



Russell Teall, JD
President & Founder
426 Donze Avenue.
Santa Barbara, CA 93101
Office: 805-683-8103
Cell: 805-689-9008
Fax: 805-456-2192
rteall@biodico.com
www.biodico.com

October 16, 2014

Katrina Sideco
California Air Resources Board
P.O. Box 2815
Sacramento, CA 95812

Via email to: ksideco@arb.ca.gov

RE: Low Carbon Intensity Fuel Availability

Dear Ms. Sideco:

This letter is submitted on behalf of our company Biodico Sustainable Biorefineries, to provide input regarding the availability of low carbon intensity fuels to supply the California market. The availability of low carbon fuels is an important issue under consideration by the Air Resources Board ("ARB") as it will likely impact the determination of the carbon intensity compliance curve. The issue was discussed in the Low Carbon Fuel Standard ("LCFS") workshop held on September 25, 2014.

Biodico has two 10,000,000 gallon per year biodiesel production facilities under construction in Port Hueneme (Ventura County) and Five Points (Central Valley), California. Our Five Points facility is fully permitted and will come on line during the first quarter of 2015, and will also produce 1,000,000 gge of biomethane for transportation use and 4 GWh of renewable heat and electricity to support the needs of the biodiesel plant, an adjacent ethanol plant, and Red Rock Ranch which is the farm operation where we are located. Our facility at Port Hueneme is fully permitted and being built in conjunction with the Naval Facilities Engineering and Expeditionary Warfare Center. It is expected to be operational by the second quarter of 2015.

The LCFS program is crucial for low carbon fuel producers and suppliers. The LCFS has sent a strong market signal that there is a reliable demand center for low carbon fuels. In addition, the carbon intensity structure of the LCFS program has provided a premium value based on the precise carbon intensity of the particular fuel. This has incentivized producers to find ways to

more efficiently produce fuel regardless of the type of low carbon fuel produced.

We appreciate this opportunity to submit a comment to the Air Resources Board. We recognize the leadership that California has shown in reducing the carbon intensity of transportation fuels. Please let me know if any clarification of this comment would be helpful.

Sincerely,

A handwritten signature in blue ink that reads "Russell Teall". The signature is written in a cursive style with a large initial "R".

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Russell Teall is the President of BIODICO a company which he founded for the purpose of developing and commercializing bioenergy system technology. Under Dr. Teall's leadership Biodico has successfully evolved patented biorefinery production techniques for a wide variety of feedstocks. Beginning with laboratory-scale demonstrations, these technologies eventually led to full-scale commercial operations in California, Nevada, Colorado, Texas and Australia. These plants utilized Teall's patented process with capacities of 3-10 million gallons per year and produced biodiesel predominantly from recycled fryer oils, with the capability of using a wide variety of other feedstocks, including crude vegetable oils and animal fats. BIODICO is continuing to actively develop improvements to the bioenergy system platform in conjunction with the U.S. Navy at the Naval Facilities Engineering Expeditionary Warfare Center at Naval Base Ventura County in Port Hueneme, California where a production unit is being used for research and development involving innovative renewable energy technologies. The most recent generation of equipment, the ARIES[®] Platform brings automation and remote real-time sensing to bioenergy production as part of an integrated self-sustaining system, utilizing anaerobic digestion, gasification, solar, combined heat and power, and advanced algae cultivation (algaculture).



Jatropha, Algae and Anaerobic Digestion: Dr. Teall has been working on jatropha as a biorefinery feedstock since 2002 as part of a study in India funded by the U.S. Agency for International Development and the U.S. Trade Development Agency. This comprehensive study analyzed the types of jatropha available and the economics of jatropha cultivation, harvesting, and processing. Subsequent jatropha studies, test plots and cooperative research have been undertaken in the U.S., Bolivia, Haiti, Paraguay, Mexico, Malaysia, the Philippines, Thailand, Ghana and China. Dr. Teall has also conducted extensive research and development programs with algae and other aquatic species in both open ponds and photobioreactors, and is in the process of commercializing these technologies at the National Environmental Technology Test Site, jointly administered by the U.S. Departments of Defense and Energy, and the U.S. Environmental Protection Agency, located at Naval Base Ventura County. Dr. Teall's research group has extensive experience with anaerobic digestion from small village sized bladders, to large commercial facilities in Los Angeles, Texas and Singapore utilizing waste water treatment effluent, restaurant food waste and agricultural by-products such as manure.

Background in the Bioenergy Industry: Dr. Teall has over twenty years of experience in all aspects of the bioenergy industry. He is the former Vice-Chairman of the National Biodiesel Board ("NBB," the trade association for the biodiesel industry in the U.S.) and former Chairman of NBB's Legislative/Regulatory Committee, and is currently President of the California Biodiesel Alliance. Dr. Teall serves on the Afghan Energy Project Technical Advisory Board under the Office of the Chief Scientist of the Central Intelligence Agency, and serves on the California Air Resources Board Low Carbon Fuel Standard Advisory Panel. Dr. Teall has provided biorefinery consulting services to private companies, governments and trade associations throughout the world, including the U.S., Argentina, Australia, Bolivia, Canada, China, Dominican Republic, Ghana, Haiti, Hong Kong and the PRC, India, Israel, Malaysia, Mexico, the Philippines, Singapore, South Africa and Thailand.

Education: Dr. Teall is a graduate of the University of California at Santa Barbara (1974), and holds a Juris Doctor degree from the University of California at Berkeley (1977).

Red Rock Ranch Project: The Red Rock Ranch project began nine years ago between Biodico and John Diener of Red Rock Ranch, a 5,400 acre ranch originating with the Diener family in 1927. John Diener has been an innovative leader in California agriculture focusing on sustainable water and land management, and renewable fuel and power. A selenium bioremediation project in 2005 brought Teall and Diener together to grow canola on selenium contaminated soil for bioremediation and producing animal feed and biodiesel. Currently Red Rock Ranch serves as a demonstration and validation site for the US Navy for various feedstock, biofuel and bioenergy technologies. It showcases an integrated approach to distributed biofuel and bioenergy production, and includes feedstock research at the adjacent UC Davis agricultural research station, biodiesel and ethanol production from sustainable resources, and renewable cogeneration through gasification of dry agricultural waste such as almond and walnut orchard prunings, anaerobic digestion of wet agricultural waste, and solar combined heat and power. The figure below show a diagram of the integrated system approach.

