



May 5, 2021

Transportation & Climate Initiative of the Northeast and Mid-Atlantic States
Georgetown Climate Center
600 New Jersey Avenue, NW
Washington, DC 20001

Dear Members of the Transportation & Climate Initiative:

Natural Gas Vehicles for America (NGVAmerica) appreciates the opportunity to comment on the Transportation & Climate Initiative (TCI) Draft Model Rule for the TCI-Program (TCI-P). NGVAmerica commends the TCI's goals of equity, environmental justice, non-discrimination and meaningful public participation as it develops and implements a regional policy for transportation emissions reductions. The TCI-P inclusion of reducing both full life cycle carbon dioxide (CO₂) emissions and harmful tailpipe emissions addresses critical climate change and air quality objectives.

NGVAmerica is the national trade organization dedicated to the development of a growing, profitable, and sustainable market for vehicles and carriers powered by clean, affordable and abundant geologic or renewable natural gas (RNG). Our 200-plus member companies produce, distribute, and market natural gas and biomethane, manufacture and service natural gas vehicles (NGVs), engines, and equipment, and operate fleets powered by clean-burning gaseous fuels across North America.

NGVAmerica endorses strategies that support the transition to low-carbon transportation fuels, including geologic natural gas and RNG. Converting your medium- and heavy-duty vehicle transportation network to natural gas provides a readily available, proven and cost-effective solution to accelerate the transition to a low-carbon transportation future. Further, cap and invest program resources dedicated to cleaner alternative fuel technologies that are available now would significantly and immediately benefit all communities by maximizing the displacement of older, higher emitting trucks and buses, including those higher emitting vehicles that operate in communities that are underserved by current transportation options.

Cleaner Air Starts with Cleaner Trucks and Buses

Increased use of natural gas as a transportation fuel provides immediate and significant criteria and toxic air pollutant reductions. Fact: the cleanest commercially available heavy-duty engine in the world is powered by natural gas now and for the foreseeable future. Designed, built, and manufactured in America by Cummins Westport, this engine is certified to a 0.02 g/bhp-hr. standard, making it 90 percent cleaner than the EPA's current NO_x emissions requirement and 90 percent cleaner than the cleanest diesel engine. And in real-life study, these engines emitted lower NO_x emissions than certified.¹ Replacing just one traditional diesel-burning heavy-duty truck with one new Ultra Low-NO_x natural gas truck is the emissions equivalent of removing 119 traditional combustion engine cars off our roads. Heavy-duty equals heavy impact.

¹ University of California, in-use testing of heavy-duty trucks in port applications, November 2016.

Invest Impactfully – Emissions Reductions using Cost-Effective Solutions

Investments in Ultra Low-NO_x Near Zero emission natural gas vehicle technologies greatly impact communities, especially the underserved and marginalized communities in metropolitan and industrial areas. With vehicle costs close to that of diesel and fuel price differentials of up to \$1.50 less than diesel per DGE, natural gas transportation provides the largest and most cost-effective reductions in transportation-related pollutants than any other powertrain option commercially available today or near-term.²

The chart below illustrates current cost and emissions calculations for four types of vehicles and three types of fuel/power using the Argonne National Laboratory AFLEET tool (chart numbers are rounded).

Cost & Emissions Calculations Using Current Data Factors				
	Class 8 Truck	Refuse Truck	Transit Bus	School Bus
Natural Gas	\$27 per lb of NO_x Vehicle Cost - \$150,000 NO _x Reduced - 5582 lbs	\$69 per lb of NO_x Vehicle Cost - \$300,000 NO _x Reduced - 4375 lbs	\$129 per lb of NO_x Vehicle Cost - \$526,500 NO _x Reduced - 4078 lbs	\$90 per lb of NO_x Vehicle Cost - \$125,000 NO _x Reduced - 1391 lbs
Diesel	\$58 per lb of NO_x Vehicle Cost - \$100,000 NO _x Reduced - 1716 lbs	\$496 per lb of NO_x Vehicle Cost - \$270,000 NO _x Reduced - 544 lbs	\$3559 per lb of NO_x Vehicle Cost - \$477,775 NO _x Reduced - 134 lbs	\$1764 per lb of NO_x Vehicle Cost - \$100,000 NO _x Reduced - 57 lbs
Electric	\$51 per lb of NO_x Vehicle Cost - \$290,000 NO _x Reduced - 5715 lbs	\$151 per lb of NO_x Vehicle Cost - \$670,000 NO _x Reduced - 4423 lbs	\$203 per lb of NO_x Vehicle Cost - \$836,330 NO _x Reduced - 4128 lbs	\$190 per lb of NO_x Vehicle Cost - \$300,000 NO _x Reduced - 1583 lbs

As we heard recently in the news, Amazon has ordered 700 class 6 and class 8 trucks, choosing natural gas vehicles (NGVs) because they would not buy diesel trucks and could not buy electric trucks now or in a reasonable timeframe. UPS, Waste Management, Republic Services, Los Angeles World Airports Buses, City of Los Angeles, City of Fresno Transit, LA Metro Transit, New York's Hunts Point fleet Industries and many other fleets have chosen NGVs as the only available non-diesel heavy-duty truck that outperforms other alternative technologies in all aspects of vehicle operation.

As such, investments in RNG-fueled trucks and transit buses accessing ports, cities, and densely-populated neighborhoods are the most immediate and fiscally-responsible investment to clean our air and combat climate change. Communities get more clean vehicles having greater clean air and climate impact for the money with natural gas than with any other alternative fuel option, especially electric. No other transportation fuel is as sustainable, adaptive, and competitive across all applications and vehicle classes. And heavy-duty natural gas trucks are not demonstration science projects; they are proven, scalable, and on U.S. roads today. We will not meet emissions reduction goals or time frames without using natural gas.

Make the Most Impact on Both GHG and NO_x Emissions Reductions

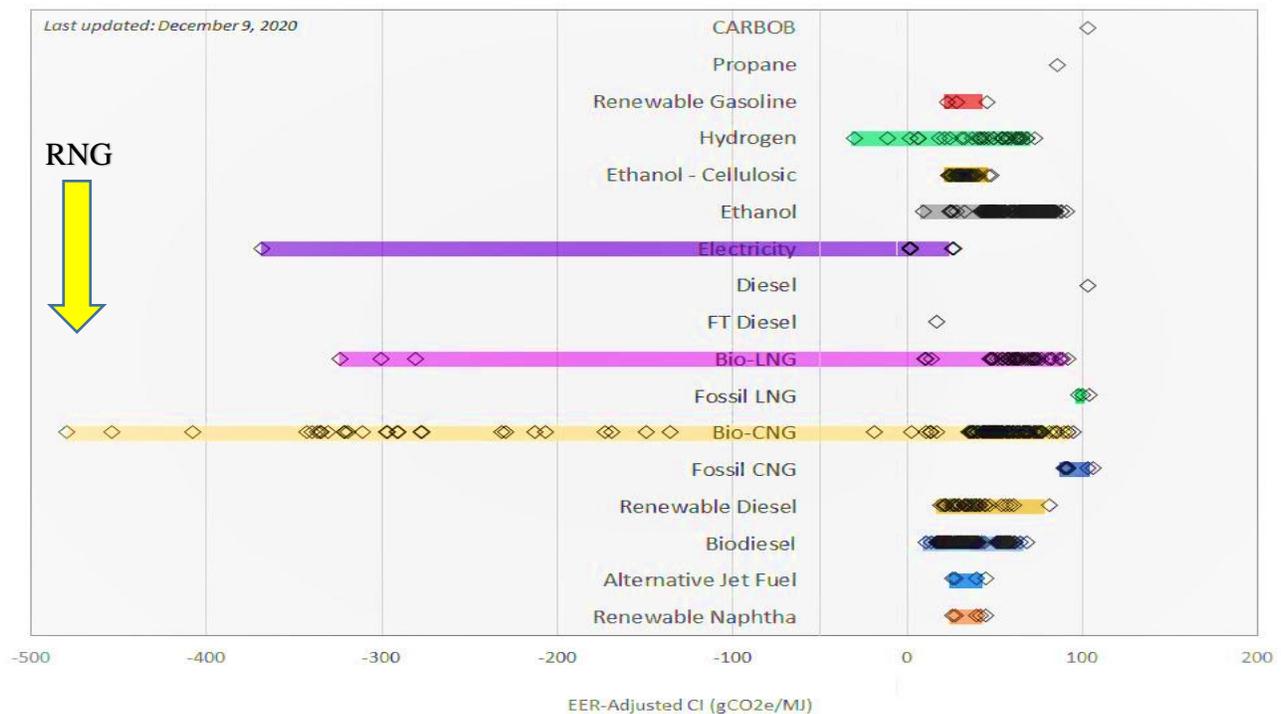
Natural gas engines also offer significant climate change benefits. Compared to the newest diesel engines, natural gas engines fueled with geologic natural gas reduce CO₂ and GHG emissions by up to 17 percent and NO_x emissions by at least 90 percent. When fueled with renewable natural gas (RNG or biomethane) captured from agricultural, food, landfill or wastewater feedstocks, even greater GHG and

² <https://www.ngvamerica.org/environment/>.

NOx benefits are achieved. The Argonne National Lab's GREET model indicates that landfill RNG has 1,637 CO₂ equivalent g/GGE and geologic CNG has 8,767 CO₂ equivalent g/GGE, while U.S. average electricity generation for charging electric vehicles is 16,604 CO₂ equivalent g/GGE.

According to the California Air Resources Board (CARB) Carbon Intensity (CI) scores for fuels, there are already four **net zero emission** vehicle (NZEV) types of fuel – renewable electricity, renewable hydrogen, renewable compressed natural gas and renewable liquefied natural gas. As can be seen in the chart below,³ Natural gas-powered trucks and buses provide by far the best commercially available and deployable alternative fuel option for the heavy-duty sector.

Carbon Intensity Values of EER-Adjusted Certified Pathways (2020)



Near-zero engines are proven, cost-effective and available today for medium- and heavy-duty vehicles. Moreover, if RNG is used, life cycle greenhouse gas emissions from natural gas vehicles (NGVs) are reduced further. Fueling with RNG also creates new economic development for energy created from wastewater treatment, landfills, animal waste and other methane sources and significantly increases air quality by reducing the amount of methane released. Please also see the “Decarbonize Transportation” flyer regarding RNG at the NGV America website: <https://www.ngvamerica.org/wp-content/uploads/2020/04/NGV-RNG-Decarbonize-FINAL-April-2020.pdf>.

Further, investing TCI-P resources to fund biomethane technologies would significantly and immediately benefit all communities by maximizing the displacement of older, higher emitting trucks and buses, including those higher emitting vehicles that operate in communities that are underserved by current transportation options and overburdened by urban pollution.

³ California Air Resources Board, December 9, 2020.

Advocating the increasing use of NGVs where they benefit most.
For the economy. For the environment. For health. For security. **For America.**

Natural Gas Pays Its Way and Provides Economic Opportunity

Natural gas fueling pays into the federal highway trust fund and is ready-right-now technology. It is road-tested and backed by a mature network of manufacturers, servicers, and suppliers coast-to-coast. An established refueling infrastructure of 2,000 stations already exists.

It is also important to note that while 34 U.S. states produce geologic natural gas, the potential to produce RNG exists in every U.S. state and the District of Columbia by taking the problem of fugitive methane gas created from organic waste, capturing it, then using it to fuel traditionally heavy-carbon freight and transit transportation applications. In addition to its clean air and climate benefits, the development of RNG facilities also supports the agriculture industry with new revenue streams, addresses many cities' solid waste issues, and impacts watershed management efforts and nitrogen runoff concerns. With these positives, the demand for RNG production is growing and new RNG facility development projects are increasing rapidly.

100% Domestic Fuels

Geologic and renewable natural gas are 100 percent domestic fuels, unlike limited electric vehicle battery components that are controlled by foreign interests and mostly sourced from conflict countries like the Democratic Republic of the Congo and China. The U.S. EPA recognizes the value of RNG and includes it in the EPA Renewable Fuel Standard (RFS) federal incentive. Similarly, several states have implemented low carbon fuel standards (LCFS) that promote the use of RNG and other renewable fuels.

Reduce Emissions Now and in the Future

More than four of every ten Americans live in communities with dangerously dirty air. According to the American Lung Association, over 135 million people are living in places with unhealthy levels of ozone or particle pollution. And the burden of living with unhealthy air is not shared equally; people of color are over three times more likely to be breathing the most polluted air than white people.⁴ Cap-and-invest program investments in natural gas vehicle technologies offer the most proven, cost-effective, and immediate way to promote a low-carbon transportation future, clean our air, and provide more affordable, accessible, and reliable transportation opportunities for marginalized and underserved communities. The TCI-P shows their understanding of the importance of segmenting 35% of the funds for environmental justice communities because it is often that those communities are more industrial and have the most emissions.

As the TCI states in the Draft MOU, a regional cap and invest program “addresses the urgent need to mitigate greenhouse gas emissions and other harmful pollutants generated by the transportation sector” which NGVAmerica fully agrees with and offers that natural gas vehicles, especially those using RNG must be a key component to any TCI strategy if these reductions are to occur in any reasonable time frame and improving the areas of greatest need.

Thank you for your consideration, and please contact me at smerrow@ngvamerica.org or 303.883.5121 with any comments or questions.

Sincerely,



Sherrie Merrow
Director, NGVAmerica State Government Affairs

⁴ American Lung Association, *State of the Air Report*, April 2021.
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