**Shuman, Justin**

**From:** POLUGA, DAVID <dpoluga@kent.edu>
**Sent:** Friday, December 08, 2017 5:00 PM
**To:** EPA DERG
**Subject:** Ohio Draft VW Beneficiary Mitigation Plan Comment

Good Afternoon,
Please accept my comment regarding the eligibility of airport ground support equipment: Line item 7, page 7. The replacement of ground support equipment by the "same" equipment in electric form will be an issue for most airports. While similar equipment can be found in electric form, not all equipment that is utilized for ground support has a direct one for one or "same" replacement. For example, the KSU Airport has two pushback tractors used exclusively for aircraft ground support. They are also basic Ford and Simplicity tractors modified for airport use and do not have an equivalent in electric.

Considering the KSU Airports industry leadership in environmental sustainability, I would hope that "same" can be amended to incorporate and allow equivalent utility, purpose, or capabilities of the equipment. This will allow us to acquire industry specific full electric aircraft tug as we anticipate submitting grant applications to replace our current pushback tractors in the first round of funding. As we are one of only three airports in the State of Ohio to have a sustainable master plan, this equipment is critical in meeting our environmental mitigation objectives.
Please let me know if I can provide more information and I appreciate the opportunity to comment on this important program.

**David Poluga MBA, CM**

Airport Manager

KENT STATE UNIVERSITY
Airport

Compliance & Risk Management /

Division of Finance & Administration

Kent State University

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**Shuman, Justin**

**From:** frank@medicaire.net
**Sent:** Sunday, December 10, 2017 4:17 PM
**To:** EPA DERG
**Subject:** VW - comment

Comments: December 10, 2017
Use of Volkswagen settlement funds for Ambulance/Emergency Vehicle Idle Reduction:
Idling of ambulances is a significant contributor to air pollution, particularly as the majority of the idling occurs adjacent to healthcare facilities with their sensitive populations exposed. Reducing this idling provides a direct air quality improvement. Problematic to not idling the ambulance is the fact that interior temperatures and medical equipment must be maintained in a state of readiness, requiring power. My firm's product, the Medidock, provides a real solution to this problem by allowing an ambulance to remain 'mission-ready' without idling.
Our system is a kiosk, installed at Emergency Departments and other medical facilities and at remote locations where ambulances are 'posted' to improve response times and improve air quality. The Medidock requires no special equipment to be installed onboard the vehicle – any & all ambulances can use it. In addition to electrical power for the onboard emergency medical equipment it also provides vehicle interior climate control - without the need to run the engine. Our units ease of operation encourages EMT's to actually use the machines, resulting in fuel and maintenance savings for the vehicle operators and environmental benefits for everyone. On our website www.medicaire.net you will find a study done by the Ozone Transport Commission (OTC) which indicates a significant NOx reduction as noted from sites in VT & NH.
Medidocks are presently successfully operating in northern New England and locations in the Midwest.
While vehicle idle reduction is not specifically indicated in the settlement, augmentation of DERA is, allowing a pathway for funding this important public health/air quality improvement.
I urge you to consider earmarking funding for the Medidock in the final Beneficiary Mitigation Plan. Thank you for your consideration.

Frank Podgwaite
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"Exclusive Distributors of the Medidock"

## Shuman, Justin

**From:** kconrad@sartaonline.com
**Sent:** Monday, December 11, 2017 3:10 PM
**To:** EPA DERG
**Subject:** VW Settlement

After reviewing the document, funding should be prioritized towards funding projects that are eligible for CMAQ funding. Since the source of this funding is from surface transportation, funding should only fund surface transportation on vehicles. Funding of ports, water, or rail should not be funded. Public fleets should be prioritized over private fleets.

Kirt Conrad, CEO
Stark Area Regional Transit Authority (SARTA)
1600 Gateway Blvd SE
Canton, OH 44707
330-458-1047 direct
330-454-5476 fax

MOTIV
330 Hatch Drive, Foster City, CA 94404 (650) 458-4804 (phone) (650) 350-4284 (fax) 12/11/2017

To whom it may concern:

Motiv Power Systems would like the support the public comments already received urging for investment of VW Settlement funds into all-electric school buses. The process for engaging with the public has been one that is an open, robust and transparent process and we commend staff for their work. Motiv appreciates that Ohio EPA continues to emphasize the replacement of aging diesel school buses as a major focus for expenditure because school-age children are among the most vulnerable populations to the harmful pollutants in diesel exhaust.

However in the plan Ohio EPA proposes to spend up to $15,000,000 of these funds for school bus replacements in the VW priority counties with no more than $3,000,000 to be allocated for small pilot projects to demonstrate the viability of battery-electric school bus technology. This cap on pilots is counter to the goals of reducing emissions from school buses, as pilot projects offer an opportunity to evaluate the technology with more technical oversight, infrastructure investments, and stakeholder integration than other investments. If within the remaining $12 million of funding, schools are able to access funds for electric school buses this will be less detrimental than if the $3 million cap is on the battery electric technology approach.

However if the $3 million specifically referencing electric school buses is what staff intends as the total investment, this share is disproportionately small given the public's priorities. 4% of the funding being available for these vehicles given the public's interest, is too small a share to adequately address either the air quality impacts on children, or transform fleets.

Electrification of school buses provides safer, cleaner, and quieter transportation for children than internal combustion engine solutions, and these funds offer a chance for the next generation of students in Ohio to use state of the art technology while avoiding harmful pollutants.

As an American small business and manufacturer developing zero-emission all-electric powertrains for medium and heavy duty trucks and buses, Motiv Power Systems knows firsthand how essential good policy has been to supporting sustainable solutions deployment. Motiv's all-electric powertrains are presently used in vehicles ranging from school and shuttle buses to delivery trucks and work trucks, allowing fleets to use zero-emission solutions that improve the local air quality, help meet climate goals, and eliminate the need for fossil fuels.

In looking at the way to administer the funds, Motiv urges Ohio EPA to look at one of California's successful market based programs for commercial vehicle incentives: HVIP. One of the key benefits of the HVIP program is the first-come, first-served approach allowing a fleet to get funding when they're ready to transition their vehicles to cleaner technologies regardless of the type of fleet. On the list of HVIP eligible vehicles there are shuttle buses, school buses, work trucks, delivery trucks, and more. This style of program is easier to administer, customer friendly, and allows air quality improvements as soon as fleets are ready to adopt the technologies. This would be a wonderful way to administer the funding for Ohio's school bus funds as it would allow school districts to avoid some of the administrative overhead of lengthy grant processes, enabling a faster response to poor air quality.

Motiv commends Ohio EPA for the excellent work their staff has done to develop this investment plan and hopes the funding leads to measurable improvement in air quality for all Ohio citizens.

Respectfully,

Urvi Nagrani
Director of Business Development, Motiv Power Systems

## Shuman, Justin

**From:** Daniel Lyon <dlyon@cdti.com>
**Sent:** Friday, December 22, 2017 4:40 PM
**To:** EPA DERG
**Cc:** Campbell McConnell
**Subject:** VW Comment - CDTi Diesel Retrofit
**Attachments:** Emissions Reduction Cost Effectiveness.pdf

Hello,

My name is Dan Lyon and I am with Clean Diesel Technologies Inc., a manufacturer of diesel emission reduction technologies since the 1980's. I would like to speak to someone in your organization regarding the VW settlement and the prospective dispersal of those funds toward emissions reductions.
Having recently attended the Northeast Diesel Collaborative conference and following the trend of grant funding, I am concerned with the priorities for which this settlement will be utilized for. Throughout the draft mitigation plan provided with this announcement, it is clearly stated that activities to reduce NOx emissions will be given priority. As you may be aware, and also stated in the mitigation plan, replacement of equipment will be the primary beneficiary of this funding. Though replacement of vehicles and equipment provides the NOx and emissions reductions required, it is also by far the most expensive option. The State of Ohio and the United States has been given a rare opportunity with this large settlement to make a large scale impact on current air quality which is quickly declining , and provide a healthier living environment for future generations to come.

The draft mitigation plan also outlines details for funding of pilot reduction programs such as electric and alternative fuel vehicle replacements. Though these new products are impressive and exciting, the need to verify their effectiveness is crucial as diesel engines are slowly, but inevitably being phased out. The costs for diesel, electric, alternative fuel and their corresponding infrastructure is extremely expensive. It would appear that these projects will receive most all of the available funding. CDTi's concern and argument is simple cost effectiveness. It is our belief that diesel retrofit devices such as diesel oxidation catalysts (DOC) and diesel particulate filter (DPF) retrofits should still be very much part of the conversation. CDTi and similar retrofit emission manufacturers have made great feats over the last decade. Tens of thousands equipment and vehicles have been successfully retrofitted and are still in service today, providing enormous emission reductions.
Though reduction of NOx through retrofit DPF & DOC is negligible, reductions of PM, HC & CO are significant and possible at a fraction of the costs. Not disputing the need to reduce NOx emissions, I sincerely believe portion of the VW settlement monies should be utilized for such retrofits. The need to reduce these emissions is very much prevalent, applicable equipment and vehicles are still in service and in great numbers to this day. Diesel engine retrofits provide a cost effective solution to increase the overall ratio of low emission vehicles in service.

Please see the attached example of cost effectiveness using five million dollars of funding. Example Emissions are calculated using CARB EO's of the same Cummins 14.9L from 2006 & 2017.

I would very much like to go over the above information with your organization, and am also willing to publicly speak at one the three events coming up in the new year. I sincerely believe it is the responsibility of those government entities dispersing this available funding to fully evaluate all available opportunities for emissions reductions.

Thanks,

Dan Lyon
National Sales Manager
SES – Heavy Duty Diesel Division

Clean Diesel Technologies Inc.
1621 Fiske Place
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Office: 805.205.1348
Cell: 805.415.0100
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CDTi
1621 Fiske Place
Oxnard, California
93033
Telephone: (805) 205-1348
Fax: (805) 205-1323

| Annual Emmissions for a Typical Class 8 Cummins ISX | | | | | | |
|---|---|---|---|---|---|---|
| | | 2006 OE | 2006 + DOC | 2006 + DOC + CCV | 2006 + DPF | 2017 |
| **Certified / Verified Emissions at Tailpipe** | | | | | | |
| Transient PM Emissions | g/bhp.hr | 0.090 | 0.072 | 0.068 | 0.009 | 0.004 |
| Transient CO Emissions | g/bhp.hr | 1.00 | 0.50 | 0.50 | 0.20 | 0.02 |
| Transient HC Emissions | g/bhp.hr | 0.20 | 0.10 | 0.10 | 0.02 | 0.00 |
| Transient NOx Emissions | g/bhp.hr | 2.10 | 2.10 | 2.10 | 2.10 | 0.16 |
| | | | | | | |
| **Annual Emissions Calc (40 hr/week, 50 week/year)** | | | | | | |
| Average Duty Cycle Power | hp | 150 | 150 | 150 | 150 | 150 |
| PM / Year | kg | 27.0 | 21.6 | 20.3 | 2.7 | 1.2 |
| CO / Year | kg | 300 | 150 | 150 | 60 | 6 |
| HC / Year | kg | 60 | 30 | 30 | 6 | 0 |
| NOx / Year | kg | 630 | 630 | 630 | 630 | 48 |
| | | | | | | |
| **Annual Reduction vs 2006 Engine** | | | | | | |
| PM / Year | kg | 0.0 | 5.4 | 6.8 | 24.3 | 25.8 |
| CO / Year | kg | 0 | 150 | 150 | 240 | 294 |
| HC / Year | kg | 0 | 30 | 30 | 54 | 60 |
| NOx / Year | kg | 0 | 0 | 0 | 0 | 582 |
| | | | | | | |
| **Costs and Vehicles** | | | | | | |
| Monies Available | $ | 5,000,000 | 5,000,000 | 5,000,000 | 5,000,000 | 5,000,000 |
| Cost of System | $ | - | 4,500 | 5,000 | 18,000 | 130,000 |
| # of Vehicles Possible | - | | 1111 | 1000 | 277 | 38 |
| | | | | | | |
| **Annual Reduction for Total Program** | | | | | | |
| PM / Year | kg | - | 5,999 | 6,750 | 6,731 | 980 |
| CO / Year | kg | - | 166,650 | 150,000 | 66,480 | 11,172 |
| HC / Year | kg | - | 33,330 | 30,000 | 14,958 | 2,280 |
| NOx / Year | kg | - | - | - | - | 22,116 |
| | | | | | | |
| **Value for Money (per year)** | | | | | | |
| $ / kg PM Reduced | $/kg | - | 833 | 741 | 743 | 5100 |
| $ / kg CO Reduced | $/kg | - | 30 | 33 | 75 | 448 |
| $ / kg HC Reduced | $/kg | - | 150 | 167 | 334 | 2193 |
| $ / kg NOx Reduced | $/kg | - | - | - | - | 226 |

| | EPA Verified Reductions | | |
|---|---|---|---|
| | DOC | DOC+CCV | DPF |
| PM | 20% | 25% | 90% |
| CO | 50% | 50% | 80% |
| HC | 50% | 50% | 90% |
| NOx | 0% | 0% | 0% |

DAIMLER

# Maximizing The Benefits Of The VW Environmental Mitigation Settlement Fund For The State Of Ohio

## Daimler Trucks

FREIGHTLINER

FUSO

WESTERN STAR

Thomas BUILT BUSES

BHARATBENZ

# Overview of Presentation

Intent of this deck is to provide you as a decision maker a concise overview of the VW Environmental Settlement and some specific recommendations as to how the State of Ohio can benefit from this opportunity.

What is included in the Partial Settlement and Consent Decree:

- $10 billion for Volkswagen owners – buyback, fix and compensation package
- $2.7 billion Environmental Mitigation Trust
- $2.0 billion Zero Emission Vehicle investment Commitment
- $600 million state attorney general claims

**The $2.7B Environmental Mitigation Trust (EMT) is the funding source for the replacement of older equipment with more environmentally friendly solutions**

# What is the $2.7B Environmental Mitigation Trust (EMT)


- VW funded but managed and overseen by Court approved Trustee
- The Trust funds are to be used for actions that reduce NOx emissions and thereby reduce public exposure to NOx pollution
- VW does not have any say in how the funds are to be spent
- States and U.S. territories will receive an apportionment of the Trust Fund money based on the number of non-compliant VW vehicles registered in their state or territory
- Available funds for the State of Ohio will be $75,302,523

# EMT - What States Need to Know About the Process

- Formal Notification: To qualify for the allocated trust funds state and territories must notify the Trustee that they want to be a Beneficiary no later than December 2, 2017
- 60 Days after Trust's Effective Date: Notification or certification must be given to the Trustee within 60 days of the Trust's Effective Date
- Selecting a Lead Agency: State and territories must designate a lead agency to oversee the disbursement of the funds; the lead agency must be certified by the Governor of the State
- Mitigation Plans: States must develop high level Mitigation Plan indicating how funds will be spent drawing from the eligible mitigation actions outlined in the Consent Decree, these must be submitted to the Federal trustee 90 days after being accepted as a beneficiary
- Timing: The States will have 10 years to spend 80% of their allocations and a full 15 years to spend the remaining allocated funds. Initially a state may request up to 1/3 of its allocation the first year funds are available and an additional 1/3 each of the next 2 years; this is why some think the money must be spent over 3 years but that is not true

# States Are Required to File an Environmental Mitigation Plan

- Each State to provide a plan to the trustee, to be filed as early as January 2018
- High level and does not have to provide project specifics
- Identify general goals for plan and percentage allocation for Eligible Mitigation Actions
- Identify how mitigation actions will affect areas that are disproportionately impacted by air pollution
- Identify the expected range of emission reductions
- Explain process to be used to seek public input on plan

- States can submit an Approved DERA Work plan to serve as its Mitigation Plan
- Vehicles removed from service must be verified as being permanently disabled with the trustee
- The Mitigation Plans are non-binding meaning the states are free to adjust goals and revise spending plans; changes should be identified in an updated Mitigation Plan

# Why Emissions Mitigation Makes Sense

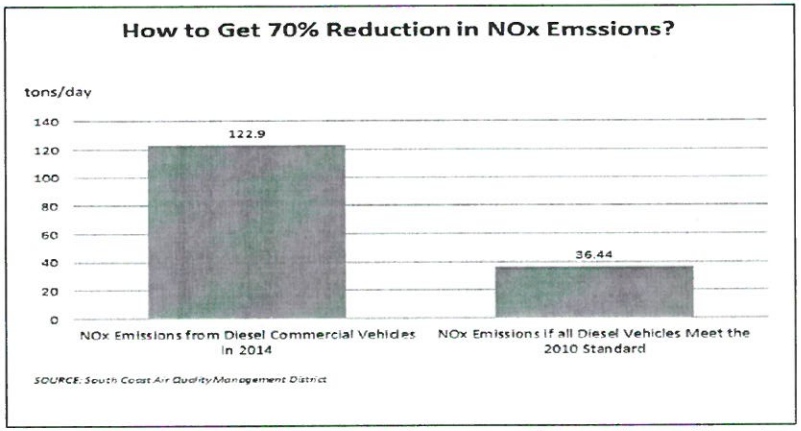
1. Since new trucks emit less NOx emissions than pre - 2007 trucks the program relies on scrappage or repowering older trucks with new engines in an effort to achieve NOx reductions
2. Eligible actions include repower or replacement of on-road as well as non-road equipment but the emphasis is on equipment that is used in or near urban areas, thus the emphasis on local freight trucks, transit and refuse trucks, airport ground service equipment, and port facility equipment
3. **Funding for governmental entities is authorized at 100% of the cost of a new replacement vehicle or repower**
4. For non-governmental entities the funding is generally 25% of the cost of a new replacement vehicle or 40% of the cost of repowering the vehicle if the engine is powered by an alternative fuel or diesel

# Mitigation Actions That Qualify For EMT Funding

| Qualified Mitigation Actions | Actions/Fuels<br>NG, Diesel, Electric, Hybrids | Target Years* | Funding Percentages Non-Government | Funding Percentages Government | Scrappage Required for Replacements |
|---|---|---|---|---|---|
| Class 4-8 School Bus, Shuttle Bus, or Transit Bus (Eligible Buses) | Repower, replace, **EV rpl or rpwr | 2008 or older | 40%/25%/75% | 100% | Yes |
| Class 4-7 Local Freight Trucks (Medium Trucks) | Repower, replace, **EV rpl or rpwr | 1992 - 2006 | 40%/25%/75% | 100% | Yes |
| Class 8 Local Freight Trucks (Eligible Large Trucks) | Repower, replace, **EV rpl or rpwr | 1992 - 2006 | 40%/25%/75% | 100% | Yes |
| Class 8 Port Drayage Trucks (Eligible Large Trucks) | Repower, replace, **EV rpl or rpwr | 1992 - 2006 | 40%/50%/75% | 100% | Yes |
| Freight Switchers | Repower, replace, **EV rpl or rpwr | Pre-Tier 4 | 40%/25%/75% | 100% | Yes |
| Ferries/Tugs | Repower, **EV rpwr | Unreg, Tier 1 or Tier 2 engines | 40%/75% | 100% | Yes |
| Ocean Going Vessels Shorepower | Install shore-power equipment | All years | 25% | 100% | |
| Airport Ground Service Equipment | Electric only repl or rpwr | Tier 0, 1 or 2 diesel; gasoline uncertified or ≥ 3 g/bhp-hr | 75% | 100% | Yes |
| Forklifts | Electric only repl or rpwr | ≥ 8,001 lb. lift cap. | 75% | 100% | Yes |
| LDV Zero Emission Supply Equipment (up to 15% of Trust Fund Allocation) | Install electric or hydrogen supply equipment (other than non-multi-unit residence) | NA | 25% - 80% | 60% - 100% | NA |
| Diesel Emission Reduction Match Option | Actions allowed under DERA | | DERA details to be filled in later - see EPA DERA for more information | | Yes |

**Greatest return on investment is for the replacement of Government owned equipment**

# How to Get the best NOx Reduction With Your Disbursement

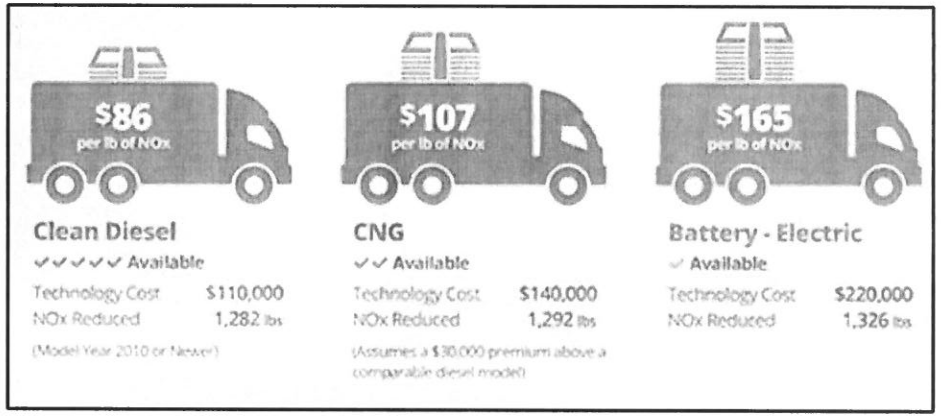



We believe that the replacement of existing municipal equipment with a clean diesel replacement represents the best means of remediating the environmental damage caused by the VW diesel engines in a fiscally responsible fashion

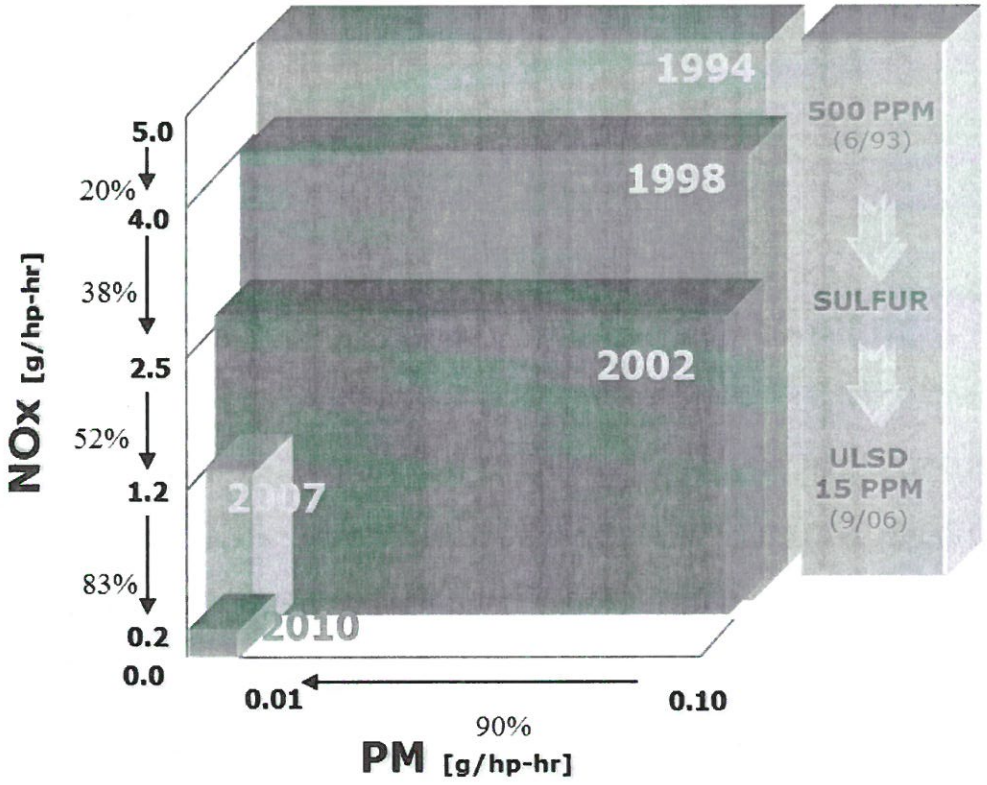
- Updating your fleet to EPA 10 diesel emission standards could provide up to a 70% - 90% reduction in NOx emissions
- The VW Environmental decree allows for reimbursement of 100% of the replacement costs if municipal equipment is replaced. Other potential solutions are only reimbursed at 40% or 25% of the replacement cost
- Given the fixed amount of capital available (Ohio = $75,302,523) more trucks can be upgraded acting as a multiplier of the environmental benefits
- Based on an average replacement cost of $100,000 / truck 753 municipal vehicles could be improved in Ohio
- **There are 5,894 potential donor units owned by municipalities in the State of Ohio – 230 operated by the State itself. This provides a simple & effective source for the State to improve it's environmental quality in the immediate time frame**
- **Since this is existing technology, deployed in specific routes, the remediation efforts can be targeted to achieve specific & demonstrable remediation benefits should the State want to address specific Federal targets quickly**

# Technology to Meet Near Zero NOx Is On Dealer Lots Today

- Current diesel emission levels emit only 0.2g of NOx. This standard has been in place since 2010 and inventory is currently available for immediate deployment.
- However, based on registration data through the 2015 period, only 26% of current trucks on the road are powered by current clean diesel emission engines.
- This represents a huge opportunity for improving environmental in a fiscally responsible manner as the average cost to reduce 1 ton of NOx with a clean diesel heavy truck is $13,748 / ton of NOx reduced.
- In comparison, the National Port Strategy Assessment for reducing air pollution at US Ports found competing fuel sources to be considerably more expensive to remediate a similar quantity of NOx.



# Evolution of Diesel Emissions 1994 - Present




## History

- 1998: Engine Manufacturers Must Comply to 4.0 NOX / .1g PM
- 2002: EPA Pulls Ahead Consent Decree Compliance to 10/1/02

  2.5 NOX / .1g PM
- 2004: Diesel Products Meet 2.5g NOX / .1g PM Requirements
- 2007: Engine Manufacturers Must Comply to 1.2 NOX / .01g PM
- 2010: NOX to be Reduced by Over .2g NOX / .01 PM

**ULTRA-LOW SULFUR HIGHWAY DIESEL FUEL**
**(15 ppm Sulfur Maximum)**

***Required*** for use in all model year 2007 and later highway diesel vehicles and engines.

Recommended for use in all diesel vehicles and engines.

# Green House Gas Regulation Rulemaking Framework

## Two Major Components to New Regulations

**Engine Regulations Structured Very Similar to Past Regulations**

**Introduce a CO2 Emission Level Requirement**

**CO2 Emission Reduction is Only Achieved Through Diesel Fuel Consumption Reduction**

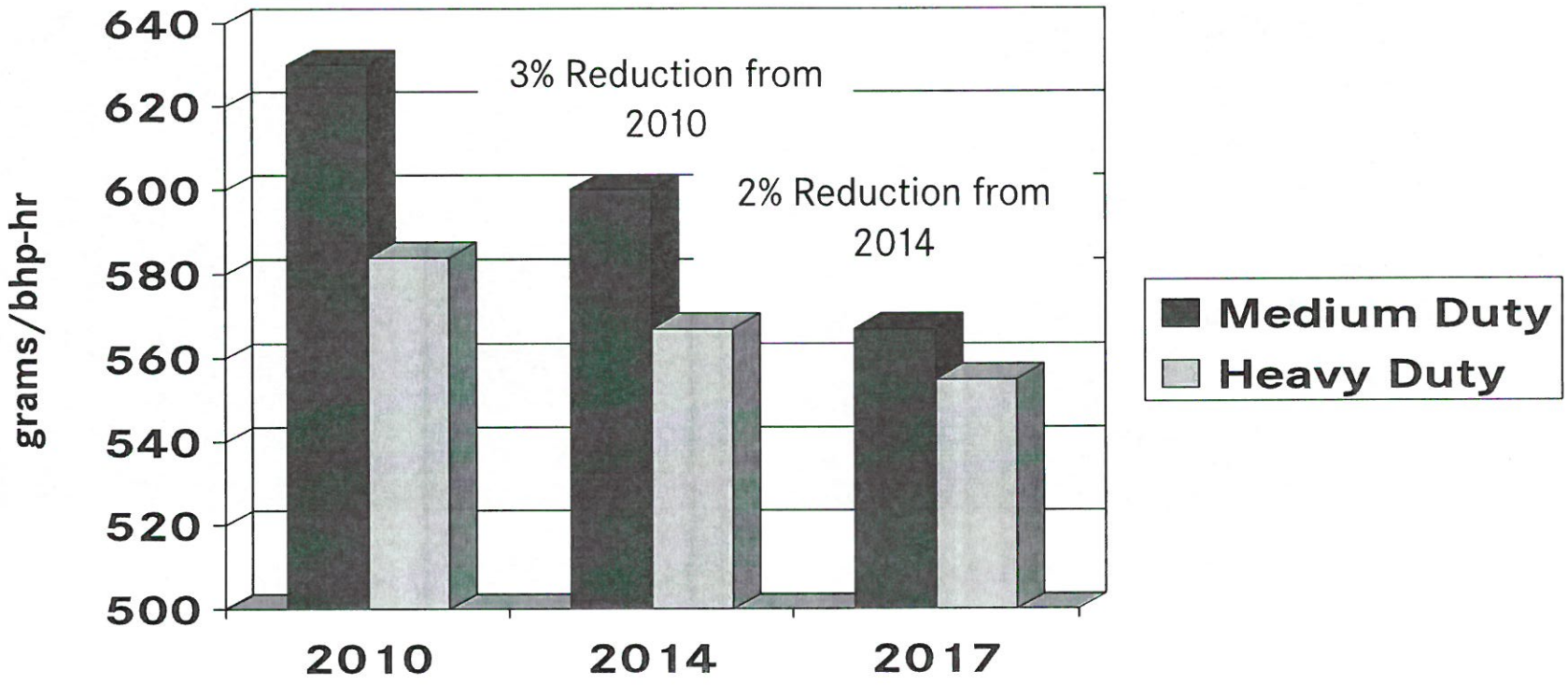
**Vehicle Regulations Imposed Upon Vehicle Manufacturers**

**Introduce a CO2 Emission Level Requirement Based Upon an Efficiency Concept**

**CO2 Requirement Based Upon a Gram per Ton-Mile Scale**

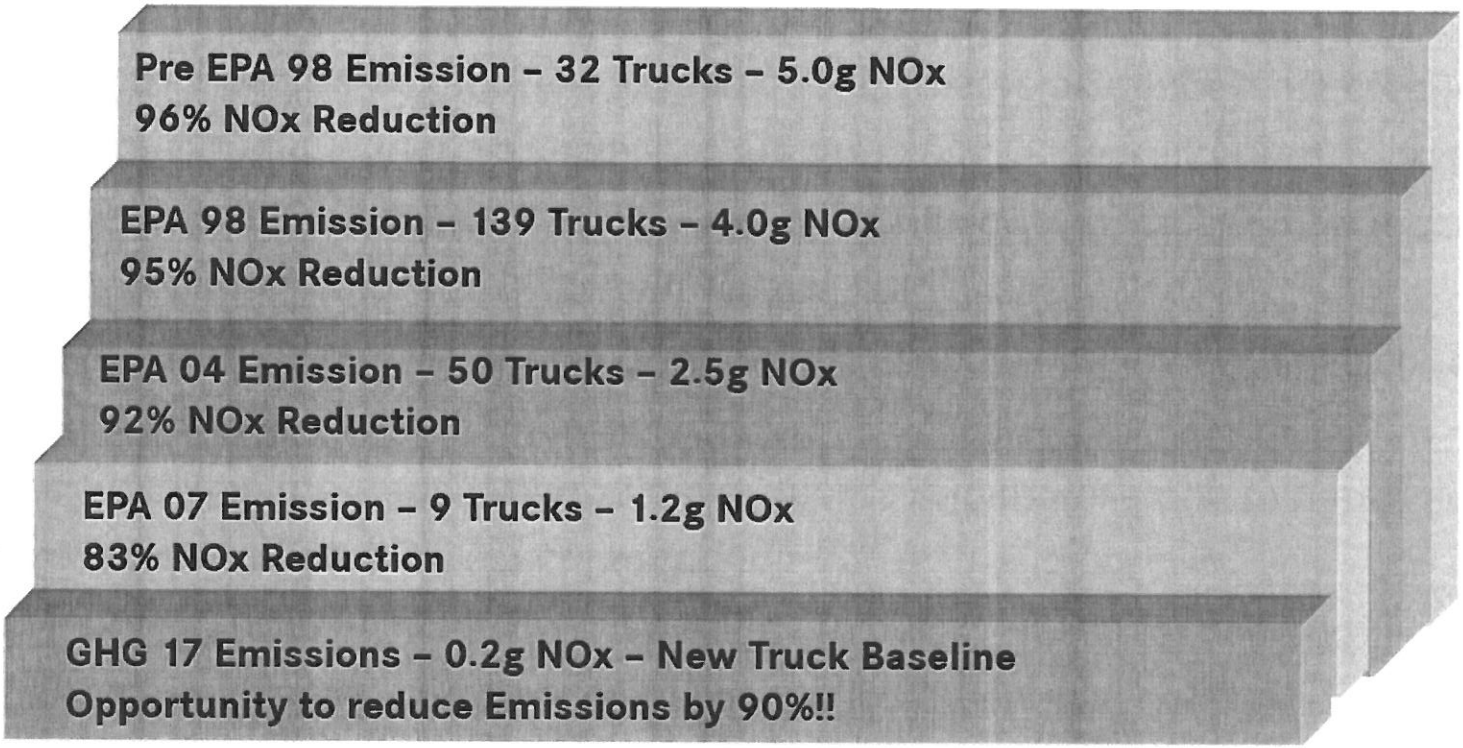
**Simulation is Used to Determine Vehicle Output**

# Proposed "Vocational" Engine CO2 Standards




***CO2 is Reduced by Reducing Diesel Fuel Consumption***

# Fleet Analysis - State of Ohio Owned Trucks




**The Environmental Benefits of Replacing Are Clear!**

# But Also Consider These Benefits Of Replacing Your Fleet

1. At an average age of 14 years there will be significant reductions to the maintenance budget by using your EMT funds for municipal fleet replacement
2. Increased uptime from new equipment equates to better public service and that generates good will with your constituents
3. Employee morale in the transportation departments will improve due to better equipment with which to work
4. Truck safety has dramatically improved since your fleet was produced, this is a real improvement to the working environment of your employees
5. Finally, remember that in order to receive EMT funds a donor truck must be taken out of service. To utilize all the funds available to the State of OH, 753 older trucks will have to come out of service and be reported to the Federal Trustee as donor units creating a large administrative hurdle for the State if non-governmental owners are involved.

**Conclusion: While There Are Many Solutions Available To The State, Using Environmental Mitigation Funding To Update Your Municipal Fleet Offers The Biggest Bang For The Buck**

DAIMLER

Thank you for your attention!

**Regional Air Pollution Control Agency**
Serving Clark, Darke, Greene, Miami, Montgomery and Preble Counties
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RAPCA

Public Health
Prevent. Promote. Protect.
Dayton & Montgomery County

January 2, 2018

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

RE: Ohio Draft Beneficiary Mitigation Plan Comments

Dear Ms. Watkins,

On behalf of the Regional Air Pollution Control Agency (RAPCA), thank you for this opportunity to comment on the Draft Beneficiary Mitigation Plan (VW Plan) prepared by the Ohio EPA Office of Environmental Education. RAPCA is a part of Public Health – Dayton & Montgomery County and is the local air pollution control agency serving Clark, Darke, Greene, Miami, Montgomery and Preble counties in southwest Ohio. RAPCA works closely with local stakeholders including the Miami Valley Regional Planning Commission and the Ohio EPA to protect and improve air quality in our jurisdiction.

RAPCA commends Ohio EPA's draft VW Plan and the efforts to responsibly and effectively disburse the settlement funds. RAPCA views this as a significant opportunity to improve the transportation system and air quality for all Ohio citizens.

RAPCA supports the targeting of funds for school buses, shuttle buses, and transit buses. School-age children are particularly susceptible to the harmful effects of diesel pollution, and Ohio's youngest citizens would benefit the most from clean diesel expenditures to modernize the school bus fleet.

However, RAPCA believes there are inconsistencies in the application of priority designations to a subset of Ohio counties. The Draft VW Plan invokes several criteria to identify counties as first priority, second priority, or not a priority. It is our understanding that counties that are not a priority are not eligible for mitigation projects funded under the VW settlement.

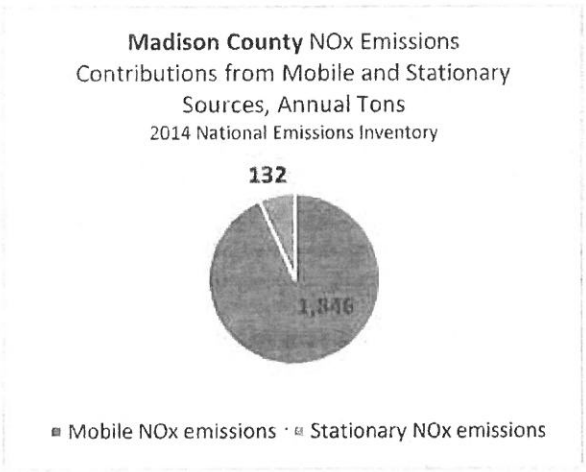
Clark, Greene, Madison, and Montgomery counties are listed in the table below along with data extracted by RAPCA from sources including the 2010 Census, AQS database, National Emission Inventory 2014, and EJScreen. These are some of the same criteria that were employed in the Draft VW Plan to identify priority counties. Given their larger populations, higher ozone design values and worse EJScreen Index scores, it is evident that Clark and Montgomery counties have the potential to benefit more from diesel mitigation efforts than the more rural counties of Madison and Greene.

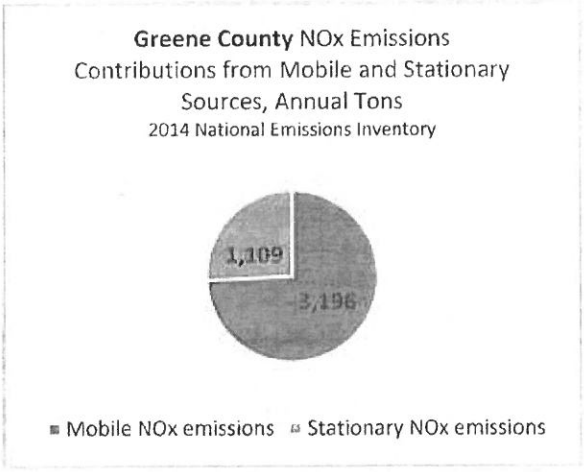
Comparison of counties

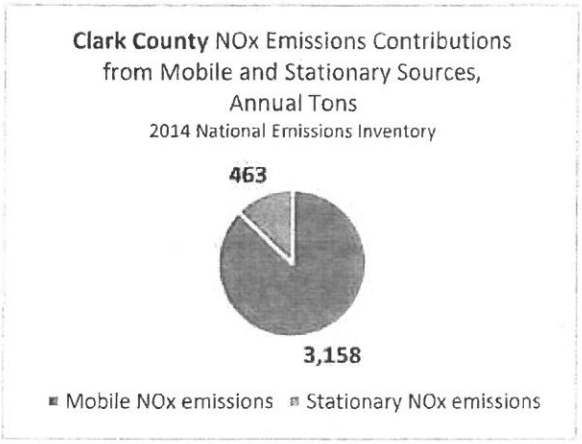
| County | Population 2010 Census | 2017 ozone DV ppb[Note1] | 2014 NEI total NOx emissions, tons | EJScreen Index State Percentile[Note2] | Proposed VW mitigation priority |
|---|---|---|---|---|---|
| Clark | 138,333 | 70 | 3,621 | 62 | None |
| Greene | 161,573 | 68 | 4,305 | 34 | Second |
| Madison | 43,435 | 67 | 1,978 | 27 | First |
| Montgomery | 535,153[Note3] | 70 | 12,580 | 65 | Second |

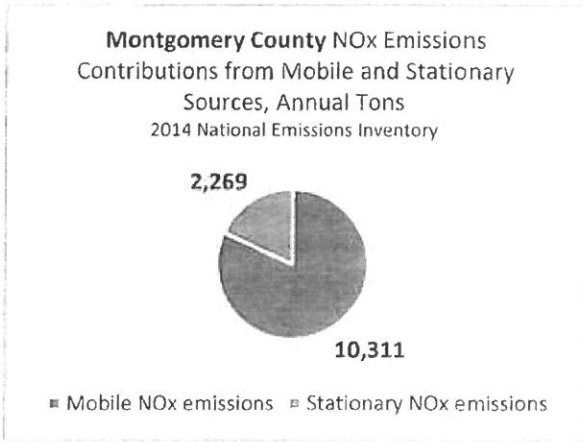
Note 1 – 2015 ozone NAAQS is 70 ppb
Note 2 – average of county EJ Indexes for air pollution: PM2.5, ozone, diesel PM, inhalation cancer risk, respiratory hazard index, and traffic proximity/volume (higher value = higher impact)
Note 3 – fifth most populous county in Ohio

Further, the pie charts below (similar to Figure 1 in the Draft VW Plan), show that mobile sources are more dominant sources of NOx emissions in each of these four counties as compared to the statewide NOx emissions apportionment.






Another criterion used by Ohio EPA in the Draft VW Plan is "the location of concentrated sources of air pollution such as distribution centers, multimodal centers, ports, rail and bus terminals and airports." Clark County hosts at least one such multimodal center – a large grain terminal elevator that handles both rail and truck traffic. This facility was recently listed in the ODOT TIMS database as Sunrise Cooperative at 149 South Chillicothe Street in South Charleston (OBJECTID 6281). This facility is also identified in Ohio EPA's STARS2 database as facility ID 0812080003 with a permanent storage capacity of greater than 2,500,000 bushels of grain. Montgomery County hosts the Dayton International Airport, the Cargill Inc. corn processing facility, two pipeline fuel terminals, and a large public transit center in downtown Dayton, which are all listed in the ODOT TIMS database.

Therefore, RAPCA recommends that Clark and Montgomery be identified as first priority counties in the final VW mitigation plan.

RAPCA appreciates the opportunity to provide comments and feedback on the Draft VW Plan. We support the VW Plan's focus on clean school buses and RAPCA advocates the inclusion of Clark County and Montgomery County as first priority counties. We are pleased that the Ohio EPA Office of Environmental Education proposal validates and supports the continuing need to improve air quality for Ohio's citizens. Please direct any questions or comments to me.

Sincerely,

Jennifer Marsee

Jennifer Marsee
Bureau Supervisor, RAPCA

c: Mr. Brian O. Martin, AICP, Executive Director, Miami Valley Regional Planning Commission

Mr. Scott Schmid, Executive Director, Clark County/Springfield Transportation Coordinating Committee

Dr. Shelia Burton, Associate Superintendent, Dayton Public Schools

## Shuman, Justin

**From:** Eddy Price <rrlemur1@gmail.com>
**Sent:** Monday, January 08, 2018 5:46 PM
**To:** EPA DERG
**Subject:** VW Comment

To whom it may concern:

I am writing to comment on the draft plan for Volkswagen Mitigation Fund spending.

First, let me congratulate you for producing an plan that appears well-balanced and sound overall. But let me also point out a few small points in the on-road vehicles category. First, although you make allowances for CNG vehicles, you do not specifically list LNG (liquified natural gas) engines, and I think it would be worth making this explicitly allowable as an alternative-fuel vehicle. Second, I simply wanted to note that I believe that investing in natural gas (either CNG or LNG) vehicles can be one of the most cost-effective ways to reduce NOx and particulate emissions. This is especially true due to the recent certification of a 12-liter heavy duty natural gas engine from Cummins-Westport that has 'near-zero' NOx emissions, i.e., lower than 0.02 g/bhp-hr. When using renewable natural gas, a fuel that is becoming increasingly available, this level of emissions can be considered similar to that achieved by electric vehicles when accounting for emissions from power plants. Please consider these points before finalizing the plan.

Thank you for the opportunity to comment.

Sincerely,

Edwin Price
12701 Larchmere Blvd, 2C
Cleveland OH 44120
rrlemur1@gmail.com

## Shuman, Justin

**From:** cbassman@strategicrail.com
**Sent:** Tuesday, January 16, 2018 10:50 AM
**To:** EPA DERG
**Subject:** Locomotrive Replacement

Replacing older, high-emission locomotives with modern, low-emission genset diesel electric models is the biggest bang for the buck in this program.
It greatly reduces emission and air quality for commuters and residents, especially in targeted counties. For public-owned locomotives, the VW consent decree can pay up to 100% of
the cost, a huge opportunity for Ohio.

Cliff Bassman
**Strategic Rail Finance**
1700 Sansom Street, Suite 500
Philadelphia, PA 19103
215-564-3122 Phone
cbassman@strategicrail.com
www.strategicrail.com

November 1, 2017

**Subject: Developing Ohio's Volkswagen Beneficiary Mitigation Plan**

Thank you for considering these comments regarding the development of your Volkswagen Beneficiary Mitigation Plan (VW BMP).

The detailed comments in this document are grouped into four main sections: Guiding Principles, Process for Administering Projects, Benefits to Low-Income and Disadvantaged Communities, and Eligible Mitigation Action Categories to Consider.

In this letter we provide broadly applicable recommendations and emissions information, along with data and requests that are specific to yard trucks. When developing the VW BMP, please ensure that:

1) All components of yard truck projects (trucks, charging, and infrastructure) are individually eligible for funding under one project umbrella,
2) Electric yard truck projects are funded at the maximum allowable, and
3) Yard trucks in all operating environments are eligible for funding.

Thank you for your consideration and partnership in the mission to deploy emission-free technologies.

Respectfully,

Mike Saxton
Orange EV, Chief Commercial Officer
MikeS@OrangeEV.com
816-210-9669

**Background**

Orange EV manufactures heavy-duty (Class 8) pure-electric terminal trucks also known as yard trucks, drayage trucks, hostlers, spotters, and more - they can all refer to the same vehicle. Yard truck replacements/repowers are ideal VW mitigation projects given that retiring just one diesel engine typically results in calculated NOx emissions reductions of 1-2 tons per year depending on usage, and real-world reductions may be far greater. New studies have shown that diesel emissions control devices do not operate as designed at lower speeds; since yard trucks operate under 25 mph and often 10-15 mph, they lie squarely in the worst-case scenario for diesel emissions control systems.

Orange EV provides the first - and still only - commercially deployed Class 8, 100%-electric vehicles. The trucks have been commercially deployed since 2015, and most fleet customers have required incentive funding to offset higher up-front capital costs and to overcome the perceived "risk premium" associated with newer technology and the cost of change that comes with testing and deploying new equipment. Orange EV trucks meet the demands of even the harshest environments (e.g. Chicago rail intermodal) and 75% of fleet customers have re-ordered within 6 months of receiving their first truck. The hurdles remain, however, and to accelerate deployment of heavy duty electrics, significant incentives are required.

**Guiding Principles**

The following list is not exhaustive but provides a framework for the decision and planning processes. We respectfully request that the VW BMP:

1) Supports projects to accelerate and/or enhance commercial adoption of zero-emission vehicles.
2) Augments existing private and public incentives and grants at a project level.
3) Focuses investment in locations to benefit disadvantaged communities.
4) Demonstrates sustainability of zero emission fleets and projects.
5) Avoids interfering with or undermining emerging and existing businesses.
6) Encourages innovation and speed-to-market for additional zero emission vehicles.
7) Incents users to transition fleets more quickly.

**Process for Administering Projects**

The VW BMP provides a rare opportunity to fund projects in a way that is complementary and additional to current state and federal incentive programs. Currently even the most successful programs for heavy duty yard trucks (such as California's Carl Moyer program which funds up to 85% of truck cost) have limitations in that they cannot address the complex tapestry of ownership and operations associated with third party logistics and yard management companies.

**Fund multiple projects under one umbrella**

Due to the typical business models utilized in freight handling, there are frequently several parties paying for different aspects of one project. Quite often, yard trucks are owned by a yard management company who has a contract to move freight at a customer site. When moving to all-electric, the yard management company purchases the vehicles, while the facility

or site owner is responsible for utility costs as well as the cost of installing infrastructure and charging equipment. For a project to move forward, all parties must work together and agree to individual costs. For the business case to make sense for all parties, all components of the project - vehicle acquisition, charging, and infrastructure - must be eligible for incentive funding.

To address this all-too-common scenario, please develop a funding structure that allows for multiple contracts (with multiple entities) under one project umbrella. This unique approach will remove roadblocks, incent all parties who shoulder project costs, and speed adoption of zero emission vehicles.

**Fund electric projects at the maximum allowable**

For Class 8 all-electric solutions, the Volkswagen trust agreement allows up to 75% of the project to be funded for private fleets and 100% for public; this funding applies to repower or replacement projects and includes charging and infrastructure. To accelerate deployments of heavy duty electrics and to achieve cost parity, incentive amounts should be set at this maximum allowable. These benefits should also allow for augmentation by other private or public funding programs.

**Cost parity vs. emissions parity**

The following table provides a comparison of Orange EV yard truck acquisition costs vs. the cost of a Tier 4 diesel refurbishment, and also highlights the incentive level required to achieve cost parity. What the data doesn't quantify is the "emissions parity" or perhaps better the "emissions advantage" delivered with zero-emission projects. When a pure electric vehicle replaces a diesel, emissions are completely eliminated (i.e. there are no Tier 4 emissions) and the emissions advantage is permanently captured.

When analyzing the table, it's important to note that in most cases fleets are not looking to buy a new Tier 4 diesel, but rather extend the life of a current truck or buy a refurbished vehicle that meets emission standards. The purchase decision boils down to three alternatives: 1) use incentives to move quickly and purchase a pure-electric vehicle; 2) purchase an acceptable refurbished diesel; or 3) wait until the normal replacement cycle to purchase a new Tier 4 diesel.

## Basic Cost Comparison: Orange EV Pure-Electric Terminal Truck Solution vs. Diesel

| | REPLACEMENT | | REPOWER | |
|---|---|---|---|---|
| **Costs** | **NEW Extended Duty (160kWh) w/Fast Charge Cabinet** | **NEW Extended Duty (160kWh) w/Standard Onboard Charging** | **REMAN Extended Duty (160kWh) w/Fast Charge Cabinet** | **REMAN Standard Duty (80kWh) w/Standard Onboard Charging** |
| Orange EV truck, base price[1] | $284,950 | $284,950 | $239,950 | $199,950 |
| Orange EV charging | $49,950 | $0 | $49,950 | $0 |
| Electrical infrastructure[2] | $20,000 | $6,000 | $20,000 | $6,000 |
| Taxes (estimated 8%) | $28,392 | $23,276 | $24,792 | $16,476 |
| **Total electric vehicle solution:** | **$383,292** | **$314,226** | **$334,692** | **$222,426** |
| **Comparable diesel truck w/8% tax (refurb)[3]:** | **$54,000** | **$54,000** | **$54,000** | **$54,000** |
| **Cost difference:** | **$329,292** | **$260,226** | **$280,692** | **$168,426** |
| **Percent incentive required to achieve cost parity:** | **86%** | **83%** | **84%** | **76%** |

**Note 1**: The costs shown are for the base price of an Orange EV yard truck. Most fleets pay additional cost to install air conditioning, trailer stops, galvanizing, etc. These are optional costs, but in many places are necessary given the operating environment and/or stipulations in union contracts. For a remanufacture, the fleet must also supply an acceptable donor vehicle.

**Note 2**: Infrastructure is built out and paid for by the fleet (or site owner if the fleet is contracting services to the site); costs can vary dramatically by site. Costs are typically less for "standard onboard" charging due to lower voltage and amperage, and more readily available capacity. Factors that increase the cost of infrastructure include running cabling over long distances, installing a transformer, and hiring outside contractors (not as necessary for the standard onboard charging solution).

**Note 3**: Cost for diesel trucks can range from $25,000 to $120,000 based on refurbished vs. new, and the fleet's buying power. In most cases, fleets are not looking to buy a new Tier 4 diesel, but rather extend the life of a current truck or buy a refurbished vehicle that meets emission standards.

In Orange EV's experience, fleets are making capital last as long as they can and the alternative to a pure-electric solution is usually as stated in the table above. But for the scenario where fleets must purchase a new vehicle (i.e. life extension or purchasing refurbished aren't viable options), and assuming $100,000 per diesel with 8% taxes, fleets would still require 72%, 66%, 68%, or 51% incentive funding (respectively, left to right on the table above) to achieve cost parity.

Offering maximum incentive levels increases the likelihood of replacing diesels with zero emission vehicles, accelerating widespread adoption, and achieving statewide emission reductions targets.

**Utilize max percentages, OEM product approval, and a first-come first-approved model**

We request that maximum funding levels are set utilizing percentages rather than fixed dollar amounts. Infrastructure costs are site dependent and highly variable and new technology is more expensive by nature. If assigning a fixed maximum dollar amount, the state risks discouraging innovation for the larger and more expensive zero emission vehicles and stifling projects that have increased infrastructure costs. Maximum percentages create a more robust environment for developing and implementing new technologies.

In our experience, the most effective incentive programs (such as California's HVIP, Chicago's Drive Clean Chicago, and New York's NYSEV-VIF) utilize OEM product approvals and a first-come, first-approved basis. This model simplifies the application, streamlines the process, and provides greater certainty for fleet managers, site managers, and manufacturers regarding the order/manufacture/delivery timeline.

While projects will be funded across categories, allocations should be technologically neutral and support viable technologies that meet the intended NOx reduction standards.

**Benefits to Low-Income and Disadvantaged Communities**

Focus and priority should be given for projects at freight facilities located in non-attainment or disproportionately impacted communities. Funding projects in these locations (at least 25% across each category, as appropriate) will result in dramatically reduced emissions in disadvantaged communities, potentially much larger than current calculations estimate.

**Studies show high diesel emissions at idle, low speed, and low load**

Yard trucks typically operate in highly impacted areas in goods movement operations such as waste transfer stations, warehouses, distribution centers, manufacturing plants, rail intermodal yards, seaports, and more. Replacing diesel with 100% electric eliminates a calculated estimate of 1-2 tons of NOx per truck annually. Real world emissions may be significantly higher, though, according to a 2017 Wells to Wheels analysis ("Environmental implications of natural gas as a transportation fuel", Hao Cai et al).

In this analysis, multiple studies found that performance of a diesel's selective catalytic reduction (SCR) system is highly dependent on the duty cycle. In high-speed duty cycles, the SCR system performs well and diesel trucks have relatively low NOx emissions. In duty cycles with significant idling, low speeds, or low loads, however, diesel engine temperatures do not reach levels that support sustained SCR performance. This results in very high NOx emissions, up to 10x higher than the 2010 EPA NOx emission standard.

Given that yard trucks typically operate 10-15 mph, diesels may emit far more NOx than currently estimated, along with other criteria pollutants. Replacing diesels with 100% electric will eliminate yard truck emissions and improve air quality.

**Eligible Mitigation Action Categories to Consider**

The VW Mitigation Trust Consent Decree outlines ten eligible categories for funding. The focus of our comments will relate to Category 1 (Class 8 Local Freight Trucks and Port Drayage Trucks) and Category 8 (Forklifts and Port Cargo Handling Equipment).

**Allow functionally "similar-for-similar" replacement**

Allowing "similar-for-similar" replacement in Categories 1 and 8 (and perhaps others) has the potential to be transformative, focusing on the operational needs of a facility rather than strictly requiring "like-for-like" replacement. As an example, the role of a yard truck is often performed less efficiently by an over-the-road drayage truck. If the functionality of a diesel on-road drayage truck can be replaced with an all-electric yard truck, program goals are met, and the community and environment benefit.

**Define "port" in broad terms**

Yard trucks are specifically identified both Categories 1 and 8. Note, however, that in each Category, the word "port" is attached. In Category 1, drayage trucks are defined as "trucks hauling cargo to and from ports and intermodal rail yards" while Category 8 applies to port cargo handling equipment. Using the word "port" is potentially limiting since it evokes the image of a traditional seaport. In the broadest sense, ports are terminals which move cargo, and more and more, these terminals are clustered at inland transportation hubs in disadvantaged communities.

If mitigation fund projects under Categories 1 and 8 are limited to those located in traditional seaports, approximately 80% of yard truck operations will be eliminated; just 20% work in seaport operations. The Consent Decree does not define the word port, however, which gives states the flexibility to consider all yard truck projects that meet the overarching goal to reduce NOx emissions in impacted areas.

In discussions with other states, regulators have agreed that the Consent Decree provides leeway to define port to include all freight facilities. If a broad "port" definition is not adopted, then allocations of funds between categories should address the more restrictive number of opportunities in Categories 1 and 8, and prioritize funds to projects like these that result in greater environmental benefit.

**Summary**

To realize cost effective emissions reductions in Ohio's Volkswagen Beneficiary Mitigation Plan, please ensure that all aspect of yard truck projects (vehicle, charging and infrastructure) are eligible for funding in all operating environments and at the maximum level allowed.

In today's market, pure-electric yard trucks can be "gateway" vehicles to heavy-duty electrics. Although yard trucks generally operate out of the public eye, word spreads quickly between yard operators and fleet companies. Successful deployments generate interest in a way that overcomes pre-conceived notions and speeds adoption of green technologies.

Orange EV has 100% electric Class 8 terminal trucks deployed and operating in fleets from California to New York. From these deployments, we have gathered a wealth of experience and data. Please consider us a resource and contact us if we can be of assistance.