



August 12, 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 Program (TCI-P) Draft Framework for Public Engagement, Draft TCI-P Model Implementation Plan and the Draft Proposed Strategies for Regional Collaboration. 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 RNG (also called 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 (or near-zero) 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.

TCI-P Draft Materials for TCI-P Jurisdictions

The Transportation Climate Initiative has produced multiple model documents to facilitate each TCI-P jurisdiction's preparation of their own documents as follows:

- Model Rule
- Draft Framework for Public Engagement
- Draft TCI-P Model Implementation Plan
- Draft Proposed Strategies for Regional Collaboration

These documents provide thorough, inclusive and thoughtful suggestions to the jurisdictions and NGVAmerica commends the TCI-P on these efforts.

NGVAmerica has already commented on the Model Rule (now final) and is pleased to offer additional comments on the current draft materials. As a general comment NGVAmerica requests that each document incorporate the latest technical information regarding emissions reductions for all low and zero-emission vehicle options (the Argonne National Laboratory AFLEET tool based on the Greet Model is a good source for this, and the California Air Resources Board Carbon Intensity Chart is a good source for the carbon impact of the various fuels). Standardizing this data across the TCI-P jurisdictions is important to accuracy in achieving emissions reduction goals.

Another NGVAmerica request is that the TCI-P materials are consistent in using both “low and zero-emission vehicles” since there are no or limited options for zero-emission vehicles (ZEVs) for heavy-duty vehicle types and these options are years away from commercial availability (this should be a general practice used in all materials, but especially in Section 4 of the Draft Proposed Strategies for Regional Collaboration). It is not acceptable to continue to expect overburdened communities to wait for clean air any longer when near-zero technologies exist, work now and are cost-effective.

Recently the California South Coast Air Quality Management District (SCAQMD) responded to two communications from Environmental Justice and Environmental Health organizations objecting to the use of near-zero natural gas vehicles in the heavy-duty vehicle sector. The SCAQMD response letter (submitted separately since the TCI-P Portal only allows one file upload per submission) states:

“As the agency responsible for clean air in the greater Los Angeles area we have a statutory obligation to take all reasonable and feasible steps to reduce emissions. We face a rapidly approaching hard legal deadline in 2023 to meet the 1997 ozone standard, and 2031 for the 2008 ozone standard. The only way to get there is a massive push for cleaner heavy-duty trucks – the largest source of smog-forming emissions in our region – as soon as possible. While the amount of emission reductions needed to attain clean air standards is daunting, it would be irresponsible for our agency to effectively throw up our hands and not explore all options for reducing emissions now. Near-zero emission (NZE) technology has been commercially demonstrated and is available today, has sufficient fueling infrastructure that is largely funded by the private sector, and is at least 90% cleaner than new diesel trucks on NO_x and 100% cleaner on cancer-causing diesel particulate matter. When fueled by renewable natural gas, these vehicles can also provide substantial greenhouse gas emission reductions. Further, these vehicles are far more cost-effective than ZE trucks, allowing limited incentive funds to stretch further. Given these benefits, it is disturbing that you advocate for investments *only* in technologies that are not yet ready for prime time, a position that would leave our residents no option but to continue to suffer the ill effects from diesel exhaust for years to come.”

The letter further states that ***“the choice today is not between ZE and NZE trucks, but between NZE trucks and diesel.”***

Also, it should be made clear that the use of the term ZEV only relates to the lack of tailpipe emissions and does not necessarily mean that a vehicle's use results in zero criteria pollutants or greenhouse gas

emissions (GHG). As is shown later in this document, renewable natural gas has the most potential for GHG reduction since in many cases the use of this fuel prevents more carbon from going into the air than is released during combustion on-board the vehicle. For the best results, policy makers should consider the life cycle of emissions of different technology options.

Invest Impactfully – Emissions Reductions using Cost-Effective Solutions

Investments in Ultra Low-NOx 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 NOx Vehicle Cost - \$150,000 NOx Reduced - 5582 lbs	\$69 per lb of NOx Vehicle Cost - \$300,000 NOx Reduced - 4375 lbs	\$129 per lb of NOx Vehicle Cost - \$526,500 NOx Reduced - 4078 lbs	\$90 per lb of NOx Vehicle Cost - \$125,000 NOx Reduced - 1391 lbs
Diesel	\$58 per lb of NOx Vehicle Cost - \$100,000 NOx Reduced - 1716 lbs	\$496 per lb of NOx Vehicle Cost - \$270,000 NOx Reduced - 544 lbs	\$3559 per lb of NOx Vehicle Cost - \$477,775 NOx Reduced - 134 lbs	\$1764 per lb of NOx Vehicle Cost - \$100,000 NOx Reduced - 57 lbs
Electric	\$51 per lb of NOx Vehicle Cost - \$290,000 NOx Reduced - 5715 lbs	\$151 per lb of NOx Vehicle Cost - \$670,000 NOx Reduced - 4423 lbs	\$203 per lb of NOx Vehicle Cost - \$836,330 NOx Reduced - 4128 lbs	\$190 per lb of NOx Vehicle Cost - \$300,000 NOx Reduced - 1583 lbs
Class 8 Trucks Not Commercially Available				

Amazon has ordered more than 700 class 6 and class 8 trucks, choosing natural gas vehicles 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 timeframes without using natural gas.

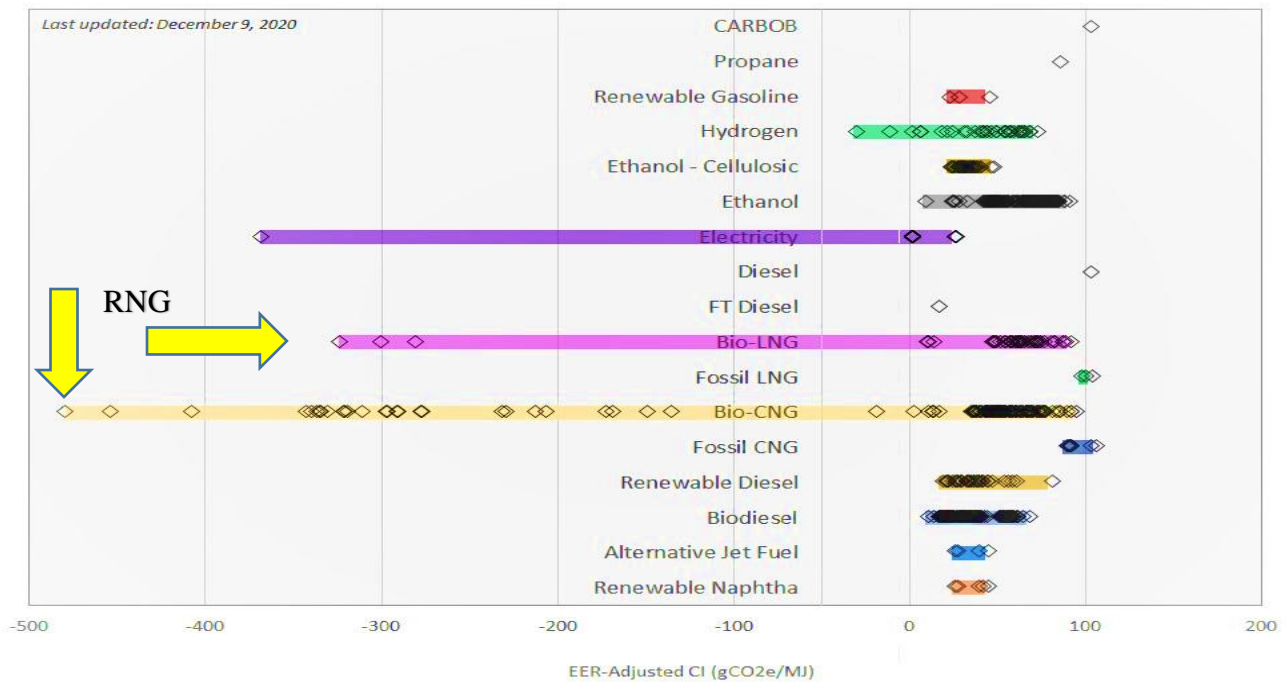
² <https://www.ngvamerica.org/environment/>.

Make the Most Impact on Both GHG and NOx 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 NOx 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 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 NGVAmerica 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 its MOU, a multijurisdictional program is needed "to address the urgent need to mitigate greenhouse gas emissions and other harmful pollutants generated by the transportation sector" which NGV America 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 timeframe 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, NGV America State Government Affairs

⁴ American Lung Association, *State of the Air Report*, April 2021.
Advocating the increasing use of NGVs where they benefit most.
For the economy. For the environment. For health. For security. **For America.**