ENERGY VISION NEWS

Planning for a Sustainable Future

Vol. 1, Issue 1, 2007

YOUNG LEADERSHIP AFFECTING THE FUTURE OF A CITY

Emily McGlynn, a junior at Bryn Mawr College, spent the past year on a student research project and summer internship with Energy Vision exploring clean air and energy independence gains for Philadelphia, were it to buy natural gas garbage trucks for its municipal fleet.

I met Joanna Underwood, Energy Vision's Founder and President, a year ago at a talk she gave at Bryn Mawr about EV's search for ways to make a transition to pollution–free renewable energy sources, especially phasing out the use of petroleum in transportation. I was inspired by her presentation and by EV's goal of converting the nation's garbage trucks to run on natural gas, thereby paving the way to sustainable hydrogen–powered transportation. So I contacted her to see if I could help.

I found we shared a common belief: that environmental activism requires good information and action. I began collaborating with EV over the school year researching Philadelphia's health–related air pollution, emissions from Philadelphia's 200 truck refuse fleet, how the city might benefit from natural gas trucks, and how it could organize such a program. During the summer, as an EV intern, I wrote a pamphlet on my research and sent it to many city decision–makers I had met.

In August, Joanna and I went to Harrisburg to discuss our initiative with Secretary Kathleen McGinty of the Pennsylvania Department of Environmental Protection (DEP) and her staff. We found much interest there as well as in the State Policy Office and at the environmental organization, Penn Future. In Philadelphia, we found interest among some on the city council, on the staff of Michael Nutter, the

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NEW YORK METROPOLITAN REGION GARBAGE TRUCKS GO GREEN

Every day some 6,000 refuse trucks remove over 13,000 tons of residential and institutional wastes and 10,000 tons of commercial waste from New York City streets. Hundreds more of these trucks operate across Long Island, and their emissions are a major source of air and noise pollution. Now a number of forward thinking haulers are going green–– helping clean up New York's air, improve its quality of life, and increase its energy security. During 2007, four initiatives in New York City and on Long Island involving the purchase or order of natural gas trucks are making the region first on the East Coast to embrace this technology, setting an example for other communities in the Northeast.

Initiatives taken by Smithtown, a township of 116,000 on Long Island, by the New York City Department of Sanitation (DSNY) and by two of New York City's major private haulers and recyclers, Filco Carting and Metropolitan Paper, to "green" their operations produce a number of rewards: quieter vehicles and reduced pollution for their communities, lower costs (natural gas is less expensive than diesel), and the ability to obtain government incentives that help jump–start use of this technology. Since natural gas is plentiful domestically, it helps reduce New York's reliance on foreign oil and the economic and human costs incurred by the US in protecting the foreign oil it counts on.

Smithtown was the first East Coast community to put a 100% natural gas refuse fleet on its streets. In mid–2006, its leaders, concerned about cleaner air and the rising price of diesel fuel, put out a bid for a new contract, calling for haulers that would use only natural gas trucks. By January 2007 contracts were awarded to four haulers, and 22 clean, quiet natural gas trucks, made by Autocar and Crane Carrier, went into operation. Smithtown's success has attracted interest in the nearby towns of Islip, Babylon and Huntington, as well as in Texas, Ohio, New Jersey, Indiana and Georgia. Fleet managers have come from Philadelphia and Quebec to see these trucks perform.

The DSNY, which operates the largest municipal sanitation fleet in the US (2,200 trucks) pioneered in using the first natural gas trucks in 1989. But it subsequently rejected the technology because of flaws in the early models. After taking another look in 2006, the DSNY was sufficiently impressed that it gave an award to Crane Carrier for 50 natural gas trucks, and purchased the first ten which will arrive in 2008.

By the end of 2007, Filco Carting and Metropolitan Paper Recycling will be the first private haulers to have voluntarily obtained natural gas trucks —three each. Domenic Monopoli, Filco's CEO, said "Filco was formed by my great grandfather as a recycling company in 1910, and we want to carry on the green tradition." Salvatore Zizza, president of Metropolitan Paper Recycling, said that his decision to purchase natural gas trucks was prompted by the promise of cleaner air, less maintenance, and a longer operating life for the natural gas engine. Both haulers say that these purchases are just a beginning.

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LETTER FROM THE PRESIDENT

Welcome to Energy Vision

With tensions growing between countries competing for the world's dwindling oil supplies, with major cities blanketed with vehicle-related pollution, and with global climate change -capable of altering life on earth as we know it -now a reality, the creation of a new "energy vision" for the world is critical.

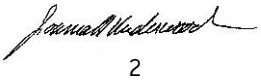
Practical solutions are needed, and practical solutions are what Energy Vision is about. This first issue of EV News offers a look at where we are beginning—concentrating on ending reliance on petroleum-derived fuels for transportation, on advancing use of the cleaner and renewable alternative fuels that can forge the swiftest path to a truly sustainable—ultimately hydrogen-based—transportation future.

In just our first year, we are proud that EV is already having an impact: our staff and consultants are in demand to speak at forums across the country on the path to hydrogen (please visit our new website: www.energy-vision.org),and working with government agencies and alternative fuels experts to advance alternative fuels initiatives in one of the heaviest fuel-consuming and most polluting vehicle sectors – the refuse truck sector. Among these were the four groundbreaking initiatives in the New York metropolitan region, discussed in this EV News, that will replace 38 diesel trucks with clean quiet natural gas models. Over the 7-year life of the truck they will eliminate more than 870 tons of soot and smog-forming pollutants from our air, cut climate change gases, and reduce by 2.63 million gallons the state's risky 90% reliance on foreign oil.

Every person and institution in America can help advance this country's essential transportation revolution. In this newsletter, you see: **municipal leaders**, such as those in Smithtown, who boldly required in 2007 that only natural gas trucks could operate on the streets of their town; **private waste haulers**, such as Filco and Metro Paper, who realized that natural gas trucks would safeguard their workers, improve the quality of life and expand their businesses, and **students**, such as Emily McGlynn at Bryn Mawr College who learned how greatly natural gas trucks could improve Philadelphia's air quality and began promoting change. But also important are **corporate leaders** who give their employees incentives to use mass transit; **colleges** that buy alternative fuel vehicles for their campuses; **families** who walk, ride bicycles and chose hybrid cars; **environmental organizations** who advocate for hybrids and for natural gas-powered bus and truck fleets, and, not to be forgotten, **government legislators** needed to fight for stronger policies that can make the transition to cleaner transportation happen.

EV's staff will be providing all of these groups with reliable facts on the cleanest, oil-fuel free, and efficient vehicles. Especially high on our agenda will be the 450,000 diesel school buses in the US, 33% of which are old, threaten the health of millions of children, and deserve to be replaced. We are ready to come speak to government, business, environmental, and community groups about how they can make clean fuels and energy security a core part of their state or local agendas.

EV's board members and I invite your feedback on our work. We thank our team of staff and consultants and the support of our charter members, who have made it possible to bring a new voice for environmental change into this world. For those of you who are just learning about EV's work, we urge you to become members – to support the uniquely practical research and outreach agenda we have framed that can help make our world a cleaner and safer place.



EV IN THE NEWS...

Annals of Earth: EV: A New Environmental Voice Spring 2007 issue contains an in-depth interview with Joanna Underwood on EV's plans.

Hudson Valley Green Times, Spring 2007, Coming to your Neighborhood? An Alternative to those Noisy, Fuel Guzzling Garbage Trucks Poughkeepsie and Kingston, NY found good candidates for clean fuel trucks.

Waste News, July 23rd, The Alt-fuel Trash Trucks Trend: Big Upsides previews EV's research on the expanding use of natural gas garbage trucks for *Greening Garbage Trucks* (3rd ed., due out at yearend).

July 7th USA Today, The Chicago Tribune, the LA Times, and more than 80 other web news reports carried EV's story on "a very special participant" at the July 7 Live Earth NY Concert demonstrating a good way to fight climate change, a natural gas refuse truck which reduces greenhouse gases by 11-23%.

AND EV ON THE ROAD...

South Korea: Week-long trip brings EV perspectives on the "path to hydrogen" in transportation to universities, NGOs and government groups.

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SUSTAINABLE TRANSPORTATION

Time to leave the era of oil behind?

A brief look at the facts…

Every minute, Americans consume more than 422,000 gallons of gasoline—a petroleum-based fossil fuel created over 65 million years ago now being consumed worldwide at the astonishing rate of almost 84 million barrels a day (mbd)—up from 76 million barrels a day just 6 years ago.

For most of the 20th century, the US had a free rein in use of the world's oil. Today this country, with 5% of the world's population, uses almost 25% of oil consumed worldwide – about 21 million barrels a day. No other nation comes close.

Oil Use in Vehicles: Soaring!

The US has had to import more and more of the oil it uses. Until World War II, we produced all the oil we needed and supplied oil to our allies.

But US oil consumption has soared since then—from 7 mbd in 1950 to 21 mbd—even as our domestic oil production has fallen by more than 25% since 1970. To meet domestic needs, US imports rose to 35% of total oil use in 1973 and to 63% today, with almost a third coming from the volatile Middle East.

Most of the oil we use, almost 70%, goes to power the 220 million vehicles on US roadways. Between 1975 and 2000, US oil consumption in all sectors other than transportation fell by 17% while in the transportation sector it rose 43%. This is because:

- there are more & more cars! 40 million in 1950; 108 million in 1970, and 204 million today!
- Almost half the cars on the road today are gas-guzzling vans and SUVs. In addition, from 1975 to 2000, people drove 63.5% more miles a year.
- More bus, taxi, van and truck fleets populate our cities.

A World Oil Crisis Ahead

The era of oil is rapidly coming to a close. Industry and government experts say that world oil production will scarcely increase above its current level and will peak between now and 2040. From 1997-2002 global oil production grew by 4.3 million barrels a day while oil consumption in the US and China alone grew by 4.0 million barrels a day. This means that China and the US are now taking virtually every new barrel discovered.

China and India, home to a third of the world's people (2.3 billion), are rapidly industrializing. Their vehicle populations and related pollution are escalating. These two countries are expected to have almost 250 million more people during this decade alone. The added oil demands and pollution would be unsupportable.

Oil: Risky For Economic & Environmental Reasons Also

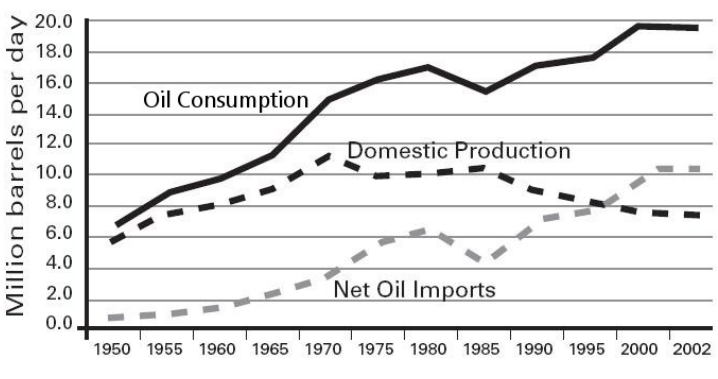
- Reliance on foreign oil is draining the US economy: $300 billion a year flows abroad to buy foreign oil. Almost as much is spent on military operations to safeguard our Persian Gulf supplies. The toll in human life is immeasurable.
- Emissions from petroleum-based fuels make up 60 to 90% of urban air pollution—a key reason why more than 150 million Americans live where air is classified as unhealthy according to EPA standards. Asthma, aggravated especially by diesel emissions, afflicts 15 million children.
- Vehicle emissions make up 25% of the greenhouse gases causing the earth's perilous global warming.

This New Century: A Time for Change

An energy secure and pollution-free transportation future will require:

- Shifting away from petroleum-based fuels to fuels that are domestically-secure, renewable and pollution-free
- Using the most fuel efficient vehicles with a focus on hybrid technology (and planning communities for more reliance on walking, biking and mass transit)
- Educating and inspiring every American to become part of the solution so tomorrow's children can inherit a healthy and flourishing world
- Choosing political leaders who will strive for regulations, economic incentives and programs that are on a scale capable of meeting the challenge we face.

The Growing US Oil Crunch: Falling Domestic Production, Rising Consumption & Imports



Source: US Energy Information Administration

Sources of the data in this factsheet: The US Energy Information Administration, *Greening Garbage Trucks* (2002 & 2006) and *Transportation Boom in Asia: Crisis and Opportunity for the US* (2005). Available from:

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A SECURE, POLLUTION–FREE TRANSPORTATION FUTURE:
Getting to Hydrogen

Carbon–free hydrogen extracted from water, using renewable energy to split the water molecule (solar, wind, hydro–power, geothermal etc), could create a 100% sustainable fuel solution for transportation. But how can we get there?

Natural Gas best paves the Way to the long Term Hydrogen Future.

- Made up of four hydrogen atoms and just one carbon atom, use of natural gas use as a fuel has required development of systems and materials for using a gas fuel in a vehicle. Such vehicles have also required building "gas capable" fueling stations. These systems can be adapted to the use of "hythane," a clean fuel blend of natural gas and hydrogen, and of pure hydrogen.

- Natural gas will likely be the main feedstock for making hydrogen until economical ways to produce it from water exist. NASA has made its hydrogen for the space program from natural gas for 40 years.

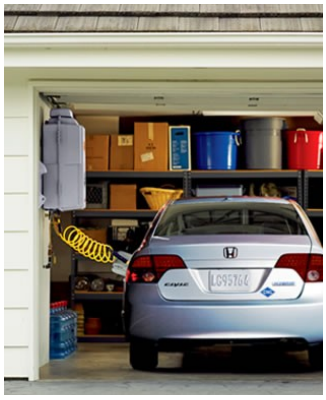
In the near Term, Natural Gas Use has many Advantages.

1. Natural gas is a 100% petroleum–free fuel and is domestically plentiful. 97% of the natural gas consumed in the US is produced in North America, providing greater energy security. Further, it is available in more stable and friendly parts of the world.

2. Natural gas is the cleanest fuel option today. It contains no toxic substances and generates almost no particulate emissions. It reduces greenhouse gases by 11% to 23% compared to gasoline and diesel.

3. Natural gas is safe: Because it is lighter than air, in case of a spill or leak, natural gas rises in the air and dissipates. Liquid fuels can pool and burn as well as contaminate ground water.

4. Natural gas is available through an extensive pipeline system to most parts of the US. For vehicles, only new refueling stations are needed. Close to 800 operate today.



5. Natural gas can be used in many vehicles. In cities, one refueling station can service an entire fleet of taxis, vans, buses or trucks. (For consumers, the Honda Civic GX NGV labeled "America's greenest car" by the ACEEE, can be re–fueled at home)

6. Natural gas vehicles will soon be able to be powered by "biomethane", a renewable clean form of natural gas made from the gases (now a severe greenhouse gas problem) escaping from landfills, sewage treatment plants and other organic wastes.

Although natural gas is a deplete–able fossil fuel (global supplies may last 77 years), its ability to cut down pollution and greenhouse gases and increase energy security today while paving the way to hydrogen tomorrow makes it a double winner!

Bio–based fuels, such as ethanol and biodiesel made from cellulosic materials or waste oils (rather than from corn and soy which are foods needed to feed a hungry world) may help displace up to 15% of our petroleum fuels.

Heavy Duty Bus & Truck Fleets: Prime Targets for Natural Gas Use

Of all heavy duty urban fleets, the 150,000 diesel–fueled refuse and recycling trucks traveling through every city and town removing wastes and recyclables, are one of the most crucial targets for the shift from oil to natural gas fuel. Why?

- These trucks are very heavy fuel users. Constantly stopping and starting, they average just 2.8 miles a gallon.

Replacing one diesel with a natural gas truck eliminates 8,900 to 12,000 gallons of diesel fuel a year!

- Diesel trucks with their fumes and toxic particulate emissions are among the greatest sources of urban pollution. New natural gas trucks have almost no fumes and are the cleanest models available. They already meet the EPA's strict 2010 standards for particulate and nitrogen oxides!

- Diesel trucks are significant generators of greenhouse gases. Natural gas trucks reduce these by 11 to 23%.

- Diesel truck noise disrupts communities. The high noise levels can also harm the hearing of workers. Natural gas trucks are 50–90% quieter.

- Natural gas trucks are a commercial choice. More than 1500 operate in 56 US cities. Hundreds operate in Paris and Madrid and other foreign cities. A natural gas fleet can be refueled at just one or two centralized stations.

- Natural gas trucks are more affordable because of economic incentives in the 2005 energy and transportation acts: income tax credits up to $32,000 cover 80% of the cost of buying new natural gas trucks and up to $30,000 toward building refueling stations. A federal excise tax credit equal to 50 cents per gallon of alternative fuel, also makes natural gas a bargain.

- Natural gas trucks put waste haulers on the path to hydrogen. While diesel trucks may be made cleaner by use of pollution controls or use of biodiesel fuel, new natural gas trucks will soon be able to use landfill biomethane ("closing the loop"), hythane (natural gas/hydrogen blend) and hydrogen in the longer term.

YOUNG LEADERSHIP (CON'T)

democratic candidate now running for Mayor, and in the Fleet Management Department.

This project moved to a new level this fall. In September, Energy Vision and the Greater Philadelphia Clean Cities Organization hosted a forum in Philadelphia, at which city officials and fleet managers saw a natural gas truck demonstration and asked questions of our invited leading natural gas and refuse truck experts about the technology and the design and costs of natural gas vehicle programs. The participants went away eager to explore making Philadelphia a showcase city. Fleet officials planned to visit the Town of Smithtown on Long Island to see its 100% natural gas refuse truck fleet, and to go to a facility where natural gas trucks are manufactured. City officials are considering policies for supporting such an initiative.

While this was rewarding, it is not the end of the road. One thing I've learned with Energy Vision is that the road never ends. There is always a next step. My job as an activist is to find and take it.

Perhaps the most valuable thing I learned this year was that I can accomplish things that initially seemed impossible. Dealing with busy city employees, fleet managers irritated by a nosy college student, not getting my calls returned, and having people say that my research was unfounded was very draining. But I benefited greatly from Joanna's encouragement and strategic thinking, and I have truly grown more confident by working through these problems, learning to stay positive and to keep my main goals driving me forward.

"The Forum EV and Clean Cities organized was a real eye-opener for us. By bringing experts together to answer our questions and letting us see a new natural gas truck for ourselves, we are now enthusiastic about exploring a move in this direction."

James Muller, Fleet Manager, City of Philadelphia

Philadelphia's Air Pollution & Diesel-related Health Problems

- In 2003, Philadelphia ranked in the 90–99th percentile of dirtiest/worst counties in the US for carbon monoxide, nitrogen oxides, sulfur dioxides, particulate emissions and ozone.
- As of 2003, Philadelphia has had nearly 1.5 million person–days in exceedance of the National Ambient Air Quality Standards (NAAQS) for fine particulate pollution (PM–2.5)
- The Philadelphia area received an 'F' in the 2007 American Lung Association's *State of the Air Report* for ozone and particulate pollution.
- Philadelphia, as a major urban center, contributes significantly to Pennsylvania's status as the third highest contributor of GHGs in the US. Pennsylvania emits 1% of the GHGs in the world.
- Effects of diesel exhaust in the Philadelphia region include: about 3,000 cases of cancer over an average lifetime; asthma in 22% of City children (vehicle emissions are a known trigger), and, in 1999, 180 premature deaths and 20,000 days of missed work.

Publications available in print from EV* or from EV's website http://www.energy-vision.org

New York Metropolitan Region Garbage Trucks go Green
A new report, from which the lead story in this EV news was excerpted by A. Bryson and J. D. Underwood. 10pp. $7.50*

Philadelphia: The Next Green City?
A 5–page factsheet. Emily McGlynn

Greening Garbage Trucks: Trends in use of alternative fuels: 2002-5
J. S. Cannon, INFORM, 2006: $20*

Transportation Boom in Asia: Crisis & Opportunity for the US.
J. S. Cannon. INFORM. 2005 $20*

NY GARBAGE TRUCKS GO GREEN (CON'T)

The four initiatives are vital because the impacts of vehicle emissions in the region are severe. Up to 25% of New York City's children in low–income neighborhoods suffer from asthma, one of the highest rates in the nation, and diesel emissions often trigger asthma attacks. Toxins in diesel exhaust include such heavy metals as arsenic and mercury and the reproductive toxins dibutyl phthalate and di–(2–ethylhexyl)–phthalate. Exhaust has also been a major source of polychlorinated dioxins —endocrine disruptors now linked to cancer.

In addition, noise over 75 decibels concerns many New Yorkers, and the noise of diesel refuse trucks has often met this level, levels that can damage workers' hearing. Natural gas reduces the region's air pollution and noise, and the state's heavy dependence on foreign oil—90% compared to the national average of 67%.

With 38 natural gas trucks in regular operation, New Yorkers' lungs will be spared 124 tons of particulate and nitrogen oxide pollutants a year. And the cleaner, less expensive and more secure natural gas fuel will replace the need for 375,800 gallons of diesel fuel a year. The trucks may well stir interest among the city's other haulers, among municipal officials in other cities on the East Coast, and among developers and other businesses in New York City that recognize a chance to raise their environmental profiles by favoring waste collection and recycling companies using the "greenest" trucks.

Now that this trend has begun, there is every reason for New York City's government to enact more incentives, accelerating the pace of change. This would support efforts to meet the goals of plaNYC2030 and of the City's Solid Waste Management Plan. Replacing half of the diesel refuse and recycling trucks in the city would have a dramatic impact: eliminating 8,196 tons of soot and smog–forming NOx, significantly reducing greenhouse gas emissions, and displacing 20.9 million gallons of diesel fuel a year–a win–win for the city, the haulers, and millions of New Yorkers.

EV ON THE ROAD... (CON'T)

Long Island School Bus Forum: introduces School Administrators to natural gas school buses. Joanna Underwood performs the "Clean Hankie Test" comparing tailpipe emissions from natural gas vs. diesel buses with Keyspan official and school administrator.

May 24 National Solid Waste Management Association: Antonia Bryson discussed the benefits of alternative fuels with 50 haulers.

Feb & July 2007, San Antonio Workshops: EV's president kicks off Alamo Area Clean Cities–sponsored debate over new refuse trucks for the city, and speaks at July conference.

June 19 Canadian EECO Conference, Toronto: EV talks path to hydrogen and refuse trucks as pioneers.

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EV is a national non-profit organization that analyzes and promotes ways to make a swift transition to pollution-free renewable energy sources and to the clean, petroleum-free transportation fuels of the future.

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