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To Whom It May Concern:

The following project is being conducted at NMSU with funding from the U.S. Dept. of Energy and the Air Force Research Laboratory.

Cradle to Cradle: Linking Agricultural Waste Processing with Renewable Energy Production

Algal Bioenergy Program at NMSU

The economic well-being of the modern world is closely tied to reliable sources of affordable energy. Volatility in the petroleum markets and energy security concerns have motivated renewed federal investment in renewable petroleum replacements. NMSU's Energy Research Laboratory is funded by DOE-EERE and the Air Force Research Laboratory to develop sustainable methods for production of liquid transportation fuels from oil-rich microalgae. Microalgae are the most efficient organisms known for production of bio-oil, also known as neutral lipid or fat. There is little concern about resource competition between food and renewable fuel production because microalgae can be grown in salt water on non-arable land. Algal oil can be refined into transportation fuels for cars, trucks, tanks, helicopters and jet airplanes. A group of 10 faculty members representing four colleges are collaborating on all aspects of the project from biology and agronomy to process engineering and techno-economic modeling. The NMSU team has developed an algal cultivation test-bed facility at the Fabian Garcia Agricultural Science Center.

We believe the key to near term economic growth of the biofuel industry in New Mexico is to integrate microalgal oil production with nutrient recovery from municipal and agricultural waste streams. This approach synergistically solves environmental and energy problems in a coordinated and decentralized manner. Our plan is specifically designed to contribute to the bottom line profitability of large farm enterprises, with an intial focus on the dairy industry. The target scale of operations will be dairy farm collectives producing ~750,000 gallons of waste per day. However the basic scheme should be applicable to feedlots, swine, and poultry production and aquaculture alike.

The overall scheme is designed for maximum recycling of materials coupled with local production-and-use logistics to minimize environmental impacts and carbon lifecycle effects. Electricity is produced from gasification of organic wastes while nitrogen and phosphorus and CO2 byproducts are the critical inputs for microalgal cultivation. High-density liquid fuels are produced while avoiding food-fuel resource competition. The technology will directly benefit existing industries, promote rural economic development and environmental sustainability.

http://newscenter.nmsu.edu/news/article/7692/

Sincerely,

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