



Natural Gas Vehicles: Driving America to a More Prosperous, Secure, and Sustainable Future

BY BRUCE G. KAUFFMANN

APRIL 2013

There has been a sea change in public attitudes toward natural gas. Not so long ago natural gas was widely viewed as a “bridge fuel” to a future of clean, renewable energy. Now, amid a shale gas boom, many energy analysts regard it as a “foundation fuel” that can power America’s economy in efficient, affordable and environmentally responsible ways for the rest of this century, and possibly beyond.¹

It is by far the cleanest fossil fuel. Gas produces 50 percent less CO₂ than coal² and 30 percent less CO₂ than oil, while also producing significantly less sulfur dioxide, nitrogen oxide and harmful particulate matter. The more we burn natural gas in the place of oil or coal the less we put greenhouse gas emissions into the atmosphere.

Natural gas is also highly efficient. When used directly in America’s homes and businesses, natural gas loses just 8 percent of its useable energy in its journey from the point-of-origin

(wellhead) to the point-of-use (burner tip). By contrast, electricity loses approximately 68 percent of its useable energy during the same journey from origin to use.³

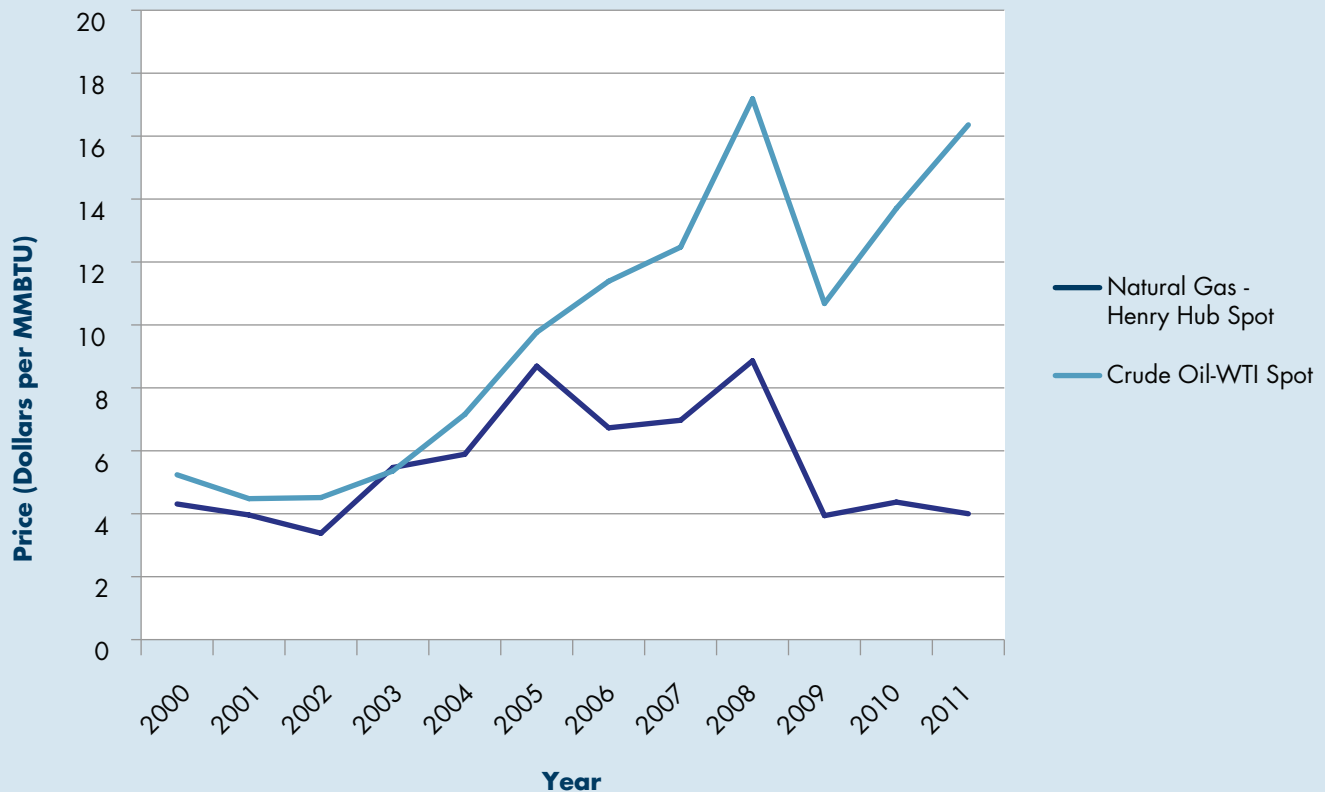
Thanks to the huge increase in natural gas now being produced from shale rock formations, natural gas is becoming even more abundant. America is now the largest producer of natural gas in the world, with an estimated future supply (reserves plus resources) of approximately 2,170 trillion cubic feet.⁴ That’s enough to meet America’s energy needs for more than 85 years. These estimates are based just on current technology. As new production technologies are developed, this resource base will only grow.

Because natural gas is abundant domestically, it is very affordable. In 2012, oil cost about \$15 per MMBtu (million British thermal units) on average, while natural gas cost less than \$4 per MMBtu.⁵ In recent years, natural gas consumers have literally

About the author

Bruce G. Kauffmann is a freelance writer and editor who worked for the American Gas Association (AGA) for 20 years, serving as director of executive communications, assistant to the president for strategic planning and editorial director of AGA’s flagship publication, *American Gas* magazine.

FIGURE 1: NATURAL GAS AND CRUDE OIL PRICES



Source: Thompson Reuters

saved millions of dollars on their energy bills. With all of this going for it, more and more American consumers are turning to natural gas for their home heating, water heating, cooking and other energy needs.

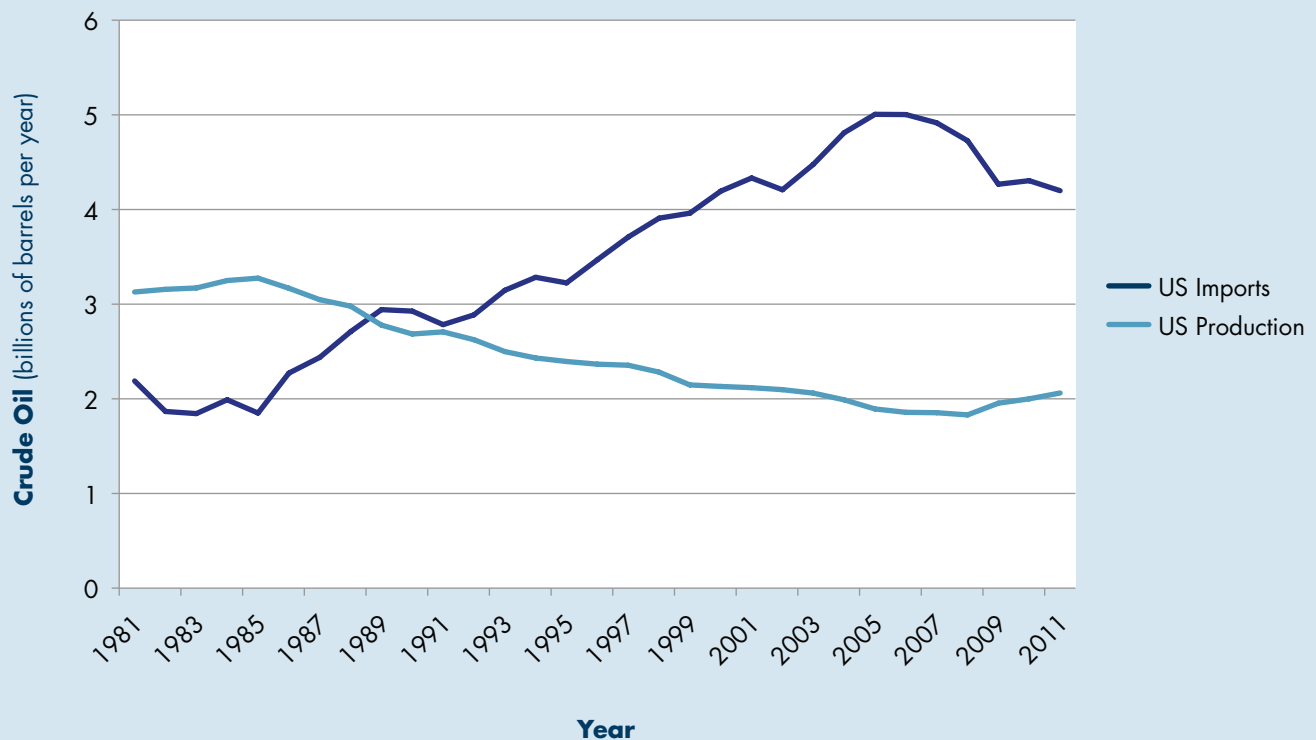
TRANSPORTATION: THE NEW FRONTIER FOR GAS?

Yet there is one new market opportunity with a significant potential for growth in the use of natural gas, which—if realized—could advance a number of important public policy goals. If oil in the form of gasoline or diesel fuel was significantly displaced by compressed natural gas (CNG) or liquefied natural gas (LNG) in the transportation market—that is, if natural gas vehicles (NGVs) replaced gasoline- and diesel-powered vehicles

in large numbers—the economic, environmental, and energy security benefits would be enormous. Right now, natural gas has only a toehold in transportation markets, where it’s mainly used by commercial trucks and buses. Expanding its role in powering both heavy- and light-duty vehicles—especially the family car— would:

1. **Vastly improve America’s balance of payments.** The United States imports more than 47 percent of all the oil it uses—last year it imported 3.1 billion barrels of oil—costing Americans around \$312 billion a year (nearly \$1 billion a day). In addition, this money was paid to countries that are, for the most part, unstable and have national interests at odds with those of the United States. That is money

FIGURE 2: AMERICA'S BALANCE OF PAYMENTS



Vastly improve America's significant balance of payments challenge. In recent years energy imports have made up nearly 60% of the U.S. trade deficit. Ending our dependence on foreign oil means ending our annual deposit of approx. \$300 – \$400 billion in overseas bank accounts.
 Source: Energy Information Administration

that could be far better spent here at home meeting domestic needs. By contrast, 98 percent of the natural gas used in the United States is produced in North America.⁶

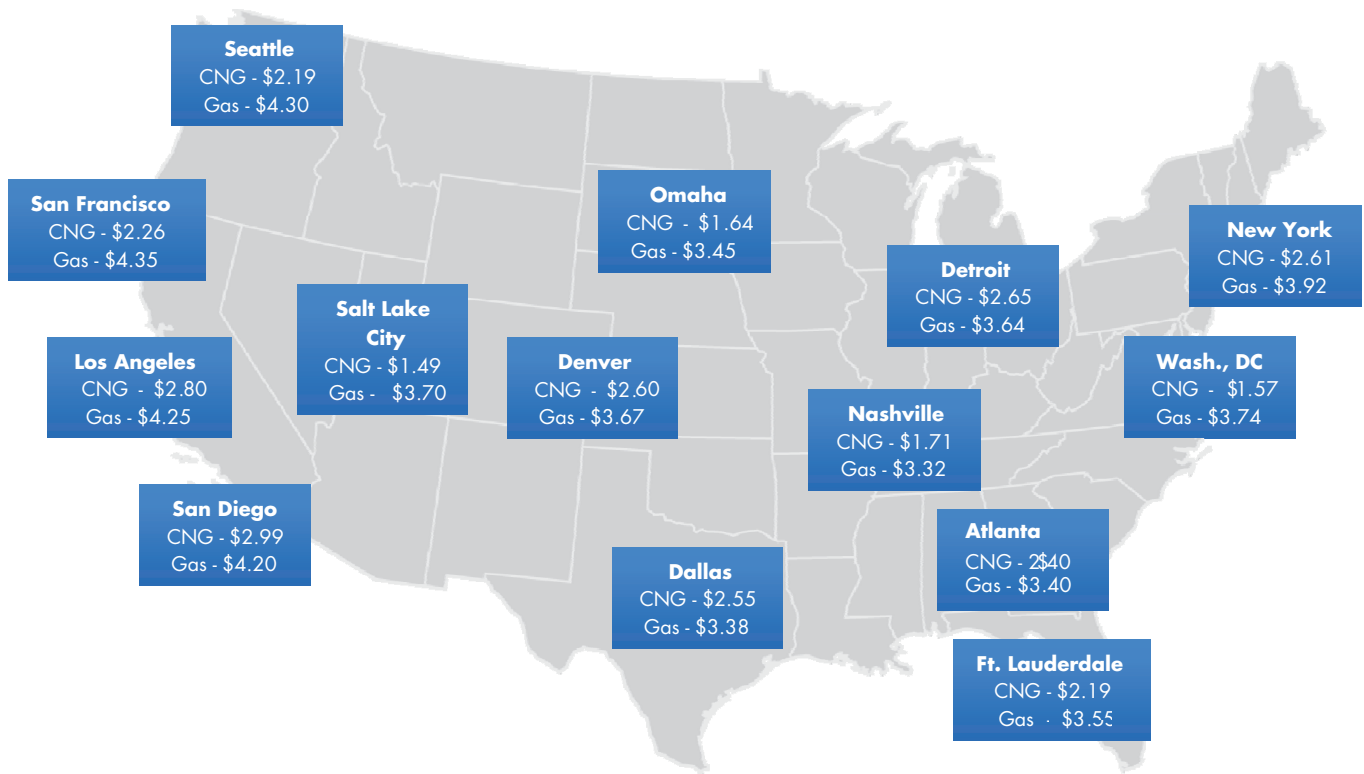
It's important to underscore here that U.S. production of shale and "tight" oil also is growing significantly. The International Energy Agency now predicts that America will overtake Saudi Arabia as the world's largest oil producer by 2020. U.S. oil imports are down to their lowest level in 25 years, although this may have more to do with weak demand from the slow economic recovery than surging domestic production. In any case, it could take a long time before consumers get much relief from high prices at the pump. U.S. shale oil trades

at only a slight discount to the world oil price, while natural gas prices are much cheaper here than in Europe and, especially, Asia. And even as domestic oil displaces imports, natural gas will remain attractive as a source of less carbon-intensive transport fuel.

2. Create thousands of new jobs.

America is the world's largest consumer of natural gas, but also the largest producer of natural gas, which translates not only into enhanced energy security, but also job creation. The natural gas industry, directly or indirectly, currently is responsible for 3 million jobs.⁷ The equation is simple: the more natural gas produced and used, the more domestic industry-related jobs created.

FIGURE 3: NATURAL GAS VS CONVENTIONAL GASOLINE - ON AVERAGE CNG COSTS 60% LESS THAN GASOLINE



Source: CNG prices captured in May 2012 by CNGPrices.com
Gas prices reflect city average on May 31 from GasBuddy.com

3. Reduce greenhouse gas emissions.

According to a study done by the California Air Resources Board (CARB), natural gas vehicles produce 29 percent fewer greenhouse gas emissions (GHG) than gasoline-powered vehicles and 22 percent fewer than diesel-powered vehicles on a full fuel-cycle basis. The Environmental Protection Agency (EPA) has expressed concern that the leakage of natural gas in the production and distribution system, which releases methane into the atmosphere, skews the overall GHG comparison. Some environmental and energy industry groups dispute the EPA's methodology, and in fact there is no reliable data on how much methane escapes from the natural gas supply chain. Currently, two independent studies are underway to determine what the actual GHG

comparison is on a full-fuel-cycle basis. In any case, our goal should be to minimize natural gas leaks so that we can reap full benefit of its lower carbon emissions.

4. Enhance energy security and national security.

In addition to sending hundreds of billions of dollars overseas to unstable and often unfriendly oil-producing nations, importing 3.1 billion barrels of oil every year leaves the United States vulnerable from both an economic and national security standpoint. A sudden disruption in oil supplies or a steep and sudden price hike would have a devastating effect on the U.S. economy. In addition, our dependence on imports both constrains U.S. foreign policy options and leaves us vulnerable to the use of oil as a political weapon by hostile states. Therefore,

to the extent that displacing oil with natural gas in the transportation market reduces our reliance on foreign oil, it would serve America's national security interests.

The Economic “First-Cost” Challenge

These are all compelling arguments for a switch to NGVs, but for the vast majority of consumers and businesses making purchasing decisions with respect to the transportation market, it is all about economics. They want to know how much it will cost them to purchase an NGV or other alternative fuel vehicle versus the cost of purchasing a gas- or diesel-powered vehicle. And, assuming the first-cost of an alternative fuel vehicle is higher—which it is—what is the financial payback in terms of operational and fuel savings for the alternative fuel vehicle, and how quickly does that payback come?

Today the up-front costs for a consumer to purchase an NGV are significantly higher than the up-front costs of purchasing a gasoline- or diesel-powered equivalent. Technological improvements, mass production, economies of scale, and competition are bringing down that first-cost premium, but it's not likely to disappear altogether. To give just one example, for safety reasons compressed and liquefied natural gas tanks are far more sophisticated (and costly) technologies than gasoline and diesel tanks.

As a result, in the light-duty (family car) market, the purchase price of an NGV is approximately \$6,000 more than its gas-powered equivalent. In the heavy-duty (long-haul truck) market the price differential can be as much as \$80,000.

In addition, the absence of an extensive national gas fueling infrastructure means that many light-duty NGV owners will also need to buy a home-refueling unit. These units cost approximately \$4,000, although prices are falling and can be expected to fall further as new technologies are developed.

All in all, the current price differential between a light-duty NGV sedan and its gas-powered counterpart can be as much as \$10,000.⁸ The premium for hybrids is much smaller, from \$2,500

and up, but today's hybrids can't deliver anything like the fuel savings from running cars on inexpensive natural gas.

Herein lies the main obstacle to mass commercialization of NGVs. Notwithstanding all the economic, environmental and security advantages from putting more NGVs on the road, experience shows that the typical consumer will only purchase the more expensive NGV if the economic payback in terms of lower operational costs—primarily lower fuel costs—is realized in three years or less.

As Figure 3 shows, on average, natural gas currently costs between \$1.50 – \$2.00 less than gasoline, based on a gasoline gallon equivalent (GGE)—a savings of about 60 percent. It seems likely that this price disparity will continue to expand given the ever-increasing global demand for oil, which will continue to increase its price.

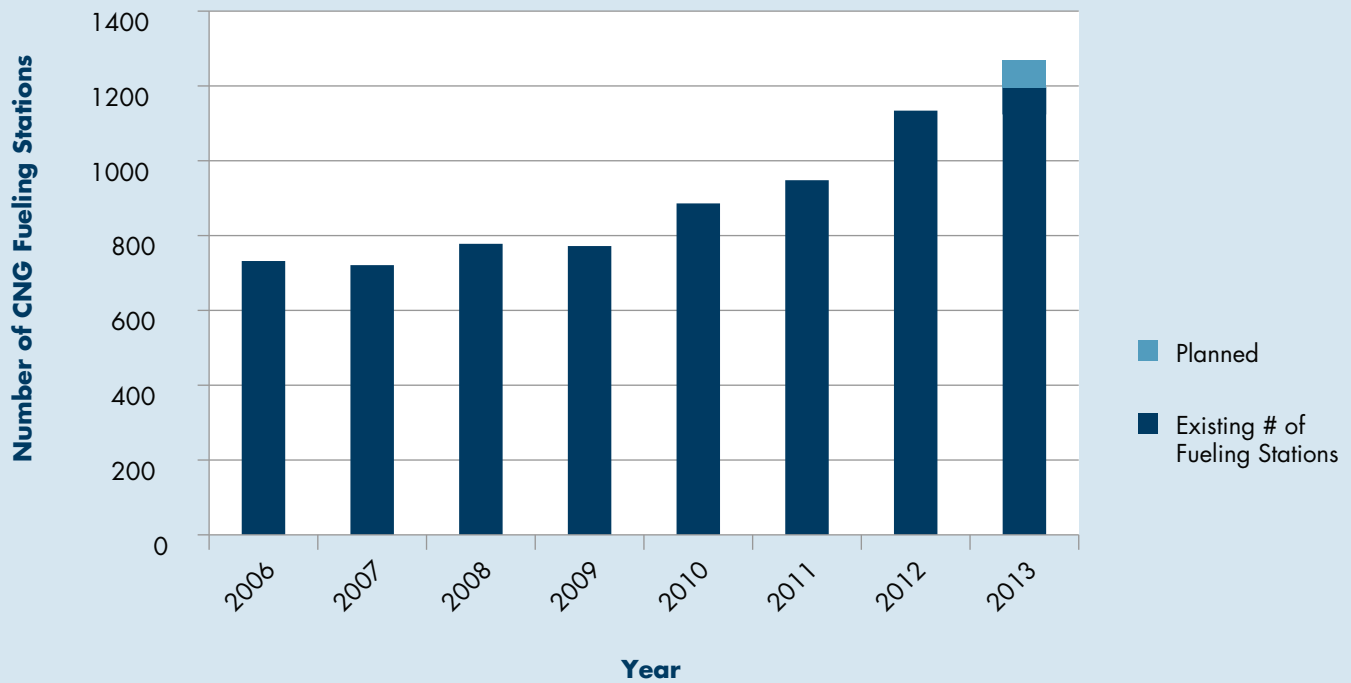
Using the \$2 price differential, comparing an NGV and a gasoline-powered automobile, and assuming that both cars drive 15,000 miles in a year and average 25 miles per gallon, the NGV will save its owner \$1,200 every year in fuel costs. Thus, with current economics, it will take a little over eight years to receive the economic payback for the NGV.

THE INFRASTRUCTURE “CHICKEN-AND-EGG” DILEMMA

The lack of a nationwide refueling infrastructure poses the second major obstacle to NGVs. It is the proverbial “chicken-and-egg” dilemma. Auto makers don't want to build a lot of NGVs until they see a lot of NGV refueling stations dotting America's highways, while the energy companies don't want to build a national natural-gas refueling infrastructure until they see a lot of NGVs on those highways.

There are approximately 150,000 gasoline stations around the country.⁹ While 42 percent of these stations offer diesel fuel, only a tiny fraction (about 1,250) are natural gas stations and approximately half of these are private filling stations located to service fleet vehicles that run on natural gas. On a very positive note, since 2009 the NGV refueling

FIGURE 4: NUMBER OF EXISTING AND PLANNED CNG FUELING STATIONS



Source: Alternative Fuel Data Center, <http://www.afdc.energy.gov/locator/stations/>

infrastructure has undergone phenomenal growth. CNG refueling stations have increased by 55.1 percent while LNG refueling stations have increased by 83.3 percent. In addition, since 2010 CNG stations under construction have increased by 193 percent and LNG stations by an astonishing 8,800 percent. If anything that trend is expected to accelerate, but because of the limited fueling station availability at the present time, NGV car and truck makers have been focusing on customers who do not need a national fueling network.

As a result, the NGV transportation market is currently dominated by “fleet vehicles”—that is, trash trucks, delivery trucks, buses, etc., where their daily route is predictable and they can return to the home base at the end of every day and be re-fueled for the next day’s run. These include, for example, trucks that deliver packages, beer, soda, bread, snack foods, and linens. It

also includes buses of all kinds (transit, school, shuttle, etc.). According to the American Public Transit Association, nearly one-fifth of all transit buses were run by natural gas in 2011, and transit buses are now the largest users of natural gas for vehicles.¹⁰

Yet while America’s fleet vehicle market is both thriving and growing, it is not large enough to convince the automakers to build NGVs, especially light-duty NGVs, on the kind of scale that will bring their per-unit costs down to where they are roughly comparable with gasoline-powered cars. In fact, while there are more than 16 million NGVs on the road around the world—mostly in Asia and South America—there are less than 125,000 NGVs on America’s roads today.

Therefore, in order to make the domestic NGV market a viable one, we must significantly expand

the number, types, and varieties of the light-, medium-, and heavy-duty fleet NGVs—buses, garbage trucks, long-haul trucks, taxis, and the like—while also expanding the (light-duty) home transportation market in which millions of Americans buy NGVs for their personal use, including commuting to and from work.

THE “FIRST COST” SOLUTION

The obvious solution therefore is to bring down the purchase price of both the NGV and the home refueling unit. As mentioned, advances in technology, cooperative ventures between manufacturers and equipment suppliers, and competition are already bringing down the NGV’s “first-cost,” but more needs to be done.

For the most part, the states, not the federal government, are leading the effort to boost NGV production. Currently 15 states have signed a Memorandum of Understanding (MOU) in which they pledge to buy NGVs from America’s domestic Original Equipment Manufacturing companies (OEMs), in particular Ford, GM and Chrysler, for state-use purposes. The ultimate goal is to sign up all 50 states, but the short-term goal is to double the number of states participating in the MOU, which would nearly double the number of NGVs on America’s roads today.

In addition, 22 states, led by Oklahoma and Colorado, have signed on to a Request for Proposal (RFP) in which they will buy NGVs from any automobile dealership interested in participating in the RFP, provided it is associated with an Original Equipment Manufacturer, comes with a warranty provided by the dealership, and can be serviced by that dealership. Approximately 100 dealerships have signed on to the RFP, and the goal is to generate momentum and interest in NGVs that will carry over to the other states, while also serving as a model for the federal government to follow.

In addition to helping solve the “chicken-and-egg” challenge—and doubling NGV production should spur energy companies to expand NGV infrastructure—the goal is also to produce

a “domino effect” in which increased NGV production results in increased infrastructure expansion, which further increases NGV production (further lowering the NGV’s per-unit cost), which further expands the infrastructure ... and so on.

For its part, the federal government has also taken some steps to develop new technologies that will bring down the costs, increase the efficiencies and enhance the safety of NGVs (and, in the case of cars and light trucks, the CNG home refueling units).

For example, through the American Recovery and Reinvestment Act the Department of Energy (DOE) provided funding for 130 natural gas refueling stations and more than 3,000 NGVs. In total, DOE invested \$300 million in Clean Cities Funding, and 19 of the 25 projects awarded included funding for NGVs.

In February of 2012, DOE’s Advanced Research Projects Agency-Energy (ARPE-E) Program started a \$30 million funding program for NGVs. Funded projects included \$3.4 million to the Eaton Corporation to develop Liquid-Piston Isothermal Home Natural Gas Compressors; \$1.8 million to General Electric Global Research for Chilled Natural Gas for At-Home Refueling; \$4.4 million to United Technologies Research Center for Low Cost Modular Natural Gas Tanks; \$4.3 million to the University of Texas’ Center for Electromechanics to develop a Single-Piston Four-Stage Linear Home Natural Gas Compressor; and \$1.5 million to the Gas Technology Institute for Engineered Absorbed Materials for Gas Storage.

EXPANDING THE REFUELING INFRASTRUCTURE

On a parallel track, as noted, the NGV refueling infrastructure is already expanding significantly, both in the light-duty CNG market, and in the heavy-duty LNG market. The latter mainly consists of long-haul trucks, as truck stop chain operators such as Pilot, TA, and Love’s have plans to significantly expand their truck refueling stations. Clean Energy, the largest provider of natural gas for transportation in North America, has announced plans to add 150 LNG refueling stations

by the end of 2013—70 of which have already been constructed. Shell has also announced that it will be building 100 LNG stations at TravelCenters of America truck stops across the country. As a result, there has been, and will continue to be, steady growth in the number of heavy-duty (long-haul trucks, etc.) natural gas-powered vehicles on America's roads. In that market, due to the long distances these types of vehicles travel, the economic argument for NGVs is the most compelling of all.

MAKING NGVS COMPETITIVE: THE ROLE OF CONGRESS

Since the Nixon Administration, it has been federal policy to reduce our dependence on foreign oil. Today, no technology option can do that faster than NGVs. They are set to grow with or without federal government support.

Indeed, NGVs are meeting the performance expectations of their customers right now, unlike other alternative fuel vehicles, electric vehicles in particular, that are being called into question in terms of power and performance. NGVs are internal combustion engine (ICE) vehicles and the engine and the drive train are the same as a traditional gasoline or diesel engine. The main differences occur in the fuel system—especially the fuel storage tanks—which are designed for a gaseous versus a liquid fuel. Natural gas is 130 octane (versus 88 or so octane for gasoline), which means that an ICE engine designed to run on natural gas can, in many cases, perform better than one on gasoline (more efficiency, more power). Granted, being a less “dense” fuel, CNG and LNG do require more space for fuel on board the vehicles (storage tanks) than do comparable gasoline or diesel vehicles, which, as we have noted, can be a design challenge for small sedans. However, for bigger sedans, trucks, and buses, this tends not to be an issue.

The bottom line, however, is that unlike electric vehicles and most other alternative fuel vehicles, NGVs do not need major technological breakthroughs to be commercial—including meeting customer performance expectations—in a number of markets. In addition, there will

continue to be incremental improvements in NGV technology, which will expand even further the number of markets in which NGVs are a viable commercial alternative to gas- and diesel-powered vehicles.

All of this said, NGVs will grow much faster in all markets (fleet and consumer) with a strategic assist from Washington. The federal government need not favor NGVs; all that is required for a fair test of their potential is to put them and natural gas on an equal footing with other transportation technologies and fuels. Specifically, here is what Congress can and should do:

1. **Provide NGV manufacturers with a level playing field in terms of tax incentives similar to those given the electric vehicle (EVs) manufacturers.** Currently, every manufacturer of electric vehicles is eligible to get \$2 billion in tax incentives. Taking a technology-neutral approach, Congress should allow NGV manufacturers to qualify for the \$2 billion tax incentive as well. Another option is to give automobile manufacturers the choice of using their \$2 billion in tax incentives to build whichever type of alternative fuel vehicle—EVs, NGVs, fuel-cell vehicles, etc.—they think is most economically viable. In this case, Congress would not have to adopt a new program that adds to the federal deficit; it would just include NGVs and other alternative fuel vehicles in the existing program and let the automakers decide which vehicles to produce. (Granted, some restructuring of the current program would be necessary to include both heavy-duty NGVs and EVs, as the current credit is limited to light-duty vehicles.) Either way, the net cost to the Treasury will more than offset if the other public benefits—stronger economic growth, lower trade deficits, a more secure energy supply—are properly taken into account.

Depending on the size of the battery, plug-in electric vehicles have an advantage over NGVs in the form of a tax credit for buyers on the incremental cost of the EV that begins at \$7,500. For example, people who purchase the

Chevy Volt, which is comparable to a light-duty NGV, receive this \$7,500 credit.

If there were a similar tax credit for a light-duty NGV, the economic case for purchasing that vehicle would become compelling. As we have seen, light-duty NGVs have a first-cost purchase price (vehicle, plus home refueling unit) of approximately \$10,000 more than a comparable gas-powered vehicle. Thus the \$7,500 tax credit would reduce the NGVs purchase price to approximately \$2,500 more than the gasoline-powered vehicle. Factor in the lower fuel costs—that is, the approximate \$2 difference between natural gas and gasoline on a GGE basis, or \$1,200 annually—and the purchaser of a light-duty NGV would realize the economic payback in just two years. This would provide a tremendous boost to the light-duty NGV market, which would, in turn, dramatically increase production of NGVs and bring down the per-unit price even further. And as those per-unit costs come down, the tax credits could come down as well.

In sum, tax credits would accelerate the purchase of these NGVs and jumpstart this market, just as the subsidies and incentives for EVs have sustained that market.

2. **Require private carriers to use a percentage of alternative fuels (including natural gas) in order to be eligible for federal contracts.**

The federal government employs tens of thousands of independent contractors to provide it with goods and services, from deliveries by Federal Express, to vendors of all types. Requiring that 25 percent of the vehicles owned and operated by these contractors run on alternative fuels such as natural gas would result in significant increases in the use of alternative fuel vehicles, with all of the attendant economic, environmental and energy security advantages. This requirement should apply to any company seeking a contract with the federal government, as well as any company seeking to renew an existing contract.

3. **Equalize the fuel tax on LNG.**

The federal excise tax on CNG is based on its energy content. So the excise tax on CNG per GGE is 18.3 cents—the same as a physical gallon of gasoline. That is fair. The excise tax on LNG, however, is unfair. LNG is taxed the same as diesel fuel (against which it competes) at a rate of 24.3 cents per gallon. But the tax on LNG is not based on energy content (i.e., a Diesel Energy Equivalent, or DGE). It is based on a physical gallon of LNG. Since a gallon of LNG has only about 60 percent of the energy in a gallon of diesel fuel, the effective tax on LNG is 41.5 cents per DGE, versus only 24.3 cents for a gallon of diesel. This significantly dilutes LNG's inherent price advantage, further discouraging the purchase of NGVs. Congress should change this policy and tax LNG on energy content equal to a diesel energy equivalent.

4. **Do not tax the incremental price of NGVs.**

As noted, depending on the size of the vehicle, the first-cost purchase price of an NGV can be anywhere from \$6,000 to \$80,000 more than the cost of the gasoline- or diesel-powered equivalent vehicle. The federal excise tax on trucks—12 percent—is currently applied to the full price of a new NGV, thereby further increasing the NGV's incremental cost and penalizing customers, especially in the fleet vehicle market, for purchasing such vehicles. This is especially a challenge in the mid- to heavy-duty NGV market. To tax a \$120,000 NGV long-haul truck at the same 12 percent rate as a \$100,000 diesel-powered truck adds approximately \$2,100 to the cost of the NGV. Furthermore, to discourage the purchase of NGVs in the mid- to heavy-duty market is extremely counterproductive because, in terms of cost savings and environmental benefits, this is the most promising market. To repeat, the long distances heavy-duty (long-haul) trucks travel annually results in huge savings in fuel costs, as well as GHG reductions. Congress should adjust the federal excise tax rate on the purchase of an NGV so that it is not taxed on the incremental cost of the vehicle. That would make the tax rate

on the NGV equal to that of its gasoline- or diesel-powered equivalent and encourage the purchase of NGVs.

5. **Increase the Department of Energy's budget for natural gas vehicle research and development (R&D).**

Although DOE's ARRA and Advanced Research Projects Agency - Energy (ARPE-E) programs have contributed to the technological advancement of the NGV market, DOE's budget for NGV research and development should be extended and significantly increased. At the very least there should be a level playing field with respect to DOE's financial support for the EV industry and the NGV industry.

6. **CAFE fuel standards.**

The Environmental Protection Agency (EPA) and the National Highway Transportation Safety Administration (NHTSA) recently adopted new fuel economy and greenhouse gas regulations for light-duty vehicles and also, separately, for heavy-duty trucks. These rules do provide some incentives for NGVs, but are structured in a way that prevents auto makers from taking full advantage of them. Moreover, there is a major disconnect between the two sets of rules in that the light-duty rules reward NGVs with a credit for displacing petroleum, but the rules for heavy-duty NGVs do not, even though heavy-duty NGVs actually displace more total petroleum than light-duty vehicles. In addition, in certain aspects the rules clearly favor electric vehicles over NGVs and other alternative-vehicle technologies. Congress should direct EPA and NSTA to correct these deficiencies.

CONCLUSION

The U.S. domestic natural gas industry has been presented with a positive "perfect storm" virtually unprecedented in its history or that of any other industry. Thanks to new production technologies

that make it possible to bring this clean-burning, domestically abundant and ever-expanding supply of natural gas to market efficiently and cost effectively, America is now the largest producer of natural gas in the world, and natural gas prices promise to remain stable and competitive far into the future.

At the same time, partly because of our abundant domestic supply, a promising new market for natural gas has emerged—one that not only will help provide a ready market for that domestic natural gas here at home, but also one with the potential to fundamentally transform America by helping meet a number of public-policy priorities that are vital to the nation's well being. To the extent that the natural gas vehicle market can realize its full potential, thereby significantly displacing oil in the U.S. transportation market, so too can America realize its goal of reducing our dangerous and expensive dependence on imported oil, while creating millions of good-paying domestic jobs, improving our natural environment and enhancing both our energy security and national security.

The good news is that a great deal of progress has already been made towards achieving the potential of the natural gas vehicle market, but much more needs to be done, and that is especially true with respect to federal support for this initiative. Where leadership has emerged in promoting NGVs, it has largely come from the states, which have clearly grasped this market's promise. Indeed, in virtually every state there are programs and initiatives to support and incentivize the expansion of the NGV market, but the states are increasingly looking to the federal government for leadership.

It is time for the federal government to step up to the plate, to meet the states halfway and become their full partner in promoting a market virtually unmatched in terms of its positive effect on the public good, the national welfare and the quality of life of all Americans.

ENDNOTES

1. Jennifer O’Shea and Jake Rubin, “DOE Report Affirms Role of Natural Gas as a Foundation Fuel”, American Gas Association, December 6, 2012 http://www.aga.org/Newsroom/news-releases/2012/Pages/DOE_Report_Affirms_Role_of_Natural_Gas_as_a_Foundation_Fuel.aspx.
2. America’s Natural Gas Alliance, “Why Natural Gas? 3. Clean”, February 8, 2013, <http://www.anga.us/why-natural-gas/clean#.URKD1PL0-bM>.
3. Center Point Energy, “Earn Points and Satisfied Customers”, February 8, 2013 <http://www.centerpointenergy.com/services/naturalgas/buildersandtradeallies/buildersanddevelopers/resourcecenter/fa3e9fcd45484110VgnVCM10000001a10d0aRCRD/LA/>.
4. Energy Tomorrow, “Natural Gas”, February 8, 2013, <http://energytomorrow.org/energy/natural-gas/#/type/all>.
5. Energy International Agency, “Short-term Energy Outlook”, January 8, 2013, <http://www.eia.gov/forecasts/steo/>.
6. Natural Gas Vehicles for America, “About NGVs”, February 8, 2013, http://www.ngvc.org/about_ngv/index.html.
7. America’s Natural Gas Alliance, “Why Natural Gas? 4. Jobs”, February 8, 2013, <http://anga.us/why-natural-gas/jobs#.URUbhmdH4sy>.
8. Consumer Reports, “The natural-gas alternative: The pros and cons of buying a CNG-powered car”, March 2012, <http://www.consumerreports.org/cro/2012/03/the-natural-gas-alternative/index.htm>.
9. Statistic Brain, “Gas Station Statistics”, June 13, 2012, <http://www.statisticbrain.com/gas-station-statistics/>.
10. Policy Development and Research, “Transit on the Cutting Edge of Clean Technology”, American Public Transportation Association, September 2012, <http://www.apta.com/resources/statistics/Documents/Transit-Clean-Technology.pdf>.

About the Progressive Policy Institute



The Progressive Policy Institute (PPI) is an independent research institution that seeks to define and promote a new progressive politics in the 21st century. Through research, policy analysis and dialogue, PPI challenges the status quo and advocates for radical policy solutions.

© 2013
Progressive Policy Institute
All rights reserved.

Progressive Policy Institute
1101 14th St. NW
Suite 1250
Washington, DC 20005

Tel 202.525.3926
Fax 202.525.3941
Email info@ppionline.org
www.progressivepolicy.org