Comments on the New York State Energy Plan 2009

by
by Joanna D. Underwood, President, Energy Vision

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I appreciate the chance to submit comments on the New York State Energy Plan and want to focus on the transportation-related elements in this plan, mainly on the Transportation Issue Brief but also on the contents of other briefs looking at petroleum and natural gas use, health impacts and climate change issues related to transportation.

The perspectives I share are based on 15 years of analysis of alternative fuels options in transportation conducted by the team that launched Energy Vision's national non profit research and outreach program in 2007. Our work has involved assessing all possible alternatives to petroleum-derived fuels, examining the need to transition to these alternatives, and the potential for their use in various transportation sectors. We have especially focused on the heavy duty diesel transit bus and refuse and recycling fleet sectors. This research has been published in a dozen widely distributed reports that have been used for planning purposes by government and business leaders, municipal planners and fleet operators.

General Comments on the New York State Plan as it relates to Transportation: The Need for a Diesel-Sector Specific Strategy

Drafters of this plan, first and foremost, are to be congratulated on the great amount of detailed data provided on all areas of energy production, use and impacts on health and climate change in New York State and on the national level. The Plan is rich in information and wide-ranging in its recommendations for petroleum displacement and greenhouse gas reductions in the industrial, commercial, residential electric generation, and transportation sectors.

With respect to defining the challenges posed by the on-road transportation sector, the report and accompanying briefs and backup documents emphasize the following:

- the primary role that transportation plays as a source of air pollution that is creating the greatest health threats to New Yorkers (The Transportation Issue Brief reports that the whole ten county downstate area is currently in non-attainment for particulate matter less than 2.5 microns in diameter. Manhattan is in non-attainment for particulate matter less than 10 microns in diameter, and there are eight non-attainment areas for ozone in New York, covering 29 counties and one partial county. In all, 13.5 million New Yorkers out of 19.3 (70% of all New Yorkers!) are living in areas where air quality does not meet standards set to protect public health);

- the role that transportation plays as the largest single source of global warming greenhouse gases (38%); and

- the projected growth of transportation-related greenhouse gas emissions by 40% between 1990 and 2025, a higher growth rate than for any other sector.

Transportation is the only sector that is virtually entirely (98%) dependent on petroleum, and New York has one of the highest levels of dependence on imported oil (88%) of any state in the country. As a result, it is extremely vulnerable to fuel price spikes and the potentially economically disastrous disruptions in foreign oil supplies that may well occur as competition for dwindling global supplies increases.

Yet, the plan's analysis of vehicle and fuel options for reducing petroleum consumption and greenhouse gas emissions in highway transportation focuses primarily on CAFÉ standards and plug-in electric hybrid technology. It leaves a large gap by not specifically addressing the diesel sector.

The Heavy-duty Diesel Sector: A major Greenhouse Gas Generator with a Solution at hand

According to the Transportation Brief, 12.5% of the road vehicles in the State are heavy-duty diesel trucks which, along with diesel buses and other heavy duty diesel vehicles on our roadways (if they follow national statistics) consume 20% of petroleum-based fuel in this country and contribute a similarly disproportionate share of greenhouse gas emissions. Diesel trucks also—especially the thousands of refuse and recycling trucks that travel down virtually every residential street in our cities and communities—are a major source of the health-damaging emissions of particulates, nitrogen oxides and volatile organic compounds that bear a major responsibility for the high rates of respiratory and cardiovascular disease in the State.

A specific set of strategies aimed at shifting the heavy duty sector off diesel fuel and putting this sector on the path to a sustainable future is needed. The good news is that there is one practical strategy that can be implemented TODAY using commercially available technology. That is to replace diesel trucks with the new models that burn natural gas (or retrofit existing fleets with off-the-shelf technology to convert to CNG), whose contributions to cleaner air, greenhouse gas reduction, and energy security are increasingly recognized in the State.

Some farsighted New York State municipalities have taken this step already, showing what can be done. In 2007, Smithtown, on Long Island, required that all haulers bidding on its waste collection contract provide their service with natural gas trucks. The operation of these trucks was so successful that, in 2008, the Township mandated that all new government vehicles (heavy and light duty) be natural gas models. Brookhaven, the largest town on Long Island, followed suit and now has 70 natural gas trucks in operation. In New York City, The Department of Sanitation, which operates the largest municipal refuse truck fleet in the US, and two private haulers in the City are also beginning to move in this direction.

I am pleased to say that Energy Vision's research of alternative fuels options for heavy duty trucks has been instrumental in New York City's, Smithtown's and many other US communities' decisions to follow this path. The recent awards of Stimulus funding to convert 87 heavy duty trucks and build five new CNG stations on Long Island and to deploy a variety of alternative fuel vehicles across New York State will further steps forward.

The Value of a State-wide Diesel-specific Strategy based on Use of Natural Gas: A more detailed Look

I would like to offer here a more detailed look at the near and long term benefits of a diesel-specific strategy aimed at converting heavy duty bus and truck fleets to natural gas and then offer some recommendations for steps the State could take to encourage this shift.

Near term Benefits of a Shift to Natural Gas

Natural gas is the only true alternative transportation fuel option that is available today on a broad scale that can achieve the three current transportation goals of New York State.

- Natural gas is the cleanest alternative fuel available. Since this fuel is 80% hydrogen (containing only one carbon atom) the emissions from natural gas vehicles contain virtually none of the health-damaging particulate and smog-forming nitrogen oxide emissions related to use of diesel fuel. Natural gas vehicles are cleaner than even the cleanest new diesel models. From a health perspective, the most important near term goal would be to get all old diesel trucks (1998 or older) off the roads of the State as quickly as possible.

- A shift to natural gas would contribute significantly to meeting the State's greenhouse gas reduction goals. Every heavy duty truck or bus converted to natural gas has 20 to 30% lower emissions of these gases than conventional diesel trucks (those on the roads before the 2007 standards went into place.

- A shift to natural gas in heavy duty fleets would measurably reduce the State's exceptionally high dependence on oil imports from OPEC and other nations that are not reliably friendly to US interests, while taking advantage of a domestically plentiful, secure, and cheaper fuel. And with competition for the remaining global oil resources increasing especially from China and India (home to 1/3rd of all the people on this planet and both rapidly industrializing) the faster New York makes a transition to petroleum-free transportation fuels, the more secure its transportation future will be.

Natural gas and the vehicles that can take advantage of it are ready for use TODAY.

- Natural gas vehicles, as substitutes for diesels, are a fully commercial choice. After 15 years of development, there are heavy-duty natural gas engines that are reliable high performers, and versions of these engines (a variety are now entering the market) can be used in almost every type of heavy duty vehicle application such as a refuse or recycling truck, a transit or school bus, or a produce or package delivery truck— not to mention the lighter duty engines appropriate for use in shuttles or vans that run local routes or move between towns and airports.

- Natural gas supplies are more plentiful than supplies of oil in the US and the estimates of US natural gas resources have recently been significantly revised. In 2004, the US Department of Energy estimated a 72 year supply (at 2004 consumption levels). This was revised in mid-2006 to an 88 year supply (at 2006 consumption levels.) Then, in 2008 the estimate jumped to 118 years, due primarily to the discovery of natural gas-containing shale formations in Texas, the Northeast, and elsewhere. A thorough understanding remains to be gathered regarding the environmental impacts of obtaining shale gas, especially where drinking water supplies might be affected, but the range of environmental impacts involved in producing and using natural gas remain less extensive and severe than those of producing and using petroleum-derived fuels.

- Since natural gas is available through a pipeline system that runs throughout most of New York State, the primary step needed to put many thousands of clean natural gas vehicles

on the State's roadways is the building of fueling infrastructure. The state has just 60 State-built CNG fueling sites compared to 6,000 gasoline stations. Investments would offer the State the highest payoff were they targeted at the most heavily polluted urban areas and along the main transportation corridors of the State. While New York has taken some steps in this direction, much more is needed. With federal legislation pending that would provide more and longer term support for building this infrastructure, the time to act may be now.

- Once natural gas fueling-station infrastructure is in place, heavy duty fleets will not be the only vehicles that can take advantage of it. Light duty fleets, whether they are government fleets, private taxi or car service fleets, or even individuals will also be able to purchase natural gas models (California has already certified a number of these) and fuel them at the same stations.

In addressing the serious risks related to reliance on petroleum-based fuels, natural gas - it is worth re-emphasizing - is the only significant solution at present. And since there may be many ways to meet this State's needs for electricity generation and heating – solar, hydro, biofuels, wind, etc, we see the highest priority for the use of natural gas as in the transportation sector.

Long term Benefits of a Shift to Natural Gas: A Viable Path to fully Sustainable Fuels

As New York State aims to propel a transition to fully sustainable fuel, certainly one of the greatest benefits of investing in natural gas vehicles today and of building a fueling infrastructure for gaseous fuel is that these actions not only produce cleaner air and lower greenhouse gas emissions in the State, but also pave the way to the phasing in of truly sustainable fuels—biomethane, hythane (a blend of biomethane and hydrogen), and hydrogen.

Biomethane, a renewable form of natural gas made from wastes and other biomass resources, is produced with technologies that are in commercial use now in Europe, and are just now arriving in the US. Two major industry summits on biomethane were held during the past year in California where commercial operations and opportunities were the focus of this sector on the move.

Biomethane, not mentioned in the transportation brief, is of the most immediate importance. It can be produced using the gases that are formed in landfills, potentially turning the residential organic solid waste streams that every city and community generate into a clean fuel while expanding the potential for "green jobs."

New York State is also a vast agricultural state with large biomass resources for producing a natural gas substitute at landfills, dairy farms, sewage treatment facilities, and at other sites having large organic waste streams. Because the two fuels are identical chemically they can be completely intermixed and can use the pipelines and refueling stations built for natural gas.

Biomethane can also be produced in anaerobic digesters that process organic wastes, energy grasses, and agricultural wastes, and a new generation of low-cost, small-scale gasification plants for biomethane production from biomass, sewage, or both mixed together, have come on line in Sweden, Germany and Italy.. This technology is significantly expanding the commercially viable feedstocks for biomethane and this will make it possible for many localities to run their own plants economically.

The Low Carbon Fuel Standard (LCFS) of California—recognized by NY State and other members of RGGI—identifies only two commercial fuels as inherently compliant with its 2020 greenhouse gas emissions reduction goal of 10% in highway transportation. These fuels are natural gas, which has a 28% lower carbon intensity than diesel, and biomethane, which has an 84% lower carbon intensity. As versions of the LCFS moves to other states, New York could benefit greatly by positioning itself as a leader in the biomethane industry, boosting its economy, both urban and rural.

Examples of Policies and Programs That Could Accelerate Change in the Diesel Sector

Once the powerful multi-faceted rationale for promoting and supporting the shift from diesel to natural gas and then to biomethane becomes clear, many government initiatives could advance this viable fuel shift such as the following:

- Calculate the specific contribution in the Energy Plan that a shift to natural gas fuel in heavy duty fleets can have in addressing all three of the state's goals: on reducing the State's oil dependency, on improving the health of New Yorkers, and on reducing the State's generation of climate changing gases and set quantifiable goals.

- Establish a policy that makes it possible for emissions trading programs to apply to the transportation sector as well as to the utilities sector.

- Add natural gas vans and shuttles used in municipal fleets as well as refuse and recycling trucks to the state purchasing contract, which would encourage and facilitate the purchase by municipal governments of natural gas vehicles. (The Office of General Services in New York State was the first in the country to add natural gas refuse trucks to the state contract, and other states can buy off this contract as well.)

- Include in New York's program to green its state-owned fleets a clear preference for vehicles and fuels that 1) reduce greenhouse gas emissions; 2) reduce health-damaging air pollutants; and 3) lessen the State's dependence on petroleum-derived fuels. Measured against all three criteria, natural gas is today the clear winner,(and biodiesel can make an additional contribution.)

- Establish state economic incentives or grants such as those in California and Texas that, in conjunction with the incentives provided under the 2005 Energy Policy and Transportation Acts, create a totally level playing field for public and private diesel fleet operators who want to purchase and operate new natural gas vehicles, e.g., by covering all of the incremental costs of buying these more expensive vehicles and possibly even the costs of modifying fleet garages and training workers.

- Develop a concrete overall plan and goals for funding and building a much more extensive natural gas refueling infrastructure, focusing on urban centers and along interstates.[1]

[1] Among the strategies developed in Europe for natural gas infrastructure, an especially interesting one was Germany's requirement that international oil companies doing business in that country had to install 1000 natural gas fueling stations by 2010, knowing that these stations could also be used for biomethane in the very near future.

- Ensure that educational programs are in place to advise fleet operators and municipal officials about fuel and vehicle options and about the federal economic incentives and state grants available for purchasing new natural gas vehicles or doing diesel retrofits.

- Create incentives for towns in New York to pool their municipal organic wastes and, instead of throwing away this valuable energy resource at high cost, collaborate to extract biomethane from their landfills (or produce it in anaerobic digesters) to fuel local heavy duty truck and bus fleets.

- Involve the State University's agricultural expertise in developing biomethane production projects in the State's agricultural and park lands.

Because of the many health, greenhouse gas reduction, and energy security benefits of natural gas fuel, in the last decade the number of natural gas vehicles on the roads worldwide has soared to almost 10 million. Unfortunately, North America, which was a leader in developing new natural gas vehicle technology, has dropped the ball badly in taking advantage of it as the chart on "NGV Growth by Region" shows on the next page.[2]

But at a critical juncture in the history of New York and of this country, we hope that the State will recognize the immediate need and exciting opportunity it has to move toward the cleaner, renewable, and ultimately carbon- and pollution-free transportation fuel options that are on the horizon and that this recognition will inspire the commitment making greater concrete progress toward a sustainable energy future a reality in New York State. Conditions are now ripe to pick up the pace of change.
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Energy Vision
138 E 13th Street
New York, NY 10003
Tel: 212 228-0225
Email: underwood@energy-vision.org

[2] See charts on next page

Natural Gas Vehicle Growth Worldwide (9.7 million in 2008) and by Region

Data from the International Association for Natural Gas Vehicles