# Annals of Earth

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## Energy Vision: A New Environmental Voice
### An Interview with Joanna Underwood

*Joan Pearlman, who teaches at the American Folk Art Museum Institute in New York City, interviews our mutual friend and dynamic environmental leader, Joanna Underwood, who has just taken on reforming transportation through her new organization, Energy Vision.*

*Nancy J Todd*

*The paragraphs below were taken from a year-end letter Joanna Underwood sent to her friends and colleagues to update them on the goals of her new organization:*

*"Energy Vision aims to educate a broader public and our public and private sector leaders about the path to sustainable transportation. We will be collaborating with government agencies in putting in place incentives to complement the federal incentives provided in the 2005 energy and transportation acts that reward the companies who are delivering innovation and the communities that are embracing it.*

*We will especially at first be collaborating with cities, universities and advocates to replace today's polluting diesel-guzzling refuse and recycling trucks with clean and quiet natural gas trucks and promoting expanded use in all forms of medium and heavy duty vehicles of renewable clean fuels including also bio-methane from landfills, sewage treatment plants and agricultural wastes and bio-diesel.*

*We will encourage every individual, in addition to using mass transit and the ever-noble bicycle, to make his or her next car an efficient hybrid or, where possible, to get behind the wheel of the new Honda Civic natural gas sedan, which is a hundred per cent petroleum-free, rated the cleanest combustion engine in the world, and now able to be refueled at home overnight with a simple new appliance called the "Phill." In the transportation revolution ahead - perhaps the greatest technology revolution of this new century, involving a shift to hydrogen powered transportation - there is a role for everyone!"*

*JU*

Joan Pearlman: Energy Vision is a brand new environmental organization devoted to practical research and its dissemination as well as to advocating for changes that focus on sustainable energy. First, fill us in on your goals.

Joanna Underwood: We're particularly focused on change in the transportation sector for many reasons. The more than two hundred and twenty million vehicles on our roads are the most important factor in this country's dangerous dependence on foreign oil. About two-thirds of the oil we consume goes to fuel these vehicles. Transportation is the source of twenty-five percent of the greenhouse gases that have made this country the largest contributor to global warming. And transportation is also the major source of urban pollution. Vehicle emissions are damaging the health of a generation of our children, and this can't go on.

Our goals are not just to educate Americans about the risks posed by today's transportation systems and fuels, but to educate them about the cleaner fuels and vehicles of the future, many of which are available right now. Most important, we want to motivate them to get out and promote their use.

JP: With all the discussion of the threats to our national security posed by our reliance on foreign oil, is the United States making any progress in reducing this reliance?

JU: So far, hardly any at all. In the last fifteen years, for all the talk about national security, we have replaced less than three percent of the oil we use with alternative fuels, and even then, the total amount of oil we are consuming keeps growing. Since 1980, consumption has grown from 17 to more than 21 million barrels a day. Virtually all this growth is due to transportation. However, on the positive side, companies such as Toyota, Honda, Cummins Westport, Autocar Truck, and Clean Energy have been forging ahead - designing more efficient vehicles and the engines and refueling stations for alternative fuel vehicles.

JP: How do you see a path unfolding that could end our reliance on oil in transportation?

JU: We see several ways forward. First, there may be an important role for renewable bio-fuels, such as ethanol and bio-diesel. These bio-fuels are cleaner burning and may in the next decade displace from 15 to 20 percent of our petroleum use. However, in our view, they must be produced from better feedstocks than those currently used: for example, if bio-diesel can be made from waste oils instead of soy, and if ethanol can be made from cellulosic materials instead of corn. Right now, while corn-based ethanol does displace some petroleum, it is land, water and energy intensive and turns a basic food, greatly needed in a hungry world, into a fuel, making it a net environmental loser.

JP: So what else is out there?

JU: In looking elsewhere, we see natural gas, renewable bio-methane fuel and hybrid technology as the best bets today because they offer the greatest near and long-term benefits.

In enabling this country to make a transition away from oil toward hydrogen, natural gas is the most important fuel. At present, natural gas is the cleanest fuel option, and its use will increasingly be supplemented by use of renewable bio-methane extracted from landfills, sewage plants, and agricultural and waste facilities. Even more crucial perhaps, in the long term, developing the systems for fueling and operating a vehicle with a gas under pressure makes it possible to use natural gas today while it helps us move to hydrogen tomorrow. Almost every natural gas refueling station that is built can be modified to extract hydrogen from this fuel so it can either deliver a very clean fuel blending natural gas and hydrogen (which decreases vehicle emissions almost to zero) or just hydrogen for the first generation of hydrogen vehicles.

Making hydrogen from natural gas is not the final answer though since, after all, natural gas, however clean, is still a fossil fuel and depletable. And while this fuel is eighty per cent hydrogen, it still contains one carbon atom. So we must move beyond hydrogen extracted from natural gas to hydrogen made from water - the virtually limitless pollution-free resource.

I want to add one more thing: Since extracting hydrogen from water is an energy-intensive process, it will be important to make the energy source used for this, to the greatest extent possible, renewable, such as solar, hydro, or wind. Those who doubt that renewables will ever be commercially widespread enough for this purpose immediately turn their thoughts to nuclear power. But our view is that the first priority must be to

**The author, after test driving the 2007 natural gas Honda Civic, labeled by the American Council for an Energy Efficient Economy (ACEEE) as "America's Greenest Car."**

make a major push for development of renewables. I mentioned hybrid electric technology to be also a great bet today. In the near term, it makes gasoline use much more efficient, and what we really need is much tougher CAFÉ standards or a fuel tax to drive broader use of this technology. In addition, its use involves development of the electronic systems that will be needed for the super efficient all-electric fuel cell engine of the future. Every hybrid electric vehicle that rolls onto our roadways brings the era of fuel cell technology closer.

JP: How can this country afford to make such a huge amount of change in its hundreds of millions of vehicles?

JU: Technologies and fuels of the future are available today, and I would say that we can't afford not to invest in them. In 2005, the federal government passed energy and transportation laws, including economic incentives that are, at last, helping alternate fuel vehicles compete in the marketplace. But these incentives are still too limited considering the price we are paying for inaction. We cannot afford the billions of dollars we are paying for the rising rates of respiratory illness and cardio-vascular disease among millions of Americans resulting from vehicle-polluted air. More than 150 million Americans live in areas that do not meet the federal clean air standards today. We can no longer afford the costs of our foreign oil dependency. Our country has exported more than a million jobs in the oil industry in the last 30 years. As a result, we now export more than a hundred billion dollars a year to buy foreign oil. We are spending triple that amount a year now on military action in the Middle East, aimed to a significant degree at protecting those oil supplies on which we now depend. The human toll of this military conflict is immeasurably greater. We must invest more – much more -- in giving a real market advantage to the vehicle fuels and technologies that will ensure us a healthier and more secure future. Diverting just a fraction of what we now spend supporting our country's oil habit to alternative fuels would make a transition to the hydrogen era feasible in 20-30 years.

JP: Energy Vision is currently focusing on the greening of garbage trucks. There has also been a lot of talk about transit buses and school buses using cleaner fuel, and about cars using alternative fuels. Why did you choose garbage trucks?

JU: Our associates did the first analysis of this sector back in 2002, and we found that garbage trucks are a long-overlooked exciting target for change. There are three times as many garbage and recycling trucks traveling through US cities as there are transit buses -- about two hundred thousand compared to almost eighty thousand. These trucks are highly polluting, and they are rolling down the residential streets in almost every city depositing heavy streams of pollution on every doorstop. So using cleaner fuels in these trucks would be a major step in health protection. In looking at the options, we found natural gas to be the only alternative fuel being used and that natural gas trucks – there were 750 of them in 2002 -- were both cleaner and quieter. They also generate twelve to fifteen per cent fewer greenhouse gases. Our report, called Greening Garbage Trucks, stirred up a lot of interest.

JP: What changes have actually occurred in this transportation sector?

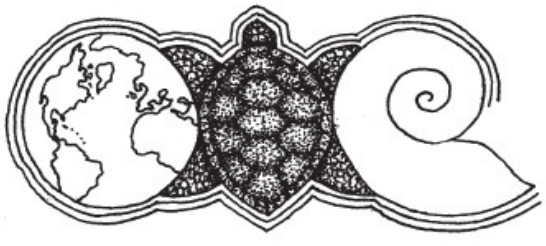
JU: Since the spotlight was first put on these trucks, there has been amazingly rapid change. Between 2002 and 2005, the number of these trucks has almost doubled to fifteen hundred, and the communities using them has also (from 26 to 57.) Most of the change has been on the West Coast. The biggest breakthrough in the last year has been that the first community on the East Coast took an historic step by requiring that, as of January 2007, all garbage and recycling truck service to the town had to be powered with natural gas. That town is Smithtown on Long Island, with a hundred and sixteen thousand people. It now has twenty-two natural gas trucks in operation.

JP: So how have things gone for Smithtown this year?

JU: Great! The leaders of the community are happy about giving their residents much cleaner air while improving their quality of life with the quieter trucks. The truck drivers are relieved from breathing diesel fumes and from the high noise levels. Smithtown projects that over the next seven years they will have eliminated 177 tons of nitrogen oxide emissions and 15 tons of particulates.

Diesel garbage trucks are heavy fuel users. They get less than 3 miles to the gallon. So Smithtown officials are also glad to be displacing 2.5 million gallons of diesel fuel over the next seven years and to not have to worry about rising diesel prices. We have heard that the citizens are also proud of the change. The only irate reaction, according to the Town's Environment Director Russ Barnett, was from a citizen who didn't hear the new truck coming on his block, so he didn't put his garbage out in time.

Smithtown only decided to convert in the spring of 2006. From then on they moved fast. The bids went out, four contractors were selected (all of whom had to buy new equipment) And the trucks were operating seven months later.



Lineup of Garofalo Carting Co's new natural gas garbage truck fleet on Long Island.

Mario Garofalo, head of Garofalo Carting, one of the four contracting firms, indicated how happy he was about helping shape a cleaner future for his community. He even had a tee shirt made saying "Think Green; Think Garofalo" How about that! One contributing factor to the speed of the project was the information in Greening Garbage Trucks, which included names of fleet operators across the country that Smithtown could call to check on the technology. Energy Vision will be putting out a new progress report by year-end.

JP: Are other countries making progress too?

JU: Yes, This movement is not just in the United States; there are about three hundred new natural gas garbage trucks in Paris, and even more on the streets of Madrid. They are being used in The Netherlands, in Yokohama, Japan, and in South Korea as well.

JP: Right now, what do you see as the biggest challenge?

JU: Helping people "get it." More Americans need to understand what this movement has to do with their lives and that progress relies on them. Talking about global warming and the dangers of oil reliance is one thing. But action is another. When Americans do get it, you can see what can happen - just looking at Smithtown. Let's hope this is the beginning of a wave of understanding and change.

The transition away from our reliance on oil is a big one, but it can and must take place. One fleet of refuse trucks, one fleet of transit buses or of school buses – one fleet and one community at a time. Individuals caring and speaking up can make all the difference: by encouraging their communities to end their fleets' addiction to oil, and by thinking about how they personally get around: using a bicycle, mass transit, walking, or buying a hybrid vehicle. Every community that takes part in this process of change becomes part of what may well be the greatest technology revolution in this new century.

For further information: please visit:
www.energy-vision.org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*Annals of Earth is a publication of Ocean Ark International. It is a continuation and extension of the* Annals of Earth Stewardship. *Ocean Arks is a non-profit organization. It was incorporated in 1982 to disseminate the ideas and practice of ecological sustainability throughout the world.* Annals of Earth *seeks, through written communication, to foster the emergence of a lasting planetary culture.*