El Paso Inc.

News Article

Energy in the Desert: the promise of biofuels

By Paul Maxwell
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During the presidential campaign, both candidates promised to develop "green" economies by creating new domestic industries and thousands of jobs.

These investments would help solve our economic crisis while reducing green house emissions and foreign oil dependence through domestic alternative energy sources.

If a melting stock market and financial crisis were not enough incentive, oil prices soaring to $140 a barrel and gas prices moving to $5 a gallon only underscored the need to "go green."

No one expects the current low fuel prices to remain and our national fixation on cars and trucks requires new sources of liquid fuel.

Though "Drill, baby, drill!" resonated with some during the campaign, new conventional oil reserves are neither readily available nor sustainable in the long term. Thus renewable biofuels has come to center stage as price and new technologies converge.

When they hear "biofuels," most people think of bioethanol derived from corn or other food crops. Converting food to fuel raises serious social questions ("ethanol is for drinking, not driving"). A recent federal law that restricts corn ethanol to 15 billion gallons of fuel annually means ethanol will only meet roughly one-tenth of U.S. transportation needs.

Experts are looking at other feed stocks for biofuels, including other food crops – soybean oil, castor oil, canola, palm oil, etc. – non-food crops like Camelina or Jatropha, grease and waste oils (biodiesel), crop waste and woody biomass (cellulosic feed stocks) and algae.

In our region, grease and waste oil in the short term, Camelina and Jatropha in medium term and ultimately, algae, are gaining greater attention.

Algae? Interestingly, algae has the greatest long term potential and, ecologically, a unique and innovative niche within our desert Southwest.

Of all the biofuel feed stocks, it has the largest theoretical yield of oil, estimated to be greater than 10,000 gallons per acre annually, compared to only tens to hundreds of gallons per acre annually for corn, canola, camelina and other feed stocks.

It grows readily in our desert soils with brackish water, and requires only sunlight and carbon dioxide as a nutrient. It's estimated that 10 to 15 million acres of algae ponds properly managed would supply all of the U.S. transportation fuel needs now and into the future.

Note this is only a fraction of the estimated 970 million acres of arable land currently used for crops and grazing. From that perspective it would have little to no impact on our agricultural industry.

Remembering that much of the Paso del Norte region was once under an ancient ocean, we have abundant brackish water in our underground bolsons or aquifers, as well as remnant indigenous algae strains waiting to be discovered and exploited.

Because algae uses carbon dioxide as a nutrient, this industry would be a major sequester of this green house gas and also could count as a major credit toward reducing global warming.

The latter point is gaining significant attention from industry and government as the world begins to develop carbon tax and credit policies.

Research institutions, organizations and startup companies are literally blossoming in our region to develop algae-based and other feed stock biofuels.

For example

• Global Alternative Fuels: A startup company located near Sunland Park, N.M., Global specializes in biodiesel fuel derived from waste grease and oils. The product will be sold to Western Refining and will be blended with petroleum diesel and sold in the region. They recently received a $20 million loan from the North American Development Bank, a NAFTA entity supporting environmental projects in the U.S.-Mexico Border region. They are also looking at alternative feed stocks such as Castor beans and Jatropha.

• Valcent Products: Located in Anthony, Texas, this company has commissioned the world's first commercial-scale bioreactor pilot project at its test facility. Their High Density Vertical Bioreactor is designed to produce high yields of algae biomass, which can be processed to produce algal oil for biofuel feedstock, as well as ingredients in food, pharmaceutical, and health and beauty products.

• Energy Conservation Corporation: Located at the Sunland Park, N.M. municipal waste disposal site, is using ethane gas to produce electricity as well as exploring production of liquid and gas biofuels from leachates from the site.

• UTEP and NMSU: Researchers at UTEP's Materials Research and Technology Institute are exploring new algae strains, growth and processing technologies for biofuel commercialization. NMSU's WERC research center is looking at developing new algae biofuel processes and pilot-scale commercialization options. Several projects are underway in collaborations that include researchers at Sandia National Labs and the Department of Energy's facilities in Carlsbad, Artesia and elsewhere.

• Texas A&M: An experimental station in Pecos, working with the U.S. Army, General Atomics Corporation and others, has received funds from the Texas Emerging Technology Fund to conduct research and develop key technologies for algae-derived biofuels.

Many challenges, technical and political, remain to create the type of biofuels industry imagined for our region, but the potential to make the Paso del Norte region the national capital of the biofuels industry clearly exists.
Certainly, the opportunity and the need are present. With appropriate national and regional leadership, investment and innovation, we have the potential to stimulate a new, sustainable energy sector in our region. Our vision and motto should be: "Grow, baby, grow!"
If you are an entrepreneur looking for information on alternative energy commercialization or assistance in developing your technology-based start up, visit the Bi-National Sustainability Laboratory Web site at bnsl.org or call (915) 534-8122.

Information on angel financing can be found on the Camino Real Angels Web site at caminorealangels.com or call (915) 629-6716.

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