



## Renewable Energy Sources: Ethanol and Bio-fuels Alternative Fuels — Are They The Answer?

By Kristen Stoll

In the Mid-west, ethanol and other bio-fuels are widely promoted as both environmentally friendly and a boon for the economy. According to the Iowa Department of Agriculture and Land Stewardship, the ethanol industry contributes \$2.6 billion annually to the Iowa economy and adds \$910 million in value to Iowa's corn crop. A bushel of corn can potentially become 2.7 gallons of ethanol, and for every 28.3 gallons of ethanol used one less barrel of imported oil is needed. Ethanol has a higher octane than fossil fuels and therefore it produces fewer smog-causing organic compounds (VOC's). But are they really the solution to the Nation's problems with ozone and CO<sub>2</sub> emissions, and can they help the U.S. reduce its dependence on foreign oil?

### Ethanol, E85, and Bio-diesel

The most common form of ethanol, sold at almost all service stations in Iowa, contains roughly 10% corn-based ethanol and 90% fossil fuels. It is a higher octane fuel, which burns hotter and faster than fossil fuels. This results in both a reduction in greenhouse gas emissions and lower mile-per-gallon fuel efficiency. Emissions from ethanol fueled vehicles are cleaner, but this advantage is diminished because

more fuel must be used.

An even higher octane form of ethanol, E85, consists of 85% corn-based ethanol blended with fossil fuels. Unlike the lower octane ethanol, E85 can only be used in Flex-Fuel vehicles which can run on either fossil fuels or E85. Although Flex-Fuel vehicles are sold nationwide, most of them never see a drop of ethanol. According to the Sierra Club, E85 gasoline is sold at only 600 of the 176,000 service stations in the United States. Roughly 87% of those are located in the mid-west. 140 billion gallons of gasoline were used in 2005, but only 2.5 billion gallons were ethanol fuel and almost none was E85. Thus, Flex-Fuel vehicles have the potential to improve air quality, but they currently have virtually no impact.

Bio-diesel is a blend of soy oil and diesel fuel that also burns cleaner than fossil fuel. It has the highest energy balance of any other bio-fuel and has the potential to dramatically lower certain harmful emissions. The Iowa Department of Natural Resources currently uses B20 in many of their vehicles, which is a blend of 20% soy diesel and 80% fossil

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## Recycling: Your Cell, Shoes, CDs & More

By Christine Eichinger

Did you recently get a new cell phone? Do you have old shoes lying around your house? How about getting rid of that old computer in the basement, or all those outdated floppy disks? Many seemingly harmless items you have around your house can be extremely harmful to the environment if they are not disposed of properly. New programs constantly emerge to help us reuse or recycle materials that would otherwise fill our landfills. Here is a list of some of these programs and how you can not only minimize waste, but often help charities meet their donation goals.

ELS has recently placed recycling containers throughout the building to collect ink cartridges. These cartridges can be refilled and reused to help reduce landfill waste and they help us raise funds for more ELS projects.

Who actually enjoys getting junk mail? Be sure that anytime you fill out forms, you check the box that requests your information not be sold to third parties. If you are already receiving junk mail there are several steps you can take to reduce the amount of junk that shows up in your mail-

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## Mythbusters: Straight from the EPA

Myths debunked by my work at the Environmental Protection Agency (EPA) this summer

By Steven Nelson

**Myth #1:** Environmental law is a shrinking field.

**Fact #1:** While environmental law seems to be a shrinking field, you should be aware that a growing number of businesses including banks and real estate companies have focused on environmental regulations as most environmental statutes are owner/operator statutes, and EPA has used land use restrictions to remedy violations of some statutes. Environmental suits are also getting bigger and more intricate. This lends to a need for more attorneys on both sides. No company wants to be at the wrong end of a \$100 million settlement.

**Myth #2:** All firm/corporate environmental attorneys are anti-environment.

**Fact #2:** As environmentalists, it's very easy for us to see firm environmental attorneys as (fill in the blank with your favorite string of expletives). This, however, is not the case. If this summer taught me anything, it would have to be that "everyone is entitled to a defense." There is nothing wrong with finding loopholes in laws to avoid hefty penalties. In fact, you'd be walking a fine line called malpractice if this was not the case. There are very few people who are "anti-environment." While there is nothing wrong with finding loopholes to avoid hefty penalties, one becomes an enemy to the environment

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## Recycling (continued from page 1)

box. First, any mail that comes in that is stamped first class can be returned by writing "refused: return to sender." While originally developed to stop sexually oriented mailings, United States Post Office Form 1500 may also be used to stop other mail you do not want delivered, like catalogs. Second, if you receive credit offers in the mail just call 1-888-5OPT-OUT, and all four major credit bureaus will be notified. For less common junk mailings, like AOL, visit [www.obviously.com/junkmail](http://www.obviously.com/junkmail) to find out how to stop them.

Surprisingly, batteries are quite harmful to the environment. The chemicals and metals used to make batteries often leak, sending toxins into landfills and the water table. Ni-Cad batteries and other rechargeable batteries can be recycled at Staples or Radio Shack. Regular batteries can be recycled at Interstate All Battery Center in Cedar Rapids.

Used cell phones can be recycled at Wal-Mart on Hwy 1 in Iowa City; they will donate your phone to a charity organization that will use your phone to help someone in need.

All your old worn out gym shoes can be used to help build playgrounds for children. The NikeGo places program takes old shoes and grinds them up to use for athletic courts, including basketball courts, running tracks, baseball and soccer fields, tennis courts, and playground material. The nearest drop off locations are in the Chicago area, but Nike will accept donations which are mailed in. Visit [Nike.com](http://Nike.com) for more details.

Greendisk.com offers a way to recycle all your techno-trash, from old floppy's to desktop computers and anything in between.

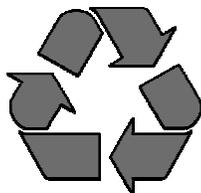
Several retail eyeglass chains collect used glasses for the needy. For more information contact Lens Crafter's, Pearle, or For-Eyes.

Many Styrofoam packing materials can be reused or recycled. The UPS store will collect Styrofoam peanuts for recycling. Check your peanuts to see if they are starch or Styrofoam before recycling them. Many companies now make starch peanuts which are biodegradable. If you have starch peanuts, they will disintegrate in water and if you lick them, they will begin to deteriorate and cause no harm to you or the environment. The nearest UPS store is in Coralville at 941 25<sup>th</sup> avenue.

If you have old CD's try repairing them with a store bought repair kit, or you can send them to Aural Tech. Aural Tech will refinish your CD's for \$3 each and guarantee the finish for life.

Smoke detectors contain a small amount of a radioactive substance called Americium 241 and should not be put in the regular garbage. First Alert will recycle and dispose of old smoke detectors free of charge, just mail them to First Alert, radioactive waste disposal, 780 McClure Road, Aurora, IL 60504.

Or if none of these options sound appealing, you can join us in the spring for our recycling day, where we will accept all your obscure material and recycle it for you!



## Hurricane Katrina Environmental Aftermath: Fast Facts

By Kelly Hanker

### Soil Samples

The Environmental Protection Agency (EPA) released the final results from the sediment sampling it conducted in the areas hit by Hurricanes Katrina and Rita on August 17. The EPA and the Louisiana Department of Environmental Quality collected approximately 1,800 sediment and soil samples since the hurricane flooded New Orleans and the surrounding parishes. The samples were analyzed for over 200 kinds of metal and organic chemicals. The results fortunately indicate that, in general, the sediments left behind by the flooding after the hurricanes are not anticipated to cause any adverse health effects to individuals returning to New Orleans. A number of localized areas did require further testing, however, due to elevated levels of arsenic, lead, benzo(a)pyrene, and diesel and oil range organic petroleum chemicals. In such areas, it is recommended that residents avoid all contact with sediment deposited by the flood water due to potential concerns associated with long-term skin contact. For more information on these results, visit: [www.epa.gov/enviro/katrina/emkatrina.html](http://www.epa.gov/enviro/katrina/emkatrina.html).

### Best Buy

Did you know that, according to the EPA's website, "Best Buy, a partner in EPA's 'Plug-In to eCycling' program, has removed 100,000 pounds of hurricane-damaged electronics from an Orleans Parish collection site in an effort to ease the burden on federal, state and local governments that are cleaning up potentially hazardous household debris in Southern Louisiana"? The purpose of the EPA's Plug-In to eCycling program, which began three years ago, is to increase the safe recycling of used electronics or 'e-waste.' Since then, Best Buy has "paid for the removal and environmentally-safe recycling of storm-damaged computers, monitors and televisions that were being held in an e-waste staging area in Orleans Parish, Louisiana." Under the Plug-In to eCycling program, EPA and the Army Corps of Engineers have coordinated on the collection and recycling of 13 million pounds of storm-related e-waste throughout Southern Louisiana and over 60 million pounds of old consumer electronics throughout the country. Such initiatives demonstrate how private-public partnerships can work with local authorities in post-disaster recovery efforts to provide flexible solutions. More information about the Plug-In program and its partners is available at: [www.epa.gov/plugin](http://www.epa.gov/plugin).

**SOURCE: EPA Website, [www.epa.gov](http://www.epa.gov)**

## Renewable Energy Sources (cont. from pg 1)

fuels. B20 lowers carbon monoxide emissions by 9%, particulate emissions by 8%, and sulfate emissions by 20%. A 100% bio-diesel fuel has even lower emission rates, and can also reduce the level of VOC's by 50%. Bio-diesel can be used in any diesel powered vehicle, but unlike ethanol in Iowa the price per gallon of bio-diesel is higher than regular diesel. B20 currently costs 15-30 cents more per gallon than diesel fuel.

While increased availability and use of ethanol, E85, and biodiesel may boost air quality, it will simultaneously amplify the negative environmental impact caused by ethanol use. Producing large-scale biofuel crops, particularly corn, will result in the use of a lot of water and pesticides. As we shift some of our dependence from fossil fuels to ethanol, we will likely have to start importing bio-materials from countries with room for development in agricultural capacity such as Brazil and Indonesia. Pressure on those countries to expand

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## Renewable Energy Sources (cont. from pg 2)

production leads them to damage vital rainforests in order to make room for crops. Furthermore, even though US dependence on the Middle East for fuel will decrease slightly, we will still be dependent on developing nations with minimal environmental regulations for bio-materials.

The Sierra Club offers a few solutions to improve fuel efficiency above and beyond what ethanol can provide. Stricter enforcement of Corporate Average Fuel Economy (CAFÉ) standards will have a more dramatic effect on auto emissions. CAFÉ was enacted in 1975 and requires auto manufacturers to meet a fuel economy (miles per gallon) average for all new vehicles produced. Vehicles are classified in two groups – cars and light trucks. Despite the existence of technology that would bring efficiency to 40 miles per gallon on all new cars in both categories, CAFÉ standards have not been amended for 25 years.

CAFÉ also contains a Flex-Fuel loophole that allows manufacturers to produce more vehicles that don't meet the standard as long as they produce a prescribed number of Flex-Fuel vehicles. The Sierra Club contends that the combination of the loophole and the consumer trend of switching to light trucks has driven our actual fuel economy to its lowest point since the early 1980s. Increased production of more fuel-efficient autos, & a stricter CAFÉ standard would have a more dramatic impact on pollution from auto emissions than ethanol use.

Using crops for renewable energy must be paired with responsible and careful land management practices to minimize negative effects on the environment. Both the Iowa Department of Natural Resources and the Sierra Club recognize there are crops other than soy and corn that are effective fuel sources. Switchgrass is a hardy prairie grass, native to Iowa, that provides many environmental benefits in addition to being a viable fuel source. It has an extensive root system that runs 8 feet deep. Because of its excellent root system, switchgrass is currently used in buffer areas in Iowa to prevent soil erosion and chemical run-off. Unlike corn, switchgrass can be fired with coal at existing power plants to produce electricity. Switchgrass also has the added environmental benefit of providing nesting habitat for wildlife.

### Heat and Electricity Uses

According to both the U.S. Department of Energy and the Sierra Club, bio-mass products are much better suited for use by stationary sources than automobiles. Plants naturally store energy from sunlight as they grow, and could serve a dual-purpose of providing energy while they remove harmful CO<sub>2</sub> emission from the air. Currently, coal-fired power plants provide most of our electricity, and they are also our primary source of CO<sub>2</sub> emissions. The U.S. Department of Energy estimates we could affordably supply 20% of the Nation's electricity needs with renewable energy sources, including wind, solar, and bio-mass products, by 2020.

Using bio-mass energy as an electricity source provides a very unique set of benefits for both individual families and communities. The Sierra Club notes if we are able to meet the U.S. Department of Energy's timeline, the average family could save \$350 per year on heating and electricity bills by 2020. Much like ethanol, bio-mass fuels provide farmers with a new market for their crops and could potentially revitalize rural areas and small towns.

A few small communities have already implemented home-grown energy plans by taking on the responsibility of providing their own power through renewable energy. Small to mid-sized cities can use crops and wind power from the surrounding farmland to produce their own energy. This exceptional approach ensures that most

of the economic benefits, such as job opportunities and increased tax revenue stay within the community. In addition, citizens are able to hold more influence in forming local energy policies. Furthermore, these communities are insulated from the price fluctuations experienced by larger communities that get their energy from larger power companies using fossil fuels.

While it may not be surprising that a series of smaller home-grown energy communities will help us decrease our dependence on foreign oil, it is surprising to note it may also help us avoid terrorist attacks. Large, centralized power structures are very inviting terrorist targets. As both the East and West coasts have recently found, outages at only a few strategic substations in a larger centralized power structure can cause widespread blackouts. De-centralized power sources do not have a large-scale effect during outages, making them a less appealing terrorist target.

### The Food vs. Fuel Debate

Some experts worry that a rush to use bio-fuels will increase world hunger. In an interview with the Canadian Press in October 2006, Lester Brown of the Earth Policy Institute claimed the amount of grain used to fill the tank of a typical SUV could "feed a person for a year". He further claims in 2005 the U.S. ethanol industry used 55 million tons of corn, which is more than the entire Canadian harvest. Poor, developing nations already experiencing dire problems with hunger may divert their crops to the bio-fuel market because profits are higher. Mr. Brown is concerned that this will not only increase hunger in those regions, but also to political instability.

Mr. Brown is not alone in his concern. The Environmental News Network observed that a rush to supply crops to the bio-fuel industry will strain and contaminate the world's water supply. Ironically, even Shell Oil, one of the world's largest oil suppliers, has taken the stance that using food crops for fuel is "morally inappropriate".

On the other side, policymakers assert world hunger is due to injustice rather than a shortage in the food supply. In other words, world hunger is a problem of access rather than food production. This school of thought contends there is currently enough food produced to feed the world's hunger, and the potential for economic benefits in the bio-fuel market may off-set hunger problems by providing jobs and revenue.

Peter Kendall, the President of the National Farmers Union in the U.K. claims the use of crops for fuel may actually increase food production in Third World countries. In the many countries including the U.K. and the U.S., food production has been cut back not because of land shortages, but because surpluses have caused grain prices to plummet. Kendall predicts using grain surpluses for fuel will raise demand, thereby raising the price of grains enough to boost the agricultural economies in developing countries.

### Conclusions

Bio-fuels cannot be the only solution to our energy problems. While it will likely provide a big economic boost to mid-western states, ethanol and bio-diesel will not have a large-scale effect on either our dependence on foreign oil or pollution from auto emissions. We must look beyond Iowa to evaluate the effectiveness of bio-fuels. Production of all bio-fuel crops MUST be paired with careful land management to minimize harmful effects on the environment. Most importantly, bio-fuels will only have an impact if they are part of a larger national strategy that includes energy conservation, wind and solar energy, and stricter CAFÉ standards and enforcement.

*Using bio-mass energy could save the average family \$350/year on heating & electricity by 2020.*

## EPA Mytbusters (continued from pg 1)

when underhanded tactics are used to avoid liability. Be sure that this is not always the case, but it happens.

**Myth #3:** *If I want to become an environmental lawyer, I have to work for the EPA, a firm or a nonprofit like the Sierra Club.*

**Fact #3:** You will find environmental attorneys in all areas of the government. The Department of Interior has several different offices where you might find an environmental attorney (Bureau of Land Management and the Department of Agriculture for example). Try looking into the United States Department of Justice. DOJ has its own environmental section (EPA attorneys are administrative while DOJ attorneys are litigators). There are also environmental attorneys outside of the federal government. Look into state and local governments. Every state and most big cities have some type of environmental department.

**Myth #4:** *If I work for the EPA or some other governmental agency, I will have to live in poverty, and my life as an attorney will not be as rewarding.*

**Fact #4:** You won't make millions as a government attorney, but you won't live in poverty (nor on the brink of poverty). Government attorneys' salaries vary by location, but at EPA you will generally bring in about \$50,000/year. This is not poverty. It's not as fancy as salaries at big law firms, and you might be worried about repaying loans. The advice I received from my mentor was to start at a law firm. Pay off my student loans, and then work for a nonprofit or government agency. After you pay off your student loans, you will understand that government salaries are decent.

Rewarding is much more subjective. Environmental justice was the impetus for my enrollment into law school. "True" justice is rewarding to me. I didn't come to law school to make millions (although I would like to live a comfortable life). If doing meaningful work that affects people's lives in a positive way is rewarding to you, then EPA might be your dream job. If making tons of money is rewarding to you, then you might want to try a firm job. I'll leave that up to you.

**Myth #5:** *Once I work for the government, I will be locked in for good. I will never be able to work for a firm or corporation.*

**Fact #5:** Public interest work is an easy way to get into the private industry. Public interest attorneys gain expertise in one area, and firms tend to place attorneys that lateral into their practice from public interest work on the fast track to partnership.

**Myth #6:** *People will view me as a second-rate attorney if I don't work at a big firm.*

**Fact #6:** The benefit of not working at a big firm is that you have the opportunity to specialize in a particular field. Because you become an expert in your particular field, you have the opportunity to conduct many Continuing Legal Education courses. Your expertise usually leads to many contacts as well as national notoriety. I know very few government attorneys who are known as second-rate attorneys.

**Myth #7:** *This is not much meaningful, cutting-edge work as an attorney at EPA.*

**Fact #7:** This is certainly a myth. EPA attorneys work on novel issues all the time. As an intern, I worked on issues concerning trust fund liability under CERCLA, land use restrictions under CERCLA and statute of limitations at federal facilities under CERCLA. All of these issues are novel issues in environmental law. I also had the opportunity to draft the pre-litigation briefs for a major case, which is currently in the United States District Court for the Northern District of California. The case has a pending fine of over \$3.5 million. There are associates at firms that have not had this opportunity, yet as an intern at EPA, I was given this assignment.

**Myth #8:** *No one does any work at the EPA.*

**Fact #8:** Let's be clear! You will work hard as an attorney wherever you decided to become employed. Attorneys make good money, and you will be expected to do good work. I enjoyed long lunches, a flexible schedule, a casual atmosphere, midday ball games and various days of nothingness while at EPA. I can also tell you that nobody can throw a party like the people at the EPA. Nonetheless, there were days when I worked close to twelve hours. The workflow is funny at EPA, and you can't predict when you will be overwhelmed by work. So what is the difference between EPA attorneys and firm attorneys? Billable hours. I never felt like I was under the gun. I worked long hours because I was committed to my cases. I didn't feel like I had to be around to impress the powers that be. There is one caveat: like all jobs you are expected to maintain top quality work. This seems like a small deal, but no amount of money is equal to peace of mind.

**Environmental Law Society**  
[law-els@uiowa.edu](mailto:law-els@uiowa.edu)  
[www.law.uiowa.edu/groups/els](http://www.law.uiowa.edu/groups/els)

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