New Jersey Natural Gas

June 16, 2011

VIA FEDERAL EXPRESS

Ms. Kristi Izzo, Secretary
New Jersey Board of Public Utilities, Suite 801
Two Gateway Center
Newark, NJ 07102

Re: IN THE MATTER OF THE PETITION OF NEW JERSEY NATURAL GAS COMPANY FOR APPROVAL OF A PILOT PROGRAM FOR THE INSTALLATION OF COMPRESSED NATURAL GAS INFRASTRUCTURE AND AN ASSOCIATED RECOVERY MECHANISM WITH THE APPROVAL OF CHANGES IN THE COMPANY'S TARIFF FOR GAS SERVICE
DOCKET NO. GR1106_____

Dear Secretary Izzo:

Enclosed herewith for filing please find an original and ten (10) copies of the petition of New Jersey Natural Gas Company for approval of a pilot program for the installation of compressed natural gas infrastructure and an associated recovery mechanism with the approval of changes in the Company's Tariff for Gas Service.

Copies of the petition, including the supporting exhibits, are also being served upon the New Jersey Division of Rate Counsel.

Kindly acknowledge receipt of this filing by date stamping the enclosed copy of this letter and returning same in the self-addressed, stamped envelope.

Very truly yours,

Tracey Thayer
Director, Regulatory Affairs Counsel

Enclosures

C: Service List

IN THE MATTER OF THE PETITION OF NEW JERSEY NATURAL GAS COMPANY FOR APPROVAL OF A PILOT PROGRAM FOR THE INSTALLATION OF COMPRESSED NATURAL GAS INFRASTRUCTURE AND AN ASSOCIATED RECOVERY MECHANISM WITH THE APPROVAL OF CHANGES IN THE COMPANY'S TARIFF FOR GAS SERVICE
DOCKET NO. GR1106_____

SERVICE LIST

NJNG

Mark R. Sperduto
New Jersey Natural Gas Company
1415 Wyckoff Road
P.O. Box 1464
Wall, NJ 07719

Tracey Thayer
New Jersey Natural Gas Company
1415 Wyckoff Road
P.O. Box 1464
Wall, NJ 07719

Tina Sinks
New Jersey Natural Gas Company
1415 Wyckoff Road
P.O. Box 1464
Wall, NJ 07719

Michael Moscufo
New Jersey Natural Gas Company
1415 Wyckoff Road
P.O. Box 1464
Wall, NJ 07719

* France Karras
New Jersey Natural Gas Company
1415 Wyckoff Road
P.O. Box 1464
Wall, NJ 07719

NJ BOARD OF PUBLIC UTILITIES

Jerome May
N.J. Board of Public Utilities
Two Gateway Center, Suite 801
Newark, NJ 07102

Rosalie Serapiglia
N.J. Board of Public Utilities
Two Gateway Center, Suite 801
Newark, NJ 07102

Sheila DeLucia
N.J. Board of Public Utilities
Two Gateway Center, Suite 801
Newark, NJ 07102

DIVISION OF RATE COUNSEL

* Stefanie A. Brand, Director
Division of Rate Counsel
31 Clinton Street – 11th Floor
P.O. Box 46005
Newark, NJ 07101

Paul Flanagan
Division of Rate Counsel
31 Clinton Street – 11th Floor
P.O. Box 46005
Newark, NJ 07101

Felicia Thomas-Friel, Esq.
Division of Rate Counsel
31 Clinton Street – 11th Floor
P.O. Box 46005
Newark, NJ 07101

DEPT. OF LAW & PUBLIC SAFETY – DIVISON OF LAW

Caroline Vachier, Section Chief
Dept. of Law & Public Safety – Div of Law
124 Halsey Street, 5th Floor
P.O. Box 45029
Newark, NJ 07101

STATE OF NEW JERSEY
BOARD OF PUBLIC UTILITIES

IN THE MATTER OF THE PETITION OF	)	
NEW JERSEY NATURAL GAS COMPANY	)	
FOR APPROVAL OF A PILOT PROGRAM	)	BPU DOCKET NO. GR1106 ___
FOR THE INSTALLATION OF COMPRESSED	)	OAL DOCKET NO. _____
NATURAL GAS INFRASTRUCTURE AND AN	)	
ASSOCIATED RECOVERY MECHANISM	)	
WITH THE APPROVAL OF CHANGES	)	
IN THE COMPANY'S TARIFF FOR GAS	)	
SERVICE PURSUANT TO	)	
N.J.S.A. 48:2-21 AND 48:2-23 ET SEQ.	)	

PETITION OF

NEW JERSEY NATURAL GAS COMPANY FOR APPROVAL OF A PILOT PROGRAM FOR THE INSTALLATION OF COMPRESSED NATURAL GAS INFRASTRUCTURE AND AN ASSOCIATED RECOVERY MECHANISM WITH THE APPROVAL OF CHANGES IN THE COMPANY'S TARIFF FOR GAS SERVICE

STATE OF NEW JERSEY
BOARD OF PUBLIC UTILITIES

IN THE MATTER OF THE PETITION OF	**)**	
NEW JERSEY NATURAL GAS COMPANY	**)**	
FOR APPROVAL OF A PILOT PROGRAM	**)**	
FOR THE INSTALLATION OF COMPRESSED	**)**	
NATURAL GAS INFRASTRUCTURE AND AN	**)**	
ASSOCIATED RECOVERY MECHANISM	**)**	
WITH THE APPROVAL OF CHANGES	**)**	
IN THE COMPANY'S TARIFF FOR GAS SERVICE,	**)**	**DOCKET NO.**
PURSUANT TO N.J.S.A. 48:2-21 AND 48:2-23 ET SEQ.	**)**	**GR1106_____**

To: THE HONORABLE COMMISSIONERS OF
THE NEW JERSEY BOARD OF PUBLIC UTILITIES:

New Jersey Natural Gas Company ("Company") or ("NJNG") respectfully petitions the New Jersey Board of Public Utilities (the "Board" or "BPU") pursuant to N.J.S.A. 48:2-21, 48:2-21.1 and 48:2-23 as follows:

1. NJNG is a corporation duly organized under the laws of the State of New Jersey, with a principal business office located at 1415 Wyckoff Road, Wall, New Jersey 07719, and is a public utility engaged in the distribution and transportation of natural gas subject to the jurisdiction of the Board. As a local natural gas distribution company, NJNG provides regulated retail natural gas service to nearly 500,000 customers within Monmouth and Ocean counties, as well as portions of Burlington, Middlesex and Morris counties.

2. Communications and correspondence relating to this filing should be sent to:

Mark R. Sperduto, Vice President Regulatory and External Affairs
and
Tracey Thayer, Esq., Director, Regulatory Affairs Counsel
New Jersey Natural Gas Company
1415 Wyckoff Road
P. O. Box 1464
Wall, New Jersey 07719
Phone: (732) 938-1214 (Sperduto)
Phone: (732) 919-8025 (Thayer)
Fax: (732) 938-2620

3. This Petition is accompanied by supporting schedules, and Exhibits that are attached hereto and made part of this Petition:

Exhibit 1: Proposed Tariff Sheets

Exhibit 2: Draft Public Notice

Exhibit 3: Reference Documents

Exhibit 4: Elements to be Included in an Agreement with Host Company

Background

4. NJNG is subject to regulation by the Board for the purpose of setting its retail rates necessary to assure safe, adequate and proper natural gas service, pursuant to N.J.S.A. 48:2-21 et seq. The Company is also subject to regulation by the Board for the purpose of assuring that safe, adequate and proper natural gas service pursuant to N.J.S.A. 48:2-23 is provided to its customers. As such, the Company is obligated to and does maintain its public utility infrastructure in such condition as to enable it to meet its regulated obligations to provide the requisite service. That same legal mandate requires NJNG to ensure that such service is provided in a manner supporting energy conservation and the preservation of the environment.

5. Over the past several years, there has been an increased focus on developing and implementing a statewide comprehensive and long-term energy plan directed towards meeting the energy and transportation needs of New Jersey's residents and businesses. Integrated into that work have been the underlying and intertwined goals of ensuring economic and employment growth, encouraging energy efficiency, supporting the conservation of natural resources, moving towards less reliance on foreign fuels and reducing harmful emissions that threaten health and safety. While that process has been ongoing, the Board, energy companies and the New Jersey Division of Rate Counsel ("Rate Counsel") have coordinated efforts to initiate programs in the state that both encourage energy efficiency and accelerate the development of utility infrastructure to ensure the continued provision of safe and reliable service. The assurance that lifeline services can be available in a safe and efficient manner both now and in the future underlies all current and future economic growth as the state continues on a path towards greater energy independence.

6. New Jersey's energy plan must rely on a multi-fuel foundation with a primary focus on safety and reliability, as well as enhancing economic growth and environmental stewardship. That focus involves not only the use of renewable resources for energy generation, but the use of alternative fuel vehicles for transportation needs. The traditional reliance on petroleum-based fuels for transportation has accelerated security, economic, air quality, health and environmental challenges in our country. However, an increased reliance on the use of alternative fuels addresses those economic, security, health and environmental concerns. Various vehicle fuel options are being developed and made available in the United States for light- and heavy-duty vehicles, including natural gas, ethanol, electricity and bio-diesel. However, not all fuel sources work for all vehicle types. For example, buses and large trucks currently running on diesel can best utilize bio-diesel or natural gas as an alternative to petroleum-based fuels. Light-duty vehicles can operate well with a

larger variety of fuels, including natural gas, electricity or ethanol. The appropriate fuel depends in large part on both the manner in which the vehicle is being used (types of and miles driven on a daily basis) and the availability of the necessary refueling infrastructure. The Draft Energy Master Plan, released on June 7, 2011, relies on five overall goals in defining the strategic plan for New Jersey's "use, management and development of energy in New Jersey over the next decade." (2011 Draft Energy Master Plan ("EMP"), page 1). Included in Goal 4 is an acknowledgement of the need for an increased reliance statewide on utilizing and investing in new technologies for both transportation in New Jersey and the generation of electricity. In further support of natural gas as a transportation fuel, the 2011 Draft EMP stresses the importance of natural gas infrastructure investments to support the increased reliance on CNG as a fuel for transportation, especially for heavy-duty vehicles. "The Christie Administration is committed to change by promoting the infrastructure needed throughout the state to induce heavy vehicle class conversion from expensive and polluting diesel fuel to less costly and clean CNG…" (EMP, Page 9)

7. Increasing the reliance on compressed natural gas ("CNG") in meeting the state's transportation needs provides a cost effective and environmentally cleaner source of fuel. In a study conducted by the U.S. Energy Information Administration comparing actual and projected prices for diesel and natural gas fuels, the savings from using natural gas as a transportation fuel continue to grow over the next three decades, increasing from less than $.50/ gallon of diesel equivalent in 2005 to almost $2.00/gallon projected in 2035. (Exhibit 3-F, EIA Chart). As noted above, NJNG fully supports the use of several alternative fuels to move the transportation sector away from an almost exclusive reliance on petroleum-based fuels and towards energy sources that are domestic, more readily available, competitively priced and environmentally cleaner. The United States, representing approximately 4 percent of the world's population, utilizes 25 percent of the world's oil for

transportation, heating and manufacturing purposes. Since nearly 70 percent is imported, this country has been relying heavily on foreign fuel. By increasing the country's use of domestic, competitively priced natural gas, we can move towards greater energy independence. (Exhibit 3-G, "*The Case for Natural Gas Vehicles*," NGV America). Natural gas powered vehicles ("NGVs") produce up to 30 percent fewer greenhouse-gas emissions ("GHGs") for light duty vehicles, while switching heavy-duty vehicles from diesel to CNG serves to reduce GHG emissions by 20 percent. (Exhibit 3A, "*Position Paper on Natural Gas as a Transportation Fuel",* American Gas Association).

8. Over the past decade, the NGV landscape has dramatically changed. Worldwide, the reliance on NGVs grew almost 30 percent per year between 2000 and 2009, with a 16 percent jump between 2008 and 2009. (Exhibit 3B, International Association of Natural Gas Vehicles). The majority of the recent NGV growth has been in Asia and South America. Of the more than 10 million natural gas vehicles in use worldwide, only about 130,000 are in the United States. (Exhibit 3C, "*A Greener Future for the Garden State*", N.J. Clean Cities Coalition). Unlike the 1990's, there are now both federal and state initiatives supporting an increased use of natural gas as a transportation fuel, as well as greater access to competitively priced natural gas reserves which sets the stage for further promotion of CNG based transportation opportunities. As an example, a group entitled the Marcellus Shale Coalition[1] hired a consulting firm to develop a plan that provides direction for the various stakeholders to increase the use in Pennsylvania of natural gas as a transportation fuel. (Exhibit 3D, "*NGV Roadmap for Pennsylvania Jobs, Energy Security and*

[1] The members of the coalition include Chesapeake Energy Corporation, EQT Corporation, Range Resources and UGI Utilities, Inc.

Clean Air," Gladstein, Neandross & Associates). The recommendations from that study include the following:

- Recognize and highlight existing Pennsylvania NGV success stories;
- Adopt aggressive policy positions which promote NGVs as an economic stimulus for Pennsylvania;
- Modify existing and develop new in-state incentive programs focused on high-fuel use fleet applications and infrastructure development and encourage the federal government to do the same;
- Allow bi-fuel NGVs certified by the U.S. Environmental Protection Agency to be sold in Pennsylvania as a critical refueling infrastructure and overall market-development strategy; and
- Develop strategic partnerships that support effective long-term growth of the regional NGV market via effective outreach, education, programs, policies and strategic coordination. (Page 11).

9. Initially, the use of heavy-duty NGVs was promoted as a means of protecting the environment given that diesel fuel emissions contain soot, particulates, toxic chemicals and nitrogen oxide – all sources of pollution and health risks. Now, the additional benefit of having greater access to domestic natural gas reserves, with increased reliability and competitive prices, supports the continued development of the NGV market. In an interview with the American Gas Association, Ray LaHood from the U.S. Department of Transportation agreed that the United States must rely on various energy sources going forward to enhance the nation's energy security and ensure reliability. "America must control our energy future by harnessing all of the resources that we have available and embracing a diverse energy portfolio. The pipeline transportation sector stands ready to fuel the present and future demands for natural gas vehicles." (Exhibit 3E, *"Ever Vigilant,"* American Gas, page 3 of 3).

10. Moving away from reliance on petroleum products requires the coordinated and simultaneous efforts of many stakeholder groups focusing on four primary objectives:

- The appropriately sized vehicles have to be readily available for the fleet and passenger vehicle markets:
- The infrastructure for providing re-fueling stations needs to be developed:
- Both state and federal policy directions need to support NGVs with the associated passage of related regulations; and
- A more secure market needs to be developed to encourage the purchase and use of NGVs at a variety of levels. Through education, promotion and governmental efforts to stimulate the market, the necessary changes can take place to ensure that the environmental, safety and reliability benefits of NGVs can be available to a greater percentage of the population.

11. The interest in NGVs has been growing from both the private and public sectors in New Jersey, especially for organizations with large fleets, portions of public and private bus companies and trash haulers**.** Fleets composed of both original equipment manufacturer ("OEM") and after-market conversion systems are replacing older, highly polluting diesel and gasoline vehicles. Currently, there are approximately 300 CNG vehicles in New Jersey with 23 re-fueling stations but only two of those stations are open to the public for CNG refueling. As such, one hindrance to further reliance on NGVs has been the lack of re-fueling stations, or CNG infrastructure.

12. In this CNG Infrastructure filing, NJNG's main objective is the promotion and development of a stronger NGV market in New Jersey by addressing the infrastructure objective

delineated in Paragraph 10 above. Through other sources, such as United States Department of Energy Clean Cities funding, Economic Development Authority ("EDA") programs and American Recovery and Reinvestment Act grants, interested entities can obtain financial assistance for purchasing CNG vehicles. By increasing the availability of refueling stations, NJNG is working collaboratively in the marketplace to encourage the use of alternative fuels. Specifically, NJNG is proposing a pilot program through which up to $15 million will be invested in CNG infrastructure, thus stimulating the entry of NGVs into fleets within our Service Territory. In support of the Company's belief in the importance of and benefits of NGVs, NJNG is transitioning its fleet to replace diesel and gasoline powered trucks and vehicles with NGVs. By the end of September 2011, the Company expects to take delivery of 6 CNG distribution crew trucks. Subsequently, during calendar 2012 NJNG expects to receive up to 10 first responder CNG vans and additional CNG distribution crew vehicles. NJNG is the first utility to invest in the medium-duty CNG truck. To support these investments in CNG vehicles, NJNG committed to upgrade the CNG refueling equipment of two company locations (Lakewood and the Maude Service Center) and that work should be completed by January 2012.

The proposed pilot program provides the initial steps to move away from a reliance on petroleum-based fuels for the state's transportation needs. Additionally, the pilot program provides employment opportunities and potentially lower operating costs for businesses in the NJNG Service Territory in conjunction with the focus on economic development and job growth in New Jersey.

CNG Vehicle Infrastructure Program

13. NJNG proposes to make investments in CNG re-fueling infrastructure at locations where a company ("Host Company") has or plans to use NGVs, thus accelerating their development in the state while helping to remove older, more polluting diesel or gasoline vehicles from service.

NJNG will provide the necessary capital for constructing the re-fueling stations on the host company's site, recovering those costs through the mechanism described herein. Through the CNG Infrastructure Program, NJNG will enter into an agreement to own the infrastructure that is installed at host locations based on assurances that the Host Company will initially use at least 20 percent of the station's capacity. The Host Company will also be required to make the CNG station available to the public. By establishing the structure as such, the CNG Infrastructure Program serves to accelerate the NGV market for both the anchor or Host Company and those area companies interested in moving away from traditional petroleum-based fuels, but unable to justify the infrastructure costs associated with installing refueling equipment. NJNG anticipates that the initial investment level of $15 million will allow between 7 and 10 CNG re-fueling stations to be constructed (the "Projects") within NJNG's Service Territory.

14. Through this program, NJNG proposes to offer the Host Company a turn-key CNG refueling station that will be available for their use, as well as having CNG available to the public. Each installation will vary to meet the specific siting and fueling needs of the Host Company. The necessary equipment and service lines will be provided, including natural gas compression equipment, appropriately sized storage vessels, a dispenser and the connection to NJNG's distribution system. As with the current NJNG FT Tariff requirements, the Host Company will cover the cost of any new meters and associated remote meter reading equipment. Additionally, the necessary electric infrastructure will be installed by NJNG. All mandatory and best practice safety and reliability measures will be met and included during the installation.

15. In conjunction with this filing, NJNG is seeking Board approval of proposed Tariff Sheets 97-100, 174-175 and 262 addressing the Terms and Conditions of the Company's investment in the CNG infrastructure and the associated rates to be charged. Those Tariff pages are included in

Exhibit 1 to this Petition, attached hereto and considered part of this filing. As noted earlier, the agreement between NJNG and the Host Company will include a provision that CNG must be made available for sale to the public. The proposed Tariff pages, sheets 174-175, include the methodology for calculating the CNG credit rate, the mechanism through which NJNG will credit the applicable customer classes the revenues from the base rate component of the delivery charge for CNG service, as set forth herein in Paragraph 25(c).

16. In order to provide the most benefits to customers and to ensure an effective implementation, NJNG is proposing that this program be initiated on a pilot basis through which CNG re-fueling infrastructure construction must be initiated by December 31, 2012. Accordingly, NJNG requests that the Board retain this matter for review and consideration at the BPU and proceed in an expedited manner.

Approval of the CNG Is In the Public Interest

17. Making the transition from petroleum-based fuels to the increased use of alternative fuels for transportation purposes provides environmental benefits that touch all New Jersey residents. Since diesel fuel is one of the leading sources of nitrogen oxide and toxic diesel soot particulates, the transition to natural gas as a fuel for vehicles traditionally operated by petroleum-based fuels provides a reduction in air pollutants and smog forming compounds. (Exhibit 3D). Those air pollutants increase the incidence of respiratory problems, including asthma and lung disease, not only for those working around diesel fuels but also for those living or traveling in congested areas. (Exhibit 3C). As noted earlier, GHG emissions decline with an increased reliance on natural gas in the transportation sector, improving air quality and personal health.

18. The capital investment costs related to NJNG's installation of natural gas compression and fueling infrastructure are subject to the recent extension of and increase to federal tax benefits provided through the utilization of bonus depreciation. Pursuant to the Tax Relief Act of 2010 and several other short term legislative enactments geared toward stimulating economic recovery, businesses are allowed, through bonus depreciation, to recover capital investment costs at a more rapid pace than through traditional accelerated depreciation. These benefits were only extended to apply to investments initiated through December 31, 2012 and will significantly reduce the costs to customers for recovery of the CNG investments. At this time, the bonus depreciation allowances only apply to certain investments through December 31, 2012, with varying calculations linked to construction start dates, the length of the project construction and completion dates. The request for expedited treatment in this filing is necessary to provide NJNG with the opportunity to structure these investments in a manner that provides the most financial benefit to customers from this cost-free source of capital emanating from the bonus depreciation tax benefit.

19. By stimulating the construction of new refueling infrastructure, the CNG Infrastructure Program can encourage reliance in New Jersey on alternative fuels for transportation purposes. As such, there can be increased reliance on NGVs, especially for the diesel-reliant heavy-duty vehicles that have such a negative impact on the environment and health of the State's citizens. With greater availability of CNG re-fueling stations in New Jersey, there is a resulting increase in business (and even individual) purchases of, or conversions to, natural gas vehicles as well as reducing the operating costs of businesses utilizing CNG. These investments then serve to bolster the economy by creating and retaining both direct and indirect job opportunities. Increased demand for NGVs necessitates increased vehicle production and

sales which provides economic benefits. Building new refueling infrastructure provides construction work along with increasing demands on equipment manufacturers. All of these direct benefits simultaneously bring various indirect economic benefits for, among other things, local businesses, stores, and suppliers.

Investments

20. NJNG proposes that the overall construction costs, based on current cost levels and available estimates, prior to any capitalization of an Allowance for Funds Used During Construction ("AFUDC"), related to the Projects will not exceed $15 million. Each of the Projects supports the societal benefits of alternative fuel vehicles – environmental, economic, job creation, retention and health, as well as lessening the state's reliance on petroleum-based fuels. NJNG requests that the Board approve the base rate recovery of reasonable Capital Investment Costs for the projects incorporated within the CNG Program. Capital Investment Costs include, but are not limited to: the costs of engineering, design, construction and maintenance, including labor, materials and any governmentally imposed fees, charges or costs associated with studies or change requests, and any other overheads associated with each of the Projects. The incremental operation and maintenance expenses for NJNG to maintain these investments are included for recovery.

Duration/Term of the CNG Program

21. NJNG proposes this program on a pilot basis through December 31, 2012. Given that the use of natural gas as a transportation fuel is generating more activity and attention, it is estimated that the Company will be able to install the CNG infrastructure at 7 to 10 locations during that period. As such, NJNG proposes that the final design and construction of the Projects commence as soon as possible following the date of the Board Order approving this Petition and all

investments made by NJNG will be initiated no later than December 31, 2012 in order to recognize the tax benefits associated with bonus depreciation.

Proposed Accounting Treatment for CNG Program

22. Through this Petition, NJNG proposes to employ an accounting treatment for the CNG Program similar to that approved by the Board for NJNG's Accelerated Infrastructure Investment Programs ("AIP" and "AIP II"). NJNG's AIP was approved in an April 28, 2009 Board Order in Docket Nos. GR07110889 and GR09020052 ("April 28 Order") and AIP II was approved in an Order dated March 30, 2011 ("March 30 Order") in Docket Nos. GR07110889 and GR10100793. As such, all reasonable and prudently-incurred Capital Investment Costs, as defined in Paragraph 20 herein, associated with each of the Projects will be recorded and tracked as follows:

(a) Capital Investment Costs for each of the Projects will be separately tracked by an NJNG work order in a Construction Work In Progress ("CWIP") account;

(b) NJNG will record a monthly accrual of Allowance for Funds Used During Construction ("AFUDC") which will be capitalized and included in the CWIP balance as follows:

(i) when the NJNG total CWIP balance, including CWIP associated with the Projects, is less than NJNG's outstanding short-term debt ("S/T debt") balance, the applicable AFUDC rate will be equal to the Company's monthly cost of S/T debt; or

(ii) when NJNG's total CWIP balance, including CWIP associated with the Projects, is greater than NJNG's outstanding S/T debt, the applicable AFUDC rate results in a blended monthly AFUDC Calculation. The blended AFUDC rate calculation will include a S/T debt rate for that portion of the CWIP balance equal to the month-end S/T debt balance and the

Company's overall Weighted Average Cost of Capital ("WACC"), as defined in subsection 22(c) herein, for the CWIP balance in excess of NJNG's month-end S/T debt balance.

(iii) when a Project is placed into service, but not yet reflected in customer rates, the AFUDC rate will be equal to NJNG's WACC.

(c) The WACC to be used for purposes of calculating AFUDC accruals under the CNG Infrastructure Program will be the rate of return most-recently approved for NJNG and authorized by the Board in Docket No. GR07110889. Accordingly, NJNG proposes to use the Board authorized WACC of 7.76 percent per annum.

Proposed Cost Recovery Mechanism

23. The Company proposes to recover the investment of approximately $15 million related to the Capital Investment Costs for the Projects, along with the associated depreciation, incremental operation and maintenance expenses, and AFUDC, through one filing for base rate changes in a method similar to that approved in the April 28 and March 30 Orders. NJNG will make a CNG cost recovery filing with the Board on or around October 2012 for recovery of the investments, proposing a base rate change to be effective the following January. The filing will contain both actual and estimated expenditures as of the date of the filing and investment information will be updated during the course of the proceeding to provide actual information. It is anticipated that based on current rates, the associated aggregate rate impact, if the Company invests the full $15 million, will result in an overall increase of no more than four-tenths (0.4) percent to the average residential heating customer's bill. A copy of the CNG cost recovery filing will be provided to Rate Counsel and NJNG will provide public notice of any proposed base rate adjustments in the October 2012 cost recovery filing.

24. Pursuant to the methodology approved in the April 28 and March 30 Orders, NJNG will recover through base rates the CNG Infrastructure Program revenue requirement by adjusting, on a volumetric basis, the then-current base rates for applicable customer classes. These base rate adjustments will reflect an across-the-board adjustment to the customer classes so that natural gas revenues for each class will be impacted by the same percentage. Furthermore, the volumes used in this calculation will be based on the weather-normalized forecast included in the most recently submitted annual BGSS filing for the upcoming October-September BGSS period.

25. Similar to the annual AIP and AIP II rate filings, NJNG's CNG Infrastructure Program rate adjustment filing will include a revenue requirement calculation that reflects the following elements:

(a) a rate of return on NJNG's investment calculated by multiplying NJNG's investment balance, including previously-capitalized AFUDC associated with the CNG Projects, by NJNG's WACC of 11.40 percent, as adjusted for income taxes;

(b) annual depreciation expense for the CNG Projects, based upon NJNG's depreciation rate of 2.73 percent for Account 363.4, commencing with the Company's receipt of the CNG Rate Order;

(c) incremental operation and maintenance expenses for the CNG projects; and

(d) a request for deferred accounting treatment for delivery charges to recognize the credit and reduction to the revenue requirement for the anticipated annual rate recovery related to delivery charges for those customers using the CNG tariff, pursuant to proposed Tariff Sheet 175, Exhibit 1.

26. NJNG's annual CNG Infrastructure Program base rate adjustment filing will be subject to review by the Board Staff and Rate Counsel, prior to the approval and issuance of an

Order by the Board establishing that the proposed rates are just and reasonable. Such review will be conducted as a contested case in accordance with the New Jersey Administrative Procedure Act, N.J.S.A. 52:14B-1 et seq.

Public Notice

27. Although there will be no immediate financial impact on customers upon approval of the CNG Infrastructure Program by the Board, NJNG will provide notice of this filing to all of its customers through the publication of a notice in newspapers of general circulation in the Company's Service Territory and the scheduling of a public hearing. A copy of the draft Public Notice is provided in Exhibit 2, attached hereto and made part of this filing. In addition, NJNG will give notice of any future increase in rates and modification of its Tariff related to this Petition to all of its customers through the publication of notice in the newspapers of general circulation in the Company's Service Territory and the scheduling of a public hearing, subsequent to the October 2012 filing.

28. Notice and two copies of this filing will be served upon the Division of Law and upon the New Jersey Division of Rate Counsel. Moreover, copies of the Company's filing will be available at each of NJNG's Customer Service Centers.

Reporting

29. Based on the expedited nature of this proposal and the potential environmental and economic benefits, NJNG will submit reports to BPU Staff and Rate Counsel on a quarterly basis ("Quarterly Reports") starting at the end of the first quarter following the issuance of a Board Order in this proceeding. Included in the Quarterly Report will be the following information: proposed capital expenditures for each of the CNG Projects and the status of each of the CNG Projects, including tasks completed, percentage of projects completed, anticipated completion date and the

actual level of capital invested as of the end date for the period covered. NJNG will also submit a Final Report to BPU Staff and Rate Counsel no later than March 31, 2013 which will provide final numbers for the categories above, along with data on the utilization of the CNG infrastructure.

Government Funding

30. If NJNG receives any federal, state, county or municipal funds or credits directly applicable to the CNG Projects, the Company will use that funding as a benefit to customers by offsetting the costs for which recovery is sought through the CNG Infrastructure Program base rate filing, in October 2012, to the extent permitted by law.

Miscellaneous

31. In light of the expeditious nature of this filing, NJNG respectfully requests a waiver of the informational filing requirements set forth in N.J.A.C. 14:1-5.12(a) (1) through (5), and a waiver of any and all other applicable Board filing requirements as may be necessary to enable the Board to grant the relief requested herein in the shortest practical time frame, within the law. Additionally, NJNG requests that the Board retain this filing for review on an expedited basis, to more expeditiously meet the goals for economic development, job growth and infrastructure development.

WHEREFORE, New Jersey Natural Gas Company requests that the Board:

(1) authorize and approve the proposed CNG Infrastructure Program as a pilot program for the installation of approximately 7 to 10 CNG re-fueling stations;

(2) authorize and approve the proposed capital investment cost recovery structure and deferred accounting treatment as described herein;

(3) retain this matter at the BPU for review on an expedited basis;

(4) waive the informational filing requirements of N.J.A.C. 14:1-5.12(a) (1) through (5), and any other applicable Board filing requirements as may be necessary to enable the Board to grant the relief requested herein in the shortest practical time frame, within the law; and

(5) grant such other and further relief as may be required.

Respectfully submitted,

New Jersey Natural Gas Company

By _____

Tracey Thayer Esq.
Director, Regulatory Affairs Counsel
New Jersey Natural Gas Company

STATE OF NEW JERSEY)
:
COUNTY OF MONMOUTH)

VERIFICATION

MARK R. SPERDUTO of full age, being duly sworn according to law, on his oath deposes and says:

1. I am Vice President, Regulatory and External Affairs for New Jersey Natural Gas Company, the Petitioner in the foregoing Petition.

2. I have read the annexed Petition, along with the Exhibits attached thereto, and the matters and things contained therein are true to the best of my knowledge and belief.

Mark R. Sperduto

Sworn and subscribed to
before me this 15th day
of June 2011

Lisa Hamilton

LISA HAMILTON
NOTARY PUBLIC FOR NEW JERSEY
Commission Expires January 4, 2015

NEW JERSEY NATURAL GAS COMPANY

BPU No. 8 - Gas *Original Sheet No. 97*

SERVICE CLASSIFICATION - CNG

COMPRESSED NATURAL GAS

AVAILABILITY

This service is available to any customer who would otherwise qualify for service under Service Classifications RS, GSS, GSL, FT, IS, or NGV and who will utilize natural gas for the purpose of fueling natural gas vehicles at Company owned compressed natural gas re-fueling facilities operated by the Customer on its property ("Host Customer").

Availability of this Service Classification is subject to the terms and conditions approved in BPU Docket No. GR1106____.

CONDITIONS PRECEDENT

The Host Customer must sign an Agreement with the Company. The Host Customer must provide assurance that it will use initially at least twenty (20) percent of the re-fueling facility's capacity. The Host Customer must agree to provide the general public with reasonable access to a re-fueling facility for purposes of fueling the general public's natural gas vehicles.

DEFINITION OF TERM USED HEREIN

"GGE" is the Gasoline Gallon Equivalent for converting a price per therm of natural gas to a price per gallon of gasoline. The GGE shall be determined in accordance with local standards.

CHARACTER OF SERVICE

Firm gas service where Host Customer may purchase gas supply pursuant to the Company's Rider "A" for Basic Gas Supply Service ("BGSS"), from the Company through a contract, or from a Marketer or Broker.

MONTHLY RATES

Customer Charge:

Customer Charge per meter per month	$50.00

Delivery Charge:

Delivery Charge per therm	$0.2488 ($0.3110 per GGE, See Special Provision 5)

BGSS Charge:

Monthly BGSS Charge per therm for Sales Customers without a gas supply contract	See "Rate Summaries" at the end of this Tariff

These rates are inclusive of all applicable taxes and riders and are subject to adjustment for all other applicable riders, taxes, assessments or similar charges lawfully imposed by the Company. See Rate Summaries at the end of this Tariff for a summary of components incorporated in these rates.

MINIMUM MONTHLY CHARGE

The minimum monthly charge shall be the Customer Charge.

Where service is taken for less than one month, the minimum charge will be prorated.

NEW JERSEY NATURAL GAS COMPANY

BPU No. 8 - Gas ***Original Sheet No. 98***

SERVICE CLASSIFICATION - CNG

COMPRESSED NATURAL GAS *(continued)*

SPECIAL PROVISIONS

I. *Applicable to All Customers in this Service Classification*

1. ***CNG Re-Fueling Facilities***

The Company shall install and own Compressed Natural Gas ("CNG") re-fueling facilities on the Host Customer's property. The Company shall maintain these facilities. The Host Customer is required to monitor and operate these facilities at its own expense. The Host Customer is also required to provide reasonable access to the re-fueling station to the general public and non-host customer fleets.

2. ***Automated Meter Reading Device***

Metering shall include an automated meter recording device (AMR)**,** which shall be furnished and installed by the Company at the Host Customer's expense. The Host Customer shall furnish an electrical supply and phone line for the operation of the device, in an area acceptable to the Company. The Company shall provide technical assistance in order to minimize the Host Customer's expense for such installation.

The Host Customer may reimburse the Company for the AMR expense, either in a lump sum payment when service is initiated or over the life of the initial CNG agreement with the prime interest rate used to calculate carrying costs on the unpaid balance.

3. ***Incremental Expenses***

The Host Customer shall reimburse the Company for any out-of-pocket expenses (including, but not limited to, legal and travel expenses) incurred in connection with the initiation and rendering of service under this service classification. The Company shall provide an estimate of such expenses prior to their incurrence.

4. ***Taxes, Assessments and Surcharges***

The Customer shall pay all riders, taxes, assessments and surcharges that are lawfully imposed upon the Company in providing service under this classification.

NEW JERSEY NATURAL GAS COMPANY

BPU No. 8 - Gas ***Original Sheet No. 99***

SERVICE CLASSIFICATION - CNG

COMPRESSED NATURAL GAS (continued)

5. ***Pricing to the General Public***

The Host Customer shall post the charge to the general public for its re-fueling volume at a price per GGE provided by the Company. Prior to the beginning of each month, the Company will notify the Host Customer of the price, the components of which are defined below:

a. Monthly BGSS Charge as set forth in Rider "A" converted to a price per GGE
b. CNG Delivery Charge as set forth in Service Classification CNG converted to a price per GGE
c. Applicable state and federal excise taxes
d. $0.20 per GGE for the Host Customer's expenses to operate the facilities.

The Host Customer shall display the price per GGE at the re-fueling station. The Company shall credit the Host Customer for the monthly volume sold to the general public at the price per GGE for the Host Customer's expenses to operate the facilities as defined in 5(d) above.

6. ***Pricing to Non-Host Company Fleets***

Other fleets re-fueling vehicles at the Company owned CNG re-fueling facilities operated by the Host Customer on its property may purchase gas supply from the Company's Rider "A" for Basic Gas Supply Service ("BGSS"), from the Company through a contract, or from a Marketer or Broker pursuant to Section II herein. The Company shall charge other fleets for re-fueling volumes at a price per GGE, the components of which are defined below:

a. Monthly BGSS Charge as set forth in Rider "A" or a gas supply contract price or the price provided by a Marketer or Broker, converted to a price per GGE
b. CNG Delivery Charge as set forth in Service Classification CNG converted to a price per GGE
c. Applicable state and federal excise taxes
d. $0.20 per GGE for the Host Customer's expenses to operate the facilities.

The Company shall credit the Host Customer for the monthly volume sold to the other fleets at the price per GGE for the Host Customer's expenses to operate the facilities as defined in 6(d) above.

NEW JERSEY NATURAL GAS COMPANY

BPU No. 8 - Gas ***Original Sheet No. 100***

SERVICE CLASSIFICATION - CNG

COMPRESSED NATURAL GAS *(continued)*

II. *Applicable to All Customers Purchasing Gas Supply from a Marketer or Broker*

1. ***Customer Responsibility***
The Customer must provide to the Company's satisfaction a firm gas supply having marketable title of gas with firm transportation capacity to the Company's distribution system. In the event the Customer designates a Marketer or Broker in accordance with Service Classification MBR, the Customer will remain responsible for a pro rata share of any Charges which such Marketer or Broker fails to pay to the Company including payments for Unauthorized Use or for Monthly Imbalance.

2. ***Billing***
Customers purchasing gas supply from a Marketer of Broker can only be billed through Billing Option 1 as defined in Service Classification-MBR.

3. ***Additional Requirements***
Service is subject to the terms and conditions of the Marketer and Broker Requirements section of this Tariff (Service Classification – MBR) and Section 10 of the Company's Standard Terms and Conditions.

PAYMENT
Bills are due within 10 days after the Company sends the bill and is subject to a late payment charge as set forth in Paragraph 8.9 of the Standard Terms and Conditions of this Tariff.

CONTRACT
A written agreement shall be required for Compressed Natural Gas Host Customers and non-Host Customers Fleets.

TERMS AND CONDITIONS
Service is subject to the Company's Standard Terms and Conditions of this Tariff.

NEW JERSEY NATURAL GAS COMPANY

First Revised Sheet No. 174
BPU No. 8 - Gas *Superseding Original Sheet No. 174*

RIDER "G"

COMPRESSED NATURAL GAS CREDIT - CNGC

AVAILABILITY

Applicable to the following service classifications:

RS	Residential Service
GSS	General Service - Small
GSL	General Service - Large
DGC	Distributed Generation Commercial
ED	Economic Development

The Compressed Natural Gas Credit ("CNGC") is for crediting the customers in the above service classifications for the revenue from the base rate component of the delivery charge received by the Company from customers, including sales at the facility to the general public, served under Service Classification Compressed Natural Gas ("CNG") as well as any federal or state credits received by the company as station owner as a result of therms sold under service classification CNG as approved in BPU Docket No. GR1106____.

DETERMINATION OF THE CNGC

By June 1 of each year, the Company shall file an annual request with the Board for an October 1 implementation of a CNGC per therm credit, which shall be applicable to customers on all service classifications to which Rider "G" applies. The CNGC credit year will run from October 1st to September 30th of each year.

I. Determination of the Credit

The CNGC shall be derived in the following manner:

(1) The Company shall determine the actual revenue from the base rate component of the delivery charge received from customers served under Service Classification CNG for the previous year ended April 30th as well as any federal or state credits received as a result of therms sold under service classification CNG.

(2) An estimate shall be made of the total annual volume of prospective jurisdictional sales of gas (in therms) to NJNG's sales and transportation customers of all service classifications to which Rider "G" applies.

(3) The credit (per paragraph (1)) shall be adjusted upward or downward to the extent of the amount of any prior under- or over- applied credit to determine the total amount to be credited and then shall be divided by the estimated total volume of prospective sales (per paragraph (2)), to determine the per unit rate.

NEW JERSEY NATURAL GAS COMPANY

First Revised Sheet No. 175
BPU No. 8 - Gas *Superseding Original Sheet No. 175*

RIDER "G"

COMPRESSED NATURAL GAS CREDIT – CNGC (Continued)

II. Tracking the Operation of the CNGC

The Company shall calculate carrying costs on the average monthly balances of under-or over-recovery of deferred credits based upon the Company's monthly commercial paper rate. The carrying cost calculation shall be based on the net of tax beginning and end average monthly balance. The carrying costs shall accrue on a monthly basis and shall be rolled into the balance at the end of each CNGC credit year.

In accordance with P.L., 1997 c. 162, the charges applicable under this Rider include provision for the New Jersey Sales and Use Tax ("SUT"), and when billed to customers exempt from this tax, as set forth in Rider "B", shall be reduced by the amount of such tax included therein.

The CNGC shall be credited on a per therm basis within the Delivery Charge for all service classifications to which Rider "G" applies. The CNGC factor is as set forth below:

$0.0000

NEW JERSEY NATURAL GAS COMPANY

BPU No. 8 - Gas *Original Sheet No. 262*

SUMMARY OF FIRM COMMERCIAL RATE COMPONENTS

Compressed Natural Gas (CNG)

		Bundled Sales	Transport Sales	Reference
Customer Charge				
Customer Charge per meter per month		50.00	50.00	
Delivery Charge ("DEL") per therm				
Transport Rate:				
Pre-tax Base Rate		0.1448	0.1448	
TEFA		0.0085	0.0085	Rider B
SUT		0.0107	0.0107	Rider B
After-tax Base Rate		0.1640	0.1640	
EE		0.0127	0.0127	Rider F
Total Transport Rate	a	*0.1767*	*0.1767*	
Societal Benefits Charge ("SBC"):				
NJ's Clean Energy		0.0203	0.0203	Rider E
RA		0.0324	0.0324	Rider C
USF		0.0194	0.0194	Rider H
Total SBC	b	*0.0721*	*0.0721*	
Delivery Charge (DEL)	a+b=c	**0.2488**	**0.2488**	
Basic Gas Supply Charge ("BGS")				
Monthly BGSS	d	0.7133	X	Rider A
BGS	d	**0.7133**	**X**	

With the exception of the Customer Charge, these rates are on a per-therm basis.

Customer, DEL, and BGSS charges are presented on customer bills.

NOTICE TO NEW JERSEY NATURAL GAS CUSTOMERS
Docket Nos. GO1106____

NOTICE OF FILING AND PUBLIC HEARING

TO OUR CUSTOMERS:

PLEASE TAKE NOTICE that on June 16, 2011, New Jersey Natural Gas (NJNG or the Company) submitted a filing with the New Jersey Board of Public Utilities (Board) seeking approval for a Compressed Natural Gas Pilot Program (CNG Program) and approval of the necessary rate and tariff changes associated with the VIP.

As proposed, the pilot program would permit the Company to invest in capital infrastructure projects related to the installation of compressed natural gas fueling facilities with recovery of the associated costs. That recovery would be sought through a submission to the Board in October 2012 for an adjustment to the Company's base rates. NJNG has proposed to invest up to $15 million over an 18-month period. These projects will serve to promote the use of natural gas as one of several transportation fuels by increasing the availability of the necessary refueling infrastructure. The work on these projects is to commence as of July 2011 or as soon as possible after Board approval of the CNG Program. The capital expenditures over the anticipated 18-month installation period would not exceed approximately $15 million. The Company seeks to recover a return on that investment, including taxes. The Company will recover its investments over a 42-year period based on its currently authorized depreciation rate.

At this time, the Company is requesting Board approval to initiate this program and, if approved, there is no immediate impact on customers' rates. Following approval by the Board and completion of the infrastructure construction, the Company will make a filing in October 2012 seeking Board approval to include in base rates the costs of the infrastructure investments through December 31, 2012. The magnitude of any increase depends on the actual costs of those projects. However, it is anticipated that the increase at that time would be **no more than 0.5 p**ercent to the average residential heating customer's bill based on the Company's current rates and anticipated sales volumes.

Any future impact on customers will be determined at a later date by the Board after the October 2012 filing by NJNG. The Board has the statutory authority to approve the CNG Program and establish the related changes to base rates at levels it finds just and reasonable. Therefore, the Board may establish the new rates at levels other than those proposed by NJNG.

PLEASE TAKE NOTICE that the Board has scheduled public hearings on this petition, although there is no change in NJNG base rates proposed at this time, at the following dates, times and places:

?????
Rockaway Township Municipal Building
Conference Room
65 Mt. Hope Road
Rockaway Township, NJ 07866-1698

???
Freehold Township Municipal Building
One Municipal Plaza, Schanck Road
Freehold, New Jersey 07728-2195

The public is invited to attend, and interested persons will be permitted to testify and/or make a statement of their views on the proposed program. In order to encourage full participation in this opportunity for public comment, please submit any requests for needed accommodations, including interpreter, listening devices or mobility assistance, 48 hours prior to these hearings to the Board Secretary at the address below. Regardless of whether they attend the hearing, members of the public may submit written comments concerning the Petition to the Board by addressing them to: Kristi Izzo, Secretary, New Jersey Board of Public Utilities, Two Gateway Center, Newark, New Jersey 07102. Copies of the Petition and supporting documents can be reviewed at the NJNG Customer Service Centers or at the New Jersey Board of Public Utilities, Two Gateway Center, Newark, New Jersey 07102.

Tracey Thayer, Esq.
New Jersey Natural Gas

EXHIBIT 3
INDEX OF DOCUMENTS

Exhibit 3A. American Gas Association Position Paper on Natural Gas Trasportation Fuel

Exhibit 3B. Charts on Growth of Natural Gas Vehicles 1991-2010 and Growth by region
International Association for Natrual Gas Vehicles

Exhibit 3C. "A Greener Future for the Garden State?"
New Jersey Clean Cities Coaltion

Exhibit 3D. "NGV Roadmap for Pennsylvania Jobs, Energy Security and Clean Air."
Gladstein, Neandross and Associates

Exhibit 3E. American Gas Magazine, June 2011, page 26

Exhibit 3F. EIA Table on comparing natural gas prices to gasoline with projections through 2035

Exhibit 3G. "The Case for Natural Gas Vehicles"
Natural Gas Vehicles for America (NGV America)

American Gas Association

AGA Viewpoint on Natural Gas as a Transportation Fuel

Using natural gas instead of gasoline or diesel to power vehicles is a low-cost, low-emissions solution for reducing our nation's dependence on foreign energy sources while also reducing greenhouse gas emissions and urban smog. Natural gas-powered vehicles (NGVs) in use today are helping to improve air quality by displacing petroleum-powered cars, vans, trucks and buses which contribute about three fourths of the carbon dioxide pollution found in urban areas. In 2008, use of NGVs displaced almost 300 million gallons of petroleum use in the U.S. Increasing the use of natural gas, an abundant domestic resource, as a transportation fuel, is a national security imperative – 70% of the oil consumed by the U.S. is imported.

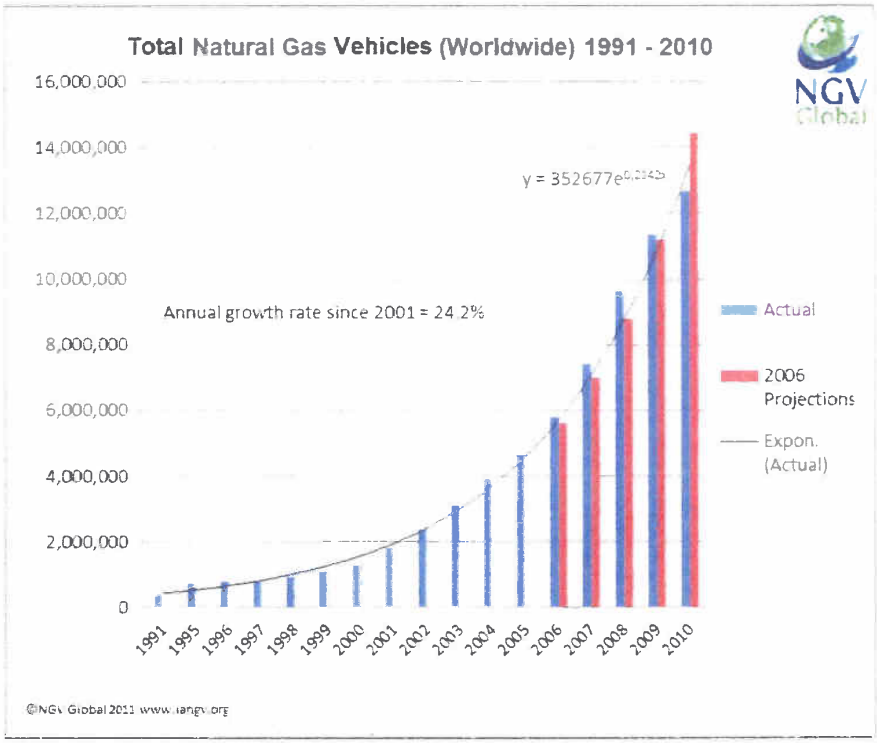
Natural gas-powered vehicles produce up to 30% fewer greenhouse gas emissions (GHGs) -- based on a wells-to-wheels analysis (source: California Air Resources Board) – than petroleum-fueled vehicles. Light duty vehicles fueled by natural gas can reduce greenhouse gas emissions by 30 percent as compared with gasoline fueled vehicles, while use of natural gas instead of diesel to fuel medium- to heavy-duty vehicles can reduce greenhouse gas emissions by 20%. Converting just one refuse truck from diesel to natural gas has an emissions reduction impact equivalent to taking 325 petroleum-fueled cars off the road. Relative to new model gasoline-fueled vehicles, natural gas powered vehicles can reduce exhaust emissions of carbon monoxide (CO) by about 11%, volatile organic compounds (VOCs) by 55% and nitrogen oxides (NOx) by 54%, while producing an insignificant amount of ground-level ozone.

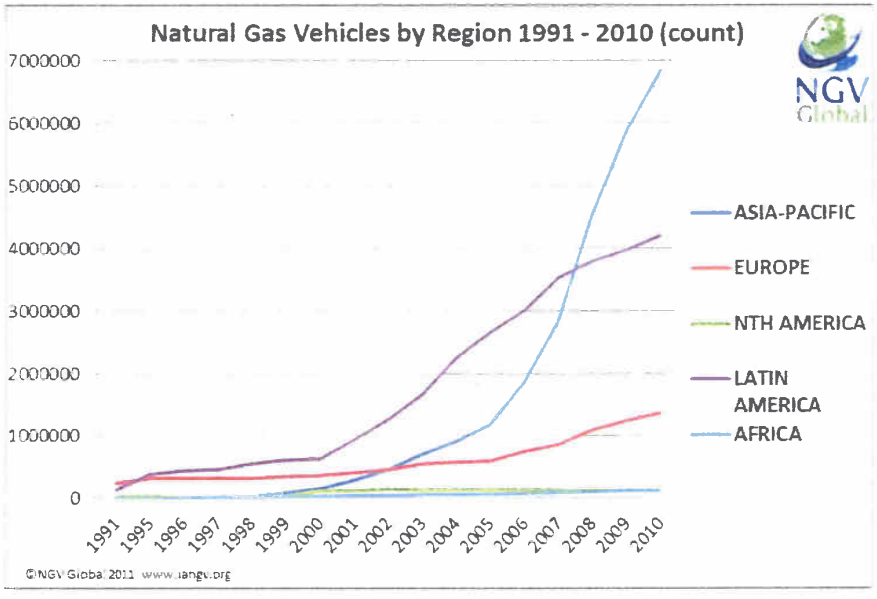
The environmental profile for NGVs is further improved when renewable natural gas (biomethane) or natural gas/battery hybrid vehicles are used. Renewable natural gas is produced in landfills and agriculture waste sites, among other places. When captured and used as a fuel, it reduces carbon emissions both by preventing the direct release of methane into the atmosphere and by replacing the petroleum-based fuel that would have otherwise been used for transportation. On a wells-to-wheels basis, an NGV fueled with 100% renewable natural gas results in almost 90% fewer GHGs than if it were fueled with gasoline or diesel. Natural gas/battery hybrid vehicles, relative to the average new gasoline-powered vehicle, produce 58% fewer GHGs.

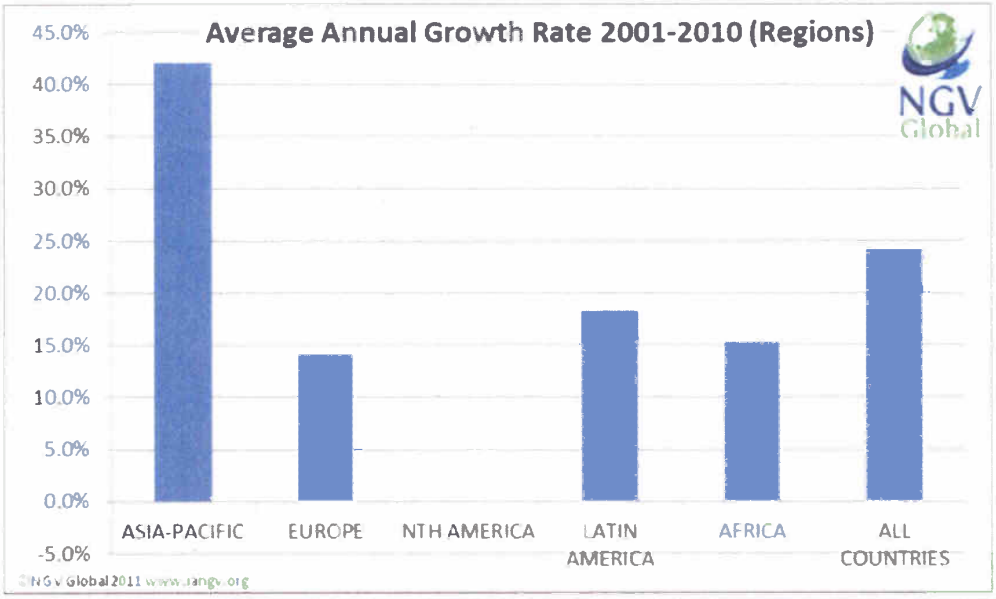
NGVs are available to meet American transportation needs today. The natural gas fueled Honda Civic has been rated "Greenest Vehicle" for six years by the American Council for an Energy Efficient Economy and the EPA has called it the "cleanest internal-combustion vehicle on Earth." Natural gas fueled vehicles, especially in high-use, urban applications such as fleets, provide significant emissions and air quality improvements over gasoline and diesel counterparts. As cities and states seek ways to minimize local air pollution and global carbon emissions, government, industry and interested stakeholders must work together to ensure that NGVs are further developed as a choice.

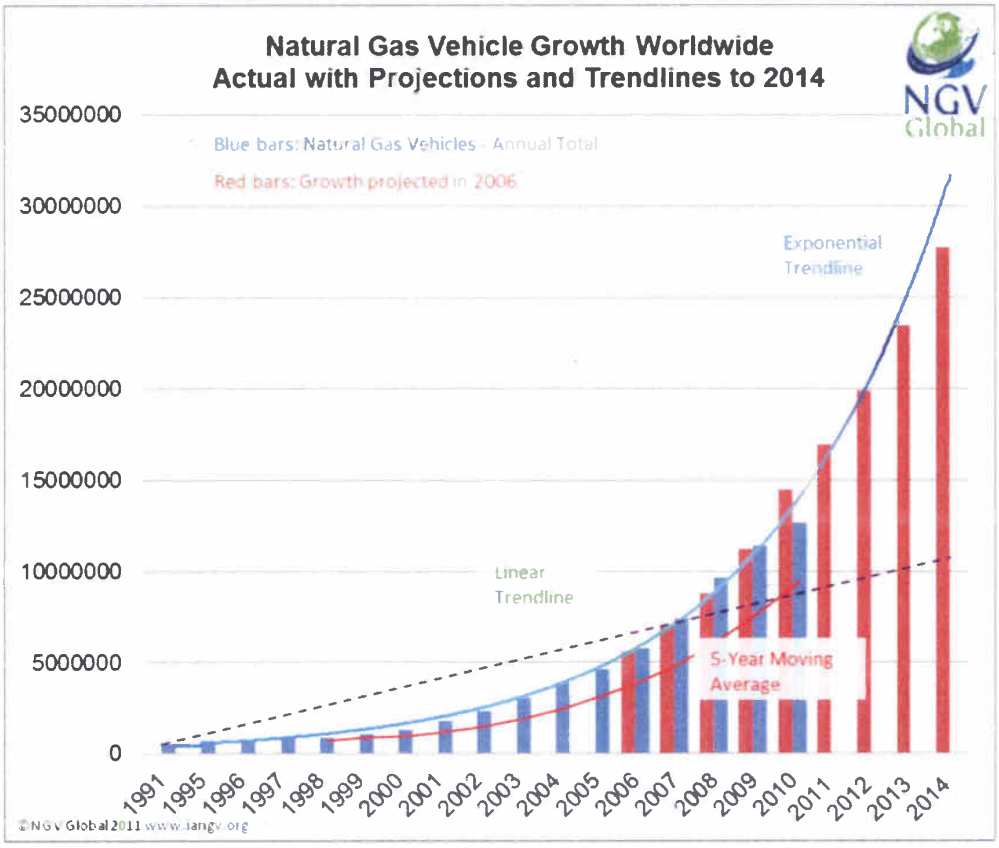
Over 98% of the natural gas consumed in the U.S. is produced in North America. The Potential Gas Committee estimates the domestic resource base for natural gas to last 100 years at current usage levels. Increasing the use of natural gas as a transportation fuel is an important tool in reducing our nation's dependence on foreign oil. An array of options will need to be developed to meet that goal. Federal legislation supporting transportation alternatives like natural gas will be crucial -- including extending tax incentives for alternative fuel vehicle purchases, conversions and production, alternative fueling station infrastructure, alternative fuel use, along with support for renewable natural gas production. Natural gas vehicles powered by domestically-produced natural gas are available now to get our country on the path to a more secure future – economically, environmentally and geopolitically.

Main menu | Ranked by number | Summary | World
Listed alphabetically | Growth charts | NGVs by Region






Average Annual Growth Rate 2001-2010 (Regions)
45.0%
40.0%
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
-5.0%
ASIA-PACIFIC
EUROPE
NTH AMERICA
LATIN AMERICA
AFRICA
ALL COUNTRIES
NGV Global
©NGV Global 2011 www.iangv.org


Natural Gas Vehicle Growth Worldwide
Actual with Projections and Trendlines to 2014
Blue bars: Natural Gas Vehicles - Annual Total
Red bars: Growth projected in 2006
Exponential Trendline
Linear Trendline
5-Year Moving Average
35000000
30000000
25000000
20000000
15000000
10000000
5000000
0
1991
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
NGV Global
©NGV Global 2011 www.iangv.org

A Greener Future For The Garden State?
The Role of Natural Gas Vehicles

All New Jerseyans have a stake in decisions made today about your State's transportation/energy future! Will it be a healthy one for your families and children? Will it give your communities the greatest energy security? As millions of your tax dollars are spent, will they be invested most productively?

Many decisions will determine the State's course – from mass transit and land use planning to electric car and smart grid development to bicycle lanes. This factsheet addresses one of the most significant areas: what to do about the diesel bus and truck fleets operating in your communities – the heaviest polluters and fuel users in the State. It describes the issues, the choices and how you – as a citizen, government or business official, solid waste industry executive or student - can be part of the solution!

NEW JERSEY QUICK FACTS	
Population	8,682,661
2.8% of total U.S.	
Average people per sq. mile	1,134.5
Densest in US- Av. Total 79.6[i]	
Total autos*	3,784,092
Total trucks	2,396,600
Registered in NJ	
Total buses*	23,287
Registered in NJ[ii]	
Total vehicles registered	6,246,882

*Includes Federal, State, county, municipal as well as private and commercial vehicles.

Note: The heavy duty vehicles are a small fraction of the total trucks and buses, probably under 115,000.

TRANSPORTATION POLLUTION: A CHALLENGE THAT NEEDS TO BE ADDRESSED

New Jersey's 6,203,979 vehicles are a major source of the State's health-threatening air pollution. Though all of these vehicles pose environmental and health risks, trucks and buses that run on diesel fuel are of greatest concern.

Diesel bus and truck fleets are the backbone of NJ's economy. Truck fleets deliver products and collect wastes and recyclables. Buses transport people around town and to airports. New Jersey had 18,000 school buses transporting over 800,000 school children in 2009[iii]. These services are indispensible to the functioning of every community. Yet, their emissions exact a significant health toll - especially from soot particles, toxic chemicals and nitrogen oxides that are released when diesel fuel is burned.

The 4,000 to 6,000 refuse and recycling trucks pose exceptional risks since they travel down every residential street, stopping and starting, compacting their loads and releasing their pollutants at every doorstep.

In urban areas, the NJ Department of Environmental Protection (DEP) calculated that airborne soot and toxins from diesel contribute up to 70% of cancer risk.

Smog over Newark, NJ

Registered in-state vehicles are not the only concern. The tens of thousands of commuters and long distance "18 wheelers" traveling through NJ on Interstate I-95 and other major highways contribute to the pollution burden. Nearly 500,000 New Jerseyans live just a football field's length away from major highways with their dense soot concentrations[iv].

THE HEAVY TOLL AND COST OF ASTHMA	
Number of NJ children with asthma	218,914
(10% of NJ children)	
Number of NJ adults with asthma	516,008
(8% of NJ adults)[v]	
1998 medical cost of asthma in NJ	$324 million[vi]

A key impact of soot particles is on respiratory health. They are clearly linked to asthma attacks, exasperating the health of those who already have the illness as well as those with allergies[vii]. According to the State's Asthma Strategic Plan, low income and minority groups have higher rates of asthma, with black residents being three times as likely as white residents to be hospitalized for asthma in 2006[viii].

NJ truckers and dockworkers are also inordinately affected by diesel emissions. A 2007 report by Harvard and UC Berkeley found that those who operated or worked with diesel engines had a higher rate of premature death and disease than those

who did not and that truckers were 50% more likely to die prematurely of heart disease than the general population[ix].

In 2008, the same researchers studied 31,135 truckers' records. They found that those who did short-haul pickups and deliveries were at the highest risk for lung disease. Of those in the study, there were 779 cases of lung cancer, and 734 deaths found that stemmed from lung cancer[x].

A 2008 Netherlands study has found that diesel fumes can actually change brain activity. Ten subjects, exposed to diesel fumes for just an hour, showed a clear stress response. Their change in brain function occurred only thirty minutes into the study. The researchers attribute this impact to the amount of soot particles in diesel fumes[xi].

NEW JERSEY'S AIR QUALITY RECORD

In NJ overall, The US Environmental Protection Agency (EPA) found 13 of its 21 counties in violation of the soot standard in 2004 and found every county in violation of the ground-level ozone standard.[xii]. The American Lung Association's 2009 State of the Air report, covering data from 2005-2007, found some decline in these levels.

STATE OF THE AIR REPORT 2009

Five of 18 Counties Monitored* For Particle Air Pollution Rated "F" and 12 of 17 Counties Monitored** For High Ozone Days Rated "F"

Particle Air Pollution		**High Ozone Days**	
County		*County*	*Population*
Bergen	894.840	Atlantic	270.681
Camden	517.234	Camden	517.234
Essex	770.675	Cumberland	156.830
Hudson	595.419	Gloucester	287.860
Union	523.249	Hudson	595.419
		Hunterdon	129.031
		Mercer	364.883
		Middlesex	789.102
		Monmouth	642.448
		Morris	487.548
		Ocean	569.111
		Passaic	490.948[xiii]
Total Risk: 3,301,417 (38%)		**Total Risk: 5,301,095 (61%)**	

*Counties not included: Cumberland, Hunterdon, and Monmouth
**Counties not included: Bergen, Essex, Union, and Warren[xiv]

Note: The reason numerous counties were excluded from State of the Air Report is due to incomplete monitoring data for all 3 years that monitoring has occurred, or the county did not collect monitoring data.

Camden has the worst record with "F" for particle and ozone pollution plus one of the highest hospital discharge rates for asthma in the State in 2006[xv].

DIESEL FLEETS: MAJOR CONTRIBUTORS TO CLIMATE CHANGE AND OIL DEPENDENCY

Diesel fleets contribute significantly to New Jersey's greenhouse gas emissions. Total vehicle emissions accounted for 38% of the Carbon Dioxide emitted in NJ in 2007[xvi]. Diesel emissions contain 2,778 grams of carbon content per gallon of fuel burned- much higher than the 2,421 grams in gasoline emissions per gallon according to the EPA's fuel economy measurements.[xvii].

Reliance by NJ as by other states on petroleum-based fuels for essential fleet operations is increasingly risky. Nationwide, in 2008 the US relied on imported oil to meet 57% of its needs. A third comes from undependable sources: 21% from Saudi Arabia and other AOPEC countries, 7.1% Venezuela and 9.9% Nigeria. The US consumed 19,498,000 barrels of oil per day while only producing 4,950,000 barrels per day[xviii]. The bombing of a Middle Eastern pipeline or oil embargo could paralyze the US economy. But, short of such crises, the volatile price shifts of fuel, controlled by foreign suppliers, shake municipal budgets. NJ, with just 2.8% of the US population, had the 8th highest levels of expenditures for petroleum ($23 billion) in 2007[xix]. In addition, global competition for access to the world's most rapidly dwindling fossil fuel is growing, especially from China, India and other parts of industrializing Asia.

HEALTHIER AIR & ENERGY SECURITY: THE PROMISE OF SHIFTING BUS AND TRUCK FLEETS TO NATURAL GAS

Government officials, industry leaders and citizens in NJ increasingly recognize the multiple problems caused by the diesel vehicle sector. But what are the solutions?

Because of the strict 2007 and 2010 standards for particulate and nitrogen oxide emissions from heavy duty fleets set by the US EPA, new diesel trucks and buses are much cleaner than ever before. And older (legacy) diesel fleets can get funding through the NJ DEP for equipment reducing their emissions and may use biodiesel fuel, cutting down their petroleum use.

However, for municipalities wanting the healthiest air, freedom from foreign oil, and the best economic investment going forward, the best option is a shift to natural gas fuel.

More than 10 million natural gas vehicles travel the roads worldwide, but only about 130,000 are in the US. The move to natural gas trucks and buses began on the West Coast eight years ago and has spread steadily eastward to New York in 2007. New Jersey got on board in 2009 for many good reasons:

- ✓ Natural gas is a domestic secure fuel. 97% of the natural gas consumed in the US is from No. America. And our supplies are forecast to last 118 years [xx].
- ✓ It is the cleanest fuel available and is 80% hydrogen by atoms per molecule, so it tends to still burn "clean" as trucks age[xxi].

- ✓ Natural gas vehicles generate 20 to 30% fewer greenhouse gas emissions compared to diesel.
- ✓ Natural gas vehicles are fully commercial choices and operate both cleanly and quietly! More than 16,000 CNG trucks and buses travel US roads today[xxii].
- ✓ Natural gas vehicles are also the best investment. Federal tax incentives cover up to 80% of their higher costs plus up to 50% of the costs of new refueling stations. Incentives also make the fuel itself $1 to $1.50 cheaper per gallon than diesel, giving a CNG refuse truck $10,000 or more in annual fuel cost savings.
- ✓ Producing this domestic fuel, the vehicles that use it and the refueling stations and maintenance services for them creates new "green" jobs.

STEPS FORWARD FOR THE GARDEN STATE

Up to 2009, there was a small number of NJ Transit buses and utility vehicles plus two truck fleets used CNG, and there were just 23 CNG refueling stations - none publicly accessible.

Map of Natural Gas Filling Stations in NJ

In 2009, EarthTech Contracting purchased the first CNG refuse fleet for Ocean View, New Jersey[xxiii]. Then, Central Jersey Waste (CJW) won the contract for hauling Hamilton Township's waste, which required the use of natural gas refuse trucks. Clean Energy, a California-based company and largest provider of natural gas for transportation in the US, opened a station for CJW in the fall of 2009 (capable of fueling 30 trucks)[xxiv]. Following their lead, Newark, Camden, and Atlantic City have gotten in on the act, and have helped usher in the new age of natural gas for New Jersey

$14.9 million in stimulus funding by the Obama Administration jumpstarted fleet conversions and infrastructure expansion in the State[xxv]. Largely with these funds, leveraging $38.7 million from private sector investment, NJ will soon have 289 CNG trucks and buses on its roadways, and 5 new refueling stations. This will displace 1,891,900 gallons of diesel fuel per year.

289 CNG Refuse Trucks and Buses and 5 Refueling Stations, Supported Largely by Federal Stimulus Funds

Initiative	CNG Vehicles	Diesel Fuel Displaced/	New CNG stations
Hamilton Township, CJW	42 trucks	499,200 gals	1
Newark	25 trucks	130,000 gals	1
ACUA	15 trucks	137,700 gals	1
Atlantic City Jitney	190 buses	969,000 gals	1
Camden, Waste Management	17 trucks	156,000 gals	1
TOTAL	**289**	**1,891,900 gals**	**5**

SO WHAT'S NEXT FOR NEW JERSEY?

Much has been done to improve the air quality in New Jersey, but the opportunity to embrace natural gas for fleets in the State brings with it environmental, energy security, and economic gains for the State.

In addition, perhaps the greatest long-term benefit is the role that natural gas use plays as a stepping-stone toward use of another even better gas fuel, called "biomethane." Biomethane is, in fact, natural gas (CH4), but a form that is obtained not by drilling but by using the biogases that are generated wherever organic wastes are breaking down: in landfills or in sewage treatment plants, in dairy or agricultural operations.

Collecting and refining these gases turns our expensive garbage problem into a renewable fuel solution! Also, it is a carbon-free solution, since making biomethane captures more methane (a powerful greenhouse gas) than the vehicles using it create. Biomethane is being widely used in Europe already in vehicles, and as production in the US grows, fleets using traditional natural gas today can make a "seamless" transition to this first truly sustainable fuel[xxvi].

CNG storage bottles at the refueling station built and operated by Clean Energy for Central Jersey Waste's refuse trucks

How public leadership can help: The State's Diesel Retrofit Law of 2005 has ensured some progress in addressing diesel vehicle pollution by installing diesel particle filters on older

fleets. But the efforts to use end-of-the-pipe technology to meet the EPA's 2010 standards require new diesel trucks to use more sophisticated technologies that are proving much more complex and expensive[xxvii].

And while the State's new Global Warming Response Act recognizes the primary role that transportation plays in generating greenhouse gases (38%), it focuses mainly on automobiles, where electric vehicle and smart grid systems – important areas of innovation – will take years to work out. The Act gives very little emphasis to heavy-duty fleets, **where by far the greatest assured near term gains can be made**[xxviii].

One of the new CJW trucks serving Hamilton, NJ

The new Administration, however, has made the use of natural gas in fleets, for the first time, a significant priority. A leadership voice can mean a great deal in promoting change. New Jersey can now both take maximum advantage of the federal tax incentive programs aimed at encouraging municipalities and fleets to shift from diesel to natural gas fuel. These incentives cover 80% of the higher costs of buying natural gas models and also cover up to 50% of the cost of installing refueling stations for alternative fuels, including natural gas[xxix]. But it can do more.

New Jersey's Senator Robert Menendez has taken a leadership role in sponsoring new federal legislation, the "NAT GAS" act, extending and expanding these incentives. Senator Frank Lautenberg is behind it as well. The House version of the bill is co-sponsored by 5 of 13 New Jersey representatives[xxx].

Municipal leaders may, however, play the leading role. When their waste contracts come up for renewal, they can simply make the use of the cleanest fuel available a criterion for bidders as some communities are doing. Some solid waste companies, to better serve their customers and protect the health of their communities may make this shift voluntarily.

But every New Jerseyan can have an important voice. You may want to encourage maximum support by your legislators of NAT GAS. You can encourage state establishment of a grant program covering the 20% of higher costs for CNG trucks not covered by the national program, creating a true "level playing field" for this technology. You can distribute this fact sheet to your friends and colleagues and advocate for change in your community.

Proud sons of CJW Vice President Michael Fiumefreddo at the launching of its new CNG fleet

For municipalities and citizens to learn more about the environmental, health and economic benefits of a shift to natural gas fleets and how to explore a local initiative, sources of information include:

New Jersey Clean Cities Coalition
1 Bank Street, Suite 202, PO Box 223, Rockaway, NJ 07866
(973) 886-1655
Attn: Chuck Feinberg chuck.feinberg@gmail.com

Energy Vision
138th East 13th Street, New York, NY 10003
(212) 228-0225
Attn: Joanna Underwood underwood@energy-vision.org

New Jersey Department of Environmental Protection
P. O. Box 402, Trenton, NJ 08625-0402
www.stopthesoot.org
(609) 292-1122
Attn: Melinda Dower Melinda.dower@dep.state.nj.us

American Lung Association in New Jersey
1031 Route 22 West Suite 203, Bridgewater, NJ 08807
(908) 685-8040
Attn: Marianne Dalessio mdalessio@lunginfo.org

Natural Gas Vehicles for America
400 N. Capitol St. NW, Washington, DC 20001
(202) 824-7366
Attn: Richard Kolodziej Kolodziej@ngvamerica.org

This fact sheet was prepared by Energy Vision, a New York based national non-profit energy organization, in collaboration with the New Jersey Clean Cities Coalition. Research was conducted by EV intern Neal Day from Drew University.

[i] New Jersey QuickFacts from the US Census Bureau." State and County QuickFacts. Web. 24 Feb. 2010. http://quickfacts.census.gov/qfd/states/34000.html.

[ii] "Table MV-1 - Highway Statistics 2008 - FHWA." Federal Highway Administration: Home. Web. 05 Mar. 2010. http://www.fhwa.dot.gov/policyinformation/statistics/2008/mv1.cfm.

[iii] "NJDEP New Jersey Department of Environmental Protection." The Official Web Site for The State of New Jersey. Web. 31 Mar. 2010. http://www.nj.gov/dep/dsr/schoolbus/.

[iv] "NJ DEP - Diesel Idling Information on www.StopTheSoot.org." NJDEP - StoptheSoot.org. Web. 24 Feb. 2010. http://www.stopthesoot.org/dieselhealthconcerns.htm.

[v] "New Jersey." State of the Air: 2009 Report -- American Lung Association. Web. 24 Feb. 2010. http://www.stateoftheair.org/2009/states/new-jersey/.

[vi] Asthma Strategic Plan for New Jersey. Web. 02 Mar. 2010. http://www.state.nj.us/health/fhs/asthma/documents/asthma_strategic_plan2008-2013.pdf.

[vii] "Diesel and Asthma." Respiratory Health Association of Metropolitan Chicago. Web. 24 Feb. 2010. http://www.lungchicago.org/site/epage/31325_487.htm.

[viii] Asthma Strategic Plan for New Jersey. Web. 02 Mar. 2010. http://www.state.nj.us/health/fhs/asthma/documents/asthma_strategic_plan2008-2013.pdf.

[ix] "Trucker Heart Disease Study and Diesel Particulate Air Pollution." Green Jobs, Green Careers, and Green Business Solutions for Sustainable Communities. Web. 05 Mar. 2010. http://www.californiagreensolutions.com/cgi-bin/gt/tpl.h,content=1837.

[x] "Diesel truckers at cancer risk from exhaust - SFGate." Featured Articles from SFGate. Web. 24 Feb. 2010. http://articles.sfgate.com/2008-12-09/news/17131567_1_lung-cancer-diesel-exhaust-higher-lung.

[xi] "Inhaling Diesel Fumes." Medindia - Medical/Health Website. Web. 02 Mar. 2010. http://www.medindia.net/news/Inhaling-Diesel-Fumeschanges-Brain-Function--34033-2.htm.

[xii] "EPA: Clean Air Interstate Rule - New Jersey." U.S. Environmental Protection Agency. Web. 05 Mar. 2010. http://www.epa.gov/CAIR/nj.html.

[xiii] New Jersey QuickFacts from the US Census Bureau." State and County QuickFacts. Web. 24 Feb. 2010. http://quickfacts.census.gov/qfd/states/34000.html.

[xiv] "New Jersey." State of the Air: 2009 Report -- American Lung Association. Web. 24 Feb. 2010. http://www.stateoftheair.org/2009/states/new-jersey/.

[xv] Asthma Strategic Plan for New Jersey. Web. 02 Mar. 2010. http://www.state.nj.us/health/fhs/asthma/documents/asthma_strategic_plan2008-2013.pdf.

[xvi] www.nj.gov/dep/oce/awma-232010v3.pdf.

[xvii] "Emission Facts: Average Carbon Dioxide Emissions Resulting from Gasoline and Diesel Fuel | US EPA." U.S. Environmental Protection Agency. Web. 17 Mar. 2010. http://www.epa.gov/oms/climate/420f05001.htm.

[xviii] "Oil: Crude and Petroleum Products - Energy Explained, Your Guide To Understanding Energy." Web. 02 Mar. 2010. http://tonto.eia.doe.gov/energyexplained/index.cfm?page=oil_home#tab2.

[xix] "EIA - State Energy Data System." Energy Information Administration - EIA - Official Energy Statistics from the U.S. Government. Web. 26 Mar. 2010. http://www.eia.doe.gov/emeu/states/_seds.html.

[xx] NGVA. Web. 05 Mar. 2010. http://www.ngvc.org/incentives/09Stinulusfunding.html.

[xxi] NaturalGas.org. Web. 02 Mar. 2010. http://www.naturalgas.org/environment/naturalgas.asp#emission.

[xxii] NGVA. Web. 08 Mar. 2010. http://www.ngvc.org/.

[xxiii] "EarthTech introduces first environmental refuse fleet in New Jersey | Shore News Today." Shore News Today : NJ Shore Gazette and Current Newspapers. Web. 24 Feb. 2010. http://www.shorenewstoday.com/news.php?id=2412.

[xxiv] "Waste Hauler Goes Green with Natural Gas Fuel Center - NJ.com." New Jersey Local News, Breaking News, Sports & Weather - NJ.com. Web. 02 Mar. 2010. http://www.nj.com/news/times/regional/index.ssf?/base/news-18/1257921946247400.xml&coll=5.

[xxv] NGVA. Web. 05 Mar. 2010. http://www.ngvc.org/incentives/09Stinulusfunding.html.

[xxvi] "Alternative Fuels and Advanced Vehicles Data Center: What Is Biogas?" EERE: Alternative Fuels and Advanced Vehicles Data Center Program Home Page. Web. 30 Mar. 2010. http://www.afdc.energy.gov/afdc/fuels/emerging_biogas_what_is.html.

[xxvii] "NJDEP - StopTheSoot.org." NJDEP - StoptheSoot.org. Web. 02 Mar. 2010. http://www.stopthesoot.org/sts-facts.htm.

[xxviii] "NJ Global Warming | What is NJ doing about climate change." The Official Web Site for The State of New Jersey. Web. 24 Feb. 2010. http://www.state.nj.us/globalwarming/initiatives/.

[xxix] "Alternative Fuels and Advanced Vehicles Data Center: New Jersey Incentives and Laws for Natural Gas." EERE: Alternative Fuels and Advanced Vehicles Data Center Program Home Page. Web. 03 Mar. 2010. http://www.afdc.energy.gov/afdc/laws/laws/NJ/tech/3253.

[xxx] "H.R. 1835: New Alternative Transportation to Give Americans Solutions Act of 2009 (GovTrack.us)." GovTrack.us: Tracking the U.S. Congress. Web. 31 Mar. 2010. http://www.govtrack.us/congress/bill.xpd?bill=h111-1835.

MARCELLUS SHALE COALITION

NGV ROADMAP FOR PENNSYLVANIA JOBS, ENERGY SECURITY AND CLEAN AIR

NGV

April 2011

Prepared By:

GLADSTEIN, NEANDROSS & ASSOCIATES

Acknowledgements

The development of this report for the Marcellus Shale Coalition was performed under the leadership of the Marcellus Shale Coalition and several of its member companies, including:

Marcellus Shale Coalition
Kathryn Klaber, President and Executive Director
Steve Forde, Policy and Communications Director

Chesapeake Energy Corporation
Norman Herrera
Barbara Sexton

EQT Corporation
David Ross
Eduardo Sande
Kevin West

Range Resources
Dan Cotherman

UGI Utilities, Inc.
Barry Wentzel

This report was authored by Gladstein, Neandross & Associates, a professional environmental consulting firm with offices in Santa Monica, California and New York City. In addition to numerous contributions from staff, the primary authors of this report include:

Erik Neandross, Chief Executive Officer
Cliff Gladstein, President
Karen Mann, Senior Vice President
Sean Turner, Senior Vice President
Alycia Gilde, Vice President
Rebecca Schenker, Senior Associate
Ryan Erickson, Special Project Manager
Tan Grimes, Graphic Designer

Marcellus Shale Coalition
4000 Town Center Boulevard
Suite 310
Canonsburg, PA 15317
T: (724) 745-0100
www.marcelluscoalition.org
http://www.facebook.com/marcelluscoalition

Gladstein, Neandross & Associates
3015 Main Street, Suite 300
Santa Monica, CA 90495
257 Park Avenue South, 12th Floor
New York, NY 10010
T: (310) 314-1934
www.gladstein.org

About the Authors

Gladstein, Neandross & Associates (GNA) has extensive experience in the NGV industry and has assisted with the successful development and implementation of many of the nation's largest natural gas truck and refueling infrastructure projects in refuse, municipal, local pick-up and delivery, regional trucking, port drayage, yard hostler, and long-haul trucking applications. GNA is widely recognized for its leading role in the development of planned regional corridors of natural gas infrastructure. The Interstate Clean Transportation Corridor (ICTC) was conceived by GNA in 1996. Since that time, GNA has led the implementation of this successful corridor, which spans the major highways of California, Nevada and Utah. Similarly, GNA recently began the implementation of the Texas Clean Transportation Triangle (TCTT), a new clean-fuel corridor effort to connect the Dallas/Fort Worth, Houston, and San Antonio metropolitan regions.

Table of Contents

List of Figures, Maps and Photos

List of Tables

Appendices

This page intentionally left blank

This page intentionally left blank

Executive Summary

The natural gas in the Marcellus Shale represents one of the largest energy reserves in the world**.** This clean-burning resource provides a unique opportunity for the transportation sector to move toward a lower-cost, lower-emission and domestic energy resource to meet our transportation needs in an economically and environmentally responsible manner. The Marcellus Shale Coalition (MSC) was organized by Industry leaders to promote the responsible development of natural gas, and to share best practices while working with, policymakers, business leaders and community partners to promote this use of locally produced natural gas as a transportation fuel. This *NGV Roadmap for Pennsylvania Jobs, Energy Security and Clean Air* report provides a roadmap for how such a transition can begin to take place.

Recommendations and Next Steps

Effective implementation of this roadmap will require leadership at the state and local level in developing key policies, partnerships, incentive programs and messages to support the proposed Pennsylvania Clean Transportation Corridor *(*PCTC) program. Given the extremely important direct and indirect benefits that Pennsylvania will derive as a result of the successful development of the PCTC, it is recommended that Pennsylvania adopt a number of policies to support its implementation.

Policy recommendations include:

- Recognize and highlight existing Pennsylvania Natural Gas Vehicle (NGV) success stories;
- Adopt aggressive policy positions which promote NGVs as an economic stimulus for Pennsylvania;
- Modify existing and develop new in-state incentive programs focused on high-fuel use fleet applications and infrastructure development, and encourage the federal government to do the same;
- Allow bi-fuel NGVs certified by the U.S. Environmental Protection Agency to be sold in Pennsylvania as a critical refueling infrastructure and overall market-development strategy;
- Develop strategic partnerships that support effective long-term growth of the regional NGV market via effective outreach, education, programs, policies and strategic coordination.

Overview

In the transportation sector, natural gas offers the single best opportunity to achieve immediate gains in energy security and reductions in bottom-line fuel expenses while also realizing significant reductions in criteria pollutant and greenhouse gas emissions. In Pennsylvania, expanding the natural gas transportation sector offers the added benefit of increasing the economic and employment potential associated with the Commonwealth's most prolific clean burning energy resource – natural gas from the Marcellus Shale.

A transition to natural gas transportation is both technologically feasible and economically viable. The use of natural gas as a vehicle fuel has experienced a consistent 10-12 percent growth rate in each of the last five years[1]. This is due in large part to the fact that natural gas vehicles offer a proven alternative fuel technology that delivers significant economic, energy security and environmental benefits.

Today's vehicle market – factory built or after-market retrofit/conversion – offers a natural gas vehicle (NGV) option for nearly every transportation application, from compact passenger vehicles such as the Honda Civic to heavy-duty trucks used to haul freight between major metropolitan areas[2]. Not only are NGV technologies readily available, but they offer immediate cost benefits, particularly in fuel-hungry, heavy-duty applications where operators report consistent fuel cost savings over diesel of 30-40 percent.

Because of domestic natural gas from the Marcellus Shale and other gas shale regions throughout North America, fleet operators are increasingly recognizing that natural gas is an abundant, stable and low-cost fuel option for their operations. Pennsylvania is well-positioned to benefit from NGV market growth and can assume a leadership role in the transition to a cleaner energy economy. These initial efforts will build a critical foundation, upon which a regional and multi-state NGV development strategy can be based.

The Growing Natural Gas Vehicle Market

- NGVs offer the single best opportunity to achieve immediate gains in energy security.
- The use of natural gas as a transportation fuel has been growing at a rate of 10-12 percent since 2006.
- Fleet operators report consistent fuel cost savings of 30-40 percent in their NGV operations compared to traditional fuel sources.
- Heavy-duty fleet operations such as refuse collection, transit, local trucking, municipal and utility, and other markets provide the best opportunities for NGV deployments.

[1] Stephen Yborra, Director of Market Analysis, Education & Communications, Clean Vehicle Education Foundation; Natural Gas Vehicle Market Development Opportunities in Canada: Navigating a Course for Success Lessons Learned/Observations from the US Market; Encana NGV Summit; February 16, 2011.

[2] Please see Appendix B for a comprehensive summary of the multitude of NGV product available in the market for each sector is also included in Appendix B to this roadmap report.

The roadmap uses both short- and long-term goals to provide an economically sustainable plan for long-term NGV market development. The short-term goal when selecting natural gas refueling sites is to support fleet targets whose operations can support cost-effective natural gas operations. These priority targets are likely to be heavy-duty fleets that use high volumes of fuel, that return to a centralized location each day, and that are generally located in urban centers. These fleets – such as those in the refuse, transit, regional goods movement, and other high-fuel-use applications – use enough fuel to quickly see a return on their investment in a refueling station.

This planned refueling infrastructure network will be largely based upon the urban, heavy-duty fleet operations in some of the larger metropolitan parts of Pennsylvania. While the exact location of each fueling station is, in many cases, to be determined, this network will connect Philadelphia, Pittsburgh, Harrisburg, Scranton/Wilkes-Barre, Allentown and neighboring states via key truck corridors such as I-76, I-80 and I-81.

The Pennsylvania Clean Transportation Corridor is a strategically planned network of natural gas refueling infrastructure connecting:

- Philadelphia
- Scranton / Wilkes-Barre
- Allentown
- Harrisburg
- Pittsburgh

This corridor will serve as the cornerstone of a larger regional clean fueling network throughout the northeastern United States.

The long-term goal when selecting natural gas refueling sites is to develop a public-access infrastructure corridor that can support NGVs in higher-fuel-consuming regional, intrastate and interstate trucking applications that originate in and pass through Pennsylvania. Therefore, fleet targets along key identified highway routes should be prioritized.

This strategically planned natural gas refueling infrastructure will serve as the foundation for the Pennsylvania Clean Transportation Corridor (PCTC), a fueling network that can then form the cornerstone of larger regional shift to natural gas truck operations in the Northeast United States. This large-scale shift to natural gas operations will rely on lower-cost, lower-emission and locally-produced natural gas.

This report provides a full outline for the PCTC development roadmap and the plan to connect the metropolitan regions of Philadelphia, Harrisburg, Pittsburgh, and Scranton via an economically sustainable natural-gas infrastructure network. The stations will be structured to facilitate the subsequent introduction of additional light-, medium- and heavy-duty natural gas vehicles from both the public and private sectors.

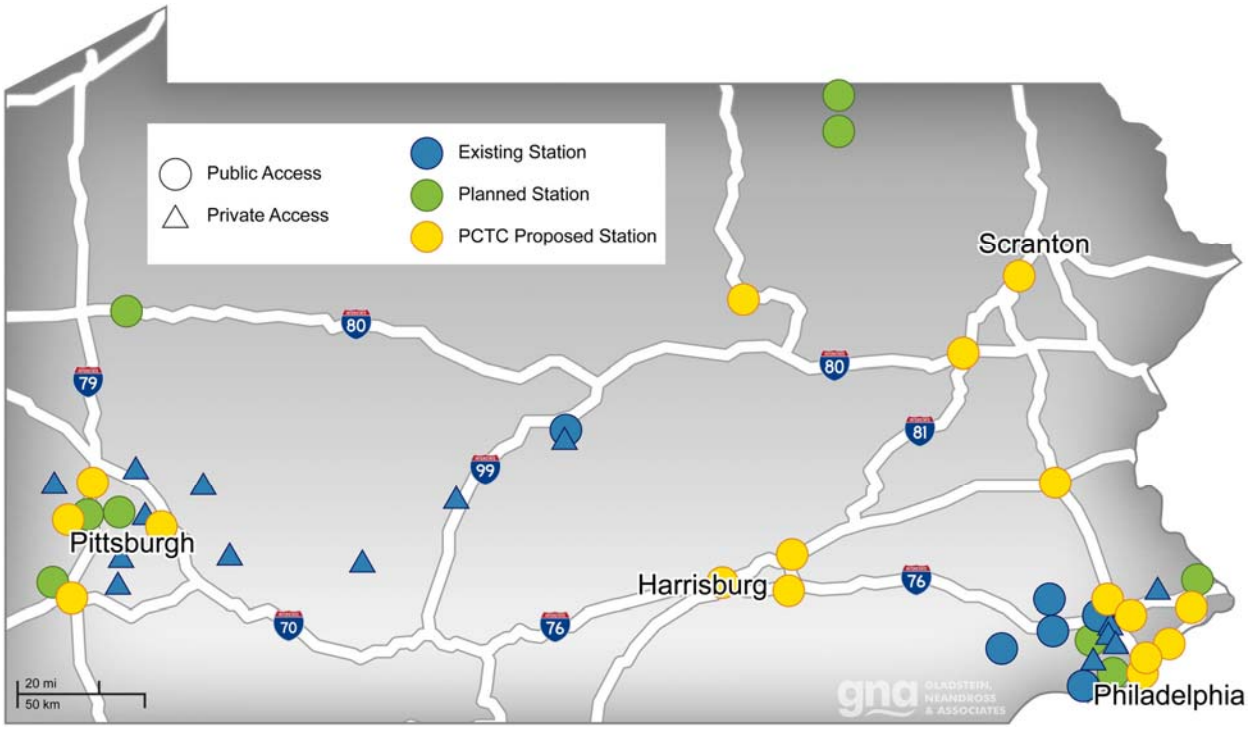


Figure 1: Map of the Existing and Proposed Natural Gas Refueling Network within the PCTC

This PCTC roadmap identifies a Foundation Case and a Developed Case development plan. Under the Foundation Case, the PCTC will develop eight new, strategically located and publicly accessible natural gas refueling stations along the identified route, and that will support the deployment of 400 heavy-duty natural gas vehicles (NGVs). Under the Aggressive Case, up to 17 new refueling stations will be established and 850 heavy-duty NGVs deployed. Both cases will provide the foundation to support further NGV deployments, both within the state and beyond its borders, thereby growing the market for natural gas vehicle fuel, supporting key economic sectors in the state, and providing significant environmental and public health improvements via transportation-related emission reductions.

The estimated total project investment is between $98 million and $208 million for the Foundation and Developed Case scenarios, respectively. These estimates include the total cost of all NGVs deployed under each scenario, the capital costs of the refueling infrastructure, the capital costs for maintenance facility upgrades that will allow for the indoor storage and repair of NGVs, and expenses related to personnel training and project management.

Table 1: Pennsylvania Clean Transportation Corridor Project Summary

	FOUNDATION CASE	DEVELOPED CASE
Total Stations	**8**	**17**
Total Trucks	**400**	**850**
Total Project Investment (in millions)	**$98**	**$208**

Benefits

The implementation of the PCTC will have significant economic benefits across multiple sectors of the Pennsylvania economy, including: business owners, transportation and logistics providers, the construction industry, Pennsylvania's manufacturing base, and the natural gas production and distribution industries. Under the Developed Case, the PCTC will result in a total investment in Pennsylvania's economy of up to $208 million, and will have a direct impact on more than 1,350 jobs in Pennsylvania. In addition to the jobs directly tied to the PCTC project, this project will act as a market driver for the NGV industry in the Commonwealth and broader region. Since Pennsylvania is one of the nations' leading hubs for companies involved in the NGV vehicle, engine, fuel and fuel station value chain, the state is well-poised to benefit from both the direct and indirect job impacts and tax revenue benefits of the PCTC initiative.

The PCTC, under the Developed Case, will also displace 9.2 million gallons of diesel fuel with 1.4 billion cubic feet (BCF) of Pennsylvania-produced, lower carbon, and lower cost natural gas each year. Due to the significantly lower cost of natural gas compared to traditional petroleum fuels (gasoline and diesel), the PCTC will save Pennsylvania fleet operators an astounding $9.2 million in fuel costs annually, savings that can then be reinvested in their business, personnel hiring, and the overall Pennsylvania economy.

In addition to the important job and economic benefits to be provided by the PCTC, the Developed Case will result in the annual reduction of 720 tons of nitrogen oxide (NOx) emissions, nearly 14.5 tons of diesel particulate matter (PM) emissions, and 21,000 metric tons of greenhouse gas (GHG) emissions. Because Pennsylvania already faces a number of air quality challenges, the environmental benefits of the PCTC are of particular significance, especially in the urban centers.

The Pennsylvania Clean Transportation Corridor will:

- Result in more than $200 million in investment in Pennsylvania's economy.
- Have a direct impact on more than 1,350 jobs in Pennsylvania.
- Save Pennsylvania fleet operators nearly $10 million in fuel costs annually.
- Yield more than $60 million in tax revenue for the Commonwealth of Pennsylvania.
- Reduce emissions of diesel soot, ozone-causing pollution and greenhouse gas emissions.

Table 2: Benefit Summary of the Pennsylvania Clean Transportation Corridor

Case	Foundation	Developed
Total Stations	8	17
Total Trucks	400	850
Diesel Fuel Displaced (millions of gallons over 10 years)	43	92
Natural Gas Fuel Demand (BCF annually)	0.6	13.5
Annual NOx Emission Reductions (tons)	340	720
Annual PM Emission Reductions (tons)	6.8	14.5
Annual GHG Emission Reductions (metric tons)	9,900	21,000
Total Fuel Cost Savings (10 year project in millions)	$43	$92
Total Project Investment in Pennsylvania (millions)	$98	$208
Incremental Project Investment (millions)	$58	$123
Advanced Clean Fuel Technology Jobs	639	1,359

Detailed Recommendations and Next Steps

The PCTC is a viable plan that provides an economically sustainable pathway for long-term NGV market development in the Northeast and with linkages to developing Canadian NGV freight corridors. The successful development and implementation of the PCTC project is entirely feasible in the near term. All major fleet transportation applications can now be met with NGV models, and adoption of NGV technology is reaching a brisk pace. The growing fuel cost disparity between natural gas and diesel fuel will only continue to drive interest and investment in NGV technology and refueling infrastructure.

Effective implementation of the roadmap will require state leadership in developing key policies and partnerships to support the proposed PCTC program. Given the extremely important direct and indirect benefits that will accrue in the Commonwealth as a result of the successful development of the PCTC, it is recommended that Pennsylvania adopt a number of strategic and aggressive policy measures to support its implementation. Policies should include:

- Recognize and highlight existing Pennsylvania NGV success stories;
- Adopt aggressive policy positions which promote NGVs as an economic stimulus for Pennsylvania;
- Modify existing and develop new in-state incentive programs focused on high-fuel use fleet applications and infrastructure development and encourage the federal government to do the same;
- Allow bi-fuel NGVs certified by the U.S. Environmental Protection Agency to be sold in Pennsylvania as a critical refueling infrastructure and overall market development strategy;

- Develop strategic partnerships that support effective long-term growth of the regional NGV market via effective outreach, education, programs, policies, and strategic coordination;

Strong leadership, existing market momentum, and the realization and recognition of some early Pennsylvania NGV success stories will help to drive interest and enthusiasm in the development of the PCTC project. With continued aggressive action and focus, and under "business as usual" conditions, the PCTC concept can be fully implemented within a five (5) year time frame. However, under the right set of circumstances, the concept could certainly be implemented using a more aggressive 18 to 36 month schedule.

The development of the PCTC will rightly put Pennsylvania at the leading edge of our nation's effort to address energy security, rising fuel prices, economic recovery and job creation. It will also make Pennsylvania the hub of a clean energy corridor in the Northeast Framing the PCTC in the broader context of a national and international fuel infrastructure will be critical to successfully illustrating the big-picture objectives of this initial highly focused effort.

Incremental Wins

While the overall size and scope of the PCTC project is quite large and will require tens of millions of dollars in investment, like any large visionary plan, the ability to demonstrate early success will significantly aid in the realization of the big-picture goals. Given the current NGV momentum in Pennsylvania, there is overlap in these existing efforts and the vision of the PCTC. Where such overlap exists, stakeholders must seek to highlight the importance of these NGV projects as they relate to the overall goals of the PCTC. Such a strategy can be particularly effective where the implementation of the PCTC concept is not only already happening, but is being funded by Pennsylvania's Alternative Fuel Incentive Grant (AFIG) program.

The development of a micro-corridor in the Pittsburgh region – where Waste Management, Giant Eagle and Equitable Gas are currently deploying a natural gas vehicle refueling infrastructure with the assistance of AFIG funding – is an example of where such synergies already exist. These fleets are quintessential return-to-base operations that will help lay the foundation for the PCTC. These companies are using AFIG funding to deploy NGVs in their Pittsburgh area fleets and to construct refueling infrastructure that will service their own operations as well as provide fueling access to outside users. Waste Management's public access CNG refueling station will be located almost immediately adjacent to I-70 and I-79 intersection, two critical interstate highways. Giant Eagle's public access CNG refueling station will be located just west of downtown Pittsburgh near the intersection of state highway 22 and I-79 and the Equitable Gas station will be located just east of downtown Pittsburgh. With these projects already in the development phase, this planned fueling infrastructure and subsequent vehicle deployments are expected to take place in 2011, thus providing an excellent opportunity for this project to demonstrate critical near-term wins.

Aggressive Policy Positioning

Through aggressive positioning on important policy issues, the Commonwealth of Pennsylvania will be able to pursue measures that will drive the development of the NGV market in the Northeast. Such action, which can often be taken at minimal or no cost to the state, will result in important long-term economic benefits for Pennsylvania's economy.

Clear Policy Direction on NGVs as a Local Economic Stimulus

Given the direct benefits that will take hold in the Commonwealth as a result of the successful development of the PCTC, it is recommended that Pennsylvania adopt a policy platform that

promotes the use of natural gas transportation wherever and whenever possible. This will make it clear to government agencies that the replacement of their respective fleets with NGVs is a priority, and that broad promotion of these kinds of activities needs to be encouraged throughout all levels of government. This can be done via an Executive Order from the Governor or a resolution adopted by the General Assembly. A formal policy will provide clear direction that the replacement of fleet vehicles with NGVs is a priority, and it will provide the direction needed for these public agencies to take the steps necessary to foster the use of NGVs across agencies and the overall transportation infrastructure strategy of the Commonwealth – which will encourage private fleet operations to follow suit.

Pennsylvania should make it the explicit policy of the state government to promote the use of natural gas vehicles whenever and wherever possible.

Such direction will then stimulate the development of additional policies, incentives, rules, regulations, and other drivers that will increase the use of NGVs throughout Pennsylvania. Such drivers could include, but are not limited to: incentives to procure NGVs; programs to educate the public about the benefits of NGVs; access to high occupancy vehicle lanes for single occupant NGV drivers; NGV procurement directives for public sector vehicles; the establishment of a select committee on NGV use in the public transportation sector; tax exemptions for NGV fuel; encouragement of Pennsylvania's regulated utilities to more aggressively participate in the NGV market; and the issuance of an NGV project development bonds.

NGV Focused Incentives

Pennsylvania should further focus and augment its own existing alternative-fuel funding programs, and encourage similar federal incentive programs, aimed at accelerating the transition to natural gas vehicles, especially in high fuel consuming applications and in applications that operate in the urban center. Programs should also seek to develop public-access natural gas refueling infrastructure to support the further proliferation of the NGV market.

To fund this plan, $58 million to $123 million would be needed to offset the required Incremental Project Investment[3] for the PCTC relative to the diesel status quo. Given that there is often cost-share and incremental costs associated with such projects, it is feasible that the PCTC project could be implemented with a lower level of incentive funds; perhaps in the $25 million to $54 million range[4]. These incentives provide strategic investment in the continued growth of the Pennsylvania job market and economy, and the most effective strategy available by which Pennsylvania and the nation can more effectively enhance energy security with domestically produced clean natural gas.

[3] The Incremental Project Investment costs include: the full $2.6 million cost of each fueling station; the $65,000 incremental cost of each natural gas truck, a $400,000 allocation for the retrofit of each truck maintenance garage, a small 5% allocation for personnel training and project management considerations, and an overall 10% project contingency.

[4] This lower level assumes a 50% cost-share by others (fuel providers, the fleet owner, etc.) in the fueling infrastructure, vehicle incremental cost and maintenance garage retrofit costs.

The development of new NGV-focused incentive programs should have a particular focus on high-fuel-use applications that operate in the urban core where critical infrastructure is needed to build the PCTC. The recent funding allocation of the AFIG program clearly demonstrates an increased demand of NGVs in the Pennsylvania marketplace. Through dedicated NGV incentive programs, Pennsylvania can continue to support those investments that will ultimately yield the greatest amount of economic benefits.

In addition to Pennsylvania-funded efforts, the Commonwealth should also work to use its political power to encourage incentives at the federal levels. The federal tax credits for natural gas vehicles, refueling infrastructure and fuel use that have been in place since 2006 have been particularly important in successfully moving the heavy-duty market towards NGV investments. Similar federal incentives are expected to be proposed in April 2011 and it is recommended that Pennsylvania support proposed federal incentive that will have similar impacts to the tax credit programs that have been in place for the last five years.

In developing a natural gas transportation infrastructure, certainty and clarity in the policy arena is critically important to the long-term success of the PCTC. Programs that only authorize funding for a single year, or that might fund NGVs one year and electric vehicles the next, will only create trepidation and hesitation in moving the market toward natural gas. Large, heavy-duty fleets in particular will often only start down a transition path if they know they will be able to complete the transition, and the process can often take between five and 10 years for a complete fleet turnover. Therefore, unless there is an assurance that funding will be available in future years, a heavy-duty fleet may be extremely hesitant to replace even its first truck with a natural gas vehicle. It is for this reason that Pennsylvania must place a premium on developing and encouraging the federal government to approve dedicated NGV funding programs with a minimum duration of five years.

AFIG Weight Limit

The AFIG grant program guidelines currently contain conflicting information about the allowable vehicle weight limit that can be funded under the program. The guidelines say that the program will only fund heavy-duty vehicles up to 26,000 pounds gross vehicle weight rating (GVWR), but also state that the program will fund transit buses and refuse trucks, which generally weigh more than 26,000 pounds per vehicle. In conversations with the DEP AFIG staff, they made it clear that the program does in fact fund vehicles above 26,000 pounds and that they do not know how the weight restriction language ever entered the program guidelines. The DEP staff also expressed that the weight restriction language needs to be removed from future program guidelines. It is therefore recommended that PCTC Stakeholders work with DEP staff to update this vestige of the AFIG program.

Allowance of U.S. EPA Certified Bi-Fuel NGVs

Pennsylvania can significantly accelerate deployment of NGVs – and thus the need for refueling infrastructure and locally-produced natural gas fuel – by modifying the Pennsylvania Clean Vehicle Program requirement to allow for NGVs certified by the U.S. Environmental Protection Agency (EPA). The modification of this program requirement will significantly increase the market penetration of lower-emission natural gas vehicles, thus further driving the development of accessible refueling infrastructure throughout the Commonwealth. Once established, this fueling infrastructure will further encourage the deployment of NGVs throughout all sectors of the Pennsylvania transportation economy.

A major obstacle for the increased proliferation of natural gas light-duty cars and trucks within the Commonwealth is Pennsylvania's Clean Vehicles program that went into effect for model year (MY) 2008 and newer passenger cars and light-duty trucks. This program officially adopted

certain provisions of the California Low Emission Vehicle Program. Vehicles are considered subject to this program if they are MY 2008 or newer, under a gross vehicle weight rating of 8,500 lbs., and have less than 7,500 miles on the odometer. Vehicles subject to this program are required to be certified for emissions by the California Air Resource Board (CARB) in order to be sold, leased, offered for sale or lease, imported, delivered, purchased, rented, acquired, received, titled or registered in Pennsylvania.

Unfortunately, the provisions of the Clean Vehicles program also require that alternative fuel conversion systems (e.g., CNG) for MY 2008 and later passenger cars and trucks must also have received a "Retrofit Conversion Certification" under the "California Certification and Installation Procedures for Alternative Fuel Retrofit Systems for Motor Vehicles Certified for 1994 and Subsequent Model Years." EPA-approved alternative fuel conversion systems may only be used on MY 2007 or older vehicles. These alternative fuel restrictions under Pennsylvania's Clean Vehicles program make it much more difficult and expensive to use CNG in these passenger cars and light-duty trucks for two specific reasons.

Pennsylvania can accelerate the development of a comprehensive natural gas refueling station network - and thus the use of locally-produced clean natural gas fuel – by allowing bi-fuels natural gas vehicles certified by the U.S. Environmental Protection Agency.

Because there are very few original engine manufacturers (OEM) light-duty NGVs available, most CNG passenger cars and light-duty trucks tend to be conversions from gasoline. The CARB retrofit certification requirements are much more difficult to comply with than the EPA conversion certification requirements for the rest of the U.S. CARB certification requires more extensive initial durability testing, more extensive onboard diagnostic systems, and ongoing recertification costs annually. Because of this, there are significantly fewer conversion systems available with CARB certification, and the prices of those systems are higher than their EPA-certified counterparts. Right now there are only a limited number of CARB-certified conversion systems for late-model vehicles, and they can be as high as $5,000 to $10,000 more expensive than EPA-certified conversions for the same vehicles. Of course, it is extremely important to point out that there are absolutely no emission level differences between the two certifications.

California's retrofit certification process requires manufacturers to essentially certify the converted vehicle as a new product. This means that if the manufacturer wants to certify a bi-fuel conversion system – one that can run on CNG or on the original gasoline fuel system – the manufacturer has to certify it as a new CNG vehicle, as well as re-certify the original gasoline vehicle, which is prohibitively expensive and time consuming. As a result, no CARB-certified bi-fuel conversion systems currently exist in the marketplace. This means that in a fledgling CNG market like Pennsylvania, where infrastructure is limited, potential users will not be able to purchase bi-fuel conversion systems that would allow them to use gasoline part of the time until the CNG infrastructure catches up.

While passenger cars and light-duty trucks are not the primary target for natural gas transportation programs, they nevertheless remain part of the mix of vehicles that consumers and fleets would like to be able to run using CNG. For example, taxicabs and light-duty trucks

can be high-volume fuel users in the right duty cycles, and thus contribute to the growth of natural gas refueling infrastructure and the market overall. The PCTC has identified several markets such as the natural gas industry, airports and utilities that could greatly benefit from expanded light-duty NGV purchase options. However, the CARB retrofit certification requirements present a significant barrier for those applications, and thus inhibit the expedited growth of supporting refueling infrastructure throughout the market.

Allowing bi-fuel NGVs certified by the U.S. Environmental Protection Agency will:

- Increase the number of light and medium-duty NGVs available to Pennsylvania drivers by more than two times, from 15 to 36 models.
- Reduce the cost of a light or medium-duty NGV by as much as $10,000.
- Significantly increase the adoption of NGVs in the Pennsylvania marketplace.
- Provide the demand to allow for increased investment in natural gas refueling infrastructure throughout the state.
- Increase the use of domestically-produced, low-cost and clean burning natural gas.

Given that the base objective of EPA, CARB and other air-quality and energy-focused public agencies is to promote markets for the accelerated use of clean transportation options that use domestic, low-cost and reliable fuel sources, it is strongly recommended that the Commonwealth of Pennsylvania reconsider its mandate to abide by the CARB requirements, and instead work to accelerate the allowance of NGVs that are EPA approved. The EPA is a recognized air-quality regulatory agency, and its protocols and certifications are equally protective of the environment.

The allowance of EPA-certified NGVs, including bi-fuel vehicles, will significantly increase the market penetration of the technology, which will in turn stimulate the growth of a more comprehensive NGV refueling network. The existence of a more robust NGV refueling network will further drive the development of the market, and enhance the economic benefits that will be felt throughout Pennsylvania.

LNG Fuel Restrictions

One of the goals of the PCTC is to encourage the use of heavy-duty vehicles in the movement of goods throughout Pennsylvania. This is most likely to be conducted by natural-gas trucks fueled by LNG given the weight and range advantages of LNG when used on heavy-duty trucks, as well as the fact that the only trucks now available in the market to make these long hauls over mountain terrain are the ones powered by the LNG-only ISX engine. Unfortunately, there are restrictions on the use and transportation of LNG in the state of New York, thus limiting the ability of the PCTC to serve trucks that either originate or terminate in this location, and creating another obstacle to the success of the PCTC concept. As part of the recommended outreach to neighboring states, it is recommended that the PCTC stakeholders approach the state of New York on this specific issue and work to remove this market restriction in advance of a more aggressive marketing push for a NY-version of the PCTC (i.e. the “NYCTC”).

Partnerships

As Pennsylvania works to implement the stated goals of the PCTC, it is recommended that key strategic partnerships be developed with a range of organizations with similar goals. Pennsylvania officials, public agencies, and private-sector representatives should begin to work with the states that border Pennsylvania in order to encourage the replication of the PCTC project plan. The replication of the PCTC concept in neighboring states will allow for the development of similar accessible natural gas refueling infrastructure, and will thus allow for the replacement of the nation's highest diesel fuel consuming fleet vehicles – over-the-road, Class-8 tractor trailers – with ones that run on Marcellus-produced low-carbon and low-cost natural gas.

There are a number of groups in Pennsylvania – including two Clean Cities Coalitions, the Clean Air Council, and the Philadelphia Diesel Difference Working Group – that are promoting cleaner air, more efficient freight movement, the creation of sustainable jobs, and other positive social objectives. Other potential partners include elements of the supply chain and transportation-logistics industry, such as warehouse and distribution centers, that would like to promote activities that reduce the environmental footprint of their operations. Such partners will include entities that operate in states that neighbor Pennsylvania.

Marcellus Shale Coalition - NGV Committee

It is recommended that the Marcellus Shale Coalition develop an NGV committee in order to continue to implement the PCTC as laid out in this report, as well as to support the development of a vibrant NGV market in Pennsylvania. This subcommittee can play an important outreach and education role within the state about the multiple benefits of NGVs. It is recommended that this include a wide range of interested stakeholders and partners, including NGV industry participants, fleet operators, and others interested in advancing the use of NGVs in our transportation sector as an effective energy-security and air-quality improvement strategy.

Clean Cities Coalitions (Pittsburgh and Philadelphia)

In 1993, the U.S. Department of Energy (DOE) launched its Clean Cities Program to assist the nation with displacing petroleum used in the transportation sector. Since its inception, the number of Clean Cities coalitions has grown to nearly 100, and the number of stakeholders has expanded to more than 8,400. Clean Cities coalitions and stakeholders have displaced petroleum at a rate of nearly 3 billion gallons annually, and are on track to displace 2.5 billion gallons of petroleum annually by 2020. Pennsylvania currently has two very successful Clean Cities Coalitions – in Pittsburgh and Philadelphia – which have assisted the Commonwealth with the deployment of hundreds of alternative-fuel vehicles.

The Pittsburgh Region Clean Cities (PRCC) is a nonprofit membership organization whose main objective is to build and support the infrastructure needed for a strong alternative-fuel and alternative-vehicle market in Western Pennsylvania. The PRCC has over 60 active members, including the Allegheny County Airport Authority, Giant Eagle, Federal Express, the Pennsylvania Department of Environmental Protection, and the Pennsylvania Turnpike Commission. The PRCC has the experience and tools in place to help fleets interested in converting to NGV explore the most cost-efficient ways of making the transition. This experience will be invaluable as the PCTC seeks out potential fleet partners who have yet to make the conversion to NGV.

In the coming years, the PRCC will focus its efforts more specifically on CNG as one of Pennsylvania's choices for clean transportation fuel. The PRCC understands the unique opportunity presented by the natural gas resources of the Marcellus Shale and believes the PCTC will help expand the state's NGV network. PRCC will therefore be a strong alley to the

MSC in the development of the PCTC, and the development of a closer working relationship is recommended.

Formed in 1993, the Greater Philadelphia Clean Cities Program (GPCCP) is a 501(c) 3 nonprofit organization comprised of some of the largest governments, utilities, and nonprofit metro-Philadelphia organizations working to promote the use of alternative-fuel vehicles. As one of the founding Clean Cities Coalitions in the United States, the GPCCP has the reputation, knowledge, and track record to successfully implement alternative-fuel infrastructure and vehicle programs. Since a number of GPCCP members have already successfully converted a significant portion of their fleets to natural gas, the GPCCP can be a great resource for stakeholders wishing to accelerate the development of the PCTC in the Philadelphia region.

Clean Air Council

The Clean Air Council is a member-supported, nonprofit environmental organization based in Philadelphia that works to ensure enforcement of environmental laws through public education, community advocacy and government oversight. Its focus includes transportation, children's environmental health, energy, climate change, waste and recycling. The Clean Air Council works to reduce pollution, and advocates for full implementation of the Clean Air Act, along with related Pennsylvania and local laws, to improve air quality.

The Clean Air Council develops diverse partnerships to pursue clean-fleet programs that include the use of innovative strategies and alternative fuels and market-based approaches – making the Council's support of the PCTC a natural fit. Stakeholders of the organization include community leaders, policy makers, and progressive business leaders.

Most of the organization's efforts focus on diesel emission reductions from return-to-base fleets, such as public transit, school buses and refuse collection, as well as local drayage truck operations at ports. Given the Philadelphia region's non-attainment status for ground level ozone (smog) and fine particulate matter ($PM_{2.5}$) emitted from diesel engines, the Clean Air Council can be a strong alley in the implementation of the PCTC.

Philadelphia Diesel Difference Working Group

The Philadelphia Diesel Difference Working Group's goal is to initiate the development of voluntary programs and innovative strategies, including market-based approaches, in order to help build a coalition of diverse partners throughout the Philadelphia area with a mutual interest in reducing air pollution from diesel engines.

The Philadelphia Diesel Difference Working Group is an ideal strategic partner for implementing the PCTC in Pennsylvania, especially given its eight-plus years of experience in community engagement and endorsements from local, statewide and national organizations such as the American Lung Association of Pennsylvania, the Clean Air Council, Cummins Power Systems, the EPA, and the City of Philadelphia's Office of Fleet Management.

The Philadelphia Diesel Difference Working Group has had many successes in helping to implement strategies to reduce diesel emissions. By partnering with the Philadelphia Diesel Difference, the PCTC would gain valuable access and visibility within the Commonwealth, and with other private organizations interested in reducing diesel emissions. These types of partnerships are essential for leveraging funding assistance from state and federal agencies. Additionally, the reach of the Diesel Difference Working Group is growing as both New Jersey and Delaware have taken the initial steps of organizing their own Diesel Difference Working Groups.

Neighboring States: PCTC as a Foundation for Goods Movement in the Northeast

As Pennsylvania works to implement the Foundation and Developed Case scenarios, it is recommended that key stakeholders reach out to neighboring states to encourage them to replicate the PCTC development roadmap in their own states. As the PCTC concept is implemented and similar efforts are successfully developed in neighboring states, a comprehensive, regional natural gas refueling corridor will begin to emerge that will connect major metropolitan regions in the Northeast and eventually the Midwest.

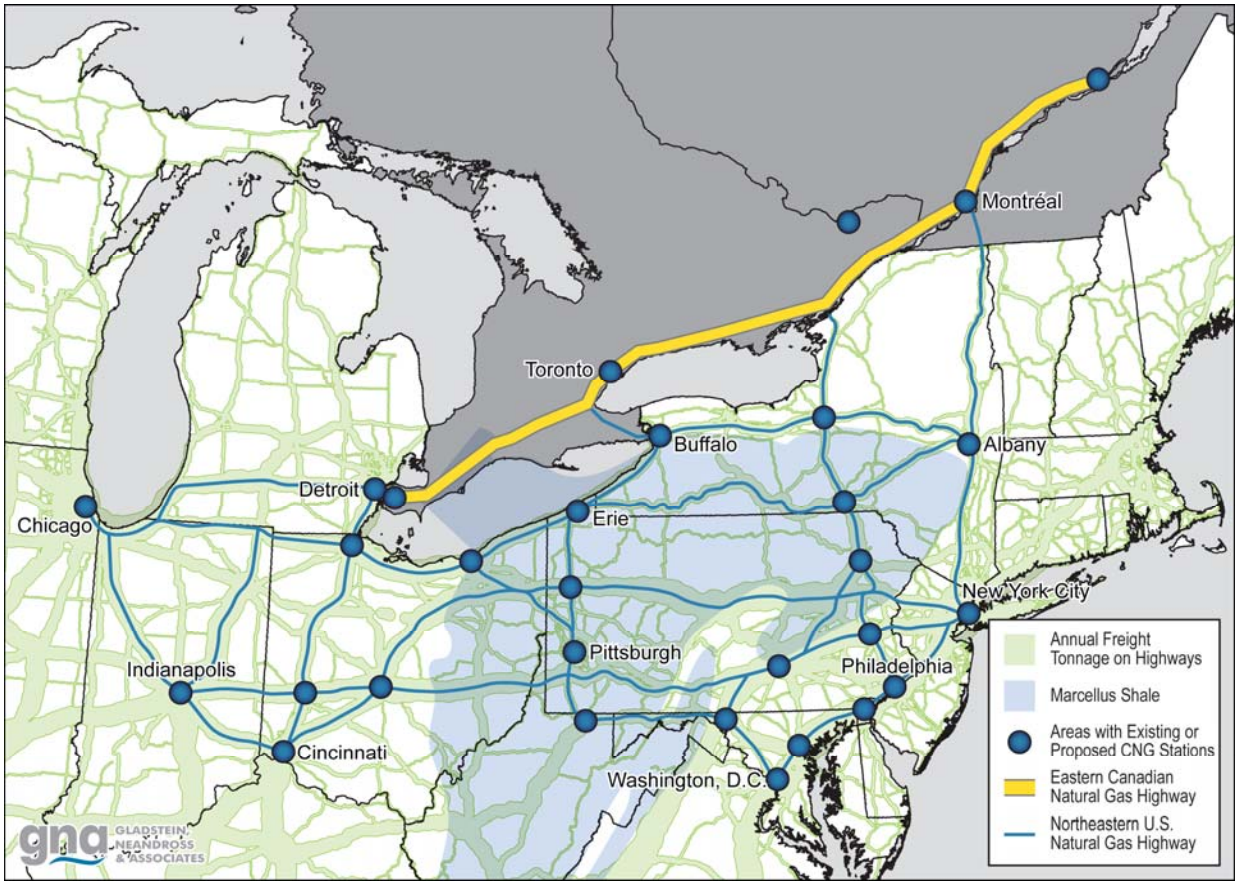


Figure 2: Map of the Freight Corridors and Potential Natural Gas Fueling in Northeastern North America

In addition to working in partnership with neighboring states, it is recommended that PCTC stakeholders also establish a partnership with those working to develop a similar natural gas refueling station corridor in eastern Canada along the heavily populated Quebec City-Windsor corridor of Highway 401. Given Windsor's proximity to the continental U.S. – via Detroit – there is a clear link between these international efforts. Such a partnership, while admittedly a longer-term, "Phase II" development effort, can still prove extremely important in the short term as a means to gain greater attention, particularly from elected officials and public agencies responsible for broad, long-term policy planning and development.

Ever Vigilant

U.S. DOT SECRETARY RAY LAHOOD SHARES HIS PLAN FOR KEEPING AMERICA'S PIPELINES SAFE.

As secretary of the U.S. Department of Transportation (DOT), Ray LaHood leads an agency of 5,000-plus employees and $70 billion budget that oversees air, maritime and surface transportation missions—as well as what lies underground—the nation's 2.4 million miles of distribution and transmission pipeline, which delivers natural gas to more than 70 million residential, commercial and industrial customers.

With reauthorization of the Pipeline Safety Act imminent, a new distribution integrity rule set to be implemented in August and ongoing monitoring of the transmission integrity rule instituted in 2003 on the agenda, DOT and its Pipeline and Hazardous Materials Safety Administration (PHMSA) already are strongly focused on natural gas industry pipeline issues. In the wake of recent explosions in San Bruno, Calif., and Allentown, Pa., Secretary LaHood has become even more vigilant about ensuring pipeline safety, meeting with stakeholders in Pennsylvania in early April and then hosting a national Pipeline Safety Forum on April 18 to gather ideas and develop action items.

Among the results: DOT's PHMSA launched a new pipeline safety awareness website, http://opsweb.phmsa.dot.gov/pipelineforum, and DOT unveiled a pipeline safety action plan (see www.dot.gov/affairs/2011/dot4111.html). During the forum, PHMSA explained that its priorities include:

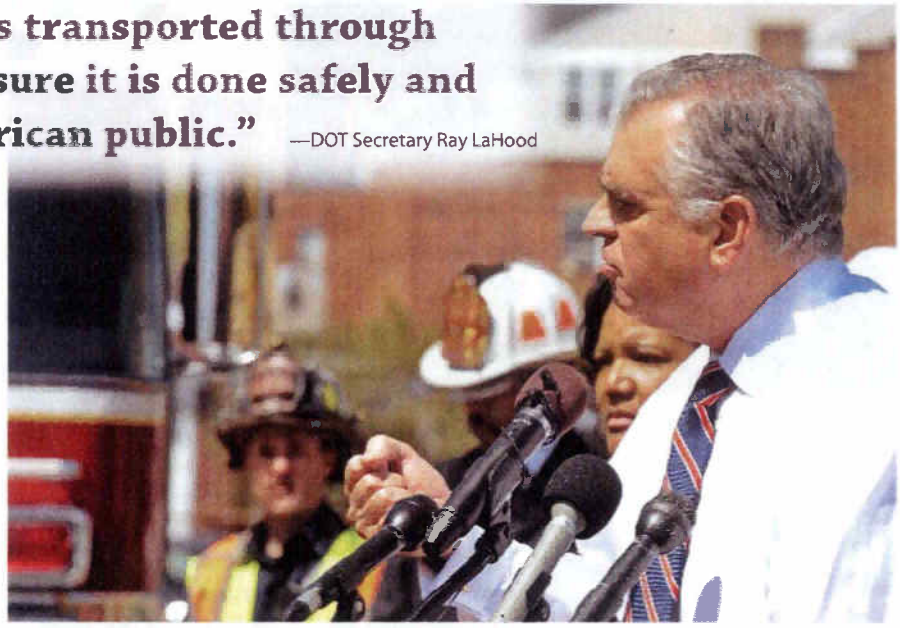
- **conducting** more state and federal inspections,
- **instituting** more enforcement,
- **refreshing** integrity management rules through advance notices of proposed rulemakings,
- **closing** statutory exemptions (gathering lines),
- **increasing** data transparency,
- **auditing** public awareness programs,
- **auditing** distribution integrity management program implementation,
- **accelerating** control room management implementation,
- **increasing** operator cooperation with emergency responders and
- **issuing** a notice of proposed rulemaking for federal one-call enforcement.

One of LaHood's purposes in holding the recent gatherings was to improve coordination and collaboration among the various local, state, federal and industry stakeholders. A former legislator and teacher, LaHood has built successful collaborations in the past and is intent on creating a more comprehensive, coordinated effort among all transpor-

Transportation Secretary Ray LaHood addresses natural gas industry stakeholders at the April 18 Pipeline Safety Forum, held to gather ideas and action items to further improve the safety of America's pipeline system.

PHOTOS COURTESY OF U.S. DEPARTMENT OF TRANSPORTATION

"America must control our energy future by harnessing all of the resources that we have available and embracing a diverse energy portfolio. The pipeline transportation sector stands ready to deliver natural gas to fuel the present and future demands for natural gas vehicles. Keeping our nation's energy supply safe and reliable is a critical component of what we do every day. Whether natural gas or oil is transported through pipelines, we need to make sure it is done safely and meets the needs of the American public." —DOT Secretary Ray LaHood



tation stakeholders, in all sectors.

LaHood became the 16th secretary of Transportation on Jan. 23, 2009. Previously, he worked on the staffs of several congressional representatives before serving in the U.S. House of Representatives himself for 14 years as the representative from the 18th district of Illinois (1995–2009). Before his career in government, LaHood taught junior high school.

In the following exclusive interview with *American Gas*, LaHood shares DOT's perspectives and priorities on issues related to pipeline safety.

American Gas: *As Transportation secretary, you are about to take on your first reauthorization of the Pipeline Safety Act, which for a number of reasons was pushed back to 2011. What do you hope that this new legislation will include, and how can AGA and our members work with DOT to accomplish your goals?*

Secretary LaHood: First, let me say that the government cannot fix the nation's aging pipelines alone—we need industry and the pipeline safety community to help. That's why, on April 18, I held a Pipeline Safety Forum to convene stakeholders around the pressing pipeline safety issues facing the country right now. I called on pipeline owners and operators to conduct a top-to-bottom review of their lines to identify the oil and gas lines in greatest need of repair and replace pipelines in critical condition immediately. And we discussed what we jointly can do to ensure a sound, robust infrastructure that will safely supply energy to future generations.

I am encouraged by the fact that AGA members have already stepped up efforts to keep good pipeline records. I know that this has required hard work since before a number of federal and state regulations were in place, companies did not have to keep such thorough records.

I have also called on Congress to enact legislation that would raise the maximum civil penalties we can levy against companies that commit pipeline safety violations, close loopholes and boost the number of safety professionals available to perform inspections. While we hope to work cooperatively with pipeline operators, and expect they share our concerns for safety, we take our mission seriously, and it's our responsibility to make sure pipelines are reliably maintained for the safety of the American public.

American Gas: *In the wake of several safety incidents, including San Bruno and Allentown, both DOT and our industry have pledged to work*

Transportation Secretary Ray LaHood at an 811 Call Before You Dig event in April. Launched in May 2007, the 811 Call Before You Dig campaign has helped to significantly reduce the number of incidents of third-party excavation damage to pipelines.

ment in research and technology, we can help prevent the kinds of tragedies we've seen in Allentown and San Bruno from happening again. We owe it to the public to ensure pipelines are a safe method of transporting energy across the country.

American Gas: *This past April you conducted an industry-wide pipeline safety forum in which all industry stakeholders met to discuss safety, in particular the ways to accelerate the accomplishment of your "three Rs"—the rehabilitation, repair and replacement of critical pipeline infrastructure. Did the summit meet your expectations? Given what you learned at the summit, what are your next steps?*

Secretary LaHood: The April 18 Pipeline Safety Forum was the first step on a longer path of rehabilitation, repair and replacement of aging segments of our pipeline infrastructure. I have directed PHMSA to develop a plan to make sure pipelines are fit for service, whether that be through requalification programs or other options. We have taken huge steps over the last decade with various regulations to improve pipeline integrity in the highest risk areas, but we have more to do.

I consider the summit a success because we opened up a national dialogue about safety issues related to pipelines. We brought stakeholders and the public together and heard from some people we don't often hear from. We are working to understand the issues and find good, workable solutions. I know that each time we bring people together we learn more.

As to where we go from here, I have asked PHMSA Administrator Cynthia Quarterman to issue a report to the nation within six months on what we have learned about the state of our pipeline infrastructure and where we still need additional information. That report will drive future agency actions.

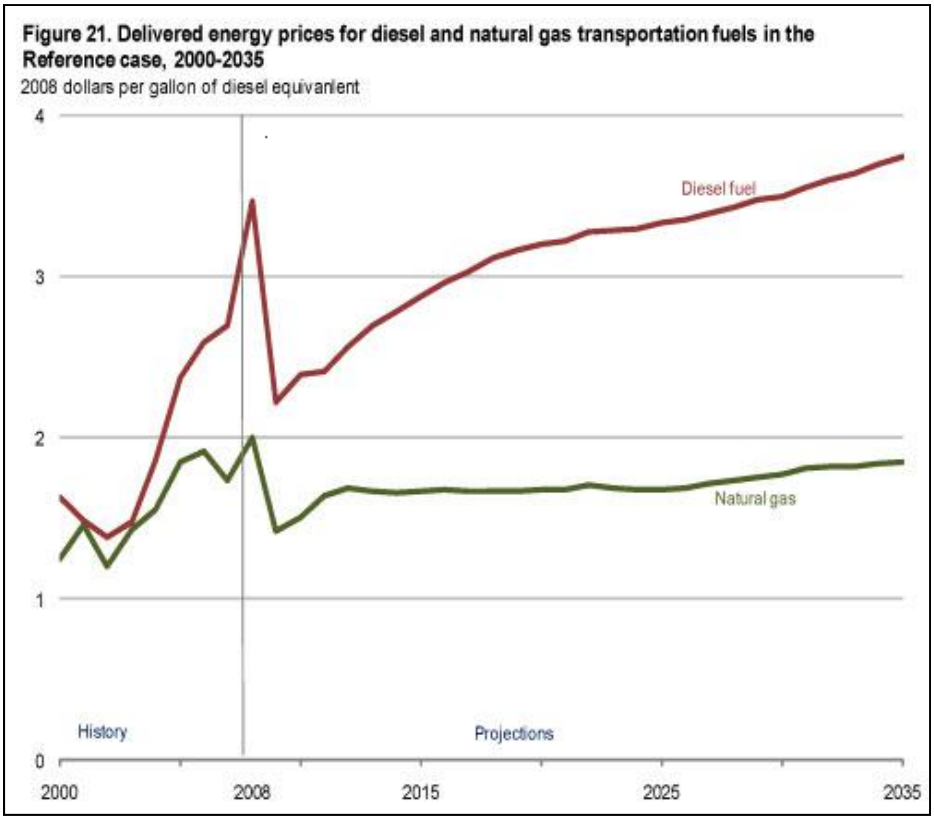
American Gas: *As a follow up, with respect to pipeline safety in general, as you know, DOT sets federal safety standards that the states then adopt, but state regulators also have to make sure that those safety standards are effective but don't impose unreasonable costs—since those costs ultimately are passed on to the customer. With that in mind, do you believe there are gaps in the current regulations? How do DOT and the state regulators effectively work together to ensure that any new pipeline regulations or mandates balance safety and cost?*

Secretary LaHood: Federal regulations are minimum safety standards, and state regulators can, and often do, impose stricter requirements on the pipelines they oversee. This is as it should be. States often have unique circumstances that federal regulations cannot address.

DOT always seeks input from its state pipeline safety partners and experts any time we are contemplating a new rulemaking. And as with any rulemaking, a cost-benefit analysis helps us to determine whether the regulation truly makes sense. But safety will always be our highest priority.

American Gas: *One of our industry priorities, which we know you share, is enhancing our nation's energy security. We believe this can be done best by increasing the use of domestically abundant natural gas in the transportation market. The more natural gas vehicles on America's roads, the more natural gas displaces imported oil, the more we enhance energy security. Would you share your thoughts on accomplishing this goal?*

Secretary LaHood: America must control our energy future by harnessing all of the resources that we have available and embracing a diverse energy portfolio. The pipeline transportation sector stands ready to deliver natural gas to fuel the present and future demands for natural gas vehicles. Keeping our nation's energy supply safe and reliable is a critical component of what we do every day. Whether natural gas or oil is transported through pipelines, we need to make sure it is done safely and meets the needs of the American public.



From: http://eia.gov/oiaf/archive/aeo10/images/figure21-lg.jpg

THE CASE FOR NATURAL GAS VEHICLES

THE MOST ABUNDANT, CLEAN AND COST-EFFICIENT AMERICAN FUEL

AN ISSUE BRIEF

NGVAMERICA
Natural Gas Vehicles for America

400 North Capitol St. NW. · Washington, D.C. 20001 · phone (202) 824-7360 · fax (202) 824-7087
· www.ngvamerica.org

INTRODUCTION—HOW WE GOT HERE

Vehicles—from personal cars to heavy-duty 18-wheel trucks—are a staple in American life. We rely upon these vehicles to deliver food to our grocery stores, parts to our factories, and items to the shelves of stores across the nation. We rely on fleets and buses to carry millions of workers from home to their jobs everyday.

We also rely almost exclusively on foreign oil for all of these essential parts of life.

In 2008, we imported nearly 70 percent of our oil, and, unless we change course, that number will rise in the years ahead. Because of this, the United States is vulnerable to international pressures from those who control oil supplies and those who may seek to do us harm. It is alarming that we use 25 percent of the world's oil, but only have 4 percent of the population and just 3 percent of the world's oil reserves.

According to the Energy Information Agency (EIA), commercial heavy-duty vehicles (e.g., trucks and buses), which are the primary on-road consumers of diesel fuel, will use *over 50 billion gallons per year* by 2017. The EIA projects light duty fuel consumption of 150 billion gallons annually in 2017—for a total of 200 billion gallons per year in 2017.

Lawmakers at every level, from President Obama to Senate Majority Harry Reid to Governor Huntsman of Utah, have recognized this clear and present danger. In his acceptance speech to be the Democratic nominee for President of the United States, Barak Obama stated:

> For the sake of our economy, our security, and the future of our planet, I will set a clear goal as president: in 10 years, we will finally end our dependence on oil from the Middle East.[1]

President Obama's bold goal and understanding of the grave matter at hand is to be commended. The question remains: how do we get it done? Is there a single quick fix?

Unfortunately not. For the foreseeable future, there is no one silver-bullet panacea technology or alternative fuel that is going to replace petroleum. We have many *options*—natural gas, ethanol, methanol, propane, gasoline/diesel hybrids and plug-in hybrids, natural gas hybrid and plug-in hybrids. But we don't have *choices*. We have to use all of them—in the applications and in the parts of the country where they make the most sense.

Most of the available alternative fuel and advanced technology options primarily focus on light-duty consumer vehicles. There are few options available for large medium and heavy-duty vehicles. Natural gas is the best alternative to gasoline—and, importantly, diesel—in high fuel-use, urban vehicle applications—especially fleet applications.

We can fulfill the President's bold commitment by leveraging technology and the vast supplies of natural gas found within our borders.

---

[1] Thursday, August 28, 2008—transcript available at http://www.demconvention.com/barack-obama/

WHY NATURAL GAS?

Natural gas is an obvious choice to help replace foreign oil.

- **Natural Gas is American.** Natural gas reserves are twice as plentiful as crude oil. Approximately 98 percent of the natural gas we use in America comes from the U.S. and Canada, and EIA forecasts that, by 2030, over 98 percent of the natural gas used in America will come from the U.S. alone—a far cry from the unstable areas of the world we depend on for oil. Because of recent advancements in technology, the economically recoverable U.S. natural gas resource base has nearly doubled in just the last few years. A recent study concludes that we now have 118 years of natural gas resources right here in America.

- **Natural Gas is Affordable.** On average, it costs 1/3 less to fill a vehicle with natural gas than with gasoline. Since most of our supply comes from the U.S., natural gas prices are not subject to the outside political and economic pressures like we see in the oil market.

- **Natural Gas has an Existing Distribution Infrastructure.** Shipping transportation fuel to all corners of the country is the biggest challenge facing any alternative fuel. With 1.5 million miles of gas pipe and distribution lines crisscrossing the country, natural gas is available to nearly every street and community in America.

- **Natural Gas is a Proven Vehicle Fuel.** There are nearly 10 million natural gas vehicles in the world. Most major car companies—from Ford to General Motors to Honda to Mercedes Benz—make natural gas models for markets somewhere in the world. No other alternative fuel has the ability to displace 100 percent of the petroleum used in heavy-duty vehicles. Many municipalities in the United States, including Washington, D.C., use natural gas vehicles and buses.

- **Natural Gas is Clean.** Natural gas vehicles produce 22 to 29 percent less greenhouse gas emissions than diesel- or gasoline-powered vehicles, respectively, and also produce less urban pollutions.[2]

[2] State Alternative Fuels Plan, California Energy Commission, Adopted December 5, 2007

NATURAL GAS—AMERICA'S ABUNDANT FUEL

Consider this—while we import approximately 70 percent of our foreign oil, 98 percent of the natural gas used in the United States comes from North America, and, by 2030, over 98 percent will comes from the U.S. alone.[3]

A recent study concluded that the US has 118 years worth of natural gas resources at current production levels.[4] Additionally, in 13 of the last 14 years, the amount of new natural gas discovered in the US has exceeded the amount that has been extracted.

Renewable natural gas can also be produced from any organic waste or energy crop such as switchgrass. It's been conservatively estimated that America could produce 1.2 quadrillion Btus of renewable natural gas (also called biomethane).[5] That's the equivalent of 10 billion gallons of gasoline. And, if making biomethane from cellulosic energy crops is considered, the potential is almost limitless.

In the long term, there also is the potential of methane from hydrates. Methane hydrates are ice and methane mixtures found in deep water throughout the world—including off all U.S. coasts. It is estimated that the energy contained in the world's methane hydrates is twice the energy contained in all known fossil fuels on earth, i.e., twice that in all the world's estimated natural gas, petroleum and coal *combined*. Currently, technology does not exist to produce methane from hydrate economically. However, the Japanese government predicts that Japan will be producing commercial quantities of methane from hydrates within 10 years. In the long-term, if and when America's demand for natural gas begins to exceed its ability to satisfy that need from all the traditional and renewable sources, methane from hydrates produced off America's coasts may provide a virtually limitless domestic supply.

In short, any concerns that we do not have enough natural gas in this country should be dismissed outright.

---

[3] Annual Energy Outlook: 2009 Early Release, U.S. Energy Information Administration

[4] Navigant Consulting North American Natural Gas Supply Assessment Executive Summary and Update, July 4, 2008

[5] Biogas For Transportation Use: A 1998 Perspective, unpublished study performed by QSS Group for DOE, July 9, 1998

NATURAL GAS' ROLE IN DISPLACING FOREIGN OIL

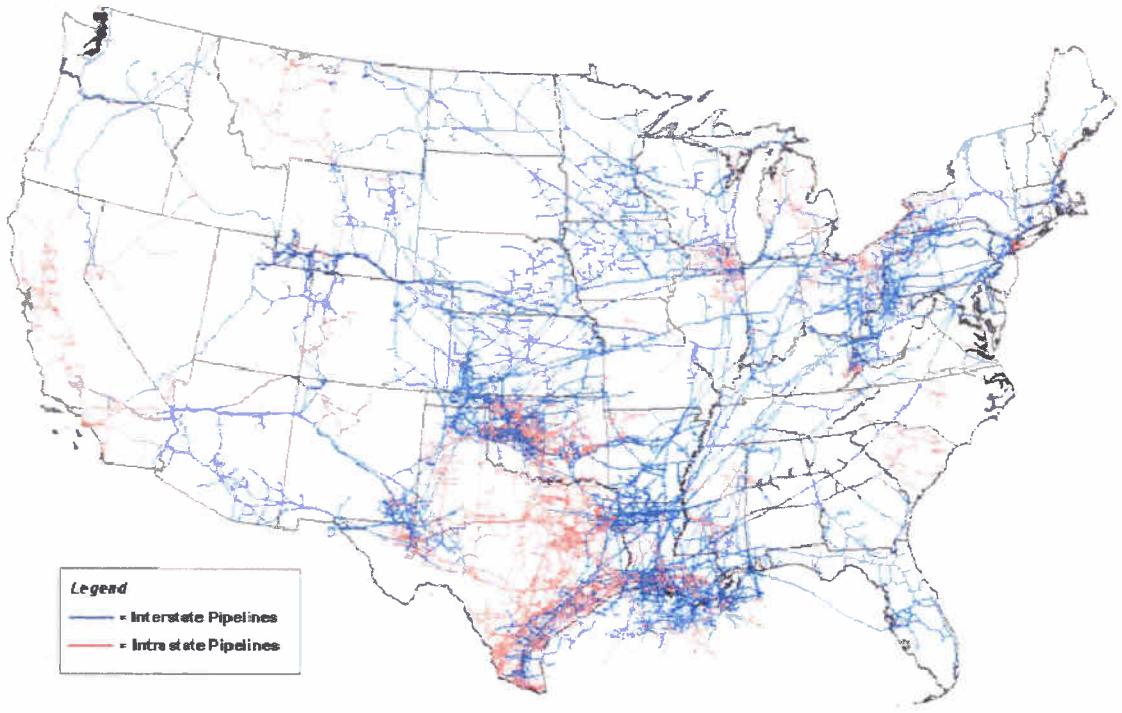
Four growth scenarios appear in the chart below. Under the most optimistic scenario, by 2020, the use of CNG/LNG could be displacing as much as 10 billion gallons of petroleum through the use of up to 1.25 quads of natural gas. This would represent just 4.9 percent of total U.S. natural gas use in 2020.

Diesel Vehicles	Mrkt. Share	Vehs. (000)	GGEs (MM)	Mrkt. Share	Vehs. (000)	GGEs (MM)	Mrkt. Share	Vehs. (000)	GGEs (MM)	Mrkt. Share	Vehs. (000)	GGEs (MM)
Freight Trucks	5%	589	2,273	10%	1,154	4,457	14%	1,616	6,239	20%	2,308	8,913
Light Trucks	0%	0	0	0%	0	0	0%	0	0	0%	0	0
Trash Truck	10%	21	197	20%	42	386	25%	52	483	30%	63	579
Transit Buses	40%	38	319	50%	47	398	60%	57	477	70%	66	557
Intercity Buses	0%	0	0	0%	0	0	0%	0	0	0%	0	0
School Buses	20%	160	216	25%	200	270	30%	240	324	40%	320	432
		808	**3,005**		**1,443**	**5,511**		**1,964**	**7,524**		**2,756**	**10,482**

With an even more moderate growth projection of 3 billion gallons per year, the use of CNG/LNG as a transportation fuel would represent less than 1.5 percent of total U.S. natural gas in 2020.

Delivering transportation fuel to all corners of the country is one of the biggest challenges facing any alternative fuel—but not natural gas. With 1.5 million miles of gas pipelines crisscrossing the country, natural gas is already available to nearly every street, alley, and community in the United States.

Tapping into this robust infrastructure will not require the kind massive investment or build-out that other alternative fuel options require.



Source: Energy Information Administration, Office of Oil & Gas, Natural Gas Division, Gas Transportation Information System

THE UNITED STATES BRINGS UP THE REAR

There are almost 10 million natural gas vehicles on the roads worldwide yet fewer than 150,000 of them can be found in the United States. General Motors, recognizing the vast market for these vehicles, produces 18 different NGV models under its various global brands yet sells none of them in the United States today.

The U.S. is ranked 10th in the world as far as NGV deployment behind countries like India, Italy, China and, even, Bangladesh. Brazil may be known as the sugar cane ethanol capital of the world, but they have 1.6 million NGVs too. More than 15 percent of all vehicles in Argentina are now NGVs.

America has some of the greatest natural gas supplies in the world yet we use virtually none of this clean, domestic resource to power our trucks and cars. Why is the United States lagging behind the rest of the world?

In 2008, NGVs displaced almost 300 million gallons of petroleum in the U.S. It's a start but we have much more to do. In the next 12 years, the industry's goal is to grow that to 10 billion gallons.

Other countries have capitalized on their resources and are investing heavily in their domestic fuel sources. Even OPEC member Iran, is taking bold steps in that direction:

> "Sixty percent of passenger cars produced this year will use natural gas as fuel or will be [bi-fuel], and the remaining 40 percent will run on regular gasoline," read a statement released by the Cabinet of President Mahmoud Ahmadinejad. The decision also requires that 80 percent of vehicles manufactured for public transportation by Iranian automakers and 80 percent of pickup trucks must have dual-fuel engines or be powered by natural gas. Bi-fuel vehicles can consume gasoline or compressed natural gas whereas dual-fuel engines operate on diesel or a blend of diesel and natural gas. Iran holds the world's second largest oil and gas reserves. The country, however, lacks adequate refining capacity to produce gasoline and spends huge sums on imports, which burden the state coffers.[6]

Iran is another nation that has recognized not only the benefits of natural gas but also the larger national security benefits of relying on domestic resources to power its infrastructure.

Technology or know-how isn't a barrier—some of the companies that manufacture NGVs include:

[6] IANGV, http://www.ngvglobal.com/en/market-developments/iran-to-manufacture-more-natural-gas-vehicles-01940.html

Many of our largest cities have recognized and embraced the benefits of NGVs. Los Angeles has 2,800 natural gas buses in operation today, and Boston, Dallas, Phoenix, and Washington, D.C. also have significant NGV fleets. California, home to the nation's two largest ports—Los Angeles and Long Beach—already has a program to replace diesel fuel with natural gas for their cargo handling vehicles.

United Parcel Service (UPS) and Waste Management also operate significant fleets of natural gas powered trucks. Wal-Mart recently announced they will begin testing natural gas trucks in their fleets. AT&T, which operates the largest vehicle fleet in the world, already uses this clean and domestic fuel and is looking to significantly expand its NGV fleet.

These municipalities and companies have recognized that NGVs have far lower fuel, operating and maintenance costs so they generate significant vehicle life-cycle savings.

We have some great NGV success stories in the U.S.—the question is why don't we have more?

NATURAL GAS IS THE CLEANEST FUEL ON AMERICAN ROADS TODAY

Natural gas is the undisputable champion as a clean and domestic resource for transportation..

- Natural Gas Vehicles (NGVs) produce between 93-95 percent less overall toxics compared to gasoline and diesel vehicles[7], and reduce greenhouse gas emissions by 22 – 29 percent compared with diesel and gasoline fueled vehicles.[8]

- The natural gas fueled Civic GX produced by American Honda has been rated the "Greenest Vehicle" for six consecutive years by the American Council for an Energy-Efficient Economy.

- Converting one refuse truck from diesel to natural gas is the equivalent of taking as many as 325 cars off the road in terms of pollution reduction.

- The Cummins-Westport ISL G engine achieved the EPA's 2010 emission standards in 2007—the only medium- to heavy-duty engine to reach this lofty standard. It reduces greenhouse gases by 23%, which is more than double the reduction required by the California Air Resources Board's (CARB) standard for 2020.

[7] United States Department of Energy

[8] State Alternative Fuels Plan, California Energy Commission, Adopted December 5, 2007

POLICY RECOMMENDATIONS—HOW DO WE GET IT DONE?

With appropriate government policies, use of domestic natural gas to power the nation's trucks and buses could reach as high as 10 billion gallons per year by 2020 and displace up to 20 percent of diesel fuel.

Senate Majority Leader Harry Reid is someone who recognizes the potential for heavy-duty trucks powered by natural gas:

> "We need to see incentives, grants, planning dollars and some serious effort put into public-private partnerships to accelerate the deployment of heavy-duty natural gas vehicles and other clean-fuel vehicles and infrastructure…Hopefully, the economic recovery package, the next energy bill and maybe even the climate bill will expedite this shift away from greater dependence on oil."[9]

If we focus on heavy-duty haulers and fleet vehicles, we can immediately displace some of the foreign oil we rely upon.

The facts are clear. There are over 2 million heavy-duty diesel-powered trucks on America's roads. An 18-wheeler uses up to 20,000 gallons of fuel per year. Replacing only 100,000 of these trucks with trucks powered by natural gas would immediately cut our consumption of diesel fuel up to 2 billion gallons per year. Replacing 200,000 would displace up to 4 billion gallons. Importantly, this also would send a strong message to the Middle East and others that the United States is taking the necessary steps to ensure we will no longer be held hostage to foreign oil.

By replacing gasoline-powered fleet vehicles—ranging from taxicabs to urban delivery trucks to federal government vehicles—with vehicles running on natural gas, we can achieve additional significant and immediate reductions.

Getting there is essential. Lawmakers can take several actions:

1. Extend and expand the fuel, infrastructure and vehicle and infrastructure purchase tax incentives to encourage greater use of natural gas vehicles. Incentives like these have been critical in helping to address and overcome the barriers to wider use of this domestic, non-petroleum clean fuel.

2. Encourage trucking companies to replace their diesel-powered fleets with trucks that burn clean and efficient domestic natural gas.

3. Fleets managed by the federal government should be required to use domestic and low carbon fuels, including natural gas. Other fleets—commercial and municipal—should be encouraged to do the same thing through economic incentives.

4. The federal government should undertake a comprehensive NGV research, development and demonstration program to further improve the emissions and

---

[9] Pickens Plan Press Release/Conference Call

energy efficiency of NGVs and to help deploy more NGV platforms for more applications – including natural gas-hybrid vehicles.

Overview of Compressed Natural Gas Station Agreement

Overall:

NJNG will contract with a Host Customer ("Host") to install, own, and maintain a Compressed Natural Gas ("CNG") fueling station on the Host's property with access to the public.

NJNG General Obligations:

NJNG will install, own, and maintain the natural gas service lines, compressors, operating equipment, high pressure cylinders, pumps, meters, and other ancillary equipment (collectively referred to as "Facilities") necessary to provide CNG as a vehicular fuel on a designated portion or portions of the Host property ("Station Property").

Host General Obligations:

Once the fueling station is operational, the Host will be responsible for monitoring and operating the Facilities. Host will commit to use at least 20 percent of the Station's capacity of available CNG and will pay NJNG for the CNG that it consumes. Host will provide the general public and non-Host fleets with access to the fueling station.

Access, Right-of-way and Easement Grant:

Host will provide NJNG with a Right-of-Way and Easement Grant providing for access to and installation of the Facilities on the Station Property necessary to supply the CNG service and to maintain the equipment. NJNG will have the right to inspect, maintain, test and calibrate all of its Facilities at any reasonable time.

Improvements to the Site and Facilities:

In connection with installation and maintenance of the Facilities, NJNG will pay 100% of the material and labor costs for any and all alterations and/or improvements to the Station Property or its Facilities and shall provide and pay for the instrumentation measuring the quantity of CNG dispensed to customers. Host will pay for any additional meters and remote monitoring equipment that will be owned and installed by the NJNG.

Training and Monitoring:

NJNG will provide training to Host personnel in the various aspects of CNG supply and service. Host will be responsible for monitoring the Facilities in-between maintenance work and inspections conducted by NJNG.