

STATEMENT OF RICHARD KOLODZIEJ

ON BEHALF OF

NGVAMERICA

UNITED STATES SENATE COMMITTEE ON

ENVIRONMENT AND PUBLIC WORKS

March 24, 2010 Hearing

Opportunities to Improve Energy Security and the Environment through Transportation Policy

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Introduction

NGV America appreciates the opportunity to provide the following statement concerning America's energy security, the environment, and transportation policy. As the title of this hearing suggests, transportation policy has a profound impact on efforts to improve energy security and the environment. NGV America believes that national transportation and energy policies should encourage the increased use of natural gas as a transportation fuel. Such policies would provide increased energy security, more U.S. jobs, cleaner air, and less greenhouse gas emissions -- while also providing significant economic benefits. These benefits result from the fact that natural gas is a domestic fuel with an abundant resource base here in the U.S. and North America. Natural gas also is a low-carbon fuel with a proven record of reducing emissions of harmful pollutants that contribute to ground level pollution and other air quality concerns such as particulate matter emissions and air toxics.

NGV America is a national organization dedicated to the development of a growing and sustainable market for vehicles powered by natural gas, biomethane and natural gas-derived hydrogen. NGV America represents more than 130 member companies, including: vehicle manufacturers; natural gas vehicle (NGV) component manufacturers; natural gas distribution, transmission, and production companies; natural gas development organizations; environmental and non-profit advocacy organizations; state and local government agencies; and fleet operators.

Energy Security Benefits of NGVs

Domestic Supply of Natural Gas

One of the historic barriers to increased support for natural gas vehicles (NGVs) has been the concern that the domestic natural gas resource base was not large enough to support both NGVs and traditional gas uses. For a number of years, the long-term forecasts of the U.S. Department of Energy and others tended to anticipate demand for natural gas exceeding U.S. production, leading to increased imports. That concern

has now been put to rest as a result of technology advances that significantly increase the natural gas production potential here in the U.S. and North America. Just a few years ago, it was estimated that the economically recoverable portion of our domestic natural gas resource base was sufficient to serve our needs for 65-years at current and projected use levels. Current estimates are that the U.S. now has well over 100 years of natural gas supply. As production technology improves further, it is expected that future estimates will be even greater.

Displacing Foreign Oil

Using natural gas in motor vehicles will reduce petroleum reliance. And using natural gas in high fuel use fleets -- particularly medium- and heavy-duty trucks -- is the most immediate pathway to lowering dependence on foreign oil. According to the U.S. Department of Energy, the average consumer drives about 12,000 miles per year, using about 500 gallons of gasoline. Light-duty *fleet* vehicles use more but, in general, the amount is still relatively small. On the other hand, large, medium- and heavy-duty trucks consume much more fuel on an individual basis. These high fuel-use vehicles (mostly operated in urban fleets) include trash trucks, transit buses, short-haul port trucks, goods delivery vehicles of all kinds, etc. An 18-wheel tractor trailer, for example, may drive 120,000 miles per year and get only 6 miles per gallon. That equates to 20,000 gallons of diesel fuel per year! Consequently, trucks and buses consume about a quarter of the on-road energy – mostly in the form of diesel fuel.

There are many alternative fuel and advanced technology options competing for the light-duty market (e.g., natural gas, propane, ethanol, electricity, plug-electrics). But for diesel-powered trucks and buses, the options come down to only two -- natural gas and biodiesel. Biodiesel is an excellent petroleum displacement fuel. However, biodiesel's potential is limited. Because of technical and other restrictions, existing diesel vehicles cannot use blends of more than 20 percent biodiesel, and most use only 5 or 10 percent. Plus, the availability of domestically produced feedstocks for biodiesel production (mostly soybeans) is limited. Natural gas, on the other hand, is an excellent heavy-duty fuel, with many models available today. In fact, most of the major truck and bus manufacturers now offer NGV models.

Environmental Benefits of Natural Gas

Criteria Pollutants

The same properties that make natural gas an excellent fuel for other applications also make it an excellent fuel for transportation. Natural gas burns cleaner than gasoline and diesel fuel, and most other transportation fuels as well. Not surprisingly, the first vehicles certified to the U.S. Environmental Protection Agency's (EPA) ultra-low

emission, super-ultra low-emission and Tier 2/Bin 2 standards were NGVs. The natural gas-powered Honda Civic GX has won numerous awards for its outstanding environmental performance. In 2009, the Civic GX was rated the “Greenest Car in America” by the American Council for an Energy-Efficient Economy – for an amazing seventh year in a row. Compared to the gasoline Civic, the natural gas-powered Civic produces 95 percent fewer emissions of volatile organic compounds and 75 percent less emissions of nitrogen oxides – pollutants that contribute to ozone formation. In fact, the vast majority of light duty NGV models currently available are certified to the Federal Tier 2/Bin 2 standard; only Bin 1, which requires zero emissions, is more demanding. In the medium- and heavy-duty truck and bus markets, Cummins Westport’s and Emission Solutions’ natural gas powered engines were the first engines to certify to the full-2010 federal emission standards, achieving extremely low NOx emissions levels well ahead of their diesel competition, and with less emission controls required.

The environmental benefits of NGVs are expected to continue to improve as new automotive technologies become available. As long as the internal combustion engine is with us and as long as refinements to it are possible, natural gas will be the cleanest transportation fuel to use in it. A recent National Academy of Science (NAS) report, titled *Hidden Costs of Energy: Unpriced Consequences of Energy Production and Use*, includes some very positive findings concerning NGVs. The report, which analyzes vehicle technologies as of 2005 and expected by 2030, projects that, with further expected improvements in vehicle technology and fuel efficiency, natural gas powered vehicles will provide superior benefits in terms of criteria pollutant reductions compared to nearly all other types of vehicles, *even electric and plug-in hybrid electric vehicles*.

NGVs Reduce Greenhouse Gases

NGVs also can play a role in reducing greenhouse gas emissions. Per unit of energy, natural gas contains less carbon than any other fossil fuel, and, therefore, produces lower carbon dioxide (CO₂) emissions per vehicle mile traveled. While NGVs do emit methane, another principal greenhouse gas, the increase in methane emissions is more than offset by a substantial reduction in CO₂ emissions compared to other fuels. The California Air Resources Board (CARB) has conducted extensive analyses on this issue, and concludes that burning compressed natural gas produces about 22 percent less GHGs than burning diesel, and 29 percent less than burning gasoline. The comparisons are based on well-to-wheels analyses, and include methane emissions. These reductions are equal to -- or better than -- some renewable liquid fuels.

Because of NGVs environmental benefits, many in the environmental community now support the use of natural gas for medium- and heavy-duty fleet vehicles. For example, at a National Clean Energy Roundtable last February, Former Vice President

Al Gore said “Electrifying the auto fleet, using natural gas for the 18- wheelers and the heavy vehicles as a transition -- then we can get off of all those imported liquid fuels that come from foreign oil and foreign products and solve the security and economic problem and put people to work in the process.”

Natural Gas: A Renewable Fuel Option

Natural gas may be a fossil fuel, but its main component – methane – does not have to be. In fact, renewable natural gas or biomethane can be produced from any organic material, including landfill gas, sewage, animal and crop waste and even energy crops. A number of years ago, the U.S. Department of Energy (DOE) did a preliminary study that concluded that, from animal waste, sewage and landfill gas alone, America could reasonably produce 1.25 quadrillion Btus of biomethane per year. That’s equivalent to about six percent of the natural gas used in this country. If crop waste and energy crops were considered, this number would be far larger. The CARB life-cycle analyses mentioned above also evaluated the greenhouse gas reduction potential of biomethane produced from landfill gas. Those analyses concluded that that this biomethane, when used in vehicles, reduces GHG emissions by almost *90 percent* compared with gasoline and diesel fuel – making it among the most effective available greenhouse reduction approaches. Given these findings, it is not surprising that the U.S. EPA’s Renewable Fuel Program recognizes biomethane as an advanced biofuel.

Waste Management, an NGV America member, and the nation’s largest refuse and environmental management company, currently is producing biomethane at its Altamont landfill facility in California. The facility produces the equivalent of 13,000 diesel gallons of liquefied natural gas (LNG) daily. Waste Management uses the LNG to fuel 300 garbage trucks. In January, the U.S. Environmental Protection Agency’s (EPA’s) Landfill Methane Outreach Program presented Waste Management with one of its *Projects of the Year* awards for developing renewable natural gas at the Altamont facility. The LNG plant was built by another NGV America member, Linde North America, and uses technology patented by America’s Gas Technology Institute. According to EPA, the Altamont project’s greenhouse gas benefits are equivalent to that provided by nearly 9,000 acres of pine or fir forests or the removal of 8,000 passenger cars. This and other landfill gas projects around the country demonstrate the feasibility of using renewable natural gas to power natural gas vehicles and displace petroleum.

Economic Benefits

Public policy benefits such as reducing oil dependence, urban pollution and greenhouse gases are critical, but vehicle owners – especially business fleet owners -- are overwhelmingly driven by economics. If they can save money, they are far more interested. Fortunately, for most customers -- especially, high fuel-use customers, NGVs make economic sense. NGVs do cost more money upfront to purchase. The Honda Civic GX, for example, has an incremental cost of about \$6,000. Natural gas transit buses generally cost \$40,000 - \$50,000 more than diesel buses. For an 18-wheeler, the added cost could be as high as \$80,000. These are not insignificant first-cost premiums. But the combination of much lower fuel cost, lower maintenance cost and federal (and, in some cases, state) economic incentives, translates into a very favorable rate-of-return for fleets. For example, a trash truck, which uses 7,500 to 10,000 gallons of fuel per year, could recover its investment in less than 2.5 years, and see a net life-cycle savings of up to \$80,000. Step-vans, which are used for delivery of baked good, snack foods, overnight mail, etc., could see a payback in less than 1.4 years, with a net life-cycle savings of up to \$66,000. Even school buses, which do not drive as far per day, can get a payback within 3 years.

In most states, retail compressed natural gas sells for less than \$2.00 a gasoline gallon equivalent whereas gasoline is selling for close to \$3.00. In Utah, natural gas is priced about \$1.00 per gasoline gallon equivalent. Fortunately, it is anticipated that natural gas will continue to be priced far less than gasoline and diesel. Historically, the wellhead price of natural gas has traded in an 8- or 9-to-1 ratio with oil (barrel of oil to thousand cubic feet (Mcf) of natural gas). Currently, the wellhead price of natural gas is about \$5.00 per thousand cubic feet and petroleum is around \$80 per barrel. Therefore, today, the price ratio is 16-to-1. The U.S. Energy Information Administration forecasts that the wellhead price of natural gas will increase, but quite slowly. Specifically, the agency forecasts that natural gas will not exceed \$8 per Mcf until 2030. Even at a price of \$8 per Mcf, natural gas on a barrel-of-oil-equivalent basis sells for less than \$47 per barrel of oil. However, when the world economy improves and the global demand for oil again begins to exceed supply, world oil prices will rise. At \$100 per barrel and \$8 per Mcf, the ratio is over 12-to-1. At \$150 per barrel, the ratio is almost 19-to-1.

Jobs

More NGVs means more U.S. jobs. Jobs would result from engineers, technicians and others manufacturing engines, equipping new trucks with natural gas engines and cylinders, compressed and liquefied natural gas manufacturing storage vessels and

fueling dispensers for natural gas stations and providing other support services. More NGVs also would provide much needed support for the nation's automotive dealerships, which will be involved to retrofit and install aftermarket conversion systems. In addition, more NGVs would ensure that natural gas producers are able to continue to hire and retain employees who are drilling for and producing natural gas. These investments will put people to work, and strengthen energy security by ensuring that we use more domestic natural gas and less petroleum imports.

Accelerating the Use of NGVs

Because of the many benefits of NGVs, it makes sense to support transportation policies that encourage their increased use. The time to support NGVs has never been better. Many other promising vehicle technologies are “over-the-horizon” and need technical or other breakthroughs to be commercially competitive. Not NGVs. NGVs are here today. No breakthroughs are required. If you look at the product offerings available, that becomes clear. Natural gas options are now available from: every major trash truck manufacturer; all but one major transit bus manufacturer (and it now appears that the last holdout will be offering natural gas buses); two of the three largest school bus manufacturers; and many of the work/vocational truck chassis makers such as Kenworth, Freightliner and Peterbilt. Also, while only one light-duty vehicle is being sold in the US by an original equipment manufacturer (the Honda Civic GX), there is a long list of light-duty Ford and GM sedans, vans, SUVs and pick-up trucks for which EPA-and CARB-certified aftermarket conversion systems are available. And new NGV models keep being added all the time.

To accelerate the use of NGVs, Congress needs to continue its support for NGVs and expand current incentives for them. NGVAmerica urges Congress to pass the “New Alternative Transportation to Give Americans Solutions” (or NAT GAS) (H.R. 1835 and S. 1408). That bill would significantly extend and expand existing NGV incentives, and send a signal to America's fleets and consumers that increasing the use of NGVs is important to the country. The House version of the NAT GAS Act has 139 bipartisan co-sponsors. The Senate version also has bipartisan support, and has Majority Leader Harry Reid as an original sponsor. NGVAmerica estimates that enactment of the NAT GAS Act incentives will create and support between 400,000 to 600,000 direct and indirect jobs.

In addition, providing regulatory relief for manufacturers who produce alternative fuel conversion systems, as contained in S. 1809, would enable these businesses to expand their offerings of emission certified systems. Industry and EPA need to work together to find solutions that enable more conversion systems to be certified faster

and with less expense. NGVAmerica believes that the regulatory relief that has been proposed – streamlining certification, allowing carry-across certification of similar vehicles, and expanding the model year concept for aftermarket systems – are all reasonable steps that should be taken to facilitate the increased availability of natural gas fueled vehicles. If these provisions had been in place the last time petroleum prices surged, thousands (perhaps hundreds of thousands) more NGVs would be on the road today.

In addition to passing the NAT GAS Act, Congress also should authorize a new NGV research, development and demonstration program, such as contained in S.1350. The U.S. Department of Energy once had such a robust NGV R&D program, but several years ago stopped funding this critical work. Last year, Congress appropriated \$5 million for NGV R&D. This support is much appreciated but still far short of what is needed. A robust and well-funded R&D program would ensure that NGVs continue to hold their advantage in terms of efficiency and environmental performance, would create new opportunities for renewable natural gas, and would send the signal to automakers and truck manufacturers that government is a willing and able partner in bringing new products to market.

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