

April 11, 2016

The Honorable Gina McCarthy
Administrator
Environmental Protection Agency
1200 Pennsylvania Ave NW
Washington, DC 20460

Dear Administrator McCarthy:

We are writing to strongly encourage the Environmental Protection Agency to ensure that any settlement intended to resolve the nitrogen oxide (NOx) emissions from Volkswagen's non-compliant diesel vehicles include projects utilizing the latest natural gas engine technology.

An unprecedented opportunity exists to leverage private investment to dramatically improve air quality in the most polluted urban areas of the country. We strongly believe that Supplemental Environmental Projects (SEPs) involving heavy-duty natural gas trucks can play a cost effective role to lower NOx emissions in areas with the most urgent need.

The latest natural gas engine technology provides substantial nitrogen oxide (NOx) emission reductions over and above what is currently available or achievable with new diesel engines. This new "Near-Zero" technology was certified in 2015 by both EPA and the California Air Resources Board as reducing NOx emissions by more than 90 percent compared to current heavy duty engine standards. This technology advancement was developed through the combined efforts and funding by Cummins Westport, the California Energy Commission and the South Coast Air Quality Management District.

The attached document outlines specific projects that could replace older and even new diesel trucks with natural gas trucks powered with "Near-Zero" engines. In terms of cost and scalability, these NGV projects provide the single most effective pathway to reducing NOx and addressing the excess NOx emissions associated with Volkswagen's non-compliant diesel vehicles. Over its lifetime, each natural gas truck put on the road under these proposals will offset as much as 1 to 2 tons of NOx emissions.

Electric vehicle projects intended to offset a similar amount of emissions would have to incentivize and deploy a much larger number of total vehicles at a significantly higher total cost. It would take 43 light duty electric vehicles to offset the same amount of NOx emissions reduced by deploying one new natural gas "Near-Zero" truck, making the natural gas program 9 to 13 times more cost effective than one solely involving EVs (the attached document provides detail on the related assumptions).

Furthermore, these projects are compelling given that they deliver surplus emission reductions. The Administration's new National Ambient Air Quality standards will require more counties and cities to find solutions to solve ozone-related pollution and reduce contributing NOx emissions. An historic opportunity exists through SEPs or other settlement programs in the Volkswagen matter for private investment to dramatically improve air quality in these areas. The deployment of new, cleaner "Near-Zero" natural gas engines in regional haul trucking, refuse trucks and transit buses can directly target NOx pollution in areas with the most urgent need.

Attached for your review is a short white paper that outlines three projects that have significant merit and could provide substantial NOx reductions as part of SEPs or other programs related to this case. We respectfully request an opportunity to meet with you and/or your representatives to discuss this matter in greater detail and explore the important opportunity that exists for natural gas vehicles to play a role in improving air quality in communities across the country.

Sincerely,



Matthew Godlewski, President
Natural Gas Vehicles for America



Dave McCurdy, President & CEO
American Gas Association



Sharon Kneiss, President & CEO
National Waste & Recycling Association



Bert Kalisch, President & CEO
American Public Gas Association



Johannes Escudero, Executive Director
Coalition for Renewable Natural Gas

Heavy Duty Natural Gas Vehicle NOx Reduction Projects

Overview

Projects utilizing heavy-duty natural gas vehicles (NGVs) provide a substantial opportunity to reduce mobile source related nitrogen oxide (NOx) emissions. In terms of cost and scalability, projects involving the replacement of old or new diesel trucks provide the most attractive pathway to significantly offset NOx emissions. These reductions are possible because the latest natural gas engine technology actually delivers substantial surplus NOx emission reductions. Programs to accelerate the deployment of these engines in heavy-duty applications such as regional haul trucking, refuse trucks and transit buses provide an opportunity to dramatically address NOx pollution in areas of the country with the most urgent need.

Background – “Near-Zero” Natural Gas Engine Technology

In 2015, the California Air Resources Board (CARB) certified the Cummins Westport (CWI) 8.9 liter ISL G “Near-Zero” heavy duty natural gas engine to a level of 0.02 g/bhp-hr of NOx – a level of emissions that is one-tenth of the current NOx standard of (0.2 g/bhp-hr) for heavy-duty engines. Each engine certified to this level is 90% cleaner and provides surplus emission reductions beyond those required by law. The California Energy Commission and the South Coast Air Quality Management District partnered with CWI to develop this engine to address the urgent need to dramatically reduce ozone forming NOx emissions. This engine will go into production in April 2016.

A larger 11.9 liter version of the engine is completing development and will be following soon. At the 0.02 NOx emission level, each new natural gas Class 8 truck that operates with this engine will displace or offset almost 1 ton of NOx over its lifetime. Strategies involving light-duty (LD) electric vehicles (EVs) are estimated to reduce 0.022 tons of nitrogen oxide over the lifetime of each EV deployed, or 43 times fewer emissions than offset by a natural gas truck. (Both examples include benefits matched to comparable new diesel trucks or new gasoline powered cars; replacing older vehicles would be even more significant and in the case of natural gas trucks as much as 2 tons per truck could be offset).

The reason natural gas trucks have such a significant advantage over electric vehicles is simple: 90 percent emissions improvement of a large NOx number with an estimated truck (combination short-haul tractor) life of 931,700 miles is more significant than 100 percent of a very small NOx number on a LD EV with 275,000 lifetime miles (mileage figures based on EPA MOVES model). Deploying one new “Near-Zero” natural gas truck offsets as much NOx as 43 EVs. This underscores why natural gas trucks from a scalability stand point are so attractive since it takes far fewer natural gas trucks to offset a given amount of NOx. Additionally, with the annual class 8 new truck replacement typically in the range of 200,000 vehicles, it is feasible to achieve market penetration results providing these significant NOx offsets within three to five years.

Project 1 – Incentive Program to Deploy “Near-Zero” HD Vehicles in Nonattainment Areas

This proposal offers the most significant and measurable approach to impact NOx improvement. Given the new National Ambient Air Quality Standards (NAAQS), more counties and cities will be in areas of nonattainment impacted with severe ozone-related pollution that is directly caused by NOx emissions.

These communities could improve air quality quickly through a program to incentivize regional fleets or heavy-duty vehicles operating in or serving nonattainment areas to retire existing diesel trucks, or switch purchases of new diesel vehicles to natural gas trucks powered with the “Near-Zero” technology.

A major obstacle to the deployment of alternative fueled vehicles is the higher incremental cost compared to conventional diesel vehicles. A program that establishes a \$50,000 cash incentive toward the buy down of a “Near-Zero” HD truck, particularly in nonattainment zones would get cleaner natural gas trucks on the road and deliver immediate benefits in a far more cost-effective way than a comparable EV incentive program. As demonstrated below, significant tons of NOx can be reduced:

	Low	Mid	High
Tons of NOx Offset	13,976	27,951	59,000
Natural Gas Near-Zero HD Trucks	15,000	30,000	63,324
Incentive Program Cost @ \$50k per truck	\$750,000,000	\$1,500,000,000	\$3,166,200,000
Equivalent LD EV's required	646,352	1,292,703	2,728,640
EV Cost Lower @ \$10k per vehicle	\$6,463,515,569	\$12,927,031,138	\$27,286,402,149
EV Cost Upper @ \$15k per vehicle	\$9,695,273,353	\$19,390,546,708	\$40,929,603,224

A program involving natural gas trucks is estimated to be 9 to 13 times more cost effective than one solely focused on EVs. For these calculations, the buy down or incremental cost per natural gas truck is \$50,000. The buy down or rebate incentive for EVs would be \$10,000 - \$15,000 per vehicle (on top of existing federal incentives). Based on these estimates, the cost of NOx reduced is about \$54,000/ton with a “Near-Zero” HD NGV program, while the EV program cost is \$462,000 - \$694,000/ton.

A program involving natural gas trucks can deliver significant NOx reductions and will be less costly and easier to implement since fewer total vehicles will be required. While a truck program can be broadly implemented, additional targeted programs can be offered focusing on disadvantaged communities affected by goods movement at port facilities, urban commercial centers and along congested corridors in areas with the worst air quality problems.

The NGV industry has extensive experience in implementing incentive programs across the nation and would work with Volkswagen and regulators to craft an effective offering to generate results. Properly implemented, this buy down incentive would be sufficient to encourage large fleets already operating in key areas to make the investment to retire older vehicles to get new clean-burning, low-emission natural gas trucks on the road.

Project 2 – Incentive Program to Deploy “Near-Zero” Vocational Vehicles in Municipalities

Natural gas transit / airport buses and refuse trucks are some of the most successful markets to date for NGVs. Many municipalities have made significant commitments to expanding their use of natural gas vocational vehicles in an effort to lower fuel costs and take advantage of the simple emission control technology (compared to diesel) deployed on natural gas trucks. Many major cities throughout the country operate natural gas fleets and many are seeking to replace aging vehicles. A program aimed at deploying new “Near-Zero” powered transit and refuse vehicles in municipal fleets, including their contracted carriers and franchise operators, would reduce NOx emissions in areas with air quality problems and could take advantage of existing refueling infrastructure. To provide the most significant overall emissions benefit this program could also target non-attainment areas and provide a range of cash buy down incentives toward refuse trucks and transit buses powered by “Near-Zero” technology.

Project 3 – Deploy “Near-Zero” HD Vehicles in the Volkswagen Fleet for Parts/Goods Movement

Volkswagen ships parts, components and finished vehicles across North America. The fleet of vehicles used to conduct these operations has significant emissions that could be dramatically lowered by deploying vehicles with “Near-Zero” technology. Furthermore, these vehicles could also take advantage of renewable natural gas (biomethane) to reduce overall GHG emissions by 95% or greater. The combination of “Near-Zero” technology for NOx and biomethane for GHG would deliver an overall emissions profile cleaner than electric vehicles (factoring in upstream emissions) in most areas and would be the cleanest shipping fleet in the country.

Other automotive companies have begun to deploy natural gas trucks either directly into fleets that they operate, or through requirements they negotiate with their contract carriers. FCA is operating 179 natural gas trucks between its facilities in Detroit and Canada to deliver parts for its automotive factories. Toyota and Honda have deployed natural gas trucks regionally to deliver components and vehicles. However, no automaker has currently deployed “Near Zero” technology or biomethane as a central part of their strategy. This project offers a significant opportunity to reduce NOx and GHG emissions with the cleanest fleet in North America.