Energy Shift®

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Ethanol From Garbage or Algae Allows Corn to Remain Available as a Food

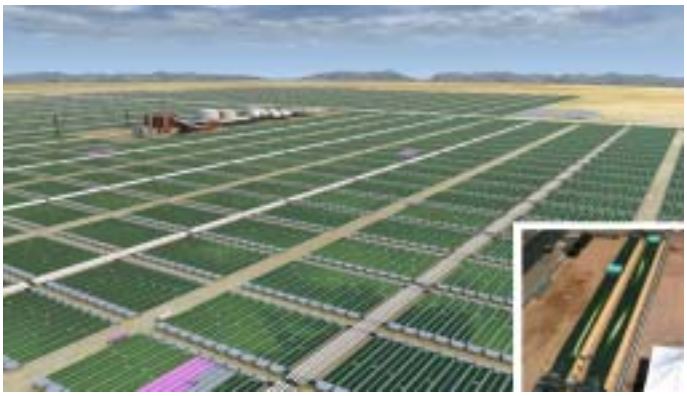
It's true that there is some science yet to be ironed out, and where the methods appear to be soundly developed and proven there is the immense ramping up of scale to consider. But making ethanol out of garbage or algae may prove to be one of the greatest accomplishments of the human race.

Ethanol from any source is appealing since it is safe to handle and biodegradable; it quickly breaks down into harmless substances if spilled. Ethanol reduces carbon monoxide and other toxic pollution from the tailpipes of vehicles, making the air cleaner. It keeps engines running smoothly without the need for lead or other chemical additives.

While some plan to continue with the relatively familiar resource, corn, for the large-scale manufacture and distribution of a homegrown alternative to petroleum, there are just too many negatives associated with corn-based ethanol:

- Corn-based ethanol provides only 1.5 times the energy that was needed to produce it, while sources like garbage provide 6 to 8 times the energy. Algae reportedly will provide many hundreds of times the energy;
- It literally diverts corn from the world food supply;
- It requires large amounts of land, fertilizers and pesticides (made from petroleum) to grow;
- Unlike garbage and algae, it is not produced in large quantities in all regions of the country; and
- Corn can only be harvested when the crops are ready. Garbage and algae are produced literally overnight.

The possibilities reported for the flexibility and efficiencies associated with algae-based ethanol are huge and exciting. The win-win scenario of providing a large-scale and widespread source of transportation fuel while providing a productive end-use for garbage that, to date, has been a liability to manage is spectacular. While vehicles should be produced that are as efficient as we can make them, the development of garbage and algae-based ethanol can help lessen the inevitable pricing of transportation fuels out of reach for the average consumer or the devastating effects those prices would have on getting goods to market.



Solix Biofuels in Fort Collins, CO is a leading algae-based ethanol company.

Burgeoning Greenway Movement Provides Alternative to Using the Car

A greenway typically is used as a path for walkers and bicycle riders and provides a green space in an urban environment. The development of greenways is on the rise all over the U.S. and throughout the world. Appearing in areas ranging from Boston, to St Louis to San Francisco—greenways are also popping up in places like Grand Forks, North Dakota, and Maryville, Tennessee.

The East Coast Greenway is the nation's first long-distance urban trail system, a city-to-city transportation corridor for cyclists, hikers, and other non-motorized users. By connecting existing and planned trails, a continuous, safe, green route 3,000 miles long is being formed linking Calais, Maine at the Canadian border with Key West, Florida. Twenty-one percent of the route is along off-road trails and the goal is for it to be entirely off-road and traffic-free. Going through the heart of 25 major cities along the eastern seaboard, it will offer varied experiences: at times in urban areas, winding through suburban neighborhoods, also traveling into relatively rural areas. It will enable users to travel short distances from their homes to work or other local

The 3,000 mile East Coast Greenway will eventually include only off road paths and goes through 25 major cities.

points of interest, and tourists to travel for a few days or even weeks to explore the varied history and culture found throughout the East Coast region.

Another organized movement that is adding pathways for non-motorized transport around the country is Rails to Trails Conservancy. Go to http://www.traillink.com/ to find the converted railroad tracks near you. TrailLink.com is a free service this group provides. They lead the nation in assisting local communities in converting unused railroad corridors into community greenways.

Paspalum Grass Provides Low Maintenance and Heartiness for Southern and Coastal Areas

Maintaining beautiful green grass is essential to any golf course. Many other commercial grounds also include large expanses of green grassy areas. While better landscaping choices are one way to reduce the demands of keeping up a picture perfect green, there will always be a demand for them—so why not select a grass that offers significant savings in time, money, and the use of fertilizers.

Where traditional grasses were wiped out by saltwater flooding, requiring massive energy use in tearing out and rebuilding the green; paspalum bounces back in days. Another feature of this type of grass is its ability to accept, even affinity for, grey water.

The University of Florida's agricultural extension service reports that, "While [seashore paspalum] has initially been marketed for golf course and athletic field use, it has good potential for use in the home lawn market as well. Some of the advantages for use of seashore paspalum in a home lawn situation include:

- Excellent tolerance to saline or recycled water;
- Excellent wear tolerance;
- Good tolerance to reduced water input, but does require water to remain green;
- Relatively low fertility inputs needed to produce a dense, dark green lawn;
- Few insect and disease problems in most environments;
- Tolerates a wide pH range;
- Can grow well with potable (drinking) water as well as poor quality water;
- Tolerates extended periods of low light intensity, such as from prolonged cloudy or rainy periods;
- Dense growth habit discourages weed competition; and
- Produces a dense root system, which is important in giving turfgrass good tolerance to most stresses."

A close up view of Seashore paspalum; a low energy alternative to traditional grasses.

Interconnectedness (in'ter ke nek'tid nis), n. the quality or condition of being interconnected; interrelatedness; the interconnectedness of all nations working toward world peace. [1920-25; INTERCONNECT + -ED + -NESS] From the Random House Dictionary of the English Language, Second Edition, Unabridged.

Put down your bottled water and take a break from spreading that pre-emergent weed and feed…. and consider this:

We may be feeling our addiction to oil at the gas pump these days, but if you really want to know how our day-to-day existence will change when we get serious about moving away from an oil based economy think about how many everyday products we use come from petroleum. If the fact that the bottle part of bottled water is made of distilled petroleum wasn't enough to get you to think twice before using one, maybe reports about the negative health effects from the use of such plastic bottles due to the chemicals in the plastic leaching out into the water in the bottle will. Similarly, pesticides and fertilizers are also made from petroleum. In addition to pesticide and fertilizer ingredients coming from that increasingly expensive barrel of oil, their use results in the systematic dispersal of toxic chemicals over much of the land on the planet. Yes, those of you who feel the chemical assistance you apply to your little lawn just doesn't matter, are wrong -- the amount of fertilizers and pesticides used on residential lawns is ten times the amount of pesticides as fertilizers used in agriculture. Go to www.safelawns.org and take a moment to find out about alternatives to petroleum based lawn care products. Then, get yourself a glass of water.

Alternative Use for Old Tires Helps to Save Street Trees

In many parts of the U.S. we have an old tire problem. Piles of tires collect quickly as the many millions of car and truck drivers all over the nation change vehicle tires out routinely. These piles collect rainwater, where mosquitoes breed. The piles also provide shelter for rodents; infrequently, but with great consequence, they catch fire.

The Environmental Protection Agency reports that tire fires frequently require neighborhood evacuations and long, drawn-out fire extinguishing operations. These fires threaten pollution of the air, soil, and water. EPA, states, municipalities, and private companies have spent millions of dollars cleaning up tire fires across the country. The high petroleum content of old tires is illustrated by the Rubber Manufacturers Association statistic stating that the average passenger car tire is estimated to produce over 2 gallons of oil when burned (Source: RMA April 2003).

There is a great way to reuse these old tires that saves trees so that they cannot only enhance and beautify communities but also produce oxygen and utilize carbon dioxide (a greenhouse gas) in the atmosphere.

Rubbersidewalks, Inc. has a rubber tire paving system that is good for the environment—but it is especially good because of its beneficial reuse of a portion of the massive quantity of used tires out there. Others have shredded old tires to include as feedstock in waste-to-energy boilers, although the btu (British Thermal Unit, or heat value) of shredded tires is excellent, burning them contributes to pollution and emits greenhouse gases.

Rubbersidewalks have been shown to:

- Reduce damaged sidewalk repair and replacement costs;
- Divert one passenger vehicle tire from disposal for every one square foot of paving;
- Preserve trees that contribute to clean air and public health;
- Eliminate broken sidewalks due to tree roots and freezing;
- Eliminate trip and fall accidents;

- Provide easy remove-and-replace for periodic tree and root inspection or access to utilities;
- Be safe, non-toxic, and flame resistant; and

Be resilient, firm, and comfortable for healthier walking and jogging.

Go to www.rubbersidewalks.com/ for more information.

Waste tires become sidewalk material, shown above, that help local governments better manage upkeep of their infrastructure.

Something to Think About

Are you ready for a tankless water heater? Tankless water heaters provide hot water on demand, and save energy by eliminating the large quantity of hot water that is heated for extended periods of time with traditional tanks. Consider the inefficiency of a 30 or 50-gallon tank of hot water being kept at 120 to 140 degrees all day long with no one home, or all night while your are sleeping, not requiring hot water. Pumps are available as an added device that eliminate the potential waste of water from running the faucet until the heated water finally reaches the location where it is wanted. Combine a tankless water heater with a solar hot water system and you can reduce your hot water expenses dramatically, allowing your tankless system to only make up the difference between the solar heated water and desired temperature. During milder weather, there may be no added energy needed at all.

A Good Book

Consider the book, *Solar Revolution: The Economic Transformation of the Global Energy Industry* by Travis Bradford for your next read. Although a bit technical, this book is written by a corporate finance type who outlines why solar energy will become the best and cheapest energy choice over the next couple of decades. Using business and economic forecasting models, Bradford explains how we will "get there from here". At a time when the momentum toward an energy shift does not seem to be as strong as it should be, this book provides a convincing discussion of how the transition to solar power will occur.

Energy Shift wants to help you put words into action. Begin your own personal energy shift! If you are already well on your way, share these ideas with others. Sometimes the best way to help someone get started is to give him or her something useful (like a cloth shopping bag or insulated outlet cover) instead of simply talking about making a change.

Place your orders by using the Energy Shift web site, www.energyshift.us or place your order by U.S. mail to:

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