

**COMMONWEALTH OF VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL QUALITY**

**SUMMARY OF PUBLIC COMMENTS**

**PROPOSED STATE MITIGATION PLAN  
FOR THE VOLKSWAGEN PARTIAL CONSENT DECREE**

**INTRODUCTION**

On November 16, 2016, the Department of Environmental Quality (DEQ) announced an informal public comment period and public meeting on a proposed state mitigation plan for the dispersal of an Environmental Mitigation Trust (EMT) established as part of the Partial Consent Decree (CD) that was finalized between the U.S. Justice Department and the Volkswagen (VW) Corporation regarding the installation and use of emissions testing defeat devices.

**PUBLIC PARTICIPATION PROCESS**

An informal public meeting was held at the Administration Board Room, Henrico County Government Center, 4301 East Parham Road, Henrico, Virginia on December 7, 2016 from 5 to 8 p.m. Notice of this meeting was given to the public on November 16, 2016 on the DEQ and Town Hall websites. 30 persons attended the informal public meeting, with 9 of those offering comments. In addition, written comment was accepted from November 17 to December 16, 2016. 101 persons/entities submitted written comments during the informal public comment period. A list of meeting attendees and a copy of the complete text of written comments received is included in a meeting report which is on file at the department.

**SUMMARY OF COMMENT**

1. **Commenter:** Brett Barry, Clean Energy Fuels

**Comments:** As North America's largest provider of natural gas transportation fuel with almost 20 years of leading industry experience, Clean Energy provides construction, operation and maintenance services for refueling stations and is a producer of renewable natural gas (RNG). We have a deep understanding of the growing marketplace, and our portfolio includes 589 stations in 43 states including several in the Old Dominion.

The EMT was established to promote reductions of nitrogen oxide (NO<sub>x</sub>) emissions in the medium and heavy-duty vehicle sectors in order to mitigate the air quality damage caused by VW's non-compliant light-duty diesel vehicles. Reductions are to be achieved, in part, by providing grants for the scrappage and replacement of older diesel vehicles with new diesel, hybrids or alternative fuel vehicles. The question presents itself: How should these funds be spent in order to provide the greatest overall benefit?

Recommendation #1: A majority of the EMT funds should be used to deploy vehicles that perform below today's federal NO<sub>x</sub> emissions standard of 0.2 g/bhp-hr (low-NO<sub>x</sub>, near-zero and zero emission vehicles (ZEVs)).

The EMT fund provides a unique opportunity to transform the medium and heavy-duty truck sector by deploying the most cutting edge engine technologies. While new diesel engines simply meet the required federal NO<sub>x</sub> standard, many natural gas engines have gone farther and are certified to either the California Air Resources Board's optional low NO<sub>x</sub> or near-zero emissions standards. These engines are therefore certified to produce 50-90% fewer NO<sub>x</sub> emissions than new diesels, respectively. Additionally, a recent study conducted by the University of California Riverside found the actual in-use NO<sub>x</sub> emissions of the near-zero natural gas engine to be up to 95% cleaner than diesel (0.001g/bhp-hr). Given the EMT has been created because of the NO<sub>x</sub> pollution associated with non-compliant diesel vehicles, we believe that the majority of the funding should be set aside for vehicle projects which make improvements beyond the current federal NO<sub>x</sub> standards.

Recommendation #2: Grants should cover the same percentage of the vehicle cost for all alternative fueled vehicles which perform below today's federal NO<sub>x</sub> emissions standard.

A report the California Energy Commission indicates that the near-zero natural gas engine produced by Cummins-Westport can reduce the life-cycle emissions of medium and heavy duty vehicles to levels near or equal to those of ZEVs. For example, the South Coast Air Quality Management District of California views the near-zero NO<sub>x</sub> standard to be zero emission equivalent based on the district's mix of electric generation supplying their grid. Moreover, their electric generation mix is one of the cleanest in the country and therefore Virginia will benefit further. While comparable in regard to NO<sub>x</sub> emissions, natural gas and electric vehicles (EVs) are miles apart on cost. An all-electric medium or heavy duty vehicle can cost twice the amount or more of a similar vehicle powered by a near-zero natural gas engine. Yet, under EMT guidance, EVs may receive a grant up to 75% of the total vehicle cost while natural gas vehicles (NGVs) may only receive a grant for up to 25% of the total vehicle cost. Funding the more expensive EV and at a greater percentage will result in fewer vehicles being deployed and therefore fewer reductions in NO<sub>x</sub> emissions.

There is no policy reason for providing a 500% larger incentive (in terms of dollars) for an EV truck which has similar life-cycle NO<sub>x</sub> emissions as a low-NO<sub>x</sub> or near-zero natural gas truck. The funding percentage for both natural gas trucks and EVs which perform below federal NO<sub>x</sub> emissions standard should be the same. Therefore, both EVs and NGVs should be funded at 25% of the total vehicle cost. Our recommendation is more than fair to EVs as under this approach an EV will receive close to twice as much funding per vehicle as an NGV.

Recommendation #3: Either no more than 20% of all funds should be used for government fleets or the funding percentage for government vehicles should be reduced to 50% of the total cost.

The 100% funding level for government vehicles provides a great opportunity for public fleets to reduce their emissions. However, the allure of "free" vehicles for the government should not be permitted to dissipate the greater potential deployment of cleaner vehicles in the private sector. The full funding of government vehicles results in fewer vehicles being deployed per dollar and therefore a reasonable cap must be put in place. A proper balance can be achieved by limiting the funding for government fleets to 20% of all EMT funds or by reducing the funding per vehicle to 50% of the total cost.

**Recommendation #4:** Mass transit, para transit and refuse fleets should be the main focus of funding for government vehicles.

Mass transit, para transit and refuse fleets are high mileage fleets and are therefore a key target for achieving meaningful NO<sub>x</sub> reductions. They also directly serve the community thereby making them highly visible investments. Moreover, these fleets also return to a central hub for refueling which makes them ideal for cleaner alternative fuel applications since only a single station is required rather than an expansive network. Over the past decade many mass transit agencies have recognized the unique positioning of their fleets for utilization of alternative fuels. L.A. Metro operates the largest natural gas bus fleet with over 2,000 buses. It is important to note that grants for public mass transit buses should take into consideration the 80% matching funds from the federal government for capital maintenance investments. Therefore, public mass transit grants should not exceed 20% of the vehicle cost where the federal match is applicable. In the refuse industry, over half of all newly purchased trucks now operate on natural gas due in part by funding made available by states.

Low NO<sub>x</sub> and near-zero NGVs produce 50-95% fewer NO<sub>x</sub> emissions than diesels and are the most economical alternative. From an implementation standpoint, NGVs are the only alternative fuel vehicle option that offers commercially available vehicles for all the categories that qualify for funding under the EMT. Therefore, we urge you to provide significant funding for the deployment of medium and heavy-duty natural gas vehicles in Virginia's mitigation plan and take into consideration the foregoing recommendations.

**2. Commenter:** Daryl Downing, Virginia Sierra Club

**Comments:** I drove here in my electric car which I've owned since May 2104. My wife and I have driven over 41,000 miles without using a drop of gasoline. You may respond by saying coal was burned to generate electricity to charge my car and that generates greenhouse gases. That is true but the U.S. Department of Energy (DOE) data for Virginia indicates that an EV generates 1/3 of the carbon dioxide (CO<sub>2</sub>) of a gasoline-powered vehicle. As more solar and wind systems are fielded, the electric grid will become greener and EVs will become even greener than they are now.

But the VW settlement has to do with reducing NO<sub>x</sub> (a component of smog) produced by older diesel vehicles. EVs produce significantly less NO<sub>x</sub>, significantly less carbon monoxide and significantly less PM. All of these compounds have negative health consequences, particularly in higher concentrations found in urban areas, ports and certain

industrial settings. EVs also produce less of these pollutants than vehicles powered by propane and compressed natural gas.

I was recently told that there are no electric school or transit buses in Virginia. The VW settlement money is a golden opportunity to kick start the transition from highly polluting diesel vehicles like buses to seriously greener option like all electric. Imagine children waiting for buses with no exhaust spewing out of the tailpipe because there is no tailpipe. These children, their parents, the bus drivers, bus mechanics and many others in the school system will learn firsthand how clean and quiet these vehicles are. School officials will immediately learn how inexpensive they are to fuel and maintain. Let's replace dirty old diesel vehicles and watch asthma rates go down.

DEQ has a very important role to play in this settlement. They need to maximize the health benefits by strategically reducing NO<sub>x</sub>, which will inevitably reduce other pollutants too. The settlement contains language that directs states to aid communities that have historically borne a disproportionate share of the NO<sub>x</sub> pollution. These communities are typically low income and have many residents of color. Improve their situation, let them realize the many benefits of EVs and it won't be long before high income communities get the word and take action to duplicate the success.

I mentioned that I drove here in my EV. I have another EV on order. Once it's delivered, I'll get rid on my gas-powered van and never own a gas-powered vehicle again. Every day I realize the many benefits of owning and driving an EV. Now it's time for DEQ to bring these same benefits to disadvantaged communities by judiciously planting seeds that will grow into clean electric vehicles and charging systems that will take care of these cities' residents for many years to come.

### **3. Commenter:** Glen Besa

**Comments:** I urge DEQ to use the funds exclusively to advance electrification of the transportation sector. Electrification of cars, buses and trucks and heavy electric motors at our ports results in the greatest reduction in NO<sub>x</sub> over time because as the grid gets progressively cleaner with the use of renewables, NO<sub>x</sub> levels will continue to decline. Furthermore, this approach provides the mutual benefit of reducing CO<sub>2</sub> to address climate change.

With the higher CAFE standards for vehicles, more electric cars and trucks will be on the road increasing the need for charging infrastructure. Also, expansion planned for the Port of Virginia will only increase NO<sub>x</sub> and fine particle pollution exposure to environmental justice communities near by unless heavy diesel engines are replaced with electric motors as has been done in other major ports like San Diego, CA. Using the VW settlement funds to support LNG and clean diesel only perpetuates NO<sub>x</sub> production and reliance on fossil fuels at a time when Virginia needs to pursue a pathway to clean, carbon free energy.

**4. Commenter:** Alleyn Harned, Virginia Clean Cities (VCC)

**Comments:** From the VCC perspective, which is the states' alternative-fueled vehicle coalition working with approximately 100 green fleets in Virginia to deploy clean alternative fueled vehicles and working with the state energy office on air quality issues and energy, we would like to say thank you for this plan. The alternative fuels and enhanced and advanced diesel technologies considered in this plan represent a way that we can move toward clean air and that we can succeed where a lot of fleets in a number of different applications where both public and private fleets would like to go. I stand here also representing a divergent group of organizations that will be submitting a joint letter on the plan. These organizations include the VCC, the Virginia Transit Association (VTA), the Southern Environmental Law Center (SELC), and the Virginia Sierra Club. I'm going to list a few bullets from the joint letter that we will submit that formal letter for public comment:

- We support the overall approach of the plan and applaud DEQ for the data provided to the public and for the data-driven approach it proposes looking at where pollution is and where to mitigate it.
- We agree that priority should be given to zero and near zero emission technologies where appropriate. That would be the NO<sub>x</sub> and greenhouse gas (GHG) reduction metric, as well as prioritizing the cleaner fuels over diesel where possible.
- We believe that DEQ should allocate the full 15% of funds for investments in ZEV infrastructure as allowed under the trust.
- Virginia should ensure a diversity of fuel and vehicle operators, and geographies receive funding. Benefits do derive from volume of both private and public vehicle improvements.
- To the extent practicable, the mitigate funds should be used to benefit communities that receive a disproportionate share of NO<sub>x</sub> emissions in order to improve public health as defined.

**5. Commenter:** Tim Stevens

**Comments:** I'm a resident of Falls Church, VA and I'm not proud to say that I'm owner of one of the Volkswagen diesel vehicles part of the lawsuit. Because many of the people who brought these cars are located in the Northern Virginia area, it would certainly be worthwhile to use some of these funds in a visible way in this area. Using the funds for equipment or vehicles that use natural gas or diesel would not be a good use of funds because these fuels contribute to the GHG problem that we all face. The state should use the funds to assist the transition to electric vehicles, which would be the best outcome in the long-run. I also support using funds for electric school buses as other speakers have commented.

**6. Commenter:** Nick D'Andria, United Parcel Service (UPS)

**Comments:** We agree with the overall plan that DEQ has developed. I think it is very well done, especially for the few states that have jumped into this, Virginia is at the forefront and should be commended for that. 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 (CNG), liquefied natural gas (LNG), 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 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 the Commonwealths 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 and maximizing the 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 Commonwealth 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 Commonwealth 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 should get the largest amount of incentives.

**7. Commenter:** Kate Addleson, Virginia Sierra Club

**Comments:** The settlement in the VW emissions cheating case will provide Virginia with \$87.6 million that must be used to clean up pollution from the transportation sector. The Sierra Club urges Governor McAuliffe to devote the entire settlement to advancing

Virginia's transition to a clean energy future relying on electric cars, buses and trucks and electric motors to power the heavy equipment like that used at our ports.

We urge the Governor not to use the settlement for halfway measures like incentivizing cleaner diesel trucks and compressed natural gas cars and buses. By contrast, EVs emit zero pollution at the tailpipe and are the best means of addressing climate change. According to the U.S. DOE, in Virginia EVs create less than half the amount of carbon pollution as a traditional gasoline vehicle over the course of a year.

While the use of natural gas and cleaner diesel engines are allowed under the VW settlement, they still pollute our air and prolong our reliance on climate disrupting fossil fuels. In transitioning to electric cars, trucks and buses, as we bring more renewable sources of power generation like solar and wind to the grid, we know these vehicles will result in cleaner air and less carbon pollution. The same cannot be said of natural gas and diesel vehicles.

**8. Commenter:** Lisa Guthrie, Virginia Transit Association (VTA)

**Comments:** Our nonprofit organization represents over 40 public transportation providers, as well as businesses, organizations, and individuals. We serve as voice of public transit in Virginia and take the lead on issues affecting transit across the Commonwealth. We in the VTA wish to thank you for your comprehensive mitigation plan leading to the goal of improving and protecting ambient air quality that will achieve significant and sustained reductions in diesel emissions. We ask that all of the revenues realized from the mitigation fund be used for improvement of air quality and not simply utilized to address the state's 2018 budget shortfall.

Note that on page 7 of the report under the subtitle of "Expenditures for Government-owned Eligible Large Trucks," the word "buses" needs to be added. I believe that is an oversight but I did want to make sure that you are accounting for buses in that section.

The VTA has been working collaboratively with VCC and with SELC on a joint statement of support for the plan. We all agree that the plan is a good start for prioritizing electric vehicles so that we can incentivize new markets. We also recognize that the regions of Virginia are diverse so that no one type of clean fuel will apply everywhere. Regardless of geography, Virginians' public health will benefit from these mitigation actions.

Even using conventional diesel fuel, public transportation use saves the U.S. the equivalent of 4.2 billion gallons of gasoline annually, and more than 11 million gallons of gasoline daily. Without public transportation, congestion costs would have been an additional \$10.2 billion and 541 million hours in travel time.

But we know that can be drastically improved with cleaner fuel sources. According to the Transit Cooperative Research Program, diesel-electric hybrid buses have a 14-48% better fuel efficiency than conventional buses. And a step-up from that is no-emission electric. Compared to private vehicles, public transportation is aggressively reducing annual

emissions of NO<sub>x</sub>. For every passenger mile traveled, public transportation produces only half as much CO<sub>2</sub> and NO<sub>x</sub>.

Transit agencies across the country have made substantial progress in investing in innovative clean technologies and fuels such as electricity, hybrid, electric storage, biofuels, natural gas, and hydrogen fuel cells. Transit, in fact, has often been on the cutting edge of adopting these clean technologies driven in part by a range of federal policies, programs, and incentives.

Virginia, unfortunately, is experiencing a decline in state transit capital funding that will plummet in the year 2020. Our transit agencies will be stressed to stay abreast of a State of Good Repair replacement program and have little to spare for expansion. The opportunity for up to 100% of the cost of a new clean fuel bus through this program may make a significant difference in acquiring any new rolling stock. Several of our transit system members have shared with me their plans and objectives for clean fuel buses and I would like to pass them along to you:

- Greater Richmond Transit Company (GRTC): They are transitioning their entire fleet over to CNG and are even exploring CNG-powered support vehicles that street supervisors drive.
- Williamsburg Area Transit Authority (WATA) - They would like to replace 6-8 CNG buses that are currently ending their useful life and transition to electric buses and the fast charge stations for them. Eventually they would like to move more of the diesel fleet over to electric as they build new facilities for them.
- Washington Metropolitan Area Transit Authority (WMATA) - Their 2018 budget includes the purchase of 100 CNG buses for a total of about \$55 million; they are very interested in learning how this fund could assist them in making this possible.
- Greater Lynchburg Transit Company (GLTC) - They are preparing to move into a brand new bus facility and Headquarters later this month. The new building is completely set up for NG but they have no CNG buses yet.
- Blacksburg Transit (BT) - BT took delivery of 9 hybrid-electric buses, two of which are 60-foot articulated buses to carry large numbers of passengers with fewer vehicles. Since then, they have acquired 5 more hybrid buses with an order about to be placed for two more. Meanwhile, the planned Multi-Modal Transit Center on the northern edge of the campus will consolidate routes. In conjunction with this project, they have been researching the possible purchase of electric buses to provide a Campus Shuttle that will greatly impact air quality on campus. This will further advance progress toward the mutual clean energy goals of Blacksburg Transit, the town of Blacksburg, and Virginia Tech.

As you can see, there is no shortage of the benefits that could come from awards from the mitigation fund. We ask that you recognize the extensive benefits an investment in public transportation could have on Virginians of all ages and in communities with transit.

**9. Commenter:** Josh Davis, Pupil Transportation, Henrico Public Schools

**Comments:** Henrico County has about 620 diesel powered school buses on the road, more than half of the current fleet is 2009 or older buses. We estimate that it would take 15 years to replace these older buses under current budget levels. This funding would help us get these dirty buses off the road in a more accelerated manner. We welcome the opportunity to replace a bus with a 100% of funding, but we would also be interested in providing some matching funding. There are about 23,000 buses Virginia-wide. Henrico County is one of the larger fleets. Probably half the fleet in Virginia is 2009 or older. We welcome the opportunity to participate in the program, and believe that this would a wise use of funds by DEQ. I would also like to note our willingness to pilot hybrid electric buses, alternative fueled, or all-electric buses to see how well they do and how we can maintain them in order to chart a path for the future so we can have cleaner school buses to serve our children throughout Virginia and especially in Henrico County.

**10. Commenter:** Bill Johnson

**Comments:** Please honor the intent of the EMT created under the settlement with VW Corporation and invest the funding in programs that will mitigate the air quality impacts and catalyze the transition to a clean transportation system. The diesel vehicles involved in the emission cheating produce NO<sub>x</sub>, causing public health impacts. This is an opportunity for all citizens of the Commonwealth to enjoy cleaner air, healthier communities, and new job opportunities through electrifying portions of the transportation sector.

This funding must be used in the most environmentally sound ways possible, given the nature of this settlement. Efforts to reduce air pollution from transportation have proven to be cost effective. For every one dollar spent on programs to reduce emissions under the Clean Air Act (CAA), the American people receive nine dollars of benefits to public health and the environment. The EMT funds can be used in Virginia to catalyze the transition to a clean, electric transportation sector by overcoming several hurdles, primarily the higher upfront costs of EVs and the associated charging infrastructure. Virginia can become a leader in clean, electric vehicle technology across the board - from personal vehicles, to transit, school buses, and ports.

The demand for EVs is growing, and consumers will buy them if cities have reliable charging infrastructure. Between 2012 and 2014, plug-in electric vehicle (PEV) charging access at work nearly doubled nationwide. Across the rest of the transportation sector, EMT funds can be used to electrify ports and increase efficiency, invest in zero-emission buses and medium truck fleets, and build light duty vehicle charging infrastructure. Complementing the funds with existing programs like Diesel Emissions Reduction Act (DERA) funding, and private-public partnerships will multiply the impact of the VW settlement in Virginia. Electrification is the future of the transportation sector, which we can invest in today through proper use of the EMT funds for Virginia.

**11. Commenter:** Robert Shippee

**Comments:** I want to emphatically urge you to ensure the funds from the VW environmental fraud settlement (approx. \$80 million) are not used on any fossil fuel-related activities, but rather for clean energy needs such as electric vehicle charging stations and

municipal solar projects. By wide margins, Virginians favor a shift to renewable, clean energy versus continued investment in old, dirty fuel sources.

**12. Commenter:** Scott Burger

**Comments:** As a Virginia citizen, I would like the VW settlement to go toward establishing electric vehicle infrastructure (as opposed to more fossil fuel) and renewable energy (to be more specific, distributed solar power in Virginia).

**13. Commenter:** Susan Miller

**Comments:** I have read the DEQ mitigation plan for the VW partial consent decree related to their abuse of emissions standards. The plan is comprehensive and reasonable. I would like to encourage DEQ to take this opportunity to use the money in the most long term effective manner by moving to no-emission vehicles wherever possible. I have driven a hybrid for 12 years but I would prefer to drive an all-electric vehicle. In order to do that we have to have widespread infrastructure for charging, we have to encourage widely disbursed commercial and home solar and we have to use a smart grid with storage. I have done what I can as an individual with home solar but I need state policies that support getting off fossil fuels and I need Dominion power to stop obstructionist policies. Please spend the \$87 million well and in the interests of our grandkids.

**14. Commenter:** Mark Denton, Blossman/Alliance Autogas

**Comments:** First, I want to thank VA DEQ for putting together a very detailed and organized plan for addressing the VW settlement. This document is extremely helpful for entities to begin formulating their plans to develop projects that will accomplish the overall objective of improving and protecting ambient air quality by implementing eligible mitigation projects that will achieve significant and sustained reductions in diesel emissions.

While we greatly appreciate all of the funding opportunities for alternative fueled vehicles for on-road applications, why are they not eligible for Non-Road Equipment?

Alternative fueled engines for re-power and alternative fueled vehicles for replacement could and should be allowed for:

- Airport Ground Support Equipment
- Forklifts
- Port Cargo Handling Equipment

These vehicles offer significant emissions reductions in the above types of equipment compared to their diesel counterparts without compromising work performance.

Additionally, there are few to no options for electric engines/equipment in the heavier above listed equipment, but many options for that same equipment with alternative fueled engines/equipment.

If the above non-road equipment will not include alternative fueled engines/equipment, what are possible funding opportunities for those types of engines/equipment under the DERA program? Can you give some examples of what level of funding will be provided under the DERA program and what the cost share requirements might or should be? Secondly, will the DERA projects include on-road options? Lastly, will the DERA projects be initiated at the same time as the other funded projects within the scope of this particular VW settlement, or will they be handled separately?

Alternative fueled engines/equipment offer many solutions in both on-road and off-road applications with the following benefits:

- Equivalent horsepower/torque and performance to the diesel counterpart.
- Significantly less emissions including NO<sub>x</sub>, ground level ozone, PM, etc.
- Alternative fuels, like propane and natural gas, are 98% domestically produced and offer significant cost savings versus the diesel counterparts.
- Available options today for Classes 4-8 on-road applications with original equipment manufacturer (OEM) and after-market EPA certified conversion technologies.
- Available options for medium to heavy duty off-road applications with OEM and after-market EPA certified conversion technologies

**15-78. Commenter:** Identical comment transmitted via email by 78 persons

**Comments:** The EMT funds should be used in Virginia to catalyze the transition to a clean, electric transportation sector by overcoming several hurdles, primarily the higher upfront costs of EVs and the associated charging infrastructure. Virginia can become a leader in clean, electric vehicle technology across the board - from personal vehicles, to transit, school buses, and ports.

The demand for EVs is growing, and consumers will buy them if cities have reliable charging infrastructure. Between 2012 and 2014, PEV charging access at work nearly doubled nationwide. Electric vehicles are by far the cleanest option available to reduce emissions in transportation.

Across the rest of the transportation sector, EMT funds can be used to electrify ports and increase efficiency, invest in zero-emission buses and medium truck fleets, and build light duty vehicle charging infrastructure. Complementing the funds with existing programs like DERA funding, and private-public partnerships will multiply the impact of the VW settlement in Virginia.

This is an opportunity for all citizens of the Commonwealth to enjoy cleaner air, healthier communities, and new job opportunities through electrifying portions of the transportation sector. Electrification is the future of the transportation sector, which we can invest in today through proper use of the EMT funds for Virginia.

**79. Commenter:** Deborah Thomas, Mid-Atlantic Regional Air Management Association

**Comments:** The plan addresses a lot of items so congratulations on getting the plan out the door. One comment I have is that the glossary section of the document clearly defines “scrapping the engine” processes but in the actual document, I did not read that scrapping the engines was required.

**80. Commenter:** Trip Pollard, Southern Environmental Law Center; Lisa M. Guthrie, Virginia Transit Association; Alleyn Harned, Virginia Clean Cities; Kate Addleson, Virginia Sierra Club

**Comments:** The \$87 million in funds Virginia is eligible to receive under the settlement present a unique opportunity to improve air quality for all citizens. Transportation is a leading source of air pollution in Virginia, and there is a shortage of clean transportation options statewide. VCC, SELC, VTA, and Virginia Sierra Club, urge DEQ to maximize the benefits of the VW settlement funds to move the Commonwealth toward a significantly cleaner transportation future and to reduce greenhouse gases.

DEQ’s draft plan is a good start. Our organizations support the overall framework of the draft plan and applaud DEQ for the data it has provided and the data-driven approach it proposes. We endorse the following recommendations and general principles in developing an effective mitigation plan.

- Highest priority should be given to zero and near-zero emission technologies where practical. In order to improve and protect air quality with eligible mitigation projects, it is essential to expedite deployment of zero emission and near-zero emission vehicles and engines. Strategies should be emphasized in appropriate amounts to motivate market adoption of new clean vehicles. EVs are preferred when practical for greatest environmental benefit. Cleaner fuels mentioned in the DEQ draft settlement should be prioritized over diesel.
- Virginia should allocate the full 15% allowable to electric vehicle charging stations. Electric vehicles represent important new markets, and expanding charging infrastructure is essential to enable EVs to be driven longer distances and to encourage purchase of such vehicles by overcoming “range anxiety.”
- Virginia should work to ensure that a diversity of vehicle operators (fleets) and geographies receive funding. Funding priorities in the draft plan include elements such as highly leveraged projects with great NO<sub>x</sub> reduction per dollar. Virginia’s plan lets improvements occur across all federal eligible areas and recognizes which areas produce NO<sub>x</sub>. Benefits derive from a volume of both public sector and private sector vehicle improvements, although public transportation may need a larger incentive while the private sector may need extra cost share.
- Mitigation actions funded should, to the maximum extent practical, benefit communities that have borne a disproportionate share of NO<sub>x</sub> emissions to improve public health.

**81. Commenter:** Richard Drazenovich, City of Danville Department of Public Works

**Comments:** The City of Danville, Virginia has been dedicated to researching and developing suitable alternative fuels to replace on-road diesel engines in both its Public Works fleet and Transportations public bus fleet.

In the last thirteen months Danville has purchased or converted fourteen light and medium duty gas vehicles to bi-fuel (gas/propane) and one public use bus to propane. We have installed an 18,000 gallon propane tank and an electronically monitored dispensing system which has been recognized by the Internal Revenue Service as an eligible refund source for fuel credits allowed for alternative fuel use.

In January 2017, we will be converting four vehicles, two of which are class 7 vehicles to bi-fuel propane fuel. The two class 7 vehicles would have been purchased with diesel engines in the past. Future vehicle purchases will be ordered with the gasoline engine package for conversion to bi-fuel propane as our schedule allows.

**82. Commenter:** Jesse Gordon

**Comments:** As recent trends show, electric cars a significant part of Virginia's (and our nation's future). There are adoption barriers and spending should carefully considered over time. I suggest 1) setting aside 15% for publicly accessible charging infrastructure, 2) gathering vehicle ownership, travel and future trends, and 3) waiting a couple of years to spend the majority of the funds. We need to break concrete for this infrastructure deployment and the plan to do so should be strategic and carefully spent to ensure EVs (Ford C-Max, Tesla, Nissan Leaf, Chevy Volt, etc.) that are on the road and will be on the road in the next 5 years. The type of light duty passenger vehicles on Virginia's highways and byways will look very different than it does today, historically speaking.

**83. Commenter:** Carlton S. Revere, Virginia Propane Gas Association

**Comments:** The Virginia Propane Gas Association was founded as a non-profit organization in 1946, in order to promote the safe use and handling of propane and propane related products in the state of Virginia. Working together, the members of the Association have formed a favorable environment for propane production, distribution and marketing which demonstrate the value of propane as our nation's most versatile energy source. We have over 100 members who serve the energy needs for tens of thousands of customers throughout the Commonwealth.

The Commonwealth has been presented with the possibility of making a substantial impact on reducing NO<sub>x</sub> emissions. The draft plan is a commendable beginning and we understand that the language of the partial CD also may place limits on what can be done in the Commonwealth.

We offer the following comments to the draft plan:

1) Full Life-Cycle Evaluation of Any Eligible Fuel Source: Projects should be ranked on their total NO<sub>x</sub> and other greenhouse gases emissions, not just at the vehicle tailpipe

exhaust point. The full life cycle of the fuel type from production/power generation to a vehicle's tailpipe emission should be calculated and considered. Such analysis is necessary to determine the true environmental impact of any project. When the full life cycle of a fuel is considered, those projects that purport to yield zero emissions are actually generating much higher greenhouse emissions content than Propane.

2) Apples-to-Apples Ranking Criteria: Projects reducing the amount of diesel fuel consumed should be measured using a direct and quantifiable ranking criteria.

3) Priority Ranking for Rapid Implementation: While the draft states that projects are prioritized if they may be implemented within 3 years of an award, additional priority should be given to projects that may be implemented in a faster time-frame, thereby reducing NO<sub>x</sub> emissions and yielding benefit to the environment more quickly.

4) Parity Treatment Between Public and Private Sector Projects: DEQ has the ability to adjust requirements of eligible projects when it submits its plan to the Trustee whereby private fleets are treated equally with government fleets. A split between government and non-government owned eligible large trucks that funds 50% of the replacement cost will create equitable distribution of funding and can ensure that such vehicles are replaced at faster rate.

5) Preserve Settlement Funds for Their Intended Purpose: We urge that none of the funds received from this settlement be diverted to fill any budget gaps within the Commonwealth. This is a unique opportunity to advance the use of clean-burning alternative fuels like propane throughout Virginia.

**84. Commenter:** Wyatt Shields, City of Falls Church (CFC)

**Comments:** CFC supports DEQ's goal of using the funds to be awarded to Virginia generally to implement projects that "improve and protect ambient air quality." CFC shares with other northern Virginia jurisdictions the burden on our residents' health from poor air quality resulting principally from tailpipe exhaust from mobile sources, including diesel emissions. CFC is additionally burdened because of the limitations imposed on truck traffic on the main traffic arteries on our northern and southern boundaries (I-66 and Route 50). These restrictions funnel large numbers of trucks, including many with diesel engines, onto Route 7, which passes through the entire length of our city.

The planned Virginia EMT provides an opportunity for DEQ to assist northern Virginia jurisdictions, including CFC, in achieving improvements in air quality that will result in general improvement in our residents' health.

In particular, CFC supports the funding of projects that will accelerate the adoption of EVs by jurisdictions, including municipal fleet vehicles and electric school buses. The limited range of these vehicles at present is well suited to the compact size of a small jurisdiction like CFC (2.2 square miles).

CFC also supports DEQ's intention to maximize funding allowable for the deployment of zero emission vehicle supply equipment. We would like to see some of the funding used to install public charging stations. The lack of such facilities suppresses the rate of EV adoption by the public. DEQ may even want to consider locating some EV charging infrastructure at existing gas stations as a way to engage support of this sector in the transition to EVs.

**85. Commenter:** Tim Ware, George Washington Regional Committee/Fredericksburg Metropolitan Planning Organization

**Comments:** Our general understanding is as follows:

1. The national size of the settlement is \$2.7 billion, of which Virginia is to receive at least approximately \$87.5 million.
2. The terms of the settlement guidelines are contained within the consent decree and appear to have been negotiated between the Federal government and VW. They are not likely to change significantly.
3. DEQ is administering the funds for Virginia and is seeking comments on its plan to do so. In general all public bodies may apply and pay no match for qualifying projects. The private sector may also apply, but they require a match, the percentage of which depends on what they are applying for.
4. Passenger rail projects (e.g. Amtrak, VRE) are not eligible.
5. Equipping facilities to provide for electric charging stations or CNG fueling sites are eligible. This would include vehicle maintenance and storage facilities, as well as park and ride lots, among other buildings.
6. Equipping rolling stock to enabling their operation using electric or CNG fuel is eligible, provided that such vehicles, when loaded with fuel, passengers and cargo, weight more than 14,001 pounds and provided that such vehicles were manufactured between 1992 and 2009. This would include school buses, transit vehicles, snow plows, delivery trucks, etc.
7. Projects must be "implemented" within three years: We are unclear as to the strict meaning of this three year implementation requirement. Does this mean funds must be obligated within three years, or that all funds must be expended within three years?

For example, if an entity were equipping a large fleet of vehicles to utilize electric or CNG fuel, then that fleet would need to be rotated in parts through the equipping process, so as to allow the main body of the fleet to stay in service at any given time. This could take longer than three years to accomplish the physical work, but the funds to complete all the work could be obligated at the outset. The Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) recognize this fact and therefore require that funds be obligated within a certain time frame.

We there suggest that DEQ adopt a rule that project funds must be obligated within three years of award.

**86. Commenter:** William Penniman

**Comments:** As a citizen of Virginia with 40 years' experience dealing with energy issues, I urge DEQ to target the largest share of the VW EMT to supporting implementation of EVs in Virginia. This includes supporting EV charging infrastructure and EV fleets for schools and other governmental entities.

- EVs are zero-emission vehicles at the point of use. This means cleaner air in cities and other communities in which they operate. This will help reduce local ozone, particulate and other forms of pollution associated with vehicle operation. That will improve health outcomes for citizens and facilitate compliance with ozone and other air pollution regulations. Displacing emissions from traditional automobile emissions and from diesel-powered fleets of buses and other large vehicles would be highly beneficial. Children on school buses breathe diesel fumes and particulates every school day and would be greatly helped by EV buses. Reducing such emissions is part of DEQ's core mission.
- EVs are cleaner on a "well-to-wheel" basis. Based on a review of the current mix of fuels used to generate electricity in Virginia, the U.S. DOE has shown that EVs are better than gasoline and hybrid vehicles in the Commonwealth of Virginia.
- CNG vehicles produce approximately 80% of the CO<sub>2</sub> emissions as gasoline vehicles, so they too would be worse than EVs for CO<sub>2</sub> emissions. Including upstream emissions of methane in the CNG calculation would make it worse than gasoline. Diesel is worse than gasoline and even so-called bio-diesel is no better than gasoline with ethanol added. As electric utilities incorporate cleaner sources, like wind and solar, the advantages of EVs will grow over time.
- EVs are a better investment than internal combustion vehicles. EVs, by definition, operate with electric motors. Electric motors are very simple sources of power with many, many fewer moving parts than internal combustion engines. Maintenance and repair costs and outage times will be far lower for EVs than for internal combustion engines. That will save users large sums of money and lost time over the life of the vehicles. This will be extremely important for school districts, other government users, and taxpayers over the life of the vehicles.
- EVs are well suited to fleet usage and commuting. School buses and other governmental fleets have usage patterns (operating hours and distances) that fit the operating and recharging characteristics of EV buses. EVs are also well suited to serving commuters since EVs are already capable of going over 200 miles on a single charge.
- EVs and EV infrastructure are a better long-term investment for Virginia and the U.S. Scientists and the world's nations have recognized that it is imperative to keep worldwide temperatures from rising by more than 2.0°C above pre-industrial levels. We are already experiencing large changes in weather patterns, forest fires, sea levels (e.g., in Virginia), disease and pest vectors, agriculture, and national security threats. These harms from global warming will get worse and accelerate to get much worse the longer we wait to reduce greenhouse gas emissions, particularly CO<sub>2</sub> and methane which are products of fossil fuel production, transportation and combustion. Since GHG emissions, particularly CO<sub>2</sub> are cumulative, it is essential to start aggressively reducing GHG emissions now, lest the necessary reductions resemble a cliff in 20 years.

Investing in vehicles and infrastructure that support gasoline, diesel or CNG vehicles will compound the stranded cost risks we already face.

The fact that CO<sub>2</sub> is a greenhouse gas affecting the world's climate has been known for over 150 years. For decades (a century, actually), scientists have warned of human's contributions to climate change and the climate hazards posed by our emissions.

In sum, to the extent the VW settlement money goes to the transportation sector, funding expansion of EVs and EV infrastructure would be far wiser than using it for other purposes, including CNG or so-called "clean diesel."

**87. Commenter:** Brett Crable, Dominion Virginia Power

**Comments:** Dominion Virginia Power appreciates the opportunity to provide comments on the Proposed State Mitigation Plan for the VW Partial CD. Dominion supports the DEQ's focus on projects that provide the greatest air quality benefit in terms of NO<sub>x</sub> emission reductions and promoting clean transportation technologies in the Commonwealth. Specifically, Dominion has the following comments on the Proposed Plan.

- Projects selected for funding should focus on electrifying the transportation industry in Virginia.
  - Electric transportation technologies support the Proposed Plan's goal of providing the greatest air quality benefit in terms of emissions reductions.
  - In addition to air quality improvement, electric transportation can contribute to economic development in the Commonwealth as noted in the Virginia Energy Plan and Richmond Electric Vehicle Initiative (REVI) Electric Vehicle Readiness Plan.
- Dominion supports the Proposed Plan's proposal to use up to 15% of funding for deploying zero emission vehicle supply equipment to offset emissions from light duty diesel and non-diesel vehicles.
  - Dominion strongly recommends that DEQ use the full 15% for the deployment of electric vehicle supply equipment. The availability of electric vehicle charging is a key element in increasing the number of ZEVs in Virginia and achieving a sustainable reduction in emissions.
  - Dominion is committed to increasing renewable energy in the Commonwealth. As more renewable energy is integrated into the electric generation mix, the fuel source for electric vehicle supply equipment, the electric grid, continues to get cleaner, in furtherance of air quality benefits in Virginia.

**88. Commenter:** F. Kent Leacock, Proterra

**Comments:** Proterra 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 PM and reducing carbon emissions by 70% or more compared to CNG or diesel buses. In addition, the cost of maintenance differential is substantial in comparison to fossil fueled buses. Using the

American Public Transportation Association (APTA) average of 34,000 miles per year and the FTA required 12-year life, a Proterra bus will save a transit agency over \$200,000.00 per bus on average compared to a fossil fuel transit bus.

The harmful effects of vehicle exhaust from medium and heavy-duty trucks are on the rise and have been for years. EPA reports that medium and heavy duty vehicles account for 20% of GHG emissions and oil use in the U.S. 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 VW 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' public transit needs, including the reduction of GHG and the elimination of criteria emissions.

We strongly recommend that Virginia direct 85% of the Appendix D settlement funds to incentivize the deployment of zero emission, battery electric transit buses and medium duty vehicles to help reduce GHG emissions and vehicle miles traveled, as well as provide other health and associated benefits throughout Virginia.

We propose that Virginia adopt two specific funding programs that have significantly accelerated the adoption of heavy duty EVs and, as a direct result, helped reduce NO<sub>x</sub> and GHG emissions. First, we urge Virginia 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 FTA's Low or No Emission Program, which has helped fund the purchase of zero-emission transit buses across the U.S. The CA program is important in that it allows newcomers to receive funding for not only buses, but also chargers (EVSE). Second, the 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 ZEV. 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.

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 Virginia 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.

Appendix C proposes an investment of \$1.2 billion for zero-emission vehicle programs. Although VW ultimately controls all of the \$1.2 billion to be spent outside of California, EPA and VW are expected to receive public comments on how this funding should be spent on encouraging ZEV adoption. The National Investment Plan does not currently include heavy-duty ZEV fueling infrastructure as a credible cost. But we urge Virginia to advocate for competitive funding programs that allow states, businesses, and technology providers to compete on a technology neutral basis for charging station funding. We also strongly support the inclusion of zero-emission public transit buses in this program to accelerate the adoption of zero-emissions technologies that can provide communities the greatest benefit in the elimination of mobile source pollutants.

**89. Commenter:** Kevin George Miller, ChargePoint

**Comments:** ChargePoint is the world's largest and most open EV charging network with more than 31,000 level 2 and DC fast charging spots. Every 4 seconds, a driver connects to a ChargePoint station and by initiating over 19.8 million charging sessions, ChargePoint drivers have driven over 488 million gas free miles.

Light Duty EV Supply Equipment (EVSE): 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. The Mitigation Plan prepared by DEQ proposes to invest up to 15% of the Commonwealth's allocation for these purposes, but does not explicitly commit the full \$13.1M available for infrastructure. ChargePoint recommends that the state dedicate its entire 15% carveout toward electric vehicle charging infrastructure to increase access to charging and support the continued adoption of EVs throughout Virginia.

We further recommend that the following features be included in a light duty EVSE program:

1. Incentives should be structured simply through rebates, vouchers, or a straightforward grant program;
2. Support competition and allow multiple vendors and business models to participate in any program;
3. When possible, require site hosts of charging stations to have "skin in the game" and provide private match, which will stretch the value of the investment and lead to more efficient siting of infrastructure;
4. Encourage data collection that could be shared with state agencies for planning purposes, enabled through the use of networked smart charging stations;
5. Coordinate with other state and utility programs;
6. Seek to coordinate with neighboring states to establish EV fast charging corridors, including those identified by the FAST Act; and
7. Focus funding on areas of greatest need include workplaces, multifamily housing, and disadvantaged communities.

Non-EVSE Appendix D Funding: ChargePoint encourages the Commonwealth to dedicate all 85% on electrification over other fuel sources, which will lead to the greatest transportation emissions reductions. Given currently available technology, ChargePoint encourages Virginia to focus on electric buses and medium duty transit vehicles. While we support all forms of electrification, ChargePoint particularly encourages investment in vehicles that have the ability to charge on standard EV charging stations, such as Proterra, which uses an SAE combo plug for charging its electric buses. This will allow public light duty fast charging stations to be leveraged for bus charging and other fleet needs. Possible bus electrification programs could support regional, municipal and school bus fleets.

**90. Commenter:** Trip Pollard, Southern Environmental Law Center (SELC)

**Comments:** The SELC is a non-partisan, non-profit organization that works throughout Virginia and five other states on a range of environmental issues, including advancing cleaner transportation alternatives. We offer these brief comments to supplement the joint comments submitted last week by VCC, SELC, VTA, and Virginia Sierra Club. The VW settlement funds present an important opportunity to promote cleaner transportation, including reducing greenhouse gas emissions. Given the outsized contribution of the transportation sector to air pollution in the Commonwealth, it is particularly important that these funds be devoted solely to pollution reduction and that they be spent wisely.

SELC applauds DEQ for developing a strong draft plan and endorses the data-driven approach it proposes. We urge Virginia to fund programs that will achieve significant and sustained reductions in diesel emissions, support allocating the maximum 15% allowable to EV charging stations, and support funding EVs to the greatest extent practicable in order to accelerate market introduction of EV technologies and infrastructure. In addition, we support targeting a portion of the funds to help address environmental justice concerns that ozone pollution disproportionately impacts minority communities.

Further, given the duration of the settlement, it is important to provide for ongoing implementation as well as flexibility to take advantage of new technology. Accordingly, we recommend that a stakeholder advisory group be created to provide input and transparency during the implementation and further development of the mitigation plan.

**91. Commenter:** Joyce Bodoh, Rappahannock Electric Cooperative (REC)

**Comments:** As a member-owned cooperative, REC believes the expansion of zero emission vehicles will considerably benefit the communities REC serves and REC encourages plans that advance the deployment of EVs and infrastructure across Virginia.

As one of the largest electric cooperatives in the U.S. and in the state of Virginia, REC provides service to over 161,000 connections in parts of 22 Virginia counties. With its general office in Fredericksburg, VA., the Cooperative operates and maintains more than

16,000 miles of power lines through its service area, which ranges from the Blue Ridge Mountains to the tidal waters of the Chesapeake Bay.

The diverse membership that REC serves includes those who live and work in high traffic locales and environmentally sensitive areas, both of which would considerably benefit from lower vehicle emissions. The Cooperative's territory boundaries are located just inside the four major interstate corridors of I-95, I-66, I-64 and I-81 and consequently, counties served by REC in Frederick, Spotsylvania, Caroline, Fauquier, Washington, and Albemarle are located in the *Top 25 Counties for Annual Tons of Highway NO<sub>x</sub> Emissions in Virginia*, per the Plan.

In response to member interest in electric vehicles, in 2016 REC formed an internal team to research the benefits of purchasing an electric vehicle and charging infrastructure for company fleet use. Plans are now underway to purchase an electric vehicle and charging infrastructure in 2017 as a learning project. Through first-hand knowledge of driving and charging an electric vehicle, REC will be better positioned to assist members with questions related to EVs and the impact on electricity usage. REC is currently evaluating making its charging station available for public use, and other means of increasing public access to charging infrastructure. REC also joined VCC and through their partnership, have gained valuable insight about electric vehicle technologies. Through the collaboration, an EV was on display prominently at two of our most widely attended events and VCC representatives were available to talk to REC members about electric vehicles. During the events, REC members expressed their enthusiasm and gave positive feedback about the displays.

In conclusion, the Cooperative believes that offsetting the costs for zero emission vehicles and charging infrastructure will benefit REC members and their communities and values this forum to endorse our support of the Plan.

**92. Commenter:** Richard H. Ball

**Comments:** Given the importance of climate change and the need to rapidly reduce GHG emissions from all sectors of the U.S. economy, it should be an important consideration in the choice of programs Virginia should adopt to utilize the VW settlement fund, in addition to the stated primary purpose of reducing NO<sub>x</sub> emissions from vehicles. Programs that achieve both purposes should be the preferred choices of programs to receive greatest priorities.

Programs that involve promotion of electric vehicles, CNG and LNG vehicles, and clean diesel vehicles evidently are permissible under the VW settlement and have all been mentioned in DEQ's draft plan. However, a number of peer-reviewed studies of the life-cycle or well-to-wheels emissions of GHG gases indicate that substitution CNG or LNG light duty and heavy duty vehicles actually increase GHG emissions relative to gasoline or diesel fuels, at least for a long time into the future. I would cite in particular a study, Alvarez et al. (2012), that looks at the radiative forcing over time of natural-gas substitution in both cars and heavy-duty diesel trucks. For cars they conclude that radiative forcing will

be increased for many decades (varying with assumptions about the amount of leakage from the upstream natural gas production and transportation system) before finally become somewhat beneficial many decades into the future. For heavy-duty trucks they conclude the substitution of natural gas is even worse, in some cases never reaching positive benefits for global warming.

As an example, I focus here on a comparison of radiative forcing from GHG emissions of typical light duty vehicles such as autos powered by either gasoline or CNG. Using vehicle emission factors for methane and CO<sub>2</sub> calculated from the well-to-wheels analysis in Table 1 of Alvarez et al. (2012), I have calculated the net change in radiative forcing for converting a fleet of 50,000 gasoline vehicles to CNG vehicles in 2020 and operating them for 30 years from 2020 to 2050. The net GHG reduction benefit is negative until about 2105 (positive values meaning increased global warming forcing), after which there is a positive benefit. Global warming is increased by converting to CNG for the first 85 years before finally obtaining a small benefit. This happens because CNG cars have smaller tailpipe CO<sub>2</sub> emissions but their extra methane emissions outweigh this for a long time. The emission factors from Alvarez et al. (2012) are based on upstream methane leakage of 2.4%, including production, processing, transmission and distribution systems for natural gas, plus 0.6% methane leakage from CNG vehicles in-use, which includes refueling and other leakage. That assumption is near the bottom of the range of methane leakage estimates from natural gas systems. Higher methane emissions would further exacerbate the climate disadvantages of CNG cars.

It is clear from these charts that substituting CNG cars for gasoline cars, whatever benefit it might have for NO<sub>x</sub> reduction (which is likely to be small if any given the latest emissions standards for both types of vehicles) is outweighed by the increased GHG emissions from the change and their substantial impact on global warming. The opposite is true for substituting EVs and PHEVs, which all studies indicate will substantially decrease GHG emissions. In particular, DOE calculations for Virginia show that, with Virginia's mix of electricity sector emissions, EVs and PHEVs show less than half the emissions of gasoline vehicles.

**93. Commenter:** Virginia Sierra Club

**Comments:** The EMT established under the VW Emissions Fraud Lawsuits will provide Virginia with \$87.6 million that must be used to clean up air pollution from the transportation sector. The Sierra Club urges the state and those granted authority to devote the entire settlement to advancing Virginia's transition to a clean energy future relying on electric cars, buses and trucks and electric motors to power heavy equipment like that used at our ports.

One of the stated responsibilities of the Air Division of DEQ is that the agency "ensures the safety and quality of the air in Virginia by monitoring and analyzing air quality data, regulating sources of air pollution, and working with local, state and federal agencies to plan and implement strategies to protect Virginia's air quality." The EMT funds provide an opportunity for all citizens of the Commonwealth to enjoy cleaner air, healthier

communities, and new job opportunities, if invested in clean, electric options for the transportation sector. We urge the Governor not to use the settlement for halfway measures like incentivizing cleaner diesel trucks and compressed natural gas cars and buses. EVs emit zero pollution at the tailpipe and are the best means of addressing climate change.

The settlement EMT funds were established to mitigate the environmental impacts, and must honor that intent by creating programs to improve air quality. These programs should abate NO<sub>x</sub> by an amount equal to or greater than the combined pollution caused by the approximately 20,000 affected vehicles in Virginia. While the use of natural gas and cleaner diesel engines are allowed under the VW settlement, they still pollute our air and prolong our reliance on climate disrupting fossil fuels. In transitioning to electric cars, trucks and buses, as we bring more renewable sources of power generation like solar and wind to the grid, we know these vehicles will result in cleaner air and less carbon pollution. The same cannot be said of natural gas and diesel vehicles.

Due to these drawbacks, it is of utmost importance that DEQ make zero-emission investments the highest priority in its scoring criteria for the allocation of these funds. The available funding under the EMT can overcome several hurdles to creating a cleaner technology sector, primarily the higher upfront costs of EVs and the associated charging infrastructure. Across the rest of the transportation sector, EMT funds can be used to electrify ports and increase efficiency, invest in zero-emission buses and medium truck fleets, and build light duty vehicle charging infrastructure. Complementing the funds with existing programs like DERA funding, and private-public partnerships will multiply the impact of the VW settlement. It is in Virginia's best interest to use EMT funds to advance electrification of the transportation sector. Electrification will:

1. keep our money in-state and save all of us--our residents, schools, governments and businesses--money on transportation fuel;
2. save all of us money through lower electricity rates;
3. create in-state jobs;
4. drastically reduce air pollutants like NO<sub>x</sub> to protect our health and our environmental justice communities; and
5. drastically reduce CO<sub>2</sub> emissions.

Efforts to reduce air pollution from transportation have proven to be cost effective. For every one dollar spent on programs to reduce emissions under the Clean Air Act, the American people receive nine dollars of benefits to public health and the environment. EMT funds can be used to advance electrification of the transport sector by overcoming several hurdles. Chief among these hurdles are the higher upfront costs of EVs and the higher upfront costs and difficulty of installing EV charging infrastructure. Using EMT funds to lower the upfront costs of purchasing EVs such as transit and school buses and trucks, and to build out the charging infrastructure for electric vehicles, ensures a successful transition to a clean transportation sector, powered by locally produced clean electricity.

Further, EV charging will increase electricity sales, which can place downward pressure on electricity rates for all utility customers, whether or not they own electric vehicles. EV charging, when properly integrated into the electric power system can dilute the fixed costs of electricity transmission and distribution and lower electricity rates for all utility customers. Vehicle charging can be managed to occur during off-peak periods, when the electric grid is underutilized and there is plenty of spare capacity in the generation, transmission and distribution. Dominion Virginia Power envisions Virginia being a leader in EVs stating: “Industry experts have predicted that Virginia will be one of the largest markets for plug-in EVs in the country. Dominion Virginia Power believes there could be as many as 60,000 EVs and PHEVs in its service territory by 2021.”

This new load on the grid can be served by existing and often underutilized infrastructure without proportionally increasing a utility’s costs. In turn, this can reduce the average cost of power for all utility customers. Similarly, EV load can be shifted to facilitate the integration of variable generation from renewable sources. By managing EV charging to match electricity demand with renewable generation, we can stabilize power flows and reduce the average cost of power.

Electrifying our transportation will save our residents money on fuel costs. It is far cheaper to fuel a vehicle with electricity than with oil, or even natural gas. Additionally, electricity prices are highly stable and consistent over time, while the cost of diesel and gasoline fluctuate.

To electrify our transportation sector, we will have to build out our charging network and other assets. Doing so creates well-paying construction jobs. NRG expects that its \$102.5 million investment to build EV charging infrastructure in California will also “create a gross output of more than \$185 million when the employment and procurement of goods and services are factored together, equating to an additional \$83.3 million in indirect economic activity by 2016.”

A study conducted at the University of California, Berkeley estimates that, as compared to baseline, nearly 100,000 net jobs could be created by 2030 in California from EV infrastructure development--depending on how quickly EV adoption ramps up.

Transportation plays a significant role in driving unsafe levels of smog and other pollution that adversely affect our health. A 2013 MIT study found that, of all sectors, the transportation sector was the greatest contributor to premature emissions–related deaths in the U.S., resulting in 53,000 early deaths per year from vehicle tailpipe emissions.

Indeed, the VW scandal is such a significant public health issue precisely because of the high levels of smog-forming NO<sub>x</sub> emissions that VW’s vehicles unlawfully emit. And that is why reducing NO<sub>x</sub> emissions is at the heart of the VW settlement agreement and the EMT. A significant amount total NO<sub>x</sub> pollution results from burning fossil fuels in vehicles; NO<sub>x</sub> is one of the core ingredients of ozone, also known as smog. Smog inflames people’s lungs, impairing breathing and triggering asthma attacks. Nationwide, on-road vehicles are responsible for approximately 37% of the country’s NO<sub>x</sub> emissions. Smog levels are

typically highest in urban areas—precisely the areas with the densest populations and thus the most significant public health impacts. Eliminating the tailpipe nitrogen oxide emissions from the transportation sector will drastically reduce smog levels in cities.

The broad consensus is that the U.S. and other countries must reduce carbon emissions by at least 80% economy wide by 2050 to stave off the worst effects of climate change. To achieve an 80% reduction in total greenhouse gas emissions, the U.S. must decarbonize its transportation sector. This is inescapable given the fact that the transportation sector accounts for approximately 27% of the US's total greenhouse gas emissions.

Investing EMT funds in diesel or natural gas simply perpetuates reliance on dirty fossil fuels, and the unsafe levels of smog and other public health pollutants they lead to. While they may incrementally reduce NO<sub>x</sub> emissions, they are not zero emission vehicles, nor does their adoption help build out the infrastructure we need to have a truly modern, clean and safe transportation sector.

Numerous studies have concluded that EVs have a key role to play in decarbonizing the electric sector. Indeed, researchers have concluded that electrification of the vehicle fleet is “pivotal” and that even “after other emission reduction measures [are] employed to the maximum feasible extent” in other sectors of society, “there was no alternative to widespread switching of direct fuel uses (e.g., gasoline in cars) to electricity in order to achieve the reduction target.”

The International Energy Agency has similarly concluded that if the US is to meet carbon reduction objectives, “EV/PHEV sales must reach substantial levels by 2015 and rise rapidly thereafter.” Annual EV sales in 2020 in North America must reach 1,500,000 EVs, and the U.S. must have 10 million PEVs on the road by 2025. Buying new natural gas and propane vehicles hinders us from reaching this goal.

Total wells-to-wheels GHG emissions (grams CO<sub>2</sub>-equivalent/mile or g CO<sub>2</sub>-e/mi) are generally slightly higher from CNG buses than from diesel buses, due primarily to the “upstream” impact of methane emissions from natural gas production and processing. The increase in total annual GHG emissions from operating new CNG buses instead of new diesel buses could be as high as 13.3 tons CO<sub>2</sub>-e per bus.

We have a golden opportunity to make significant progress in improving the efficiency of Virginia's transportation sector, reducing NO<sub>x</sub> pollution, improving economic conditions by buying vehicle fuel (electricity) that's produced in the state, and normalizing EVs across broad groups of people. While electricity is the cheapest and cleanest of the fuels, it's also the one that's guaranteed to get cleaner as more renewable energy is fielded.

**94. Commenter:** Susan Elliott

**Comments:** I have read the proposed state mitigation plan for the VW Partial CD and would like to submit the following comments to be incorporated or addressed in the final mitigation plan documents:

1. While the proposed plan on page 3 states that the funding priorities are priorities and not eligibility criteria, it would be helpful to provide further clarification regarding the likelihood of success for projects that are not located within an area of poor air quality (3 of the 8 priorities listed), but do aim to achieve the second bullet point listed on page 1 in the II. MITIGATION PLAN OVERVIEW AND GOAL section.
2. Section V. Part a., page 6-7: Is it intended that government owned eligible buses be excluded? Government owned heavy trucks and the associated expenditures are listed, but only Non-government owned buses are addressed.
3. Bottom of page 12: "Expenditures for Eligible ZEV Supply Equipment: Up to 100% of the cost to purchase, install and maintain eligible light duty electric vehicle supply equipment..." For how long of a time period can maintenance costs be included? For example, if a third party is contracted to manage and maintain the supply equipment, how many years of service costs can be covered by a project? Could a 10-year (or longer) contract be entered into and funded through this opportunity?

**95. Commenter:** Kick Burns, Carter Machinery Company

**Comments:** Carter Machinery Company Inc., in collaboration with Blue Bird and Roush CleanTech, will work closely with other supporting agencies to promote the proposed mitigation plan and educate potential end-users on the benefits of alternative fueled vehicles. In addition to our direct contacts through the Virginia Association of Pupil Transportation and Virginia School Board Association, we will make every effort to support the initiatives proposed through VCC, SELC, VTA, and the Virginia Sierra Club.

We appreciate the data provided by DEQ and are encouraged by its efforts to maximize the benefits of the settlement and to promote cleaner, safer air quality in the Commonwealth of Virginia.

With respect to the eligibility and funding allocation for eligible mitigation project types, we ask the DEQ to clarify and reconsider the following:

Expenditures for Non-Government Owned Eligible Large and Medium Local Freight Truck, and Eligible Buses: Current funding allocation outlined in the plan provides for up to 25% of the cost of a new diesel or alternative fueled (e.g., CNG, Propane, Hybrid) vehicle.

- Request that the DEQ clarify that "Eligible Buses" includes all manufactured school buses operated at the state, county, and local municipality level.
- School bus manufacturers do not currently offer an electric powered school bus. Taking into consideration the operational demands required in a school bus application, combined with the lack of technology required to meet such demands, availability of an electric powered school bus is still several years out. Compressed natural gas and propane powered school buses are available, so we ask the DEQ to increase the funding allocation for this project type to a minimum of 50%.

**96. Commenter:** Joe Thompson, ROUSH CleanTech

**Comments:** As President of ROUSH CleanTech, I am excited by the alternative fuel opportunities offered as part of the VW Partial CD and the corresponding mitigation plan drafted by your office. In its current draft form, I am pleased that the programs outlined in your plan offer our company numerous opportunities to deploy technology (i.e., propane autogas and CNG fuel systems for school buses, para-transit and other commercial applications) we've been investing in and refining since 2006 that displaces diesel and removes both criteria pollutants and greenhouse gas emissions.

We have deployed over 8,000 propane-fueled school buses in more than 650 school districts nationwide. Propane-fueled school bus technology is a proven and cost-effective method to achieving the lowest NO<sub>x</sub> emissions today. In fact, ROUSH's model year 2017 propane school buses will be certified at 0.05 grams NO<sub>x</sub> per brake horsepower-hour (g/bhp-hr), which is 75% cleaner than today's cleanest diesel buses. Our new propane buses will be 99% cleaner than the oldest pre-2007 buses operating in many school districts. Our CNG school bus launched this year will be certified at 0.1 g/bhp-hr. Therefore, I'd encourage DEQ to emphasize replacement of pre-2009 school buses with propane or CNG technology. I would also request that the funding level for private school bus applications be increased to at least 50% of the vehicle cost due to required scrappage and corresponding loss of residual vehicle value.

For commercial applications, this funding could provide a significant market transformation opportunity. Due to the time and resource intensive engineering, testing and validation required to bring our technology to market, we still have an incremental cost when compared to a traditional gasoline or diesel vehicle. Therefore, I would encourage DEQ to offer opportunities for the private-commercial fleet markets such as food and beverage delivery vehicles and airport and ground transportation vehicles.

**97. Commenter:** Douglas Stewart

**Comments:** I am writing to ask DEQ to target the largest share of the VW Mitigation funds to supporting implementation of EVs in Virginia.

EVs are zero-emission vehicles at the point of use. This means cleaner air in cities and other communities in which they operate. This will help reduce local ozone, particulate and other forms of pollution associated with vehicle operation. Children on school buses breathe diesel fumes and particulates every school day and would be greatly helped by EV buses. Reducing such emissions is part of DEQ's core mission.

EVs are also the climate-friendly solution. On the basis of the full-cycle impacts from the fuel source to the point of use, EVs using electricity generated from Virginia sources have the least CO<sub>2</sub> emissions compared to gasoline, diesel and hybrid vehicles. Data from the U.S. DOE show that annual CO<sub>2</sub> emissions from EVs are lower than these other technologies based on the Virginia electricity fuel mix. CNG vehicles would also be worse than EVs for CO<sub>2</sub> emissions. Including upstream emissions of methane in the CNG

calculation would make it worse than gasoline. As electric utilities incorporate cleaner sources like wind and solar, the advantages of EVs will grow over time.

In addition, EVs are well suited to fleet usage and commuting. School buses and other governmental fleets have usage patterns that fit the operating and recharging characteristics of EV buses. EVs are also well suited to serving commuters, especially as battery technology continues to improve.

Last, but certainly not least important, EVs and EV infrastructure are a better long-term investment for Virginia and the U.S. Virginia is already experiencing significant impacts of global warming on our communities, environment and local economies. These harms from global warming will become only more costly in every way the longer we wait to reduce greenhouse gas emissions.

For these reasons, funding expansion of EVs and EV infrastructure would be a better strategy than using it for other purposes, including CNG or so-called “clean diesel.”

**98. Commenter:** John Morrill, Arlington County Government

**Comments:** This proposed implementation plan provides a tremendous opportunity to expand the use of ZEVs in Virginia, especially in Northern Virginia where NO<sub>x</sub> and other criteria emissions remain a concern. We are particularly concerned about the impact of air pollution on children. Therefore, we recognize the opportunity for this program to accelerate the shift from diesel school buses to electric school buses.

1. We urge DEQ and the Commonwealth to prioritize electric school bus supply infrastructure as a strong component of the final mitigation plan. This will benefit the children of Virginia in several ways –

a. Reduce NO<sub>x</sub> in the state by removing diesel-fueled school buses from the road. Arlington still has in its fleet several diesel school buses built prior to the latest emission standards. On an individual basis the emission profile of a diesel school bus is less than that of one transit bus, primarily due to the fact that a single school bus will travel fewer miles per day than a single transit bus. However, when considered in the aggregate, the Virginia school bus fleet is larger than the transit bus fleet and covers more miles per day than the transit bus fleet.

b. Remove children from exposure to NO<sub>x</sub> and diesel PM<sub>2.5</sub> found in the interior of diesel-fueled school buses. The health impacts of school buses are greater due to the fact that children and adolescents with sensitive and developing lungs are the primary passengers.

c. Increase public awareness of ZEVs as very few vehicles are as visible as a big yellow school bus. Further, school buses are tied to educational intuitions and can incorporate educational and public outreach as part of their usage in communities where deployed.

2. We urge DEQ and the Commonwealth to include vehicle-to-grid (V2G) EV supply infrastructure in its mitigation plan –

a. The PJM Interconnection serving Virginia is interested in V2G applications for demand response and frequency management, and PJM provides incentives for V2G applications. Combining the resources of the VW Mitigation plan with V2G applications will make hasten the development and use of electric school buses and other electric vehicles, and make them much more viable over the long term.

b. V2G for school buses is an ideal combination, as the substantial batteries on electric school buses would often be connected to the grid (charging) at mid-day, which is often a time the grid needs stabilization. V2G reduces the total cost of ownership for school districts.

c. Arlington views V2G options for electric sedans with fast-charge stations as an accelerator for adoption of EVs in our urban community. Although the operating costs of EVs are quite a bit lower than gasoline vehicles, in urban areas many vehicles do not have enough use to make the premium for an electric vehicle financially worthwhile. The V2G option provides an additional revenue source for government fleets and individuals alike.

**99. Commenter:** Jeffrey King, Metropolitan Washington Council of Governments (COG)

**Comments:** The COG Department of Environmental Programs (DEP) supports DEQ's goal to "improve and protect ambient air quality by implementing eligible mitigation projects."

COG's Northern Virginia members represent over 2.3 million people, approximately 30% of the state's population. The Virginia Mitigation Plan will have a great impact on the energy infrastructure, air quality, resilience, and economies of Northern Virginia, as well as the region. Further, the Metropolitan Washington region remains in nonattainment of the 8-hour ozone NAAQS. Taking steps to reduce emissions of the ozone precursor NO<sub>x</sub> is a critical strategy to help bring the northern Virginia region into attainment. To that end, we view this proposed program as a very strong tool to address emissions of NO<sub>x</sub> from the on- and off-road vehicle fleets and is consistent with larger regional efforts to move quickly to achieve emission reductions to improve air quality.

COG has extensive experience in working on projects related to diesel emissions reductions, as well as the deployment of alternative fuel vehicles (AFV) and infrastructure development. COG was one of the founding members of the Mid-Atlantic Diesel Collaborative and has since managed multiple projects under the DERA, handling retrofit and repower projects across a number of sectors include marine vessels, construction equipment, and switcher locomotives. In addition, our efforts in the AFV arena spans two decades starting with our work with the U.S. DOE's Clean Cities Program establishing a nationally recognized Clean Cities Coalition. Our current efforts include publishing an EV report, *Electric Vehicles in Metropolitan Washington: Understanding the Region's Current*

*EV Readiness and Options for Expanding Their Use* (October 2012). The report provides a framework for establishing a regional readiness plan for the deployment of EVs in the Washington region. Most recently, we are partnering with the National Association of Regional Councils (NARC) and four other regional councils on a U.S. DOE funded proposal to develop five regional cooperative procurements for AFVs and infrastructure.

Given this extensive program experience, we have the following observations and suggestions as you consider options to implement the proposed plan in Virginia:

1. We are pleased to see the proposal includes eligibility for non-governmental entities. Given much of the equipment to be addressed under this program may reside in the private sector, having the flexibility for non-governmental organizations to apply for and utilize these funds is important.
2. Virginia may want to consider alternative cost share percentages for non-governmental fleets. We have found over the last decade that as the U.S. EPA has raised the mandatory cost share many private sector owners are not as willing or are unable to participate in retrofit or repower programs.
3. The 15% cap on administrative fees seems reasonable. Under the DERA program, COG typically is able to manage projects with a fee in the range of 7 to 12%.
4. The region will benefit greatly from efforts that demonstrate the viability of vehicle-to-grid technologies to provide various ancillary services in support of the grid and DC fast chargers to enable more rapid charging of vehicles, in particular to support the current and future growth of electric taxi cab fleets in the area.

We are excited about the future of EVs and are confident that the Virginia Mitigation Plan will enhance adoption and deployment across the Washington region. The plan has an opportunity to create an environment that encourages innovation in a growing sector that recognizes the importance of interaction between energy infrastructure and related sectors.

**100. Commenter:** Matthew Godlewski, Natural Gas Vehicles for America

**Comments:** The EMT was set up to fund projects that reduce NO<sub>x</sub> emissions to mitigate the excess pollution contributed by the non-compliant light-duty diesel vehicles. The Trust focuses on the environmental opportunity presented by addressing the emissions associated with the medium- and heavy-duty vehicles and non-road vehicles that contribute a disproportionate share of the NO<sub>x</sub> emissions in urban areas. By focusing on the retirement of older, high-mileage, higher emission medium- and heavy-duty vehicles and replacing them with new, cleaner vehicles, the settlement looks to generate larger emissions reductions than could be achieved through similar light duty focused programs. It also presents a significant opportunity to accelerate the use of cleaner, alternative transportation fuels, and thereby truly transform the transportation sector.

DEQ understands the focus for the Trust and has set priorities in its mitigation plan that call for “sizeable projects designed to achieve the greatest NO<sub>x</sub> emission reduction or offset for the dollar (i.e., capital cost effectiveness in dollars/ton).” NGVAmerica concurs

with this focus and believes that natural gas vehicles offer the best solutions for these projects.

Medium- and heavy-duty natural gas vehicles are the only alternative fueled vehicles widely available from manufacturers today. These new natural gas vehicles have an exceedingly cleaner emissions profile than the vehicles targeted for replacement. Moreover, new natural gas vehicles that are certified to California's Optional Low NO<sub>x</sub> Standard surpass EPA's most stringent emissions standards by as much as 90%. Vehicles that operate on clean-burning, domestically produced natural gas offer the most cost-effective solution in designing transportation projects that reduce harmful emissions caused by non-compliant diesel vehicles. NGVs employ the latest clean fuel technologies and are commercially available in all applications of on-road vehicles permissible for funding.

NGVAmerica and its members stand ready to assist the VA DEQ with its development of the Beneficiary Mitigation Plan including potential natural gas vehicle projects in the state and we welcome the opportunity for further discussion.

Our comments clearly demonstrate that:

- The funds available from the Trust provide an extraordinary opportunity to incentivize alternative fuel vehicles and transform Virginia's transportation sector;
- Natural gas vehicles are much cleaner than comparable diesel vehicles as evidenced by recent in-use testing studies;
- The latest technology "Near-Zero" low-NO<sub>x</sub> natural gas engines deliver NO<sub>x</sub> and greenhouse gas emission benefits that are equal to or greater than EVs when accounting for emissions from the electrical grid;
- Natural gas vehicles are the most cost-effective alternative fuel vehicle option that significantly reduces NO<sub>x</sub> emissions;
- Natural gas vehicles are the only alternative fuel vehicle option that offers commercially available vehicles for all the categories that qualify for funding under the Trust; and
- Natural gas vehicles deliver other important benefits including: lower greenhouse gas emissions; fuel diversity and energy security; and increased jobs and economic investment.

The EMT fund provides an extraordinary opportunity to transform the medium- and heavy-duty transportation sector by promoting alternative fuel projects that reduce NO<sub>x</sub> emissions and decrease ground-level ozone pollution in areas with the greatest need. It also represents an unprecedented opportunity to incentivize public and private fleets to accelerate their move to greater use of alternative transportation fuels and away from being nearly totally reliant on petroleum fuels. The timing of this funding could not be better as new, low-NO<sub>x</sub> and Near-Zero natural gas engines are coming into the market-place. We strongly encourage Virginia to fast-track its transition to new and cleaner natural gas vehicles, truly transforming and immediately improving the environmental footprint of its medium- and heavy-duty transportation sector.

Today's medium- and heavy-duty natural gas vehicles meet or exceed the most demanding emission requirements and provide substantial NO<sub>x</sub> reductions compared to even the cleanest diesel fueled vehicles. In-use testing data presented in a paper published in *Environmental Science and Technology* indicates "that three-way catalyst (TWC) equipped stoichiometric natural gas vehicles emit 96% fewer NO<sub>x</sub> emissions compared to selective catalytic reduction (SCR) equipped diesel vehicles." The report evaluated in-use emissions from drayage trucks utilizing natural gas and diesel engines. The diesel vehicles evaluated for the report in some cases had emissions that were 5-7 times higher than in-use certification limits.

New "Near-Zero" natural gas engine technology has been certified by the EPA and the California Air Resources Board to NO<sub>x</sub> levels that are 90% lower than current federal standards for such engines. A recently released report from the California Energy Commission indicates that the Near-Zero natural gas engine "can reduce the lifecycle emissions of medium- and heavy-duty vehicles to levels near or equal to those of zero emission electric vehicles."

The emission benefits of the new "Near-Zero" engine are well documented in the 2016 *Game Changer* report issued by Gladstein, Neandross and Associates (GNA). The GNA report indicates that a truck equipped with a natural gas engine that has been certified to the 0.02 g/bhp-hr Optional Low NO<sub>x</sub> Standard has lower life-cycle NO<sub>x</sub> emissions than an all-electric truck being charged on any electrical grid in the U.S. The report also concludes that the low-NO<sub>x</sub> natural gas truck can provide these low NO<sub>x</sub> emissions at a cost that is considerably lower than a comparable all-electric truck. While actual cost depends on the application, an all-electric medium- or heavy-duty vehicle costs three to four times the amount of a comparable vehicle powered by a 0.02 g/bhp-hr natural gas engine.

The GNA report documents that natural gas vehicles are the only viable near-term option for reducing NO<sub>x</sub> emission and GHG emissions from heavy-duty vehicles. While the Trust does not require greenhouse gas reductions, many states are likely to be interested in understanding the GHG benefits of projects. The GNA report finds that both conventional and renewable natural gas produce less GHG emissions than comparable electric vehicle projects because the lower cost of natural gas vehicles means that significantly more low-GHG vehicles can be deployed for a given amount of funding. This report also documents that today an increasingly larger amount of renewable natural gas is being used to fuel natural gas vehicles. Compared to diesel fuel, renewable natural gas reduces greenhouse gases by as much as 80% or greater. Conventional natural gas provides about a 13–17% reduction in GHGs compared to diesel fuel.

The VW settlement provides an unprecedented opportunity to accelerate the deployment of cleaner natural gas engines including low-NO<sub>x</sub> natural gas engines. Natural gas vehicles are currently available in all of the on-road applications identified in the list of Eligible Mitigation Actions. This means that Virginia can act quickly to deploy new, cleaner natural gas trucks and buses.

Natural gas vehicles are far more cost-effective in delivering emission reductions than other alternative fuel options, such as hybrid and electric vehicles. In addition, using EMT funds for NGV related projects will result in the deployment of far greater numbers of vehicles. Dollar-for-dollar natural gas delivers greater numbers of total vehicles and greater total tons of NO<sub>x</sub> emission reductions. This is illustrated by the figure below which looks at several different funding options for natural gas and EVs including providing 100% of the cost of new, replacement vehicles for public fleets, using the maximum funding levels specified in the settlement for natural gas and EVs purchased by private fleets, or funding only the incremental cost of new, replacement vehicles.

Clearly, the deployment of new, cleaner natural gas vehicles and “Near-Zero” natural gas trucks (such as in regional haul trucking, refuse trucks, and transit buses) will help Virginia provide the most NO<sub>x</sub> emissions reduction to comply with the EPA’s latest national ozone standards.

NGVAmerica recommends that the VA DEQ consider prioritizing its incentives by providing all or a large share of the available funding for medium- and heavy-duty engines that deliver NO<sub>x</sub> reductions that exceed today’s federal emission requirement for new diesel vehicles. This will provide greater incentives for fleets to acquire even cleaner vehicles.

Given that the EMT has been created because of the NO<sub>x</sub> pollution associated with non-compliant diesel vehicles, we believe that the funding should be set aside exclusively for clean, alternative fuel vehicle projects.

By prioritizing funding for clean, alternative fuel technologies, Virginia can kick-start the commercialization and deployment of medium-duty and heavy-duty engines that are much cleaner than the cleanest diesel fueled vehicles and can encourage investments in technologies that will continue to deliver emissions benefits for many years as these projects encourage others in the state to make similar investments in cleaner transportation technologies.

If funding is provided for diesel vehicles that meet the current, minimum federal standards, then the percentage offered for such vehicles should be less than that offered for cleaner vehicles.

There also should be a higher level of funding for technologies that historically have demonstrated lower in-use emissions even if they are certified to the same baseline standard as new diesel vehicles. Vehicles with engines certified to California’s Optional Low-NO<sub>x</sub> Standard should receive the highest level of funding (i.e., 25% in the case of private sector vehicle replacements or 50% in the case of drayage trucks). If the state has an approved DERA plan, it should consider funding low-NO<sub>x</sub> natural gas trucks that are not drayage trucks under the DERA Option because the DERA program provides 35% of the replacement cost for vehicles equipped with low-NO<sub>x</sub> engines.

In the case of publicly funded vehicles, we recommend adjusting the funding levels to maximize the benefit of the program and accelerate the deployment of additional

alternative fueled vehicles. While it might be tempting to fund public vehicles at the 100% level, this will obviously lessen the overall effectiveness of the projects by limiting the total number of deployed vehicles. Funding levels should be large enough to offset the incremental cost of new, cleaner vehicles and sufficient to address fact that replaced vehicles must be scrapped. Funding levels for different alternative fuel technologies should be commensurate with the level of NO<sub>x</sub> emissions provided by the fuel technology.

Priority should be given for those applications that produce the largest share of NO<sub>x</sub> emissions occurring in urban and non-attainment areas. In most cases, this means prioritizing funding for short- and long-haul trucks, or at least ensuring that some funding goes to incentivize the purchase of new, cleaner trucks in these applications. For many areas of the country, short-haul and regional-haul trucks produce a disproportionate amount of the NO<sub>x</sub> emissions. These trucks also consume a lot of fuel and drive a lot of miles which makes them excellent candidates for using natural gas. We therefore strongly recommend setting aside some funding for private fleets that operate short-haul and regional haul trucks. These types of projects will compliment other projects involving school buses, transit buses, shuttle buses and refuse trucks that can have a positive impact on the air quality in urban areas.

In developing its Mitigation Plan, we urge VA DEQ to use its Trust funds for vehicle deployment projects and not for other purposes. Using funding only for vehicle deployment will maximize the NO<sub>x</sub> emission reductions and environmental benefit. Every dollar spent on infrastructure and for other purposes takes away from critical funding that could be better used to deploy more vehicles. Funding should be used to incentivize fleets and vehicle acquisitions where existing fueling infrastructure exists. If fueling infrastructure needs to be developed, other available funds or private funding should be secured as part of private-public partnerships to ensure that the maximum amount of funding goes toward deploying cleaner vehicles that reduce NO<sub>x</sub> emissions. Using the funding in this way and encouraging private-public partnerships for infrastructure will encourage additional economic development in the state and increase the availability of stations for all users. The VW settlement money should be spent on transformational, alternative fuel projects that deliver the most NO<sub>x</sub> emissions for every dollar spent, with a focus on areas with current high NO<sub>x</sub> emissions, but not excluding areas that have lesser emissions but have good reasons to be included (connecting gaps in corridors, rapidly growing areas, etc.). Spending should be accelerated in the early years to maximize emission reductions, with appropriate accounting for actual vehicles deployed and emissions reduced.

The VW settlement presents an unprecedented opportunity to advance the pace of clean vehicle deployment and reduce NO<sub>x</sub> emissions. The opportunity is unprecedented because of the scale of the funding that is being made available and because new, extremely lower emitting natural gas engines are just now becoming available for a variety of on-road, medium and heavy-duty applications that emit a significant amount of urban pollution. NGVAmerica and its members believe that natural gas vehicles offer the best solution for achieving the objectives of the Trust.

**101. Commenter:** Veronica Bradley, Airlines for America

**Comments:** Airlines for America (A4A) is the principal trade and service organization of the U.S. airline industry. A4A and its airline members have a strong record of advancing environmental goals, including actively supporting efforts to achieve and maintain clean air, while also driving economic growth. For example, emissions from the commercial aviation sector constitute less than 2% of domestic greenhouse gas emissions nationally and have had much slower growth from 1990 levels (5%) compared to the transportation sector overall (17%) and on-road sources in particular (24%). At the same time, our industry drives the national and state economies. The Virginia Department of Aviation reports that Virginia's airports contribute \$28.8 billion in economic activity to the Commonwealth's economy, which represents over 4% of Virginia's total economic output. Additionally, approximately 259,000 jobs are created and sustained by Virginia airports, and each airport job supports an additional seven jobs in the Commonwealth.

U.S. airlines have achieved this level of simultaneous economic and environmental performance because we have relentlessly pursued and implemented technology, operational, and infrastructure measures to minimize our environmental impact. Among these measures, A4A member airlines have proactively worked with airports around the country to reduce emissions through cost-effective electrification of airport ground support equipment (GSE). The U.S. and California have recognized the significant contribution GSE electrification can provide and have named it as an "Eligible Mitigation Action" (EMA) that qualifies for funding from the EMT established under the VW Partial CD.

At this stage, the Partial CD is itself very new, having been finalized only on October 25, 2016. The Trust will not likely become effective until spring 2017 and may, under the terms of the Partial CD, be changed before it is finalized and ultimately becomes effective. It is also notable that funds will be available from the Trust for ten years. Consequently, while we appreciate and encourage Virginia to continue to act expeditiously, at the same time there is ample time for careful consideration of the substantive and procedural details the Commonwealth will use to implement the EMT.

In light of these factors, A4A believes it is premature to comment in detail on policies and procedures that may be applied in distributing funds under the Trust and urges the Commonwealth to provide further opportunities for relevant stakeholders to comment as it continues to develop its approach to implementing the Trust. At this stage, we are confident that our industry will develop multiple proposals to replace GSE with electric alternatives at a number of Virginia's airports. Accordingly, any policies and procedures adopted by the Commonwealth should allow full and fair consideration of GSE electrification projects as envisioned by the U.S. and the approving court under the Partial CD.

Below we offer some preliminary observations regarding particular issues identified in the proposed mitigation plan as well as responses to DEQ's specific request for comments on the proposed distribution of funding and recommendations and information on possible mitigation projects.

As highlighted in the Partial CD, reducing NO<sub>x</sub> emissions can be particularly beneficial to communities that are disproportionately impacted by local air pollution. Targeting projects that will reduce NO<sub>x</sub> emissions at facilities with concentrated activity may most effectively address potential air quality problems and maximize public health benefits from the fund.

GSE electrification is positioned to provide these benefits as evidenced by its close alignment with the goals and funding priorities outlined in Virginia's proposed mitigation plan. The proposed plan states its primary goal is to improve and protect ambient air quality through implementation of EMAs that will:

Achieve significant and sustained reductions in diesel emissions in terms of tons of reductions in diesel emission exposures in areas designated as poor air quality areas, areas with historical air quality issues, and areas that receive a disproportionate quantity of air pollution from diesel fleets.

In alignment with this goal, electrification of GSE provides the unique opportunity to achieve sustained emissions reductions in predetermined locations because GSE operate exclusively on airport grounds. Virginia's major airports are located in the top locations where the VW and Audi vehicles in question are registered, so ensuring Trust funds are allocated to GSE electrification projects will in turn ensure that local air quality will improve in and around these areas.

GSE electrification projects also align with the funding priorities laid out in the proposed mitigation plan. First, GSE electrification projects A4A members envision implementing with funding from the Trust are cost-effective. Member airlines have unlocked state grant funds with cost-effectiveness thresholds in the past, and that experience readies them to propose equally cost-effective projects to make real differences in the local air quality surrounding airports in Virginia.

Second, member airlines and the airports they partner with have demonstrated experience and programmatic structures in place to effectively and efficiently implement GSE electrification projects to reduce emissions. Member airlines have experience with the Federal Aviation Administration's Voluntary Aircraft Low Emissions (VALE) Program, California's Carl Moyer Program, and other state and local programs, and have implemented their qualifying projects effectively and efficiently. VALE and other state and local funding has allowed our airlines to convert equipment at airports in Arizona, New Mexico, Washington, Texas, Florida, and California among others. Securing funding from the Trust for GSE electrification will allow the airlines to realize similar air quality benefits for Virginia.

Third, our member airlines recognize that as non-government entities they will have to share the capital costs of replacing airline-owned GSE with electric alternatives. Electric GSE cannot be deployed without supporting infrastructure such as onsite power distribution and sufficient point of use recharging equipment, which typically is owned and operated by airport operators. As such, airlines envision partnering with airport operators in

integrated GSE electrification projects that will enable cost-effective investments in electric GSE.

Fourth, GSE electrification aligns with the Commonwealth's priority to invest in projects that can be implemented within three years of the award date. While GSE electrification projects have taken longer than three years where airlines do not have assistance, other grant programs have enabled completion of several projects within this three-year time frame. Member airlines anticipate that unlocking Trust funds for GSE electrification will similarly allow them to swiftly complete their anticipated projects. Fifth, GSE electrification projects are often located in areas that receive a disproportionate quantity of air pollution from diesel fleets simply because airports are major hubs of economic activity.

Given this close alignment between the benefits projects to electrify GSE bring and the funding priorities outlined in the proposed mitigation plan, A4A strongly encourages DEQ and the Commonwealth to maintain GSE electrification as an option in its mitigation plan and to ensure an effective and efficient process for disbursement of Trust funds for this highly beneficial EMA.

A4A agrees with the expected benefits DEQ provides for in cost-effectively converting non-road equipment to all electric. In addition to the list of benefits DEQ has stated, A4A would like to note that GSE electrification in particular has two additional benefits. First, because GSE are only operated on airport grounds, the Commonwealth will have peace of mind knowing that when it funds GSE electrification projects the emissions benefits will be realized in a specific locality that Virginia has already designated as a funding priority area. Second, emissions reductions from GSE electrification will improve air quality not only for the surrounding residents but also for workers on airport grounds.

A4A encourages the Commonwealth to develop policies and procedures that will, at the very least, allow full and fair consideration of projects that are consistent with the EMAs in Appendix D-2 of the Trust. While A4A recognizes that the Partial CD requires states to include the allocation of funds to each category of EMA, we note that the Partial CD also affords Beneficiaries great flexibility. We respectfully recommend that Virginia adopt policies that will allow Virginia to take full advantage of this flexibility.

The mitigation plan is intended to provide the public with insight into the Commonwealth's high-level vision for use of the mitigation funds and may be adjusted at its discretion as its priorities evolve. A4A urges Virginia to reflect this intent in its finalized mitigation plan. For example, Virginia should carefully consider allocation of funds to the DERA Option. The requirements projects must meet to fulfill program requirements under DERA decrease the scope of projects that could possibly be funded through the Trust. Projects that may not fit within the project criteria of DERA may nonetheless effectively reduce emissions. Virginia should not limit the types of projects applicants can use by over-allocating funds to the DERA Option and by allowing for changes to the allocation of funds as priorities evolve. There is strong airline interest in potentially replacing their current GSE with cleaner, electric GSE at least at Reagan National Airport, Dulles International Airport, and Norfolk International Airport. Our members' interest is in replacing nearly two hundred pieces of

equipment, including belt loaders, cargo tractors, push tractors, utility lifts, baggage tugs, and forklifts at these airports. Facilitating their ability to do so, the Trust's funds would assist in reducing hundreds of tons of NO<sub>x</sub> over the lifetime of this equipment, as well as thousands of tons of other local air pollutants and greenhouse gas emissions. Including GSE electrification in the mitigation plan and disbursing Trust funds to these types of projects will undoubtedly and significantly contribute to improved air quality in the areas surrounding these airports, some of which have historical air quality issues.

**102. Commenter:** P. Dale Bennett, Virginia Trucking Association (VTA)

**Comments:** VTA is the statewide organization that represents trucking fleets of all sizes and scope that operate commercial vehicles to transport freight in and through the Commonwealth of Virginia. The VTA is committed to practical policies and technologies that reduce pollution from commercial truck operations, vehicle maintenance and other industry facilities. To that end, the VTA advocates for science-based laws and regulations to maintain and protect the environment, and to the greatest extent possible, ensure uniformity across all levels of government.

The trucking industry has made great strides in reducing diesel PM, CO<sub>2</sub>, and other known pollutants. Modern technologies like diesel particulate filters (DPF), and selective catalytic reduction (SCR), are reducing emissions to negligible levels. In 2007, trucking became the first freight industry to use advanced diesel engine emission control systems. These trucks began what will ultimately be an additional 90% reduction in NO<sub>x</sub> emissions.

A complete transformation of diesel technology in the U.S. has taken place in the last decade that has virtually eliminated particulate (soot) emissions from new diesel engines across the board. For example, emissions from heavy-duty diesel trucks and buses have been reduced by 99% for NO<sub>x</sub> - an ozone precursor - and 98% for particulate emissions. To illustrate the significance of these reductions, it now takes 60 trucks with today's technology to emit the same level of PM (soot) emissions as a single truck built in 1988.

These improvements have not come without a cost. The trucking industry has had to absorb a significant increase in operating costs to achieve these emissions reductions. For example:

- A new engine purchased today is \$11,000 to \$15,000 more expensive than an engine purchased prior to 2002. The 2002 engines also lowered fuel economy by an average of 8% and increased the cost of maintenance by about \$400 per year per engine.
- The ultra-low sulfur diesel fuel required for 2007 engines costs 1 to 2 cents more per gallon than the previously used low-sulfur diesel fuel.
- The additional cost to the trucking industry of purchasing this newest engine technologies and ultra-low sulfur diesel fuel has been estimated to be as much as \$4 billion annually.

We ask that DEQ invest the funding provided to the Commonwealth of Virginia from the Environmental Mitigation Trust, as established under the VW settlement, in a manner

which produces the greatest air quality benefits for the public and in the most cost effective manner possible.

The VTA believes that one of the most effective strategies to improve air quality in a cost efficient manner is to ensure that a significant portion of these funds toward scrapping older diesel trucks (pre-2007) in the private sector. Model year 2007 and late heavy-duty diesel vehicles must meet near zero emissions for PM by utilizing efficient engines, effective emission control technology and ultra-low sulfur diesel fuel, which is available nationwide.

According to Figure A-3 in DEQ's Draft Mitigation plan, on-road, diesel heavy-duty vehicles account for 52% of the Diesel NO<sub>x</sub> emissions on Virginia. In addition, the Diesel Technology Forum estimates that 64% of the heavy-duty diesel vehicles in Virginia do not meet or beat the 2007 U.S. EPA emissions standards for PM. Statistics reflect that 70% of the on-road diesel emissions are caused by a mere 30% of the trucks on our roadways today. Those trucks are primarily pre-2002 units that may generate anywhere from 10 to 60 times greater emissions than a new clean diesel truck.

The benefit of removing these older, diesel vehicles cannot be understated. Even removing several hundred of these trucks, which is achievable through this source of funds, could make a real difference. These old diesels have a long life span and unless they are scrapped through the assistance of a program like the VW Settlement, they could remain on our highways for many years and continue to generate high levels of emissions. These trucks for the most part are owned by small companies with limited financial means. The funds from the settlement would help to bridge the financial gap and provide an incentive for those owners to purchase newer, cleaner trucks.

It is important that DEQ recognizes that the power options for medium and heavy duty trucks are relatively limited. There are very few, if any, electric or hydrogen powered models for medium to heavy duty trucks. In contrast there is a wide range of options for clean diesel, CNG, or propane powered units that generate very limited emissions. In addition, the current cost estimates for electric or hydrogen powered models vehicles are much greater than those powered by other alternative fuels such as clean diesel, CNG, or propane. Other challenges related to certain alternative fuels are the lack of infrastructure as well as a limited technician base. In the case of clean diesel there are plentiful fueling sites in Virginia and the CNG infrastructure is becoming better developed. It is important though to remember that many of these small fleets have work that at times involves traveling to certain rural areas of the state where there is no alternative fueling infrastructure nor likely to be in the near future.

Because of these considerations, we believe that it is critical that DEQ not restrict or favor the choice of fuel or power source to only certain types but rather allow the user/buyer to determine which may best work with their operations. Finally, based on recent reports by the U.S. Department of Transportation (DOT) and the U.S. Environmental Protection Agency (EPA) investments in proven and available clean diesel and CNG technology may represent the most cost effective means to reduce NO<sub>x</sub> and achieve the clean air priorities

established by the Trust. Limiting the fuel options to electric or zero-emission vehicles would be counterproductive to that goal and would result in the funds being used for a limited number of high-cost vehicles that would rapidly deplete the available funding.

We believe that DEQ's plan should not pick technology and fuel winners and losers by using allocations that range from 25% to 40% to 50% to 75%. We believe that a simpler approach is to allocate one percentage across the board that will help make the funding stretch further to cover a greater number of vehicles.

We disagree with the proposed allocations being slanted toward government vehicles (i.e., 100% coverage of costs) because the funds will be used up quickly. As with technologies and fuels, we believe the allocation percentages should be universal for all vehicles regardless of whether they are private or government. Providing large allotments to government vehicles will result in a smaller universe of trucks being replaced or scrapped.

We believe that DEQ should also consider other benefits from investing a significant amount of the settlement funds in the scrappage/replacement of older, private sector trucks. Doing so would not only improve air quality but also greatly enhance transportation safety. Older diesel trucks lack many of the newer safety technologies that have helped cut the rate and severity of truck accidents over the years.

In addition, older trucks are generally considered to be in poorer condition than newer trucks which can adversely affect traffic safety. We also believe it is important to clearly define what will be considered a "Class 8 local freight truck" in the categories of potentially eligible mitigation project types. A clear definition will assist freight trucking fleets in determining which of their vehicles would be eligible to receive funding.

In conclusion, the VTA believes that DEQ's plan for expending the funds allocated to Virginia from the VW settlement should ensure that the monies are invested in a manner that produces the greatest air quality benefits for the public in the most cost effective manner possible. We believe that can be accomplished by ensuring that a significant portion of these funds be directed toward scrapping older diesel trucks (pre-2007) in the private sector. This can be accomplished with a final plan that does not pick technology and fuel winners and losers by using different allocation percentages nor slant allocations toward government vehicles versus the private sector

**103. Commenter:** Steve McCoy, Mark Denton, Blossman Gas Inc.

**Comments:** Blossman Gas Inc., and its on road engine fuel division Alliance AutoGas, is a third generation family owned business that was founded in 1951 with one location in Biloxi, MS and has grown to become the largest independent propane company in the U.S. Currently, Blossman Gas Inc. is executing two emission reduction projects in the Commonwealth of VA; the Southeast Propane AutoGas Corridor Project and the Commonwealth of VA PPEA.

The Southeast Propane AutoGas Development Program (SPADP) was 1 of 25 DOE Clean Cities ARRA Projects that cost \$300M and resulted in 9,035 clean advanced technology vehicles displacing over 56M gallons of petroleum and reducing GHGs by 69,000 tons. Of this, SPADP utilized just 2.9% of total program funding, but produced 13.2% of overall vehicles (\$8.6M and 1,189 respectively). Project costs, which were 2.9% of overall dollars spent, represented 3.1% in overall GHG reduction. In comparison, another ARRA Project focused on Hybrid Electric technology, utilized 4.3% of overall funds to deploy just 1.7% of overall vehicles (\$13M and 157, respectively). This 4.3% of funding resulted in just 3.8% of overall ARRA GHG reduction.

The Commonwealth of VA PPEA, a bill written by VA House Delegate Danny Marshall, culminating and signed into law by former Governor McDonnell, vetted a dozen alternative fueled proposals. Alliance AutoGas was the propane autogas entity awarded the PPEA and in 2016, representative fleets of 188 vehicles have displaced nearly 150,000 gallons of petroleum. Five years remain on the Commonwealth of VA contract thereby maintaining a mechanism that is operational to implement emission reduction activities now.

Clearly, Blossman Gas Inc./Alliance AutoGas has "demonstrated experience and existing programmatic structure in place for implementing diesel reduction or offset projects" as dictated in the Guidelines of the DEQ Partial CD, pg. 6 section IV. We offer the following comments to the draft plan:

- This plan proposes to use up to 15% (approximately \$13,000,000) of the Trust funds for the deployment of zero emission vehicle supply equipment to offset emissions from light duty diesel and non-diesel vehicles. Additional preference should be given to "on site" (off grid) electrical generation supply equipment that is powered by alternative fuels thereby producing cleaner electrical power.
- Award percentage parity between government and non-government fleets: Current funding, through CMAQ and others, is available to only government fleets while non-government fleets, wanting to reduce emissions and fuel cost, are not eligible for funding. Furthermore, non-government fleets contribute federal and VA excise taxes while government fleets are exempt from excise taxes. Additionally, "all electric vehicles" also do not pay excise taxes, thereby reducing tax basis for investments in infrastructure.
- Appendix C (Definitions): "Infrastructure means equipment used to enable the use of electric powered vehicles" should read, "Infrastructure means equipment used to enable the use of alternative fueled vehicles and/or electric powered vehicles." Regarding the definition of "Zero Emission Vehicle (ZEV)," the term "ZEV" is inaccurate and misleading. This term actually refers to all-electric vehicles that require electric power generated charged batteries for propulsion, therefore unless the all electric vehicle never moves it is not a ZEV. The Partial CD document lists the definition for all-electric vehicle; therefore, the ZEV reference is redundant, inaccurate, and contradictory and should be omitted in the Decree in all instances.
- On-road non-diesel light duty vehicles account for 40%, the largest percentage by far, of NO<sub>x</sub> emissions in VA but this class of vehicles is absent from eligibility in the

Decree. Light duty vehicles should be eligible as they represent the largest potential reduction of emissions.

- Rank and award all projects based on Life Cycle Emissions reduced per dollar funded. Although NO<sub>x</sub> emissions are specified in the Decree, there is also references to the reduction of GHGs, PM, and other emissions and should be considered in their entirety and not solely on NO<sub>x</sub> emission reduction.
- Give priority ranking to project proposals in nonattainment and/or maintenance areas where the most impact on emissions is addressed.
- Score project proposals based on the team(s) experience and proven track record of past experiences where they brought similar projects to market in a timely manner with proven, verifiable results.