck and Bus Voucher Incentive Program (HVIP) is a pool of money that is used by transit agencies on a first come, first served basis to bridge the gap between purchasing a fossil fuel vehicle and a zero-emission vehicle. For example, the transit bus OEM can receive a voucher for up to \$160,000 per EV vehicle, which amount is then deducted from the cost of the bus. New York City (New York Truck Voucher Incentive Program) and Chicago (Drive Clean Truck Voucher Program) have implemented similar programs. These programs have proven valuable in allowing agencies (and commercial properties) to grow their fleets of zero-emission buses.

Conclusion

The *Public Transit Electrification Project* will deploy 30 zero-emission, battery-electric transit buses and 30 multi-use depot charging stations at one or more municipalities to provide electric mobility and serve as a successful pilot project to accelerate the deployment of electric vehicles, reduce NOx

emissions, improve air quality and provide health benefits. Proterra is excited to increase zero-emission vehicle awareness and eliminate toxic diesel exposures to both transit riders and non-transit riders throughout Ohio and beyond.



Union County Community Improvement Corporation
Economic Development Partnership

227 East Fifth Street
Marysville, Ohio 43040
Ph 937.642.6279
www.unioncounty.org

February 7, 2018

Ms. Carolyn Watkins
Ohio EPA-OEE
P.O. Box 1049
Columbus, OH 43216-1049

RE: VW Comment

Dear Ms. Watkins:

Thank you for the opportunity to review and comment on the Ohio EPA's Draft Beneficiary Mitigation Plan. On behalf of the Union County-Marysville Economic Development Partnership, please accept these comments as it relates to the proposed \$10 million reserve for the buildout of EV charging stations.

After reviewing the Mitigation Plan, we were disappointed to see that Union County was excluded from eligibility. We understand this was a result of Union County's attainment status, however, we ask you to please reconsider and include Union County as an eligible county.

Below are several reasons we feel Union County should be included in the potential funding for EV charging station infrastructure:

1. Satisfies 2 of the 4 stated EPA goals for use of the \$75M settlement funds:
 - a. Improve air quality by providing cost-effective reduction of NOx emissions in counties Ohio EPA has designated as first or second priority, based on factors described in section III-C;
 - b. Maximize emission reductions where they are most needed, while also considering environmental justice considerations associated with historical emission levels and concentrations;
 - c. Expedite deployment and widespread adoption of zero-emission and near-zero emission vehicles and engines; and
 - d. Support Ohio's statewide energy, environmental and economic development goals, including, but not limited to, reducing other significant pollutants, promoting infrastructure development, and advancing the market for clean fuels and technologies eligible for Mitigation Trust funding.

2. Union County is home to the 35-mile 33 Smart Corridor (www.33smartcorridor.com), one of Ohio's five smart mobility initiatives. The State of Ohio has shown its commitment to the corridor via generous funding through the Ohio Department of Transportation for the installation of highway infrastructure that will allow for the development and testing of smart mobility and AV/CV technologies. The State of Ohio has also funded the creation of the Transportation Research Center's SMART Center, a 540-acre center designed to test

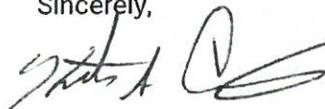
new automotive technologies and highly automated vehicles.

3. Union County is home to one of the largest clusters of automotive companies in Ohio with over 65 automotive companies, including the North America campus of Honda of America Mfg., Inc. With the presence of Honda in our community, Union County produces more automobiles than any other county in Ohio. Honda has a goal to transition to the mass production of electric automobiles by 2025. As a result, Union County is likely where many EV's will be developed, tested, and manufactured. It is therefore critical that we have the infrastructure in place to support this emerging technology.
4. We have formed partnerships with entities such as the Transportation Research Center, The Ohio State University, State of Ohio, Ohio Department of Transportation, and DriveOhio, among others, to support the development and commercialization of disruptive automotive technologies that will further advance Ohio's automotive ecosystem.
5. Union County's emission levels exceed NOx emissions of Madison County in several categories and the sum totals are very similar (total measured tons in Madison = 1977.7 vs Union = 1954.9). This is per 2014 US EPA National Emissions Inventory of Nitrogen Oxide Values.

In conclusion, we hope that you will look favorably upon this request to include Union County in the EV program. The installation of EV charging stations at sites throughout Union County will not only support the stated goals of the Ohio EPA, but also allow our automotive companies and researchers to further develop EV technologies that will benefit the general public for decades to come.

Thank you for your time and consideration.

Sincerely,



Keith Conroy
Chairman



Eric Phillips
Executive Director

cc: DriveOhio

February 5, 2018

Carolyn Watkins
Ohio EPA-OEE
P.O. Box 1049
Columbus, OH 43216-1049

Dear Ms. Watkins:

Thank you for the opportunity to provide comments on Ohio's VW Settlement Mitigation Plan.

UPS was founded almost 110 years ago as messenger service and has turned into one of the largest package delivery companies in the world. We currently operate in 220 countries and deliver over 4.7 billion packages each year. With a fleet of over 110,000 vehicles, efficiency is key to our operational success. At the same time, UPS is committed to reducing greenhouse gas emissions. UPS began with electric vehicles in New York City in the 1930s. We have now grown to over 8,000 alternative fuel vehicles that run on compressed natural gas, liquefied natural gas, propane, electric and even e-bicycles. To date our alternative fueled vehicles have driven over 1 billion miles. These vehicles don't just reduce greenhouse gas emissions but ensure UPS is being more efficient; thus, more sustainable.

The VW Settlement provides an opportunity for UPS and other carriers to make an investment in alternative fuel technologies because the funds will help drive down the cost differential for the equipment. While equipment prices have come down some, natural gas and electric vehicles are sometimes two or three times the cost of a gasoline or diesel vehicle. This is why the VW Settlement funds will provide much needed incentives to those wishing to switch to a cleaner burning vehicle.

UPS recommendations on Ohio's VW Settlement Mitigation Plan:

Recommendation #1: Funding for government entities should be the same as those for non-government entities.

UPS believes that states can have a bigger impact, dollar for dollar, by deploying as many low emitting vehicles on the road as possible. If government entities use all of the funds, the impact will be muted as opposed to allowing more cost-share with private entities and maximizing vehicles deployed.

Recommendation #2: While the VW Settlement states electric vehicles can receive up to 75% reimbursement and 25% for natural gas, that doesn't mean it can't be negotiated.

UPS and other carriers who can make a large impact on air quality and have the capital to deploy large quantities of vehicles should have the ability to negotiate with the State of Ohio on an arrangement that benefits the state and the private companies wishing to make the investment. For example, a company that wants to deploy both natural gas vehicles and electric vehicles could negotiate with the state for 50% reimbursement on electric vehicles and a 20% reimbursement for natural gas or some other variation. This would allow for the state to fund large scale projects while preserving money for other smaller projects. This would also be more manageable than providing a generic number and being held

to it for all projects. Projects that have the biggest impact and reduce the most amount of NOx, per dollar spent, should get the largest amount of funding.

Recommendation #3: Entities who have experience with alternative fuel vehicles should be given first priority for funding.

Entities who already have deployed alternative fuel vehicles such as natural gas and electric vehicles understand how to maximize their efficiency. Many have also worked out the issues with bringing online a new fleet of vehicles. In addition, many of these entities already have the infrastructure in place making those “shovel ready” projects which can be executed more quickly over those entities who are non-experienced.

Thanks again for the opportunity to provide comments and we look forward to working with the State of Ohio to use these funds in a manner that will reduce the most amount of NOx while maximizing Ohio’s VW settlement funds.

Sincerely,

Nick D’Andrea

Vice President, Public Affairs

UPS



AMERICAN PETROLEUM INSTITUTE

Ohio

February 7, 2018

Carolyn Watkins
Ohio EPA-OEE
P.O. Box 1049
Columbus, OH 43216-1049
Delivered electronically to: derg@epa.ohio.gov

Subject: Draft VW Beneficiary Mitigation Plan

Dear Ms. Watkins:

The American Petroleum Institute Ohio (API Ohio) is a state affiliate office of the American Petroleum Institute (API). The API is a national trade association representing more than 625 member companies, employing nearly 262,800 Ohioans, involved in all aspects of the oil and natural gas industry. API's members include producers, refiners, suppliers, retailers, pipeline operators, and marine transporters, as well as service and supply companies and contractors that support all segments of the industry. The API and its members, including those in Ohio, are dedicated to protecting the environment while economically developing and supplying energy resources for consumers.

API Ohio's member companies appreciate the opportunity to provide input through the public comment period on the document released on December 7, 2017 related to the Volkswagen Beneficiary Mitigation Plan. As the draft states, Ohio has developed a plan to utilize the funds from the Volkswagen Mitigation Trust to improve air quality in the state.

API supports the draft plan project selection process, which states: "Ohio will prioritize projects for funding that are the most cost-effective and that yield the largest amount of NOx emission reductions."¹ The third of the three groups of eligible project categories: Infrastructure Projects (20-22 Percent) includes up to \$11,295,378 for zero-emission vehicle (ZEV) supply equipment, or 15% of the total state allocation². Ohio indicates the benefits of light-duty electric vehicle charging infrastructure is difficult to quantify, but offers an estimate of \$1.5 million per NOx ton reduced.³ This category of projects appears to be the least cost effective of those included in the plan when determining emission reductions and is not consistent with the draft plan's project prioritization. Ohio ZEV projects should compete in open and fair competition against other ZEV projects in the ZEV Investment Fund, not enjoy artificial boosted rankings through tail pipe emissions calculations competing in Ohio's VW Settlement fund. While the

¹ <http://epa.ohio.gov/Portals/42/documents/VW/OH%20Draft%20VW%20Beneficiary%20Mitigation%20Plan.pdf>; page 11

² Id., page 14

³ Id., page 20

draft plan's goals reference a desire to expedite deployment and widespread adoption of zero-emission and near-zero emission vehicles and engines,⁴ API Ohio believes that additional emission reductions could best be achieved by further funding natural gas or ultra-low sulfur diesel (ULSD) vehicles.

With the Mitigation Trust funds, the state has the opportunity to further reduce emissions by replacing eligible engines and vehicles with newer model diesel engines that make full use of ULSD. When ULSD was introduced, tests completed by the U.S. EPA, the California Air Resources Board, engine manufacturers and others showed that using the advanced emissions control devices enabled by the use of ULSD fuel could reduce emissions of hydrocarbons and oxides of nitrogen (precursors of ozone), as well as particulate matter to near-zero levels.

When the U.S. EPA developed rules to reduce the sulfur in diesel fuel to 15 ppm, it predicted that when the current heavy-duty vehicle fleet was completely replaced in 2030, the use of ULSD could provide annual emission reductions equivalent to removing the emissions from more than 90 percent of the MY2006 trucks and buses. The Mitigation Trust affords the state the opportunity to meet these goals in advance of 2030 by replacing those vehicles with newer diesel engines.

ULSD was introduced in 2006, and by December 2010, it was required in all highway uses. It was also required in all non-road, locomotive and marine uses by December 2014. ULSD fuel enables the use of cleaner technology diesel engines and vehicles with advanced emissions control devices, resulting in significantly improved air quality. The newest diesel engines might even take advantage of the benefits provided by the new API FA-4 diesel engine oil. FA-4 oils are blended to a different high-temperature high-shear (HTHS) viscosity range to assist in reducing greenhouse gas emissions. In addition to the environmental benefits identified above, it remains a high energy density fuel with a robust installed supply infrastructure that is familiar to both users and mechanics. The Mitigation Trust has created an opportunity for our state to reduce emissions and improve the environment, and our association encourages you to consider repowering our existing vehicles with newer clean diesel engines.⁵

The draft plan proposes to utilize an "alternative fuel", and natural gas is a good choice. The U.S. is now the world's largest producer of petroleum and natural gas, so natural gas vehicles help to achieve the public policy goal of maintaining energy and national security. Natural gas is also a clean burning fuel that can have environmental benefits at the local level improving localized ground-level air quality. Natural gas primarily consists of methane (around 90 percent), with small amounts of ethane, propane, and other gases. Methane is lighter than air and burns almost completely, creating carbon dioxide and water as byproducts.

⁴ Id., page 10

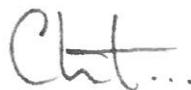
⁵ U.S. EPA, "Detailed Comparison of VW Eligible Mitigation Action 1-9 and Eligible Mitigation Action #10 (DERA Option)" <https://www.epa.gov/sites/production/files/2017-01/documents/vw-dera-option-eligible-mitig-compar-2017-01.pdf>

The draft plan also recognizes the benefits of using equipment fueled with ULSD and natural gas. In Section II: Air Quality in Ohio and Ongoing Diesel Emission Reduction Efforts, it states that the Ohio Clean Diesel School Bus (CDSB) Fund has spent \$9.2 million in grants to reduce “117 tons of pollutants (fine particulates, NOx, carbon monoxide and hydrocarbons) annually from Ohio skies.” The Diesel Emission Reduction Grant (DERG) program, awarded \$57 million to reduce “more than 1,797 tons of air pollutants (fine particulates and NOx)...” These programs resulted in emission reductions totaling 1,914 tons at a cost of \$66.2 million. The Plan correctly focuses on replacing school buses, transit buses, and heavy duty off-road equipment such as tug boats. However, it also proposes to use \$3 million on a pilot project to demonstrate the viability of battery-electric school bus technology and spend \$11.3 million more on light-duty zero emission vehicle supply equipment. It does not appear to consider the potential increase in NOx emissions generated at the power plant by increased loads attributable to the recharging of electric vehicles. Moreover, the total combined cost of the three proposed uses of the VW Mitigation funds is \$75.3 million, but these uses are projected by the state to achieve NOx reductions of only 239 tons annually. It is important to note that electric vehicles (EVs) could actually increase NOx emissions.

In comparison, the state’s previously implemented programs cost \$66.2 million to reduce approximately 1,714 tons NOx⁶ while the proposed use of the VW Mitigation fund as exemplified in the draft plan would use \$75.3 million to reduce 239 tons of NOx annually. We suggest that the state of Ohio should further evaluate the relative costs/benefits of each of the three proposed general uses of the VW mitigation funds and target its efforts towards replicating those which are most cost-effective (e.g., such as the successfully implemented Clean Diesel School Bus Fund and DERG) for the citizens of Ohio. This includes using funds on vehicle repowers and replacements that use ULSD and natural gas.

Thank you for your attention, and for your consideration of our comments. If you have any questions, please don’t hesitate to contact me.

Sincerely,



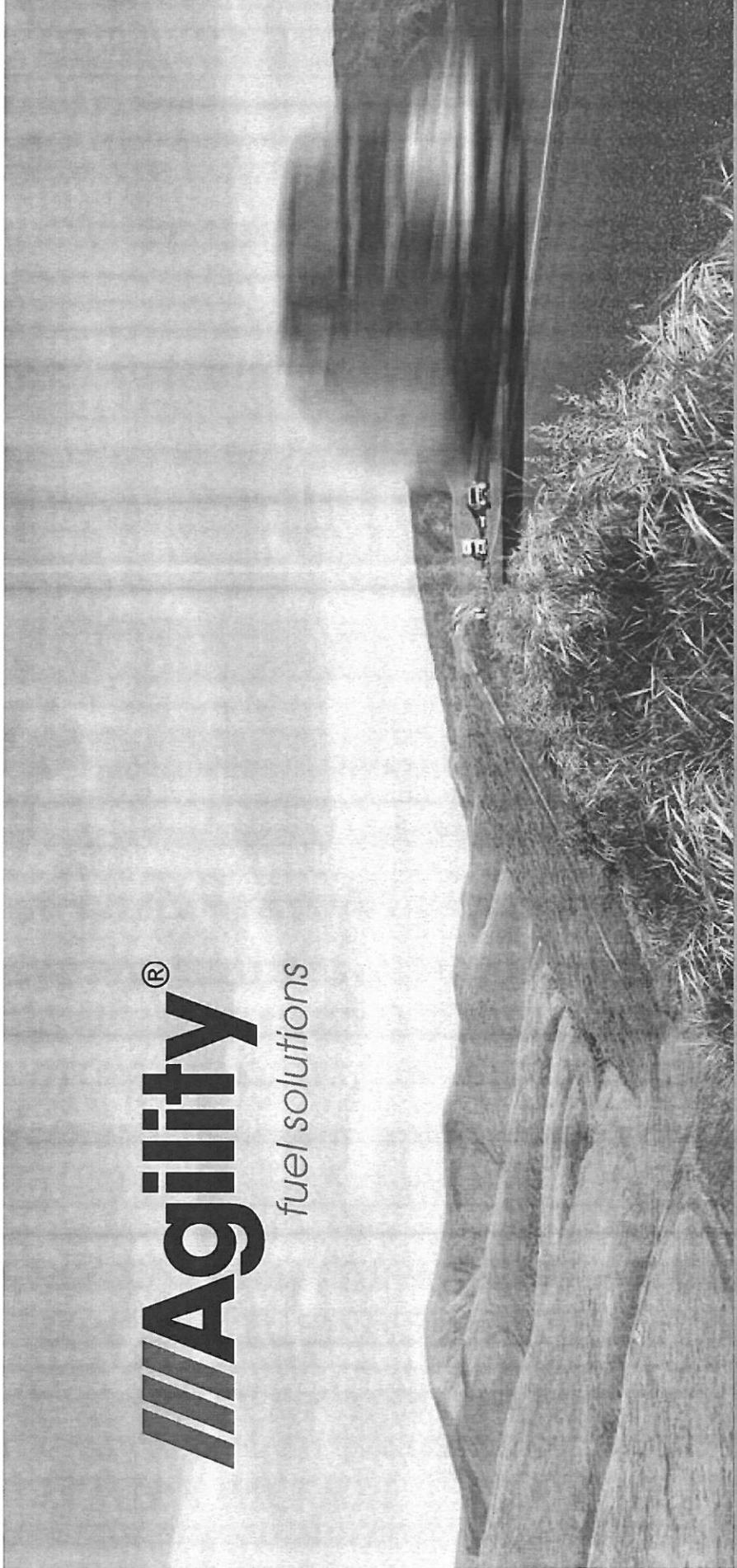
Chris Zeigler
Executive Director
API Ohio

CC: Craig Butler

⁶ Approximated based on estimates from a 2007 EPA study of the relative total amounts of NOx and PM2.5 emissions produced from diesel engines (95% and 5%, respectively). See US EPA, “The Cost-Effectiveness of Heavy-Duty Diesel Retrofits and Other Mobile Source Emission Reduction Projects and Programs,” EPA420-B-07-006, May 2007, https://www3.epa.gov/ttn/naaqs/aqmguid/collection/cp2/20070501_otaq_epa-420_b-07-006_cost-effectiveness_hd_diesel_retrofits.pdf

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fuel solutions



VW Settlement Funds Comments

Repower Project

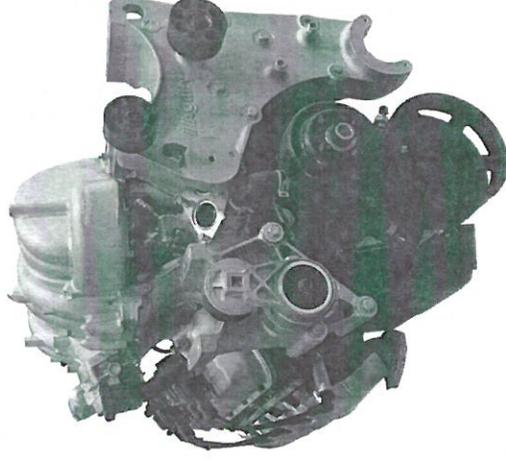


What is an engine repower?

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fuel solutions

An engine repower project involves replacing the existing engine with a new, rebuilt, or remanufactured engine.

This is a strategic and cost effective way to significantly reduce emissions, while allowing the original vehicle body and chassis to be maintained.



Benefits of a propane repower



The average lifetime of a school bus is 12 to 15 years. Replacing the diesel engine with a liquid propane gas (LPG) engine repower package will provide additional years of operation using an environmentally cleaner, quieter and more reliable product compared to diesel.

By repowering a diesel-powered bus with a clean burning propane-powered engine; NOx emissions go down by a staggering 92 percent when replacing pre-2007 diesel buses with newer propane buses.

Benefits of operating an LPG engine provides social, economic and environmental benefits:

- Lower fuel cost & operating cost per mile driven
- Lower maintenance costs
- Cleaner burning fuel
- Lower NOx emissions



Repower is a cost effective alternative



An engine repower is a strategic way to significantly reduce the emissions from an engine, but allow the original vehicle body and chassis to be maintained. This is more cost-effective than replacing the entire vehicle.

Eligible Mitigation Project Category	Average Cost
Repower with LPG engine	\$35,000
Propane school bus replacement	\$95,000
CNG school bus replacement	\$125,000
EV school bus replacement	\$300,000



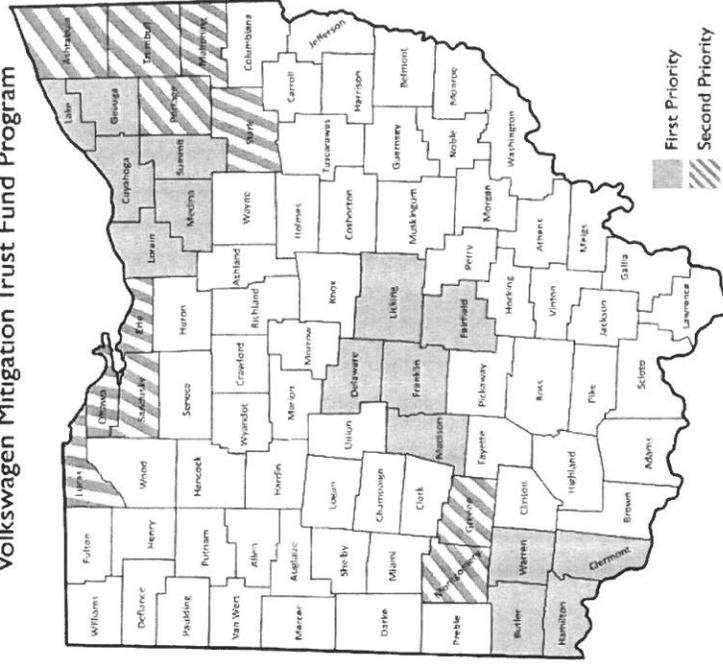
Ohio's draft plan



Ohio's draft plan recommends 20% of the total settlement (\$15 million) allocated for the replacement of school bus replacement.

The 20% allocation will allow Ohio to replace 70 diesel-powered city buses or repower more than **390 buses** with alternative fuel engines.

Possible Ohio Priority Counties for Volkswagen Mitigation Trust Fund Program



Company confidential – do not share outside the company

Why repower for Ohio



In Ohio, 390 diesel-powered vehicles are in operation that experience premature diesel engine failure well ahead of the useful life of the vehicle. For example, school buses with a 20+ year life expectancy are experiencing engine failures in less than half this time frame.

These school buses can easily be re-powered to operate on propane fuel using the same engine and fuel system referenced above.

DISEL IMPACTS

Health Impacts

- Aggravated asthma & allergy symptoms
- Heart & lung disease
- Cancer
- Preventable death

Environmental Impacts

- Crop & forest damage
- Acid rain
- Waterways overwhelmed by nutrients
- Smog
- Climate change

People Most at Risk

- Children
- Asthmatics
- The elderly
- Occupationally exposed (police officers, bus drivers, construction workers, etc.)



Ohio repower proposal



- The engine repower assembly will take place at Fontaine Modification or Lykins Energy Solutions, both based in Ohio providing jobs and economic growth to the state
- Agility Powertrain Systems has a dedicated GM 8.0L propane fueled engine certified to meet EPA and CARB emissions regulations
- The engine marketed to OEM's and fleets under the brand name Agility 488LPI is available with a complete state of the art liquid propane system that has been proven in the market for the past 10 years.
- The 488LPI engine and fuel system is sold to a major OEM in North Carolina who utilize it in their school bus, truck and delivery truck applications.



NGVAMERICA

Natural Gas Vehicles for America

400 North Capitol Street, N.W.
Washington, D.C. 20001
ngvamerica.org



February 7, 2018

Craig W. Butler, Director
Carolyn Watkins, Chief, Office of Environmental Education
Ohio Environmental Protection Agency
50 West Town Street, Suite 700
Columbus, OH 43215

RE: NGVAmerica Comments on the State of Ohio Draft VW Beneficiary Mitigation Plan

Dear Director Butler and Chief Watkins:

Natural Gas Vehicles for America (NGVAmerica), the national trade association for the natural gas vehicle industry, respectfully submits the following comments on the State of Ohio (OH) Environmental Protection Agency's (EPA) Volkswagen Beneficiary Mitigation Plan (Plan). These comments are in addition to the NGVAmerica comments submitted to you on December 30, 2016 (attached) regarding NGVAmerica's recommendations on how states can best use the Environmental Mitigation Trust (EMT or Trust) funds provided by the Volkswagen (VW) diesel emission settlement.

The VW EMT funds provide an extraordinary opportunity for Ohio and other states to put significantly cleaner, lower-polluting vehicles on the road in public and private fleets. This funding (\$75.3 million) can and should be used by Ohio to continue its commitment across the state to accelerate the use of cleaner, alternative fuels that offer a cost-effective alternative to funding diesel vehicles.

The latest natural gas engines (CNG and LNG) are the only zero emission equivalent or near zero engines that are certified to perform at 0.02 g/bhp-hr of nitrogen oxide (NOx) emissions or better and should not be confused with diesel engines certified to the 2010 EPA standard of 0.2 g/bhp-hr NOx standard.¹ The 0.02 g/bhp-hr NOx standard requires that new engines outperform the federal standard by 90 percent and is the cleanest heavy-duty engine standard today. It also is the lowest level currently recognized under California's Optional Low-NOx Standard (OLNS) for engine. Additionally, if renewable natural gas (RNG) is used, life cycle greenhouse gas emissions from natural gas vehicles (NGVs) are reduced further.

Ohio EPA should also consider "in use" or duty cycle actual emissions to ensure full NOx reduction. NGVAmerica's December 30, 2016 comment letter to Ohio references a report published in *Environmental Science and Technology* that found that new diesel trucks perform at up to 5 times higher NOx emissions than the EPA 0.2 standard while idling or at low speeds. Under the same conditions, natural gas trucks emitted less NOx emissions than the 0.02 EPA tested standard. These studies have important implications for school bus projects since they usually operate at low speeds or idle during much of the day.

¹ See SCAQMD press release from June 3, 2016 providing details on the petition filed by state authorities urging the U.S. EPA to adopt the 0.02 NOx standard (<http://www.aqmd.gov/home/library/public-information/2016-news-archives/nox-petition-to-epa>) (Today's action follows a March 4 vote by the SCAQMD's Governing Board to formally petition the U.S. EPA to adopt a "near-zero" or "ultra-low" emissions standard for heavy-duty truck engines that is 90 percent cleaner than the current standard).

Furthermore, Ohio EPA has indicated that it plans to use "tail-pipe emissions" calculations for purposes of evaluating different technologies. In a state where more than 50% of its electricity is generated by carbon intensive sources, focusing only on tail-pipe emissions ignores the fact that "zero emission vehicles (ZEV)" can produce significant greenhouse gas emissions and depending on the location of power plants could result in NOx emissions that impact the air quality of affected areas or regions (please see a Washington Post article on the fuels generating power in each state at: https://www.washingtonpost.com/graphics/national/power-plants/?utm_term=.7a70b138f5f8).

The reality is, that in Ohio, ZEV's, according to the Energy Information Agency (EIA), produce only around 10-15% less greenhouse emissions than gasoline vehicles, which is roughly equivalent to fossil CNG performance and far worse than RNG (Bio CNG) performance in NGV's. Therefore, we'd recommend Ohio EPA to adoption life cycle analysis (LCA) emissions criteria instead of tail-pipe when considering greenhouse gas emissions.

As stated in the OH VW Beneficiary Mitigation Plan, Ohio's high-level goals for use of the Environmental Mitigation Trust allocation are as follows:

- Improve air quality by providing **cost-effective reduction of NOx emissions** in counties Ohio EPA has designated as first or second priority, based on factors described in section III-C;
- Maximize emissions reductions where they are most needed, while also considering environmental justice considerations associated with historical emission levels and concentrations;
- Expedite deployment and widespread adoption of zero-emission and **near-zero emission vehicles and engines**; and
- Support Ohio's statewide energy, environmental and economic development goals, including but not limited to reducing other significant pollutants, promoting infrastructure development, and advancing the market for clean fuels and technologies eligible for Mitigation Trust funding.

In support of the State's high-level goals stated above and the statement in the Plan that says "...cost effectiveness of proposed NOx emission reductions will be the primary factor Ohio EPA will use to select projects...", NGVAmerica strongly encourages the Environmental Protection Agency to prioritize investments in natural gas zero emission equivalent (near-zero) vehicles since these vehicles are now commercially available in all the desired vehicle categories stated in the Trust, and can begin improving Ohio's air quality immediately at a much lower cost than other clean technologies.

Current State Beneficiary Mitigation Plans

Seventeen states have released draft VW Mitigation Plans and NGVAmerica has reviewed these plans and offered comments to the states. NGVAmerica believes the Colorado Plan provides an excellent model for other states that wish to segment their funding, maximize the use of alternative fuels, and provide parity among alternative fuels (https://www.colorado.gov/pacific/sites/default/files/AP_VW_Beneficiary_Mitigation_Plan.pdf).

In allocating its funds, Colorado did not pick a preferred alternative fuel (diesel is excluded except for fleets of 9 or less trucks) and kept the categories simple and broad. The \$18M set aside by Colorado for Alt Fuel Trucks/School and Shuttle Buses funds all alternative fuels at 40% of the vehicle cost for government and public entities, while private vehicles are funded at 25% of the vehicle cost (not the 75% allowed for EVs because that would result in fewer vehicles and less NOx reductions, and there are other sources for EV funding).

Ohio has stated in their Plan that they will reimburse non-government-owned fleets discussed in the On-Road Section at the levels specified in the Trust. NGVAmerica strongly recommends that Ohio consider adopting a similar “parity” approach to alternative fuel vehicles, instead of following the percentages suggested in the Trust.

Colorado has other funding they can apply to Transit applications, so it created a structure that augments the Trust funding to be used for transit applications with additional state monies. Colorado also set aside \$12.2M in Flex Funds to support projects in the segments that turn out to be successful and oversubscribed. For the DERA option, Colorado plans to consider funding projects involving liquefied natural gas (LNG) drilling rig and hydraulic fracturing engines, mining trucks and locomotives.

Additional Options for Vehicle Scrappage

NGVAmerica also recommends that the Ohio Environmental Protection Agency consider the following vehicle scrappage options in the Plan:

- Increase the options for scrappage beyond a strict replacement of a current fleet vehicle (e.g., allow a fleet to acquire an older vehicle from another fleet or allow a fleet to exchange one of its newer vehicles for another fleet's older vehicle that is then scrapped)
- Since the Trust does not specify the fuel of the scrappage vehicle, allow older natural gas vehicles (NGVs) that meet the year criteria to be scrapped and replaced with new, cleaner NGVs

Use the Most Current Emissions and Cost Benefit Calculation Tools

Ohio's draft plan indicates that the state intends to use the Diesel Emission Quantifier to assess the cost-effectiveness of different mitigation actions. We urge Ohio to also consider and allow the use of other available emission tools that use current data, including Argonne National Laboratory's (ANL) AFLEET tool. The AFLEET tool provides more specific emission factors for alternative fuel vehicles and therefore is better suited to estimating the cost and benefits provided by projects that include alternative fuel vehicles. The AFLEET tool provides emission factors and calculations for all vehicles and fuels and provides updated emissions factors based on recent in-use emissions data. The AFLEET Tool 2017 updates include:

- Added low-NOx engine option for CNG and LNG heavy-duty vehicles
- Added diesel in-use emissions multiplier sensitivity case
- Added Idle Reduction Calculator to estimate the idling petroleum use, emissions, and costs for light-duty and heavy-duty vehicles
- Added well-to-pump air pollutants and vehicle cycle petroleum use, GHGs, and air pollutants
- Added more renewable fuel options
- AFLEET Tool spreadsheet and user manual at: http://greet.es.anl.gov/afleet_tool and tool link is: <http://www.afdc.energy.gov/tools>

ANL has also just released a new vehicle emissions calculator (HDVEC) to provide state officials and fleet managers with an accurate tool to gauge emissions reductions across various medium- and heavy-duty vehicle project options affiliated with the Volkswagen Environmental Mitigation Trust Settlement. The HDVEC tool is available at: <http://afleet-web.es.anl.gov/hdv-emissions-calculator/>.

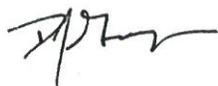
Summary of NGVAmerica's Recommendations for EMT Funding

- ✓ Given that the EMT was created because of NOx pollution associated with non-compliant diesel vehicles, we believe that the funding should be set aside for clean, **alternative fuel vehicle projects that focus on maximizing NOx reduction for the funds spent**
- ✓ Provide a larger incentive and greater overall funding for medium- and heavy-duty engines that deliver **greater NOx reductions than currently required** for new vehicles and engines
- ✓ Target funding for technologies that have demonstrated the ability to deliver actual **lower in-use emissions** when operated in real-world conditions
- ✓ Provide the **highest level of funding to applications that produce the largest share of NOx emissions** (in most regions this means prioritizing for short-haul, regional-haul and refuse trucks)
- ✓ Prioritize funding for **commercially available products that are ready for use**
- ✓ Prioritize funding for **clean vehicles rather than fueling infrastructure**
- ✓ **Scale funding to incentivize the cleanest engines available** – at a minimum, provide parity among alternative fuels by following a version of the Colorado VW Plan that funds non-diesel alternative vehicles in the private sector at 25% of the cost of the vehicle and public sector vehicles at 40%
- ✓ Ensure that funding incentivizes adoption by **both public and private fleets**
- ✓ Prioritize projects that include **partnerships that provide a match** such as a CNG or LNG station being built in locations that will receive the VW funding
- ✓ **Accelerate the funding** in the early years to maximize the NOx reduction benefits
- ✓ Use vehicles emissions measurement tools that reflect current technologies and performance under real world operation duty cycles – **Argonne National Laboratory's AFLEET and HDVEC tools** are the most current tools available

NGVAmerica and its members are eager to serve as a resource to assist the Ohio Environmental Protection Agency in its further evaluation and development of the state's proposed Beneficiary Mitigation Plan. We strongly encourage the state to recognize the unmatched role that natural gas vehicles can play in delivering NOx emissions reductions required by the settlement and Trust.

NGVAmerica welcomes the opportunity to meet with you to provide further information and analysis on the economic and environmental benefits of natural gas vehicles in Ohio. Please contact Jeff Clarke, NGVAmerica General Counsel & Director of Regulatory Affairs at 202.824.7364 or jclarke@NGVAmerica.org, or Sherrie Merrow, NGVAmerica Director of State Government Advocacy at 303.883.5121 or smerrow@NGVAmerica.org to set up a meeting and for additional information.

Sincerely,



Daniel J. Gage
President, NGVAmerica